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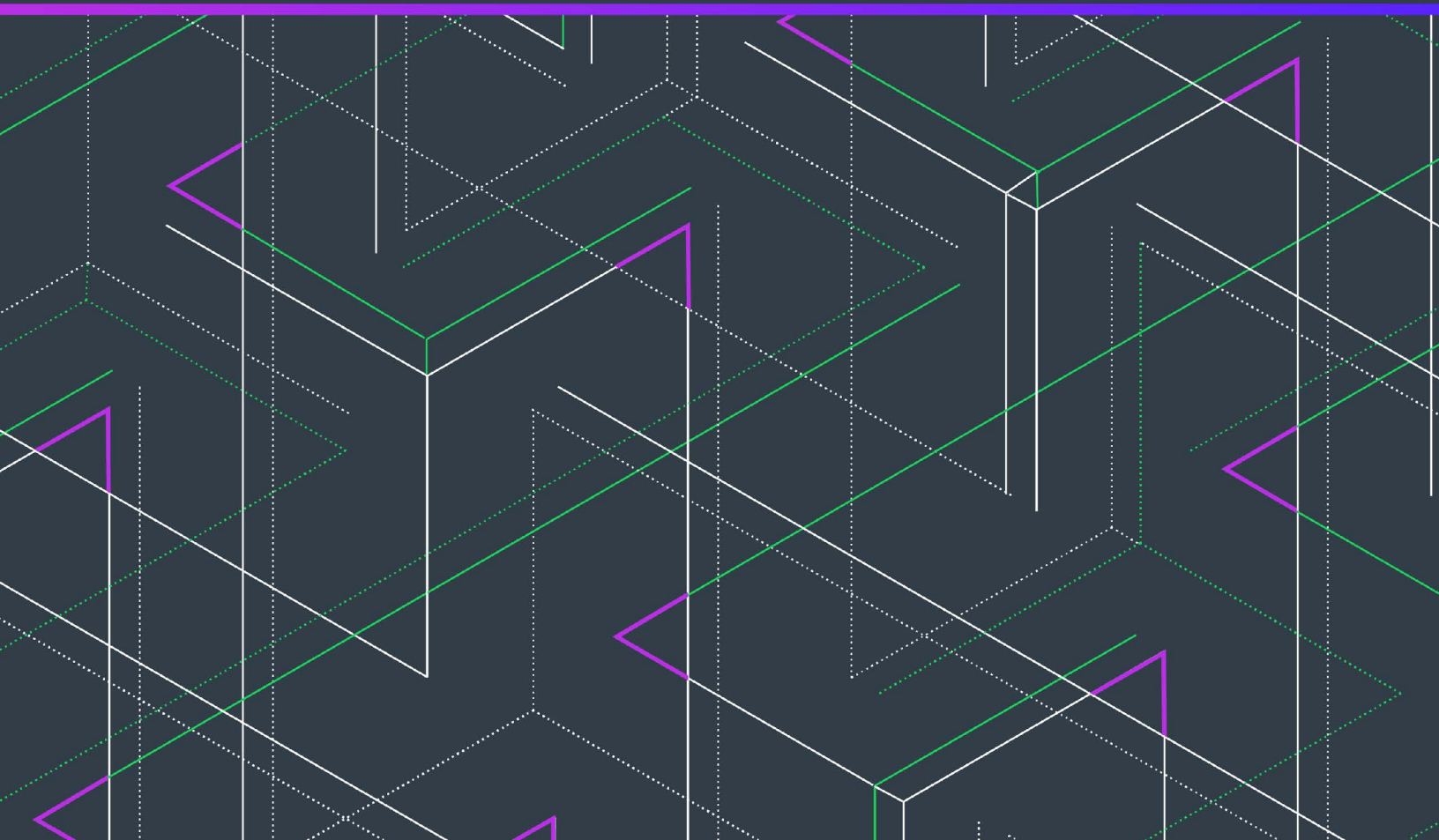
FlexNet Operations 2021 R1 On Premises

User Guide



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1

FlexNet Operations 2021 R1 On-Premises User Guide

FlexNet Operations is a Web-based application that supports the integration of software license delivery into the business operations of software publishers and device manufacturers. This section provides a high-level overview of FlexNet Operations, a brief discussion of its environments, and previews the concepts and information covered in other sections of the online help.

The remainder of the user guide is organized into the following sections.

Table 1-1 ▪ FlexNet Operations User Guide

Section	Description
Using FlexNet Operations	Discusses the tasks associated with using FlexNet Operations to manage the licensing of software products and devices. • Packaging Products • Entitling Customers and Activating Licenses • Supporting Licenses • Managing Devices • Managing Usage • Managing Accounts and Users • Branding the End-User Portal

Table 1-1 ▪ FlexNet Operations User Guide

Section	Description
Getting Started	This section explains fundamental concepts, and provides exercises to help you get started using the basic features of FlexNet Operations. • Getting Started with FlexNet Embedded Licensing • Getting Started with FlexNet Publisher Trusted Storage-Based Licensing • Getting Started with FlexNet Publisher License File-Based Licensing • Getting Started with Non-FlexNet Licensing Technologies • Getting Started with Cloud Licensing Service • Getting Started with Entitlement Management • Getting Started with Electronic Software Delivery • Getting Started with Usage Management • Getting Started with FlexNet Customer Growth • Getting Started with Advanced Organization Management
Administrator Reference	This section identifies FlexNet Operations administration processes—such as managing system configuration, license technologies, device and license server setup, and email templates—and describes how to perform those administration tasks. • Configuring FlexNet Operations • Performing Administrative Tasks

Introduction to FlexNet Operations

FlexNet Operations is a Web-based application that supports the integration of software license delivery into the business operations of software publishers and device manufacturers. It allows vendors to automate the stages of the software license lifecycle, which is illustrated in the following figure:

Figure 1-1: Software License Lifecycle Stages

The following table describes the stages of the software license lifecycle.

Table 1-2 ▪ Stages of the Software License Lifecycle

Stage	Description
Create Products	Create product definitions that are used to generate licenses.
Order/Entitle	Define an account's rights to obtain licenses for your products.
Deliver/Install	Deliver the application software to the customer and install that software.
Activate	Deliver licenses to the customer.
Return/Rehost	Manage license transfers from one user or system to another.
Maintain/Update	Deliver software updates to the customer.
Upsell/Renew	Renew the customer's licenses, or sell the customer additional product functionality.

FlexNet Operations Home Page

The home page for FlexNet Operations displays the following information:

Table 1-3 ▪ FlexNet Operations Home Page

Widget	Description
Alerts	A list of the most recent alert activity. Click **See All** to go to the **Alerts** page to see all the alerts.
Announcements	A list of any announcements regarding the FlexNet Operations portal.
QuickSearch	Enables quick access to searches for Entitlements, Licenses, Devices, Customer Users, Customer Accounts and Products. Once you have selected a search type, use the drop down boxes and text box to further define your search criteria.
Account Health	Provides an at-a-glance view of over all Account Health, Renewal Risk and Consumption Health for all accounts. For details on the features of the Account Health information, see Account Health. Click **Health Dashboard** to go to the **Health Dashboard** page.

FlexNet Operations Environments

FlexNet Operations has two environments:

- User Acceptance Testing (UAT)
- Production (PROD)

About Your Site ID

The URLs for the entry points into the FlexNet Operations systems use a site ID, which is supplied by Revenera. This ID is usually your organization's **DNS name**, but can also be the **Tenant ID** that was assigned to your organization when FlexNet Operations was first implemented, and would have the format **flex*NNNN***.

For example, the URL for the FlexNet Operations Producer Portal for the company ABCD with the tenant ID of 1234 might appear as follows:

Method	Site ID in URL
Using the DNS name	`https://ABCD-fno.flexnetoperations.com/flexnet/operations`
Using the Tenant ID	`https://flex1234-fno.flexnetoperations.com/flexnet/operations`

User Acceptance Testing (UAT)

The UAT environment is a place to perform configuration, integration development, testing, and training. The following URLS are entry points into the FlexNet Operations system.

Table 1-4 ▪ FlexNet Operations UAT Environment URLs

Use	URL
Producer Portal (you)	`https://<siteID>-fno-uat.flexnetoperations.com/flexnet/operations`
End User Portal (end customers and channel partners)	`https://<siteID>-uat.flexnetoperations.com/flexnet/operationsportal`
FlexNet Embedded Activation Endpoint	`https://<siteID>-uat.compliance.flexnetoperations.com/deviceservices`
Cloud Licensing Service Module Endpoint	`https://<siteID>-uat.compliance.flexnetoperations.com/instances/<CLS instance ID>/request`
Download Packaging Service	`https://<siteID>-fno-uat.flexnetoperations.com/flexnet/services/v2/DownloadPackagingService`
Electronic Software Delivery FTP Site	`uploaduat.flexnetoperations.com`
Notification Server	`https://<siteID>-ns-uat.flexnetoperations.com/`

Note ▪ *For more information on `<siteID>`, see About Your Site ID.*

Production (PROD)

The Production instance is for customer entitlement management and licenses, usage, and delivery activities. The following URLS are entry points into the FlexNet Operations system.

Table 1-5 ▪ FlexNet Operations Production Environment URLs

Use	URL
Producer Portal (you)	`https://<siteID>-fno.flexnetoperations.com/flexnet/operations`
End User Portal (end customers and channel partners)	`https://<siteID>.flexnetoperations.com/flexnet/operationsportal`
FlexNet Embedded Activation Endpoint	`https://<siteID>.compliance.flexnetoperations.com/deviceservices`

Table 1-5 ▪ FlexNet Operations Production Environment URLs

Use	URL
Cloud Licensing Service Module Endpoint	`https://<siteID>.compliance.flexnetoperations.com/instances/<CLS instance ID>/request`
Download Packaging Service	`https://<siteID>-fno.flexnetoperations.com/flexnet/services/v2/DownloadPackagingService`
Electronic Software Delivery FTP Site	`upload.flexnetoperations.com`
Notification Server	`https://<siteID>-ns.flexnetoperations.com/`

Note ▪ *For more information on `<siteID>`, see About Your Site ID.*

About Download Management and FlexNet Electronic Software Delivery

FlexNet Electronic Software Delivery (requires the Software Delivery module) adds electronic download support to FlexNet Operations. Producers who use FlexNet Operations with FlexNet Electronic Software Delivery define their downloads as part of the product packaging process. The downloads they specify are available to entitled end users in the End-User Portal.

Downloads are specified as download packages. A download package describes a group of files and relates that group with a product, a producer, and, optionally, a license agreement.

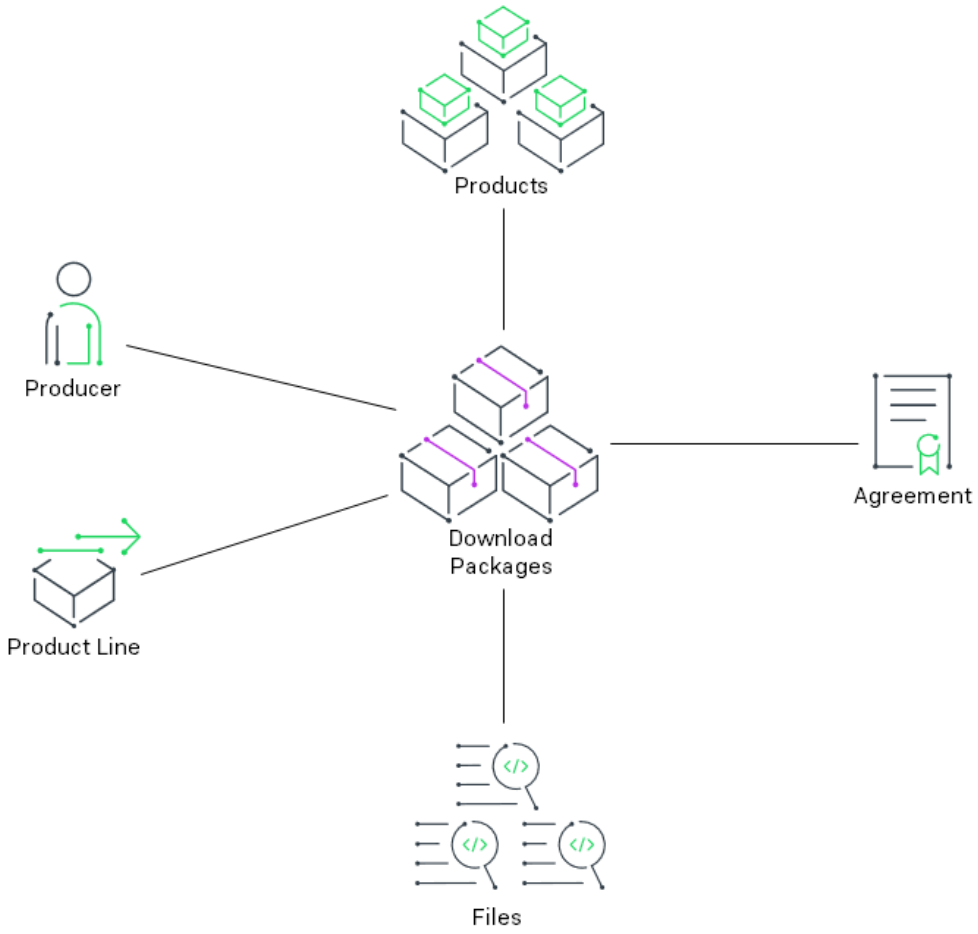


Figure 1-2: Download packages

A product can have many download packages, and download packages can be associated with one or more products. Download packages collect files into groups that might comprise a software release, a component, or any other grouping that fits your account's needs.

For producers who use FlexNet Operations with FlexNet Electronic Software Delivery, the Producer Portal includes features for managing download packages, files, agreements, and producers. The Products menu includes links for creating and managing these items. Also, product lines, which are otherwise optional, are required for producers who use FlexNet Electronic Software Delivery.

For more information about download management, see the following sections in Packaging Products:

- Managing Download Packages
- Managing Download Files
- Managing License Agreements
- Managing Producers

Tip ▪ *Export compliance prevents the delivery of files to residents of certain countries, in keeping with U.S. restrictions on the sale of regulated technologies to these countries. The user-configurable export compliance*

settings are managed at the download package level. For more information about export compliance, see About Export Compliance.

About FlexNet Usage Management

FlexNet Usage Management adds usage management support to FlexNet Operations. In conjunction with FlexNet Embedded licensing, FlexNet Usage management includes the ability to set up usage-enabled license models, products, license servers and view usage history reports in the FlexNet Operations Producer Portal.

FlexNet Operations and FlexNet Usage Management help application producers maximize software revenues and eliminate revenue leakage through new support of increasingly popular usage-based trust but verify, pay-for-use, and pay-for-overage models. FlexNet Usage Management provides application producers the flexibility to implement any software licensing model across the entire spectrum—from strict enforcement to usage-based, trust but verify.

In FlexNet Operations, usage management functionality is integrated with license models, features, products, and other components, and supported on FlexNet Embedded hosts, devices, and license servers. In the Producer Portal, usage reports are available from the Usage menu. (See Managing Usage.) In the End-User Portal, users in customer accounts can view usage reports for their account.

Product Support Resources

The following resources are available to assist you with using this product:

- Revenera Product Documentation
- Revenera Community
- Revenera Learning Center
- Revenera Support

Revenera Product Documentation

You can find documentation for all Revenera products on the Revenera Product Documentation site:

https://docs.revenera.com

Revenera Community

On the Revenera Community site, you can quickly find answers to your questions by searching content from other customers, product experts, and thought leaders. You can also post questions on discussion forums for experts to answer. For each of Revenera's product solutions, you can access forums, blog posts, and knowledge base articles.

https://community.revenera.com

Revenera Learning Center

The Revenera Learning Center offers free, self-guided, online videos to help you quickly get the most out of your Revenera products. You can find a complete list of these training videos in the Learning Center.

https://learning.revenera.com

Revenera Support

For customers who have purchased a maintenance contract for their product(s), you can submit a support case or check the status of an existing case by first logging into the Revenera Community and then making selections on the **Get Support** menu, including **Open New Case** and other options.

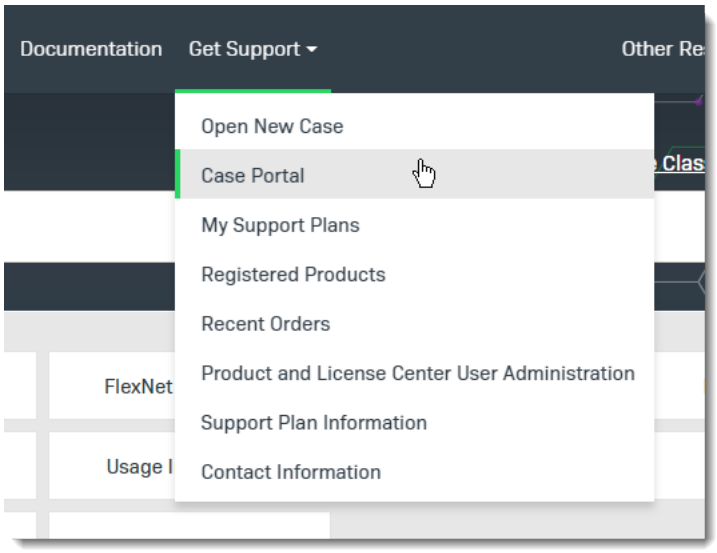


Figure 1-3: Get Support Menu of Revenera Community

Contact Us

Revenera is headquartered in Itasca, Illinois, and has offices worldwide. To contact us or to learn more about our products, visit our website at:

http://www.revenera.com

You can also follow us on social media:

- Twitter
- Facebook
- LinkedIn
- YouTube
- Instagram

Part 1
Using FlexNet Operations

This part of the FlexNet Operations User Guide includes the following sections:

- Packaging Products
- Entitling Customers and Activating Licenses
- Supporting Licenses
- Managing Devices
- Managing Usage
- Managing Accounts and Users
- Branding the End-User Portal

2

Packaging Products

Packaging products is the process of creating product definitions that are used to generate licenses.

Products are built up from features and feature bundles and linked to one or more license models to define how they can be used. Products can also be assembled into groups of products called suites.

During the product packaging process, you create features, feature bundles, products, and suites, and when doing so specify upgrade, upsell, and other relationships between those products and suites to capture your overall product hierarchy within FlexNet Operations.

***Note** ▪ Maintenances are special types of products. Maintenance products define maintenance or support plans that can be tied to regular products.*

See the following sections for details about the tasks involved with the product packaging process:

Table 2-1 ▪

Topic	Description
About Packaging Products	Discusses general product packaging concepts. This section also includes subtopics dedicated to trial product and download management concepts. ● About Trial Products ● About Download Management: FlexNet Electronic Software Delivery Components
Working with Features	Includes information about viewing, adding, and managing features.
Working with Feature Bundles	Describes creating and managing feature bundles.
Working with Products	Discusses product creation and management.
Working with Suites	Explains how to build and manage a group of products.

Table 2-1 ▪

Topic	Description
Working with Maintenances	Discusses the use of maintenance products.
Managing Part Numbers	Discusses the optional use of part numbers to tie your products to your accounting system.
Managing Product Lines	Discusses the optional use of product lines to help organize your products into groups.
Managing Download Packages	Discusses how download packages are used, how they interact with products and files, and how they are rendered to End-User Portal users.
Managing Download Files	Addresses adding and uploading of files, associating files with download packages, and other file management concepts and tasks.
Managing License Agreements	Covers the creation and maintenance of licensing agreements and how they are related to download packages.
Managing Producers	Explains how to add producers in the Producer Portal and how producers are related to download packages.

About Packaging Products

In FlexNet Operations, you define your products as a collection of features that can be licensed and ordered as a set. This process of defining your products is referred to as product packaging. The product packaging process is highly flexible and many of the steps are particular to the licensing technology and models you support. Please first read the getting-started section specific to your licensing technology and follow the exercises there before packaging your products.

Discussion of the product packaging process is divided into the following groups:

- Product Packaging Concepts
- Example Product Definition
- Product Packaging Overview
- Before You Begin
- Product Packaging Wizard

For a discussion of trial products and how to make products available on the End-User Portal's Trial Registration page, see the subtopic, About Trial Products.

For a discussion of download package and download file concepts, see the subtopic, About Download Management: FlexNet Electronic Software Delivery Components.

Product Packaging Concepts

In FlexNet Operations, a *product* represents a unit that can be ordered and licensed. The product hierarchy is designed to enable modularity and re-use, and to minimize duplication:

- A *feature* represents a licensable capability defined in a software application, and is the basic building block for a product. An example of a feature would be the Add function in a calculator, or the Print function in a word processing program.
- A *feature bundle* is an aggregation of features. Feature bundles are primarily of interest to Product Managers because they facilitate modularity and easy re-use of features across products. In FlexNet Operations, you map features to feature bundles, and then to products.
- A *product* is packaged from individual features or feature bundles and is associated with one or more license models. One or more part numbers can be assigned to a product.
- A *suite* is packaged from individual products that are functionally complementary, and is associated with one or more license models. One or more part numbers can be assigned to a suite.
- A *maintenance* represents the rights to get updates and upgrades to a product. A maintenance can be related to one or more products. One or more part numbers can be assigned to a maintenance product.

To help keep the number of product definitions as low as possible, values of many product attributes can be set at one of several times in the license lifecycle.

Note ▪ *Producers who use FlexNet Operations and FlexNet Electronic Software Delivery (requires the Software Delivery module) can also create download package, files, and agreements. For more information, see About Download Management and FlexNet Electronic Software Delivery.*

Example Product Definition

Consider an application called Sample App 3000. Its features might include, for example:

- Print
- Convert
- Save

The features of your program correspond to features expressed in your license rights as defined by product management. One common practice is to prefix feature names with the product name, as in:

- SampleApp.print
- SampleApp.convert
- SampleApp.save

Another common practice is to define a feature that represents the entire application, checking out this feature when the application initializes, and checking it back in when the application exits. Such a feature might be called `SampleApp.primary`.

Product Packaging Overview

Once you have created and deployed your license technology and license models, you can begin defining your products. Packaging a product is the process of creating a product definition that is used to create entitlements and to generate licenses. The product packaging process includes

- Creating one or more transaction keys (if you use any trusted license models)
- Creating a product line (required for producers who use FlexNet Operations for software delivery)
- Creating the hierarchy of features, feature bundles, products, and suites
- Creating maintenance products
- Associating license models (and transaction keys) with products and suites
- Associating part numbers with products and suites (optional)
- Relating products to other products, suites, or maintenance (optional)
- Associating product lines with products and suites (optional)

Also, in the interface, an optional, four-step product packaging wizard can lead you through creating features, features bundles, products, and suites. (See Product Packaging Wizard.) License models and optionally, part numbers and product lines, are associated with a product in the flow of the wizard, but they must be created outside the steps of the wizard. Creating maintenance products also occurs outside the steps of the wizard.

Before You Begin

Before you start the product packaging process, it is important that you deploy your license technology and at least one license model.

It is also valuable to carefully consider the best way to define and combine your features and products and the best way to license your products.

Please read the FlexNet Operations getting started section particular to your license technology before you package your products.

Product Packaging Wizard

The product packaging wizard is a four-step flow that walks users through pages for

1. Adding features
2. Adding feature bundles
3. Adding products
4. Adding suites

Each step in the product packaging wizard includes a number of sub-steps that are contained in an entity-specific sub-wizard. Even so, the product packaging wizard includes most, but not all, product packaging activities. Some license technology-specific or optional activities are not part of the wizard, but the pages for those activities can be accessed directly from the Products menu. For example, when the product lines feature is enabled, you can map your product to a product line as part of the product sub-wizard; creating the product lines, though, must be done separately by clicking Products > Product Lines and then following the instructions in Managing Product Lines.

The steps and all the tasks each step contains are shown at the bottom of the Package Products page.

Tip ▪ *To open the Package Products page, click* ***Products*** > ***Products****.*

Move from one step to the other using the **Next** button at the bottom of each page.

About Trial Products

Producers can provide free trial registrations for their products. Trial registration allows your customers to acquire temporary license rights to designated products by providing their email address and, optionally, other contact information in the End-User Portal.

How Does It Work?

To support free trials, producers create a custom content page to be a destination where trial users can find your trial products and opt-in to try out those products. This trial registration page shows a list of products that have been made available for trials and requests (at minimum) an email address from the trial user. (Other contact information can also be gathered but is not required, by FlexNet Operations, for the trial registration process.)

After a user selects a trial product, supplies the required contact information, and clicks Complete, the End-User Portal sends them an email message with their End-User Portal login information and entitles them to a trial of the selected product. (The trial period is determined by the product's license model.)

Steps for Supporting Trial Registrations

Supporting trial registrations requires planning and preparation. Producers who want to support trial registrations must perform the following steps to make their products available to trial users:

- Create and deploy the products and license models you want to offer for trial registrations. These can be existing products and license models, but the trial period is based on the expiration in the license model.
- Map part numbers—with **Available for Trial**—to these product/license model combinations.
- Create custom content for the Trial Registration page using the **TrialRegistration** template. This custom content is customizable and brand-able. When published, it shows the trial products and contact information input controls. See About Product Trial Registration Support for details about creating the Trial Registration page.
- Optionally create a trial registration-specific variation of the Welcome Email for End Users email template. The Trial Registration custom content page identifies the template variation to use. Without alterations, trial users receive a message based on the default Welcome Email for End Users template.
- Link prospective trial customers to your Trial Registration page using the Custom Content ID value of your trial registration page.

About Download Management: FlexNet Electronic Software Delivery Components

Producers who use FlexNet Operations and FlexNet Electronic Software Delivery may also create download packages and add files for their users and channel partners to download from the End-User Portal. When packaging products, these producers also create the following:

- Download packages
- Download files
- License agreements
- Producers
- Product lines

The Products menu includes links for creating and managing these items.

Tip ▪ *Some attributes of these electronic software delivery components are localizable in the Producer Portal. Localizable attributes are easy to identify because have show a Show Languages button. When editing a download package or file, click* ***Show Languages*** *to show the fields in which you provide localized values.*

For more information about download management, see About Download Management and FlexNet Electronic Software Delivery.

For more about software-delivery management tasks, see Managing Download Packages, Managing Download Files, Managing License Agreements, and Managing Producers.

Working with Features

This section explains what a feature is and what role it plays in the product packaging and licensing process. The following topics are included:

Table 2-2 ▪

Topic	Description
About Features	Discusses what features are and how they are used in FlexNet Operations.
Viewing Features	Provides basic information about viewing, creating, deleting, printing, and changing the state of a feature.
Creating a Feature	Covers the feature creation process in greater detail.
Reviewing Features	Describes how to review a feature.

About Features

A *feature* represents a licensable capability defined in a software application, and is the basic building block for a product. A feature could represent any of the following:

- a product consisting of one or more components
- a specific version of a product
- a part of a product
- one or more pieces of data (restricted through the access routines)

An example of a feature would be the Add function in a calculator, or the Print function in a word processing program.

Viewing Features

Features can be viewed on the Feature page.

Task ***To open the Feature page***

- Click **Products** > **Features**.

The Feature page automatically displays recently accessed feature bundles, if applicable. To view all features, select **Features** from the **Search For** choice list, and click the **Simple Search** button. You can also search for feature based on specific criteria. The table below describes some of the actions you can perform from the Feature page.

Table 2-3 ▪ View Features Capabilities

Capability	Description
Add a new feature from scratch	To add a new feature, click **Add New Feature**. (See Creating a Feature.)
Make a new feature from a copy of an existing feature	To copy a feature, select exactly one feature and click the **Copy** button. Then, follow the guidelines in Creating a Feature.
Delete a feature	To delete a feature, select one or more features and click the **Delete** button. ***Note ▪*** *Deployed features and features used in device series cannot be deleted.*
Change the state of a feature	To change the state of one or more features, select the features, click the **Change State** choice list, and select a state. Features can be in one of the following states: draft or deployed. A feature is created and can be edited in the draft state. When a feature bundle or product is deployed, all the features it contains are also deployed.
Print a feature	To print a feature, select one or more features and click the **Print** button.

Creating a Feature

You can create a new feature in the Producer Portal from the Feature page of the Package Products pages.

Tip ▪ *Save time by starting with a copy of an existing feature. Select the feature you want to copy, click* ***Copy****, type a new feature name, make any other necessary changes, and save the new feature. This approach can save time and reduce the chance for errors.*

Task ***To create a feature***

1. Click **Products > Features**. This link opens the Feature page.
2. Click **Add New Feature**.
3. Provide values for the following fields:

Table 2-4 ▪ Feature Creation Fields

Field	Description
Feature Name	Name to uniquely identify the feature. The name can contain 30 characters or less when using FlexNet Licensing technology, or 64 characters or less for other licensing technologies. The name cannot contain spaces. The characters can be ASCII characters, numbers, periods, underscores, or hyphens. ***Important ▪*** *For FlexNet Publisher, the supported character set is restricted to lowercase alphabet (a-z), uppercase alphabet (A-Z), digits (0-9), and underscore (_). Other than for legacy applications still in production, the hyphen (-) is no longer supported.*
Version Format Type	Select a Fixed or Date-Based version format. See Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration for more information about this property.
Version	If a Fixed version format is selected, enter the latest (highest-numbered) version of this feature that is supported by a generated license certificate. For FlexNet Licensing technology, the version consists of numbers and at most one decimal point, with a ten character maximum, for example, 1 or 1.5. For custom license technologies, this is a string with a maximum length of 64 characters.
Description	Describe the characteristics of this feature that make it unique.
Units	For FlexNet Usage Management users, Units specifies the units to be used for usage reporting. For example, if your usage-capture clients are capturing usage of data, you may want to label the reported counts as bytes or kilobytes or gigabytes. Units and Scale (below) work together to describe what the metered feature is counting.

Table 2-4 ▪ Feature Creation Fields

Field	Description
Scale	For FlexNet Usage Management users, Scale is the feature scale. It represents how much is a unit for usage reporting purposes. For example, if your usage-capture clients are capturing usage of data in bytes but you want to report usage in kilobytes, enter 1024 for Scale. Units (above) and Scale work together to describe what the metered feature is counting.
State	A feature can be in one of two states—Draft or Deployed. ● **Draft**: A feature is created as a draft that can be modified or deleted. Both draft and deployed features can be added to a feature bundle or a product in a draft state. ● **Deployed**: A deployed cannot be modified or deleted. If a feature bundle or product is deployed, all the draft features it contains are also deployed. After a feature is deployed to use in production, it cannot be deleted or modified. New features start out in a Draft state. A feature's state cannot be changed on the Create a Feature page. To change a feature's state after it has been created, use the Change State control on the Feature page (Products > Features).
Vendor String	Used to override for specifically this feature, a vendor string defined in a license model. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute. Use of this field is controlled by the FlexNet Operations license, and a user must be assigned a role that includes the Set Feature Override permission.
Notice	Used to override for this feature, a notice string defined in a license model. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute. Use of this field is controlled by the FlexNet Operations license, and a user must be assigned a role that includes the Set Feature Override permission.
Serial Number	Used to override for this feature, a serial number defined in a license model. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute. Use of this field is controlled by the FlexNet Operations license, and a user must be assigned a role that includes the Set Feature Override permission.

Table 2-4 ▪ Feature Creation Fields

Field	Description
Counted	Determines whether a feature is counted. Choose from • **Yes** • **No** • **Do Not Override** Choosing a value, other than Do Not Override, overrides the value set in the license model.
Reusable	Determines whether this feature is reusable (only applies to metered features). Choose from • **Yes** • **No** • **Do Not Override** Choosing a value, other than Do Not Override, overrides the value set in the license model.

Table 2-4 ▪ Feature Creation Fields

Field	Description
Client Uniqueness	This property allows you to specify which combination of unique identifiers defines a group. This capability allows multiple members of same group can check out this feature and the checkout count is incremented by 1 only. This property must be used with counted licenses only. For example, if you set this to Group Mask = User, the user can check the feature out as many times as they are required to and they only increment the checkout count by 1. The first time the user checks out the feature, the checkout count is incremented by 1, but subsequent checkouts of that feature on different machines do not affect the checkout count. As another example, if you set this Group Mask = Host, then when the first user checks out a feature from Machine A, the checkout count is incremented by 1. Subsequent checkouts by different users from that same machine do not affect the checkout count. This configuration overrides the value set for the FlexNet license model. Choices include: ● Do Not Override (default): Do not override the configuration defined for the associated license model. ● Group Mask (User, Host, Display, Vendor Defined): Define the combination of criteria that create a unique group. ● None: Each checkout request is uniquely counted. These fields are only valid for FLEX licenses. See also Creating a License Model. ***Note ▪*** *For users of the FlexNet Publisher Licensing Toolkit, consult the documentation on the DUP_GROUP keyword.*

Note ▪ *If necessary, click the* ***Reset*** *button to reset all the feature fields.*

4. Complete the feature creation process by clicking either Save, Next, or Add New Feature.
   - Click **Save** to save the feature.
   - Click **Next** to save the feature and show the Feature Bundles page.
   - Click **Add New Feature** to save the feature and start to create another feature.

Tip ▪ *After a feature has been saved, the history of its state changes can be viewed by clicking the* ***View History*** *button.*

Reviewing Features

After you create features, you can review the features that have been recently created and perform the same operations on them as you can when viewing features.

Working with Feature Bundles

Feature bundles are intended to simplify the packaging process. For example, suppose you provide multiple applications, and every application contains common library, help, and graphics features. Instead of manually adding all three features to each of your products, you can create a feature bundle (perhaps giving it the name `sampleapp.common`) containing the three features, and then add the feature bundle to each product.

Table 2-5 ▪

Topic	Description
About Feature Bundles	Describes feature bundles and their purpose.
Viewing Feature Bundles	Briefly discusses how to view, create, delete, print, and change the state of a feature bundle.
Creating a Feature Bundle	Covers the feature bundle creation process in detail.
Reviewing Feature Bundles	Describes the review step in the feature bundle creation process.
Deploying a Feature Bundle	Describes how to deploy a feature bundle.

About Feature Bundles

A *feature bundle* is a collection of features. Feature bundles are primarily of interest to product managers because they facilitate modularity and easy reuse of features across products. In FlexNet Operations, you map features to feature bundles, and then to products.

Viewing Feature Bundles

Feature bundles can be viewed on the Feature Bundle page.

Task ***To open the Feature Bundle page***

- Click **Products > Feature Bundles**.

The Feature Bundle page automatically displays recently accessed feature bundles. To view all feature bundles, select **Feature Bundles** from the Search For choice list, and click the **Simple Search** button. You can also search for feature bundles based on specific criteria. The table below describes some of the actions you can perform from the Feature Bundles page.

Table 2-6 ▪ Viewing Feature Bundles Capabilities

Capability	Description
Add a new feature bundle from scratch	To add a new feature bundle, click Add New Feature Bundle. (See Creating a Feature Bundle.)
Make a new feature bundle from a copy of an existing feature bundle	To copy a feature bundle, select exactly one feature bundle and click the Copy button. Then, follow the guidelines in Creating a Feature Bundle.
Delete a feature bundle	To delete a feature bundle, select one or more feature bundles and click the Delete button. ***Note*** ▪ *Deployed feature bundles cannot be deleted.*
Change the state of a feature bundle	Feature bundles can be in one of the following states: draft or deployed.
Print a feature bundle	To print a feature bundle, select one or more feature bundles and click the Print button.

Creating a Feature Bundle

You can create a new feature bundle in the Producer Portal from the Feature Bundle page of the Package Products pages.

Tip ▪ *Save time by starting with a copy of an existing feature bundle. Select the feature bundle you want to copy, click* ***Copy****, type a new feature bundle name, make any other necessary changes, and save the new feature bundle. This approach can save time and reduce the chance for errors.*

Task ***To create a feature bundle***

1. Click **Products > Feature Bundles**. This link opens the Feature Bundle page.
2. Click **Add New Feature Bundle**.

3. Provide values for the following fields:

Table 2-7 ▪ Feature Bundle Values

Value	Description
Feature Bundle Name	Name to uniquely identify the feature bundle. The name can contain spaces.
Description	Describe the characteristics of this feature bundle that make it unique.
State	A feature bundle can be in one of two states: ● **Draft**: A feature bundle is created as a draft that can be modified or deleted; draft feature bundles can contain draft or deployed features. A draft or deployed feature bundle can be added to a product in the draft state. ● **Deployed**: If a product is deployed, all the draft features and feature bundles it contains are also deployed. After a feature bundle is deployed to use in production, it cannot be deleted or modified.

4. To add features to the feature bundle, click the **Add Features** button. A pop-up window appears in which you can search for and select one or more of the **Available Features**. Note that the list of features may be large enough to appear on multiple pages in the pop-up window.

   a. Select the features you want to add.

   b. Click the right arrow to move those features to the **Selected Features** list.

   c. When the **Selected Features** list is complete, click the **Add** button to add the features to the feature bundle.

Note ▪ *To remove one or more features from the list of features in the feature bundle, select the features and click the* ***Remove Features*** *button.*

5. On the **Create a Feature Bundle** page, if necessary, modify the **Quantity** to change the count of the feature in the feature bundle.

   For example, say the count of a Feature A is 3 in feature bundle FB1. When one unit of FB1 is added to a product, a license generated for the product contains 3 counts of Feature A.

6. Complete the feature bundle by clicking Save, Next, or Add New Feature Bundle.

   - Click **Save** to save the feature bundle.
   - Click **Next** to save the feature bundle and show the Products page.
   - Click **Add New Feature Bundle** to save the feature bundle and start to create another feature bundle.

Note ▪ *If necessary, click the* ***Reset*** *button to reset all the feature bundle fields.*

Tip ▪ *After a feature bundle has been saved, you can view the history of its state changes by clicking the* ***View History*** *button.*

Reviewing Feature Bundles

After you create feature bundles, you can review the feature bundles that have been recently created and perform the same operations on them as you can when viewing feature bundles.

Deploying a Feature Bundle

Feature bundles can be deployed from the Feature Bundle page (Products > Feature Bundles).

A feature bundle is created in the Draft state. Feature bundles in the Draft state can be edited. Once a feature bundle is deployed, it can no longer be altered. When a feature bundle is deployed, all the features it contains are also deployed. Likewise, when a product is deployed, all the features and features bundles it contains are also deployed.

Task ***To deploy one or more feature bundles***

1. On the Feature Bundle page, select the feature bundles to deploy.
2. Click **Change State** > **Deploy**, and confirm your choice by clicking **OK**. The Deploy Feature Bundles page displays the list of feature bundles, and the undeployed features they contain that will deployed.
3. Click the **Deploy** button to deploy the feature bundles and all their features.

Working with Products

A product is packaged from individual features or feature bundles and is associated with one or more license models. Before you create a product, it is important to create its features and to create the license model used for it.

Product is also used to refer collectively to any of the entities that can be ordered: a product, a suite, or maintenance.

Table 2-8 ▪

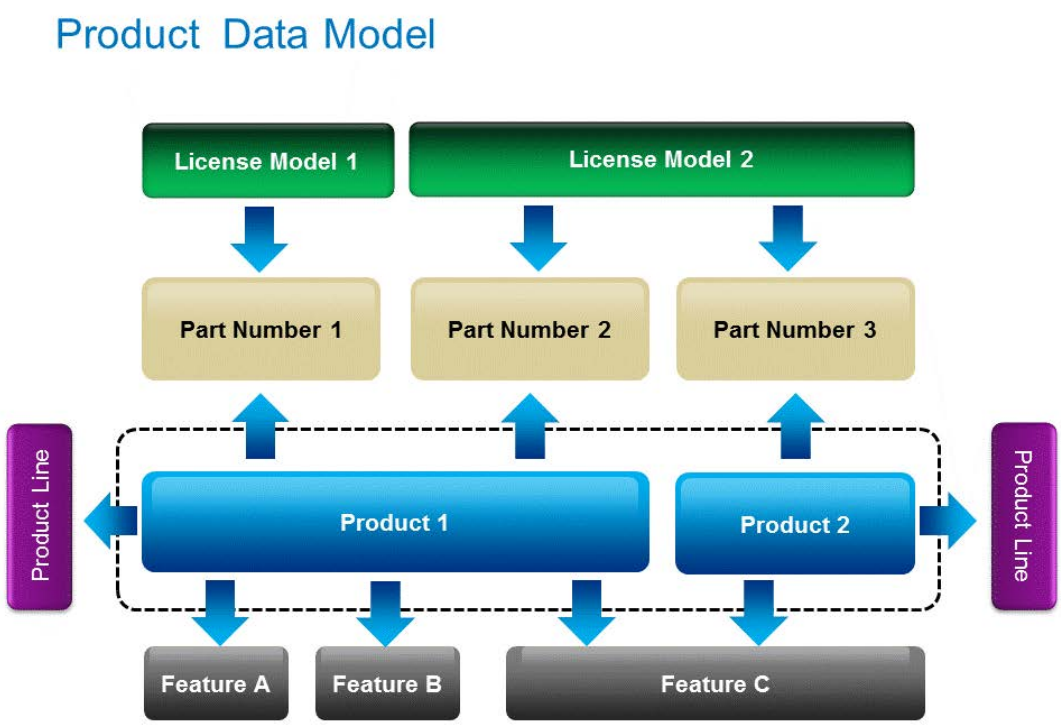
Task	Description
About Products	Discusses products and product creation concepts.
Viewing Products	Explains how to view and search for products on the Package Products page.
Creating a Product	Describes how create a product—either by creating it from scratch or starting with a copy of an existing product.

Table 2-8 ▪

Task	Description
Adding Features or Feature Bundles to a Product	Shows how to add existing features or feature bundles to a product.
Linking License Models to a Product	Discusses how to link one or more license models to a product. A product must be linked to at least one license model before a license can be generated for that product.
Mapping a Product to a Part Number	Discusses how to map products to part numbers.
Relating Products to Other Products	Explains how to create relationships between products. Product relationships are typically used to facilitate upgrade and upsell operations.
Mapping a Product to a Product Line	Describes how to assign products to product lines. Product lines can be used to define access rights to product information as well as for search and reporting purposes.
Reviewing Products	Describes the review step in the product creation process.
Deploying a Product	Discusses how to change a product's state from Draft (initial state for new products) to Deployed (available for entitlements).
Reviewing New Product Hierarchy	Explains how to review the features, feature bundles, and products that comprise the product hierarchy.

About Products

Products are a collection of features linked to a license model. They represent the basic orderable unit in FlexNet Operations. The figure below depicts the relationships among products, features, license models, product lines, and part numbers.



Important ▪ *Prior to creating a product, you must deploy your license technology and at least one license model. You must also create the features that will make up your product.*

A product's attributes vary by the licensing you use and by your needs. There are a number of attributes that are particular to one license technology. There are also a number of optional FlexNet Operations features, such as part numbers and product relationships, that are included in the product creation steps.

Adding a product is the third step in the four-step product packaging wizard. The product creation steps include

- Set product attributes.
- Add features and feature bundles.
- Link license models.
- Map part numbers (optional).
- Specify product relationships (optional).
- Map product lines (see note, below).
- Review product creation.

Note ▪ *Product lines are optional for most producers but required for producers who use FlexNet Operations for electronic software delivery. Product lines tie products to download packages, files, license agreements, and producers. See Managing Product Lines and About Download Management and FlexNet Electronic Software Delivery for more information.*

Viewing Products

This **Package Products** page automatically displays recently accessed products, if applicable.

To view all products, select **Products** from the **Search For** choice list, and click the **Simple Search** button. (Empty searches match all products.) You can also search for products based on specific criteria by

- Specifying some particular value in the search criteria
- Changing the Search For setting to a more specific choice, like Products with Part Number
- Clicking Advanced Search to specify multiple product attributes as search criteria

From the **Package Products** page, you can also perform the following tasks:

Table 2-9 ▪ Viewing Products Options

Capability	Description
Add a new product from scratch	To add a new product, click Add New Product. For details, see Creating a Product.
Make a new product from a copy of an existing product	To copy a product, select exactly one product and click **Copy**. Follow the guidelines to add a new product.
Edit a product	To edit a product, click its name. The product is opened in the wizard.
Delete a product	To delete a product, select one or more products and click the Delete button.
Change the state of a product	Products can be in one of the following states: **Draft**, **Deployed**, **Inactive**, or **Obsolete**.
Print a product	To print a product, select one or more products and click the **Print** button.
Export a product	Products can be exported as .jar files for importing into another instance of FlexNet Operations. For details about the export process, see Importing and Exporting Entities.

Creating a Product

There are several ways to navigate to the page where a new product is created. When creating a new product from the Package Products page, you can either start a new product from scratch or create a new product from a copy of another product.

Task ***To create a new product***

1. Click **Products > Products**. This opens the Package Products page.
2. Click the **Add a new product** button.

Follow the steps below to create the product.

Task ***To copy an existing product***

1. Click **Products > Products**. This opens the Package Products page.
2. Search for a product to copy.
3. Select the product and click the **Copy** button.

Follow the steps below to create the product.

Note ▪ *Required fields are indicated with a red asterisk.*

Task ***To create the new product***

Provide values for the following fields:

Table 2-10 ▪

Field	Description
Product Name	Name to uniquely identify this product. The name can contain spaces.
Description	The characteristics of this product that make it unique. The description can be edited at any time.
Version	A string that can contain any characters up to a maximum of 64, for example, 1.2.3 or SP1.

Table 2-10 ▪

Field	Description
State	A product can be in one of four states: draft, deployed, inactive, or obsolete. • **Draft**: A product is created as a draft that can be modified or deleted; draft products can contain draft or deployed features and feature bundles. Draft or deployed products can be added to a suite in the draft state. • **Deployed**: If the suite is deployed, all the draft features, feature bundles, and products it contains are also deployed. After a product is deployed to use in production, it cannot be deleted or modified, except to change the transaction key and to add or remove license models, part numbers, or relationships. A deployed product can be used to create an entitlement. • **Inactive**: If a product is made inactive, its features and feature bundles are not made inactive. An inactive product cannot be deleted or modified. An inactive product cannot be used to create an entitlement or to be the parent of a maintenance product, but an inactive product can be activated, upgraded, upsold, or renewed from an existing entitlement item. • **Obsolete**: Deployed and inactive products can be made obsolete. Obsolete products behave like inactive products, but can be deleted if they have no entitlements associated with them.
Package	For FlexNet licenses only, specify that this product is a package if you want to: • Provide a way of distributing one line for a license file that has a large number of features, which share most of the same feature line arguments • License this product as a suite Even if a product is specified as a package, if a license model is specified for the product that does not support PACKAGEs (that is, **Package Specification** is **None**), the license model takes precedence and individual feature lines are generated. The count of unique features in a package must be the same. For example, if a feature bundle containing three counts of **FeatureA** and six counts of **FeatureB** is added to a product, then for that product to be licensed with a PACKAGE line, three more counts of **FeatureA** must be added to the product to make the count of **FeatureA** and **FeatureB** the same (six).
Package Name	Name to uniquely identify the package: The name must contain 30 characters or less and cannot contain spaces. (The Package Name setting is only shown when Package is set to Yes.)
Package Version Format	Select a Fixed or Date Based version format. See Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration for more information about this property. (The Package Version Format setting is only shown when Package is set to Yes.)

Table 2-10 ▪

Field	Description
Package Version	If a Fixed version format is selected, enter the latest (highest-numbered) version of this package that is supported by a generated license certificate. The version consists of numbers and at most one decimal point, with a ten character maximum, for example, 1 or 1.5. (The Package Version setting is only shown when Package is set to Yes.)
License Technology	The license technology with which this product is licensed. The license technology you choose affects the set of controls you see on the Create a Product page. If you choose **FlexNet Licensing**, the next control in the list is **Can Be Used on a Device**. If you choose a custom (non-FlexNet) license technology, the next control in the list is **Host Type**.
Can Be Used on a Device	Shown when you choose FlexNet Licensing as the license technology, this control allows the user to select usage models. **Yes**—displays a drop-down list of available usage models **No**—no usage models are displayed
Host Type	The appearance of the Host Type control depends upon the license technology you chose: ● Shown as a drop-down list when you choose a custom (non-FlexNet) license technology, Host Type lists of host types defined for the license technology you specified. Choose one host type from the list. ● Shown as a collection of check boxes when you choose FlexNet Licensing as the license technology, Host Type shows a separate check box for each host type defined for FlexNet Licensing. Click the check boxes for the host types this product will support.

Table 2-10 ▪

Field	Description
Usage Models	The Usage Models attribute is available when you choose **Yes** for **Can be Used on a Device**. Usage Models shows a drop-down list of possible usage models. These determine the statement interval and reset period for usage reports. (See About Usage Models.) ***Important ▪*** *Products using the same feature must be configured with the same usage model per account. For an account, the usage model that is specified for a product containing a specific feature will be the usage model that is used for subsequent entitlements or products containing that specific feature.* *Example:* • *Product A (feature f1) and product B (features f1 and f2)* • *Account C is first entitled to product A (feature f1) with usage model Monthly Statements (No Reset)* • *Account C is then entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly)* • *Account C will use usage model Monthly Statements (No Reset) for both products A and B because they both contain feature f1 which was included in the first entitlement.* *If Account C was first entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly), this usage model would be used for both products/entitlements for the account.*
License Generator	The license generator used to generate licenses for this product
Header Resource Bundle Key	If you are creating a certificate-based license, this key allows you to identify certain text that appears as a comment at the beginning of the .lic file that is generated when you fulfill the license. The value entered here is the key portion of the key-value pair stored in the `PublisherDefinedAttributesText_en.properties` file. This properties file is packaged in the `ops_install_dir\site\webapps\flexnet\WEB-INF\classes\` sub-directory. The value in the `PublisherDefinedAttributesText_en.properties` for this key will be propagated to the .lic file. This field is hidden if the **Allow license headers and trailers** flag is disabled. Configure this flag in **System** > **Configure** > **FlexNet Operations**.
Header Text	This is the value assigned to the key specified in the Header Resource Bundle Key field. This field only displays the value; you cannot edit the value. The key-value pair relationship is defined using the `PublisherDefinedAttributesText.properties` file. The value can be edited in the `PublisherDefinedAttributesText.properties` file.

Table 2-10 ▪

Field	Description
Trailer Resource Bundle Key	If you are creating a certificate-based license, this key allows you to identify certain text that will appear as a comment at the end of the .lic file which is generated when you fulfill the license. This field is hidden if the **Allow license headers and trailers** flag is disabled. Configure this flag in **System** > **Configure** > **FlexNet Operations**. The value entered here is the key portion of the key-value pair stored in the `PublisherDefinedAttributesText.properties` file. This properties file is packaged in the `ops_install_dir\site\webapps\flexnet\WEB-INF\classes\` sub-directory. The value in the `PublisherDefinedAttributesText.properties` for this key will be propagated to the .lic file.
Trailer Text	This is the value assigned to the key specified in the Trailer Resource Bundle Key field. This field only displays the value; you cannot edit the value. The key-value pair relationship is defined using the `PublisherDefinedAttributesText.properties` file. The value can be edited in the `PublisherDefinedAttributesText.properties` file.
FNP Version	The FNP Version check boxes allow you to specify the cross-version signature support required by your product. Cross-version signatures are required when the product must use the same license for product binaries built with different versions of the FlexNet Publisher Licensing Toolkit, if you want to add license keywords to the product license that are not supported by all the licensing toolkit versions with which your product binaries are built. Cross-version signatures permit versions of your product built with a license kit that predates the introduction of a keyword to run successfully using the same license and license server as the newer versions of your product that use that keyword. (However, they do *not* permit the older versions of your product to use the functionality of the newer keyword.) Select the FNP Version based on the older version of the toolkit used to build the product binaries. For example, if you are required to use the same license to support the SUPERSEDE_SIGN keyword in product binaries built with toolkit versions 11.5 (when SUPERSEDE_SIGN was introduced) and 11.0, select **FNP Version `11.4`**. For more information about choosing the FNP Version values and using cross-version signatures, see FlexNet Publisher Versions for Cross-Version Signature Support.
Allow Obsolete Fulfillment Download in Producer Portal	Permits or prohibits the download of obsolete (zero count) fulfillments from the Producer Portal. By default, licenses cannot be emailed or saved for obsolete fulfillments. Click Yes to permit the downloading of obsolete fulfillments from the Producer Portal. Click No to prohibit it.

Table 2-10 ▪

Field	Description
Allow Obsolete Fulfillment Download in End-User Portal	Permits the download of obsolete fulfillments from the End-User Portal. By default, licenses cannot be emailed or saved for obsolete fulfillments. Click Yes to permit the downloading of obsolete fulfillments from the End-User Portal. Click No to prohibit it.
Start Date	Only used for automatic upgrade jobs, the Start Date value defines the beginning of a date range for which this product qualifies as an upgrade-to product, based on the upgrade relationships as defined when the upgrade job runs. The date range defined by Start Date and End Date has no impact on manually generated upgrades nor on bulk operations. Start Date is only available for products; it is not available for maintenance products nor for product suites.
End Date	Only used for automatic upgrade jobs, the End Date value defines the end of the date range for which this product qualifies as an upgrade-to product, based on the upgrade relationships as defined when the upgrade job runs. The date range defined by Start Date and End Date has no impact on manually generated upgrades nor on bulk operations. End Date is only available for products; it is not available for maintenance products nor for product suites.
Email Template to Use for Product Upgrade	Specify the variation of the Product Upgrade Job Email template to use when FlexNet Operations automatically creates upgrade lines as a result of running the Product Version Upgrade job. Producers can choose the default variation, another active variation, or none: • **DEFAULT**—FlexNet Operations uses the default variation of the Product Upgrade Job Email template for automatic upgrades to this product. • **None**—FlexNet Operations does not send emails for automatic upgrades to this product. • Another variation—FlexNet Operations uses the selected variation of the Product Upgrade Job Email template for automatic upgrades to this product. (Only active variations of the Product Upgrade Job Email template are available for selection. Draft variations are not shown.) When automatic upgrade emails are sent, FlexNet Operations sends the upgrade email to the end-customer contact address in the parent entitlement (if one is available). If no end-customer contact address exists, FlexNet Operations sends the upgrade email to any addresses in the Ship To Email field in the parent entitlement as well as to all channel partner contacts in the parent entitlement (if any). For information about the Product Upgrade Job Email template, see Email Template Types in About Email Templates. For information about the Product Version Upgrade job, see FlexNet Operations Alert Types.

Continue the product packaging process by adding features (recommended) on this page or moving on to link a license model to the product. Or you can save the product in its current state.

- To add features, click **Add Features** or **Add Feature Bundles**. These buttons open a pop-up window for selecting features or feature bundles to add. See Adding Features or Feature Bundles to a Product for instructions.
- To move on to link license models to this product, click **Next**. The Producer Portal shows the Link License Models to Product page. See Linking License Models to a Product for instructions.
- To save the product in its current state, click **Save**.

FlexNet Publisher Versions for Cross-Version Signature Support

This topic applies to the product creation and suite creation process only for FLEXenabled applications that use a certificate license model administered via a license server. For such applications, it may be necessary to select one or more FlexNet Publisher Versions for cross-version signature support when you are creating the product or suite in FlexNet Operations.

Who Needs Cross-Version Signature Support?

The purpose of a cross-version signature is to allow developers to use newer license keywords (such as SUPERSEDE_SIGN or TZ) without breaking the license for older versions of their product, when the older and newer versions of the product must use the same license.

Normally, an application built with a particular version of the FlexNet Publisher Licensing Toolkit cannot authenticate a license that includes keywords introduced in a newer version of FlexNet Publisher. Cross-version licenses enable you to issue license files containing new licensing keywords to customers who will continue to use older versions of your FLEXenabled application alongside newer versions of your application.

When a FLEXenabled application checks out a feature from a license server, it authenticates the information in the feature line against the signature. Typically, it must recognize all keywords present in the feature line in order to authenticate this information. Cross-version signatures allow the older application to ignore the newer keywords. When an older FLEXenabled application authenticates the feature line, it ignores the newer keyword and uses the FlexNet Publisher version-specific signature.

Determining which FNP Version Values are Required

The table, below, cross-references the keyword with the version of the FlexNet Publisher Licensing Toolkit client libraries your FLEXenabled application uses. Where a cross-version signature can be used, the table shows the correct FlexNet Publisher Version value. (Empty cells mean no cross-version signature is necessary.) For example, to use the VM_PLATFORMS keyword with a FlexEnabled application that uses toolkit version 11.0, use 11.4 for the FlexNet Publisher Version value.

Table 2-11 ▪ FlexNet Publisher Versions for Cross-Version Keyword Support

	Toolkit Version in the FlexEnabled Application						
Keyword	**7.1-7.2**	**8.0**	**8.1-8.3**	**8.4**	**9.0-10.8.n**	**11.0-11.4.1**	**11.5-11.6.1**
BORROW	7.1						

Table 2-11 ▪ FlexNet Publisher Versions for Cross-Version Keyword Support (cont.)

	Toolkit Version in the FlexEnabled Application						
Keyword	**7.1-7.2**	**8.0**	**8.1-8.3**	**8.4**	**9.0-10.8.n**	**11.0-11.4.1**	**11.5-11.6.1**
COMPOSITE	7.1	8.0	8.1				
FLOAT_OK	7.1						
SUITE_RESERVED	7.1	8.0					
SUPERSEDE_SIGN	7.1	8.0	8.1	8.4	10.8	11.4	
TZ	7.1	8.0	8.1	8.4	10.8	11.4	11.6
VM_PLATFORMS	7.1	8.0	8.1	8.4	10.8	11.4	11.6

Keyword Support in Deployed License Servers

When publishers choose to support the newer keywords with the same license and within the same environments used by prior versions of the same product or suite, they must also ship updated license servers (or vendor daemons) to their customers. License servers built with toolkit versions prior to the version in which a keyword was introduced cannot understand the keyword. (Product binaries are not required to be changed. The older products are still able to check-out/check-in licenses from a FlexNet Publisher license server.)

Adding Features or Feature Bundles to a Product

Products are collections of features. Use the controls on the Create a Product page to add features and feature bundles to a product.

Task ***To add a feature or feature bundles to a product***

1. A pop up window appears in which you can search for and select one or more of the **Available Features/ Feature Bundles**. Note that the list may be large enough to appear on multiple pages in the pop-up window.
2. Click the right arrow to move those features to the **Selected Features/Feature Bundles** list.
3. When the list is complete, click the **Add** button to add the features or feature bundles to the product.
4. On the **Create a Product page**, if necessary, modify the **Quantity** to change the count of the feature or feature bundle in the product.
   - For example, say the count of Feature A is 3 in feature bundle FB1. When 2 units of FB1 are added to a product, a license generated for the product contains 6 counts of Feature A.
   - To remove one or more features or feature bundles from the product, select the features or feature bundles and click the **Remove Features or Feature Bundles** button. Click the **Reset** button to reset all the product fields.

5. On the **Create a Product** page, click the **Save** button to save the product or click the **Add New Product** button to save the product and start to create another product.

Note ▪ *After a product has been saved, the history of its state change can be viewed by clicking the* ***View History*** *button.*

6. Click the **Next** button to link license models to a product.

Linking License Models to a Product

Before a license can be generated for a product, the product must be associated with one or more license models. Only license models linked to a product can be used in an entitlement for the product.

Task ***To link a license model with a product***

1. Select a product.

Table 2-12 ▪ Linking a License Model with a Product

Item	Description
Product or Suite	Name of the product or suite to associate with one or more license models: ● If you arrived at this page by clicking through the product packaging wizard, a name is loaded automatically into the **Product** or **Suite** field. ● Otherwise, click the **Search** button to open a pop-up window in which you can search for the product or suite to associate with license models. ● Alternatively, type the name of the product or suite into the **Product** or **Suite** field.

2. After the product is selected, click the **Link License Models** button. This button opens the **Link License Models** page in a pop-up window. License models can be added or removed from draft or deployed products.

   a. In the Link License Models pop-up window, select one or more license models from the **Available License Models** list. Note that the list of license models may be large enough to appear on multiple pages in the pop-up window.

   b. Click the right arrow to move selected license models to the **Selected License Models** list.

   c. When the **Selected License Models** list is complete, click **Add**. This button associates the selected license models with the specified product and closes the pop-up window.

3. If you selected a trusted license model, specify **Transaction Keys**; otherwise, skip to the next step. Use the **Default** and **Virtual** controls to identify one default transaction key or one virtualization-aware transaction key, or both a default transaction key *and* a virtualization-aware transaction key.

4. Click the **Save** button to save the association of license models with the product.

5. Click the **Next** button to map a product to a part number.

***Note** ▪ On the **Link License Models to Product** page, click the **Reset** button to reset the linked license models. To remove the link between selected license models and this product, select those license models and click the **Remove License Models** button.*

Mapping a Product to a Part Number

A product can be mapped to one or more part numbers. Part numbers are optional and are selected from a group of unassigned part numbers that have been imported into FlexNet Operations.

A part number can also be mapped to a particular license model linked with a product. When a part number is mapped to a license model, only that license model can be used in the entitlement.

Task ***To map a product to a part number***

1. Select a product.

   Table 2-13 ▪ Mapping a Product to a Part Number

Item	Description
Product, Suite, or Maintenance	Name of the product, suite, or maintenance to map to one or more unassigned part numbers: ● If you arrived at this page by clicking through the product packaging wizard, a name is loaded automatically into the Product, Suite, or Maintenance field. ● Otherwise, click the Search button to open a pop-up window in which you can search for the product, suite, or maintenance to map to part numbers.

2. After the product is selected, click the **Map to Part Numbers** button.
   a. A pop-up window appears in which you can search for and select one or more of the **Available Part Numbers**. Note that the list of part numbers may be large enough to appear on multiple pages in the pop-up window.
   b. Click the right arrow to move those part numbers to the **Selected Part Numbers** list.
   c. When the **Selected Part Numbers** list is complete, click the **Add** button to map the part numbers to the product.
3. If you want to map this part number to a specific license model that is already linked with this product, select that license model. This means that if the part number is used to specify a product in an entitlement, only this license model can be used.
   ● Click the **Reset** button to reset the mapped part numbers. To remove the link between selected part numbers and this product, select those part numbers and click the **Remove Part Numbers** button.
4. Click **Save** to save the mapping of part numbers to the product.
5. Click **Next** to relate a product to other products.

Relating Products to Other Products

A product can be related to one or more products, including itself. To use the upgrade and upsell operations on entitlement line items, upgrade and upsell relationships must be defined. Demo and production relationships between products can also be defined, and demo relationships can be used to upgrade entitlements. Products can be related in draft or deployed states.

Tip ▪ *Upgrade relationships are essential for the automatic creation of upgrade line items by the Product Version Upgrade job. See FlexNet Operations Alert Types.*

Task ***To relate products to other products***

1. Select a product.

   Table 2-14 ▪ Relating Products to Other Products

Item	Description
Product, Suite, or Maintenance	Name of the product, suite, or maintenance to relate to a product, suite, or maintenance: • If you arrived at this page by clicking through the product packaging wizard, a name is loaded automatically into the Product, Suite, or Maintenance field. • Otherwise, click the **Search** button to open a pop-up window in which you can search for the product, suite, or maintenance to specify product relationships. • Alternatively, type the name of the product, suite, or maintenance into the **Product**, **Suite**, or **Maintenance** field.

2. After the product is selected, navigate to the Relate to Different Products page.
3. On the **Relate to Different Products** page, click **Select Related Products**. The Producer Portal shows the Select Product page in a pop-up window. There, you can search for and select one or more available products to relate to the current product.

   Note ▪ *The list of products may be large enough to span multiple pages in the pop-up window. You can limit the number of products using the search controls.*

   a. In the pop-up window, click one or more check boxes to select products for which you want to define product relationships.

   b. When you have selected all related products, click **OK**. The Producer Portal adds the relationships and closes the pop-up window.
4. On the **Relate to Different Products** page, specify the relationships between the current product and the related products.

- Specify the relationships between the current product and the related products.

  If the current product is maintenance, the relationship **Is Maintenance** is chosen automatically.

  If the related product is maintenance, the relationship **Has Maintenance** is chosen automatically.

  Otherwise, choose from one of the following relationships:

  - **Production Version Of**
  - **Demo Of**
  - **Upgrade From**
  - **Upgrade To**
  - **Upsell From**
  - **Upsell To**

  The relationship setting defines how the related product is tied to the current product. For example, if the current product is a newly created version 2.0 of a product and, in the pop-up window, you selected version 1.0 of the same product, you would set the relationship to **Upgrade From**. If the current product is version 1.0 of the product and, in the pop-up window, you selected version 2.0 as a related product, you would set the relationship of **Upgrade To**.

- Optionally specify a default license model for the Product Version Upgrade job.

  If, for the product relationship, you chose either **Upgrade To** or **Upgrade From**, the Producer Portal shows an **Upgrade Default Model** setting for the Upgrade-To product.

  The license model choices available in Upgrade Default Model depend on the license models linked to the Upgrade-To product. (The *Upgrade-To product* is the product to which users can upgrade; depending on whether you chose Upgrade To or Upgrade From for the relationship, the Upgrade-To product will be either the related product or the current product.) If only one license model is linked to the Upgrade-To product, the Producer Portal automatically selects that license model. If multiple license models are linked to the Upgrade-To product, Upgrade Default Model allows you to choose from those license models or None.

  - If you do not use the Product Version Upgrade job, leave **Upgrade Default Model** set to **None**.
  - If you do use the Product Version Upgrade job, set **Upgrade Default Model** to the default license model to use in upgrade entitlements created by that job.

  The default license model is only used in upgrade entitlements for the product relationship on which it is set. FlexNet Operations only applies the default license model if the related product is not linked to the license model on the entitlement to be upgraded.

  For more information about the Product Version Upgrade job, see More About the Product Version Upgrade Job under FlexNet Operations Alert Types.

Tip ▪ *Click the **Reset** button to reset the product relationships. To remove the relationship between related products and the current product, select those related products and click the **Remove Relationship** button.*

5. Click the **Save** button to save the relationship to the product.
6. Click the **Next** button to review the products that have been recently created.

Mapping a Product to a Product Line

You can assign products to product lines, which can be used to group products for search and reporting purposes. In addition, product lines can be used to define access rights to product information for users.

***Note** ▪ If product lines are disabled, follow the instructions in Managing Product Lines to enable product line functionality.*

Task ***To assign a product to a product line***

1. Locate the product for which you want to map a product line, and click the product to open its Create a Product page.
2. On the Create a Product page, navigate to the Map Product to Product Line page.
3. On the Map Product to Product Line page, specify the product line to be assigned to the product. Do one of the following:
   - Type the name of the product line.
   - Click the Product Line search button to search for a product line to be assigned to the product. The Select Product Line for Product window opens. Select a product line, then click **OK**. On the Map Product to Product Line page, the selected product line appears in the Product Line field followed by any defined product line attributes.
4. Click a product line, then click **OK**. On the Map Product to Product Line page, the selected product line appears in the Product Line field followed by any defined product line attributes.
5. Enter values for any required product line attributes (marked with a red asterisk). Optionally, enter values for any optional attributes.
6. Click **Save** to save the mapping, or click **Next** to review recently created products.

To grant a user access to a product line, link the product line to the user's account. See Linking Product Lines to User Accounts.

Reviewing Products

After you create products, you can review the products that have been recently created and perform the same operations on them as you could when viewing products.

Deploying a Product

Before a product is deployed, all license models with which it has been linked must first be deployed. When a product is deployed, all the features and feature bundles it contains are also deployed.

Task ***To change the state of one or more products:***

1. Select the products.
2. Click the **Change State** choice list, and select a state. Products can be in one of the following states: **Draft**, **Deployed**, **Inactive**, or **Obsolete**. A product is created and can be edited in the **Draft** state.
3. If you choose **Deploy**, the **Deploy Products** page appears displaying the list of products and the undeployed feature bundles and undeployed features they contain that will deployed. Click the **Deploy** button to deploy the products and all of their feature bundles and features.

Reviewing New Product Hierarchy

After creating products, you can review the features, feature bundles, and products you have created. To do this, select **Show Product Definition** under **Step 3, Add Product**, on the **Package Products** page.

Working with Suites

A *suite* is packaged from individual products that are functionally complementary, and is associated with one or more license models. One or more part numbers can be assigned to a suite.

Table 2-15 ▪

Topic	Description
Viewing Suites	Briefly describes viewing, adding, deleting, printing, and changing the state of suites.
Creating a Suite	Covers the suite creation process more thoroughly.
Adding Products to a Suite	Describes how to add products to a suite.
Linking License Models to a Suite	Explains how to link a suite to one or more license models.
Mapping a Suite to a Part Number	Shows how to map a suite to one or more part numbers.
Relating Suites to Other Products	Shows how to define relationships between a suite and one or more different products.
Deploying a Suite	Explains how to change a suite's state from Draft to Deployed.

Viewing Suites

This **Package Products** page automatically displays recently accessed suites, if applicable. To view all suites, select **Suites** from the **Search For** choice list, and click the **Simple Search** button. You can also search for suites based on specific criteria.

From this page, you can:

Table 2-16 ▪ Viewing Suites Capabilities

Capability	Description
Add (create) a new suite from scratch	To add a new suite, click Create a Suite.
Make a new suite from a copy of an existing suite	To copy a suite, select exactly one suite and click the Copy button. Follow the guidelines in Creating a Suite.
Delete a suite	To delete a suite, select one or more suites and click the Delete button.
Change the state of a suite	Suites can be in one of the following states: Draft, Deployed, Inactive, or Obsolete.
Print a suite	To print a suite, select one or more suites and click the Print button.

Creating a Suite

There are several ways to navigate to the page where a new suite is created.

Task ***To create a new suite***

1. Click **Products** > **Suites**. This opens the Package Products page.
2. Click the **Add New Suite** button.

Follow the steps below to create the suite.

Task ***To copy an existing suite***

1. Click **Products** > **Suites**. This opens the Package Products page.
2. Search for a suite to copy.
3. Select the suite and click the **Copy** button.

Follow the steps below to create the suite.

Note ▪ *Required fields are indicated with a red asterisk.*

Task ***To create the new suite***

1. Provide values for the following fields:

Table 2-17 ▪ New Suite Field

Field	Description
Suite Name	Name to uniquely identify this suite. The name can contain spaces.
Description	The characteristics of this suite that make it unique.
Version	A string that can contain any characters up to a maximum of 64, for example, 1.2.3 or SP1.
State	A suite can be in one of four states: draft, deployed, inactive, or obsolete. ● **Draft**: A suite is created as a draft that can be modified or deleted; draft suites can contain draft or deployed products. ● **Deployed**: If the suite is deployed, all the draft features, feature bundles, and products it contains are also deployed. After a suite is deployed to use in production, it cannot be deleted or modified, except to change the transaction key and to add or remove license models, part numbers, or relationships. A deployed suite can be used to create an entitlement. ● **Inactive**: If a suite is made inactive, its products are not made inactive. An inactive suite cannot be deleted or modified. An inactive suite cannot be used to create an entitlement or to be the parent of a maintenance product, but an inactive product can be activated, upgraded, upsold, or renewed from an existing entitlement line item. ● **Obsolete**: Deployed and inactive suites can be made obsolete. Obsolete suites behave like inactive suites, but can be deleted.
Package	Specify that this suite is a package if you want to: ● Provide a way of distributing one line for a license file that has a large number of features, which share most of the same feature line arguments ● License this suite as a suite Even if a suite is specified as a package, if a license model is specified for the suite that does not support PACKAGEs (that is, **Package Specification** is **None**), the license model takes precedence and individual feature lines are generated. The count of unique features in a package must be the same. For example, if a feature bundle containing 3 counts of **FeatureA** and 6 counts of **FeatureB** is added to a product, then for that product to be licensed with a PACKAGE line, 3 more counts of **FeatureA** must be added to the product to make the count of **FeatureA** and **FeatureB** the same (6).

Table 2-17 ▪ New Suite Field

Field	Description
Package Name	Name to uniquely identify the package. The name must contain 30 characters or less and cannot contain spaces.
Package Version Format	**Select a Fixed or Date Based version format.** See Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration for more information about this property.
Package Version	If a Fixed version format is selected, enter the version of the latest (highest-numbered) version of this package that is supported by a generated license certificate. The version consists of numbers and at most one decimal point, with a ten character maximum, for example, 1 or 1.5.
License Technology	The license technology with which this suite is licensed. The license technology you choose affects the set of controls you see on the Create a Suite page. If you choose **FlexNet Licensing**, the next control in the list is **Can Be Used on a Device**. If you choose a custom (non-FlexNet) license technology, the next control in the list is **Host Type**.
Can Be Used on a Device?	Shown when you choose FlexNet Licensing as the license technology, this control allows the user to select usage models. **Yes**—displays a drop-down list of available usage models **No**—no usage models are displayed
Host Type	The appearance of the Host Type control depends upon the license technology you chose: ● Shown as a drop-down list when you choose a custom (non-FlexNet) license technology, Host Type lists of host types defined for the license technology you specified. Choose one host type from the list. ● Shown as a collection of check boxes when you choose FlexNet Licensing as the license technology, Host Type shows a separate check box for each host type defined for FlexNet Licensing. Select the check boxes for the host types this suite supports.
License Generator	The license generator used to generate licenses for this product.

Table 2-17 ▪ New Suite Field

Field	Description
FNP Version	Only shown if the newer FlexNet Publisher keywords are used for renewals and upgrades. The FNP Version check boxes allow you to specify the cross-version signature support required by your suite. Cross-version signatures are required when the suite must use the same license to support the use of newer keywords (such as SUPERSEDE_SIGN and TZ) on binaries built with different versions of the FlexNet Publisher Licensing Toolkit. Cross-version signatures permit versions of your suite built with a license kit that predates the introduction of a keyword to be successfully activated under the same license and license server as the newer versions of your suite that use that keyword. (However, they do *not* permit the older versions of your suite to utilize the functionality of the newer keyword.) Select the FNP Version based on the older version of the toolkit used to build the suite binaries. For example, if you must use the same license to support the SUPERSEDE_SIGN keyword in binaries built with toolkit versions 11.5 (when SUPERSEDE_SIGN was introduced) and 11.0, select **FNP Version** `11.4`. For more information about choosing the FNP Version values and using cross-version signatures, see FlexNet Publisher Versions for Cross-Version Signature Support.
Allow obsolete fulfillment download in Producer Portal?	Permits or prohibits the download of obsolete (zero count) fulfillments from the Producer Portal. By default, licenses cannot be emailed or saved for obsolete fulfillments. Click **Yes** to permit the downloading of obsolete fulfillments from the Producer Portal. Click **No** to prohibit it.
Allow obsolete fulfillment download in End-User Portal?	Permits the download of obsolete fulfillments from the End-User Portal. By default, licenses cannot be emailed or saved for obsolete fulfillments. Click **Yes** to permit the downloading of obsolete fulfillments from the End-User Portal. Click **No** to prohibit it.

2. Click the **Add Products** button to continue creating the suite.

Continue the product packaging process by adding products on this page or moving on to link a license model to the suite. Or you can save the product in its current state.

- To add products, click **Add Products**. This button opens a pop-up window for selecting products to add to the suite. See Adding Products to a Suite for instructions.
- To move on to link license models to this suite, click **Next**. The Producer Portal shows the Link License Models to Suite page. See Linking License Models to a Suite for instructions.
- To save the suite in its current state, click **Save**.

Adding Products to a Suite

Use the controls on the Create a Suite page to add products to a suite.

Task ***To add products to a suite***

1. In the Add Products pop-up window, select one or more check boxes to select products.

   Note that the list of products may be large enough to appear on multiple pages in the pop-up window.

2. When the list is complete, click the **OK** button to add the products to the suite.
3. On the **Create a Suite** page, if necessary, modify the **Quantity** to change the count of the product in the suite.
   - To remove one or more products from the list of products in the suite, select the products and click the **Remove Products** button. Click the **Reset** button to reset all the suite fields.
4. Continue the product packaging process by moving on to link a license model to the suite or saving the suite in its current state.
   - To move on to link license models to this suite, click **Next**. The Producer Portal shows the Link License Models to Suite page. See Linking License Models to a Suite for instructions.
   - To save the suite in its current state, click **Save**.

Note ▪ *After a suite has been saved, the history of its state change can be viewed by clicking the* ***View History*** *button.*

Linking License Models to a Suite

Before a license can be generated for a suite, the suite must be associated with one or more license models. Only license models linked to a suite can be used in entitlements for the suite.

Note ▪ *License models linked to products in a suite are ignored when an entitlement is created for the suite.*

Task ***To associate a suite with a license model***

1. Select a suite.

Table 2-18 ▪ Link License Models

Item	Description
Suite	Name of the suite to associate with one or more license models: ● If you arrived at this page by clicking through the product packaging wizard, a suite name is loaded automatically into the **Suite** field. ● Otherwise, click the **Search** button to open a pop-up window in which you can search for the suite to associate with license models ● Alternatively, type the name of the suite into the **Suite** field.

2. After the suite is selected, click the **Link License Models** button.
   a. A pop-up window appears in which you can search for and select one or more of the **Available License Models**. Note that the list of license models may be large enough to appear on multiple pages in the pop-up window.
   b. Click the right arrow to move those license models to the **Selected License Models** list.
   c. When the **Selected License Models** list is complete, click the **Add** button to associate the license models with the suite.
3. Continue with the product packaging process by saving the suite with its current settings or moving on to map part numbers.
   - Click the **Save** button to save the association with the suite.
   - Click the **Next** button to map a suite to a part number. (See Mapping a Suite to a Part Number for instructions.)

Note ▪ *On the Link License Models to Suite page, click the* ***Reset*** *button to reset the linked license models. To remove the link between selected license models and this suite, select those license models and click the* ***Remove License Models*** *button.*

Mapping a Suite to a Part Number

A suite can be mapped to one or more part numbers. Part numbers are optional and are selected from a group of unassigned part numbers that have been imported into FlexNet Operations. A part number can be mapped to a particular license model linked with a suite.

Task ***To map a suite to a part number***

1. Select a suite.

   Table 2-19 ▪ Mapping a Suite to a Part Number

Item	Description
Suite	Name of the suite to map to one or more unassigned part numbers: ● If you arrived at this page by clicking through the product packaging wizard, a suite name is loaded automatically into the **Suite** field. ● Otherwise, click the **Search** button to open a pop-up window in which you can search for the suite to map to part numbers. ● Alternatively, type the name of the suite into the **Suite** field.

2. After the suite is selected, click the **Map to Part Numbers** button.
   a. A pop-up window appears in which you can search for and select one or more of the **Available Part Numbers**. Note that the list of part numbers may be large enough to appear on multiple pages in the pop-up window.
   b. Click the right arrow to move those part numbers to the **Selected Part Numbers** list.
   c. When the **Selected Part Numbers** list is complete, click the **Add** button to map the part number to the suite.
3. If you want to map this part number to a specific license model that is already linked with this suite, select that license model.
   - Click the **Reset** button to reset the mapped part numbers. To remove the link between selected part numbers and this suite, select those part numbers, and click the **Remove Part Numbers** button.
4. Continue with the product packaging process by saving the suite in its current state or moving on to relate the suite to other products.
   - Click the **Save** button to save the mapping of part numbers to the suite.
   - Click the **Next** button to relate a suite to other products. (See Relating Suites to Other Products for instructions.)

Relating Suites to Other Products

A suite can be related to one or more products, including itself. Products can be related in draft or deployed states.

Tip ▪ *Upgrade relationships are essential for the automatic creation of upgrade line items by the Product Version Upgrade job. See FlexNet Operations Alert Types.*

Task ***To relate a suite to another product***

1. Select a suite.

   Table 2-20 ▪ Relating Suites to Other Products

Item	Description
Suite	Name of the suite to relate to a product, suite, or maintenance: ● If arrived at this page by clicking through the product packaging wizard, a name is loaded automatically into the **Suite** field. ● Otherwise, click the **Search** button to open a pop-up window in which you can search for the suite to relate. ● Alternatively, type the name of the suite into the **Suite** field.

2. After the suite is selected, click the **Select Related Products** button.
   a. A pop-up window appears in which you can search for and select one or more of the available products. Note that the list of products may be large enough to appear on multiple pages in the pop-up window.
   b. Select one or more check boxes to select suites.
   c. When the list is complete, click the **OK** button to add the related products.
   d. On the **Relate to Different Products** page, select the relationship between the suite and the related product. Choose from one of the following relationships: **Production Version Of**, **Demo Of**, **Upgrade From**, **Upgrade To**, **Upsell From**, **Upsell To**.
3. Continue by saving the suite in its current state or moving on to review the suite settings.
   - Click the **Save** button to save the relationship to the suite.
   - Click the **Next** button to review the suites that have been recently created.

Note ▪ *On the Relate to Different Products page, click the* ***Reset*** *button to reset the suite relationships. To remove the relationship between selected products and this suite, select those products and click the* ***Remove Relationship*** *button.*

Deploying a Suite

Before a suite is deployed, all license models with which it has been linked must first be deployed. When a suite is deployed, all the products it contains are also deployed.

Task ***To change the state of one or more suites***

1. Select the suites.
2. Click the **Change State** choice list, and select a state. Suites can be in one of the following states: **Draft**, **Deployed**, **Inactive**, or **Obsolete**.
3. If you choose **Deploy**, the **Deploy Suites** page appears displaying the list of suites and the undeployed products, feature bundles, and features they contain will also deployed. Click the **Deploy** button to deploy the suites and all of their products, feature bundles, and features.

Working with Maintenances

A maintenance is an unlicensed product that represents additional rights that a customer can purchase. For example, maintenance may give the customer the right to technical support, upgrades, updates, or new platforms for the duration of maintenance.

A maintenance product may be associated with one or more part numbers and can be related to one or more products or suites.

Table 2-21 ▪

Topic	Description
Creating a Maintenance	Explains how to create a maintenance.
Mapping a Maintenance to a Part Number	Shows how to map a maintenance to one or more part numbers.
Relating Maintenance to Other Products	Describes how to define relationships between a maintenance and other products.

Creating a Maintenance

You can create maintenances from the Producer Portal's Administer menu.

Tip ▪ *To reset all the fields on the Create Maintenance page to their defaults at any time, click the* ***Reset*** *button.*

Task ***To create a new maintenance product***

1. Click **Products** > **Create Maintenance**. This opens the Create Maintenance page.
2. Provide values for the following fields. Required fields are indicated with a red asterisk.

   Table 2-22 ▪ Creating Maintenance Fields

Field	Description
Name	Name of the maintenance
Version	A string that can contain any characters up to a maximum of 64, for example, 1.2.3 or SP1.
State	A maintenance product can be in one of four states: draft, deployed, inactive, or obsolete. ● **Draft**: A maintenance product is created as a draft that can be modified or deleted. After a maintenance product is deployed to use in production, it cannot be deleted or modified, except to add or remove part numbers. ● **Deployed**: A deployed maintenance product can be added to an entitlement. ● **Inactive**: An inactive maintenance product cannot be deleted or modified. An inactive maintenance product cannot be added to an entitlement. ● **Obsolete**: Deployed and inactive maintenance products can be made obsolete. Obsolete maintenance products behave like inactive maintenance products, but can be deleted.
Description	Describe the characteristics of this maintenance that make it unique.

3. Complete the maintenance creation process by clicking **Save**, **Add New Maintenance**, or **Next**.
   - Click **Save** to save the maintenance and remain on the current page.
   - Click **Add New Maintenance** to save this maintenance and start to create another maintenance.
   - Click **Next** to map a maintenance to a part number. (See Mapping a Suite to a Part Number for instructions.)

   A maintenance product is created as a draft that can be modified. After a maintenance product is deployed to use in production, it cannot be modified.

Tip ▪ *After a maintenance product has been saved, the history of its state changes can be viewed by clicking the* ***View History*** *button.*

Mapping a Maintenance to a Part Number

A maintenance product can be mapped to one or more part numbers. Part numbers are optional and are selected from a group of unassigned part numbers that have been added or imported into FlexNet Operations.

***Note** ▪ If you are already on the Map Part Numbers to Maintenance page, skip to step 4.*

Task ***To map a maintenance to a part number***

1. Click **Products** > **Products**. This opens the Products page. (Existing maintenances are shown, by default, on the Products page.)
2. Search, as necessary, to show the maintenance for which you want to map part numbers. Then click the name of the maintenance product. This opens the Create Maintenance page for that maintenance.
3. On the Create Maintenance page, click **Next**. This opens the Map Part Numbers to Maintenance page.
4. Click **Map to Part Numbers**. A pop-up window appears in which you can search for and select one or more of the **Available Part Numbers**. (Note that the list of part numbers may be large enough to appear on multiple pages in the pop-up window.)

   a. Click the part numbers you want to map to the maintenance.

   b. Click the right arrow to move those part numbers to the **Selected Part Numbers** list.

   c. When the **Selected Part Numbers** list is complete, click **OK** to map the part numbers to the maintenance product.

   If necessary, click the **Reset** button to reset mapped part numbers.

   To remove the mapping between selected part numbers and this maintenance, select those part numbers and click the **Remove Part Numbers** button.
5. Complete the mapping process by clicking either Save or Next.

   - Click **Save** to save the mapping of part numbers to the maintenance product.
   - Click **Next** to relate a maintenance product to other products. (See Relating Suites to Other Products for instructions.)

Relating Maintenance to Other Products

Maintenance can be related to one or more products. Products can be related in draft or deployed states.

***Note** ▪ If you are already on the Map Part Numbers to Maintenance page, skip to step 4.*

Task ***To relate maintenance to other products***

1. Click **Products** > **Products**. This opens the Products page. (Existing maintenances are shown, by default, on the Products page.)
2. Search, as necessary, to show the maintenance for which you want to map part numbers. Then click the name of the maintenance product. This opens the Create Maintenance page for that maintenance.
3. On the Create Maintenance page, click **Next**. This opens the Map Part Numbers to Maintenance page.
4. On the Map Part Numbers to Maintenance page, click **Next**. This button opens the Relate to Different Products page.
5. Click the **Select Related Products** button. A pop-up window appears in which you can search for and select one or more of the available products. (Note that the list of products may be large enough to appear on multiple pages in the pop-up window.)

   a. Click one or more check boxes to select products.

   b. When the list is complete, click the **OK** button to add the related products.

   c. On the **Relate to Different Products** page, select the relationship **Is Maintenance** between the maintenance and the related product.

   If necessary, click the **Reset** button to reset the maintenance relationships.

   To remove the relationship between selected products and this maintenance, select those products and click the **Remove Relationship** button.
6. Complete the product relationship process by clicking **Save** or **Complete**.

   - Click **Save** to save the relationship to the maintenance product and remain on the current page.
   - Click **Complete** to save the relationship to the maintenance product and return to the Products page.

Managing Part Numbers

Many publishers use part numbers to identify their products. Part numbers are also instrumental in making products available for free trials in the End-User Portal.

During product packaging in FlexNet Operations, part numbers can be mapped to products, suites, and maintenance. A product, suite, or maintenance can be mapped to one or more part numbers; a part number can be mapped to only one product, suite, or maintenance.

Part numbers can be added into FlexNet Operations, or imported from a properly-formatted text file.

You can search for existing part numbers by number, product, license model, part numbers mapped to products, or part numbers mapped to license models.

Table 2-23 ▪

Topic	Description
Adding Part Numbers	Describes how to manually input individual part numbers.

Table 2-23 ▪

Topic	Description
Deleting Part Numbers	Shows how to delete existing part numbers.
Mapping Part Numbers	Explains how to map a part number to a product.
Importing Part Numbers	Redirects producers to the Importing and Exporting Entities topic for information about importing part numbers.

Adding Part Numbers

You can add part numbers on the Part Numbers page.

Task ***To add a new part number***

1. Click **Products** > **Part Numbers**. This link opens the Part Numbers page.
2. On the Part Numbers page, click **Add**.
3. In **Part Number**, enter the new part number.
4. In **Description**, enter a brief description of this part number.
5. In **Product Name**, search for a product and select a license model.
6. For **Available for Trial**, select the check box to indicate whether you want this part number to be part of a trial registration program.

   Tip ▪ *The **Available for Trial** check box is not active until the part number has been mapped to a deployed product and a deployed license model.*
7. Click **Save** to save the number, or click **Add New Part Number** to continue adding part numbers.

FlexNet Operations associates the new part number with the product and license model you chose.

Deleting Part Numbers

You can delete part numbers on the Part Numbers page.

Task ***To delete a part number***

1. Select the part number to delete and click **Delete**.
2. Click **OK** to confirm deletion.

Mapping Part Numbers

Existing part numbers can be mapped to a product and a license model directly from the Part Numbers page (Products > Part Numbers). You can also map part numbers to products on the Create a Part Number page.

Task ***To map a part number to a product and a license model***

1. On the Part Numbers page, select the part number and click **Map to Product**.
2. On the Select Product page, select the product you want to map to.
3. In the License Model drop-down, select the license model.
4. Click **OK**. The part number is now mapped to the product.

Importing Part Numbers

With FlexNet Operations, you can use the Import/Export functionality to import part numbers.

See Importing and Exporting Entities for more information.

Managing Product Lines

Product lines allow you to group, classify, and describe products.

Depending on your system configuration settings, product lines can also be used to define access rights to product information for internal users in large accounts with diverse product offerings. For example, a product manager for a CRM product might be authorized to view products and entitlements for only CRM products, instead of viewing products across an account's entire product set. Likewise, product lines can be used on End-User Portal sites to ensure that customer users see only the items related to the product lines to which their accounts are linked.

For many producers, product lines are completely optional. However, there are two scenarios where product lines are required:

- For producers who use FlexNet Electronic Software Delivery, product lines are a high-level organizer for download files. In the End-User Portal, download files are grouped by producer, then product line, and then download package.
- For producers who use FlexNet Usage Management, product lines play a functional role in searching for and rendering usage history reports.

Enabling Product Lines

For most producers, product lines are optional. They must be enabled in the Producer Portal via the FlexNet Operations system configuration settings. There are two configuration settings that can be used. The one you choose depends on how your account uses product lines.

1. Product lines are available for use as product groups without restricting the visibility of products to different users or accounts. (This product line functionality is enabled by default.)
2. Product lines are available for use as product groups and also restrict visibility of products to different users and accounts.

Enabling Product Lines for Products

The default product line functionality can be enabled via the system configuration setting, Enable Product Lines for Products.

Task ***To enable product lines for products***

1. Click **System** > **Configure**.
2. Click **FlexNet Operations** to open the configuration page for FlexNet Operations-specific settings.
3. Locate the **Enable Product Lines for Products** setting and select its check box.

   Note ▪ *This setting is only effective if the check box for* ***Enable Product Lines for Products, Users, and Accounts*** *is not selected.*
4. Click **Save Configs** to save changes.

Enabling Product Lines for Products and Visibility Restrictions

The addition of visibility restrictions to product line functionality can be enabled via the system configuration setting, **Enable Product Lines for Products, Users, and Accounts**.

Task ***To enable product lines for products***

1. Click **System** > **Configure**.
2. Click **FlexNet Operations** to open the configuration page for FlexNet Operations-specific settings.
3. Locate the **Enable Product Lines for Products** setting and unselect its check box.
4. Locate the **Enable Product Lines for Products, Users, and Accounts** setting and select its check box.
5. Click **Save Configs** to save changes.

You define access rights by mapping products to product lines and then product lines to producer accounts or to customer users.

Two special product lines are automatically defined by FlexNet Operations:

- **All**—Applied to all customer users by default, this product line includes all products. When implementing product lines, FlexNet Operations includes All as the default to preserve product access for backward compatibility. Later, this product line can be removed and appropriate product lines linked to implement selective product line access for customer users.
- **Uncategorized**—Collects the set of products that have not been mapped to a product line. FlexNet Operations treats Uncategorized as a separate product line. Customer user accounts that have not been linked to the Uncategorized line cannot see uncategorized products.

Product lines can be the object of searches. In addition, product lines can include descriptive attributes that can be used to characterize them.

Adding Product Lines and Product Line Attributes

You can add product lines in the Producer Portal and add product line attributes to those product lines.

Task ***To add a product line***

1. In the Producer Portal, click **Products** > **Product Lines**. This link opens the Product Lines page.
2. Click **Add Product Line**. This button opens the Create Product Line page.
3. On the Create Product Line page, in **Name**, enter the name of the product line.
4. In **Description**, enter an optional product line description.
5. Click **Save**.

Product lines can have product attributes. A product line's product attributes can be added or deleted on the Create Product Line page. (Recall, though, that FlexNet Operations limits alterations to a product line and its attributes after the product line is linked to a product.)

Task ***To add a product attribute to a product line***

1. On the Create Product Line page, click **Add Product Attribute**. This button opens the Create Product Line Attribute page.
2. On the Create Product Line Attribute page, in **Name**, enter the name of the attribute.
3. Indicate whether the attribute is required for the product line.
4. In **Type**, select the attribute type, then specify any additional details as needed.
   - **Boolean**: A pair of options for mutually exclusive choices, such as `Yes` or `No`.
   - **Long Text**: A text value that can be up to 16384 characters. The value can be typed or pasted into the text box. (The Display Type setting controls how a long text value is displayed: Text Area or Text Field.)
   - **Text**: An alphanumeric string. Specify Max Length (a number of characters), Text Type (Single Select, Free Form, or Multi Valued Text), and Display Type (Text Area or Text Field).
   - **Date**: A calendar date.
   - **Number**: A numeral, for example, `33452`. (Value must be an integer.)
5. Click **Save**.

Deleting Product Lines or Product Line Attributes

Product lines that have not yet been mapped to a product can be deleted. Likewise, product line attributes can be added to or deleted from a product line provided that product line has not yet been mapped to a product. After a product line is mapped to a product, it cannot be deleted, and alterations to its product line attributes are highly restricted—only the addition of optional attributes is permitted.

Task ***To delete a product line***

1. In the Producer Portal, click **Products** > **Product Lines**. This link opens the Product Lines page.
2. Select a product line, and click **Delete**.
3. Click **OK** to confirm the deletion.

Task ***To delete a product line attribute from a product line***

1. On the Create Product Line page, select the attributes you want to remove, and click **Delete**.
2. Click **OK** to confirm the deletion.

Managing Download Packages

Producers who use FlexNet Operations for electronic software delivery can create download packages on the Producer Portal and associate those download packages with products and download files.

Important ▪ *For the instructions in this section, it is expected that you are working on the Producer Portal with sufficient permissions to perform the tasks described.*

Table 2-24 ▪

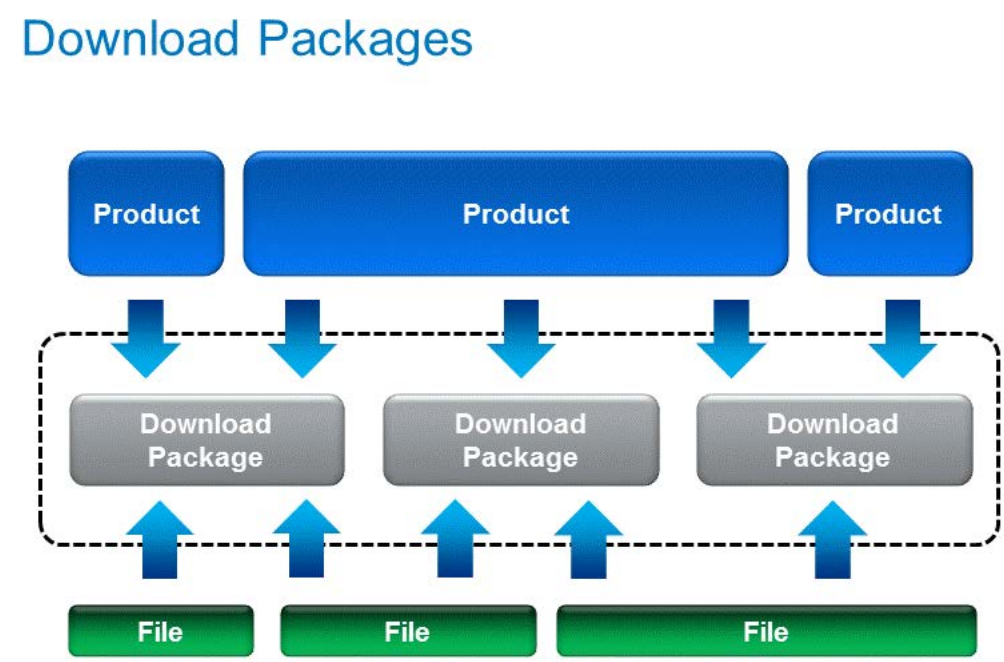
Topic	Description
About Download Packages	Describes what download packages are and how they are used by producers. • About Download Package Attributes • About Download Package Restrictions • About Physical Distribution and Order Media Requests • About Export Compliance
Creating a Download Package	Explains how to add a download package.
Searching for a Download Package	Describes how to search for a download package using download package attributes.

Table 2-24 ▪

Topic	Description
Viewing Download Package Information	Explains how to view a download package, see where it is used, its restrictions, its email notifications, its transactions, and its short-code transactions. • Viewing this Download Package • Viewing Where a Download Package Is Used • Viewing Download Package Restrictions • Viewing Emails Related to a Download Package • Viewing Download Package Transactions • Viewing Download Packages of a Product
Editing Download Package Information	Covers the options presented in the Edit menu on the View Download Package page. • Editing a Download Package • Editing a Download Package File List • Reidentifying a Download Package • Restricting a Download Package • Creating an Email Notification for a Download Package
Copying Download Packages	Covers copying a download package with its files or without its files. • Copying a Download Package with Files • Copying a Download Package without Files
Managing Download Package Associations	Covers the management of download package associations with products and files. • About Download Package Associations • Associating a Download Package to a Product • Disassociating a Download Package from a Product • Associating a Download Package to Files • Disassociating a Download Package from Files

About Download Packages

Download packages are groups of files that can be related to one or more products and tied to a producer and a product line. Optionally, a download package can be associated with a license agreement as well. The figure below depicts the relationships among download packages, download files, and products.



It is through a download package's relationship to products that FlexNet Operations determines which download packages an end user is entitled to.

On the End-User Portal, download packages are grouped by producer and product line so that entitled users can navigate hierarchically through the producer, product line, product, and version to find the downloads they require. And when optional license agreements are associated with a download package, the End-User Portal shows the agreement before allowing end users to download files.

Download packages are also where producers specify export compliance settings that define how download delivery is controlled internationally.

Table 2-25 ▪

Topic	Description
About Download Package Attributes	Describes the attributes of download packages. These attributes apply to download package searches and to download package creation and editing.
About Download Package Restrictions	Discusses the optional restriction of end user access to download packages.
About Physical Distribution and Order Media Requests	Describes how to use download package attributes and End-User Portal configuration settings to support requests for download files on physical media in the End-User Portal.
About Export Compliance	Discusses export compliance concepts. Export compliance prevents the delivery of files to residents of certain countries, in keeping with U.S. restrictions on the sale of regulated technologies to these countries. The user-configurable export compliance settings are managed at the download package level.

About Download Package Attributes

Download package attributes describe the download package, express its availability dates, specify its export compliance settings, and so forth.

Table 2-26 ▪

Attribute	Description
Download Package ID	A unique ID used to associate the download package with products and files.
Download Package Name	The name of the download package to be displayed to users in the End-User Portal. It should be brief but descriptive, for example, `Enterprise Server 2.4 Solaris` or `Enterprise Server 2.4 Documentation`.
Extended Description	An optional, additional description attribute for the download package. Maximum: 1000 characters.
Version	The version of the download package.
Release Group	An optional attribute to help sort the download package's appearance in the End-User Portal. Maximum: 20 characters.
Effective Date	The date when the download package becomes available on the End-User Portal. Accounts have access to the download package if the download package's effective date occurs within their entitlement's effective and expiration dates on the line item for that download package.
Expiration Date	The date when the download package moves to the archive (Previous Versions) tab or becomes inaccessible from entitlement lines with start dates later than this expiration date. If the expiration date is in the future, the download package appears on the new versions section of the End-User Portal. If the expiration date is in the past, the download package moves to the release archives section. Accounts have access to the download package from the release archives section even if the download package is expired, provided there is an overlap between the download package's effective and expiration dates and the entitlement's effective and expiration dates.
Archive Date	The date on which the download package moves to the archive (Previous Versions) tab. Users may still download it if they have access through an overlap with their entitlement dates, but must find it on the archive tab on the End-User Portal. (New entitlements with beginning dates after the expiration date will not have access to this product at all.)
Download Package Producer	The producer of the product and the download package. (See Managing Producers.)
Product Line	The product line in which the download package appears.

Table 2-26 ▪

Attribute	Description
End User License Agreement	An optional, click-through license agreement. (See Managing License Agreements.)
Physical Distribution Available	Specifies whether users on the End-User Portal have the option to request a copy of the download package on physical media. FlexNet Operations offers customizations to integrate with a physical distribution facility. When your site is integrated, this attribute shows whether or not end users have the option to request a physical copy of the download package. (See About Physical Distribution and Order Media Requests.)
Restrict to US/Canada	Specifies whether to restrict delivery to users in the United States or Canada or to permit delivery outside those countries. **Yes**—Restricts delivery to users within the United States or Canada. **No**—Permits delivery to users outside the United States and Canada. If you choose No, ECCN, ENC, and CCATS attributes are required. Otherwise, they are not used. See About Export Compliance for more information.
ECCN, ENC, CCATS	See About Export Compliance.
Download Instructions	Directions to End-User Portal users. Download instructions can be plain text or HTML content and are shown to users along with the list of files in the download package. For example, `Please refer to the release notes for installation instructions.`

Note ▪ *A download package's editable attributes may also include the values for any custom download package attributes you have defined. To learn more about custom attributes, including custom download package attributes, see Administering Custom Attributes.*

Many attributes support localization. For localizable attributes, click Show Languages to reveal additional, locale-specific fields for those attributes.

About Download Package Restrictions

Producers can set up download package restrictions to either permit or deny End-User Portal access to the download package for the specified accounts.

Download package restrictions can be useful in situations where a producer is delivering a beta release only to accounts who are participating in the beta test process or selectively make a hotfix available only to designated accounts.

By default, a download package is unrestricted. If no restrictions are created for a download package, it is accessible to all entitled accounts.

Accounts can be added to the Restrict Download Package list one at a time. The process starts with a search for the account to permit or deny access by its account ID or its account name. Search results are shown on the Find an Account page in a pop-up window. When you choose to restrict a previously unrestricted download package, the Find an Account page provides the option of specifically permitting (Restrict Allow) or denying (Restrict Deny) access to the selected account. From that point on, any other accounts you add to the restrictions list must follow the choice (Restrict Allow/Restrict Deny) you made for the first account.

- **Restrict Allow**—Creates a file access "allow list" that stipulates the accounts that are permitted to access the download package. Any account not on the list is not permitted to access the package in the End-User Portal, even if they are otherwise entitled to the product.
- **Restrict Deny**—Creates a file access "block list" that stipulates the accounts that are not permitted to access the download package. None of the accounts on the list are permitted to access the package in the End-User Portal, even if they are otherwise entitled to the product.

Multiple accounts can be removed from the restrictions list on the Restrict Download Package page by selecting their check boxes in the Remove this Account column and then clicking Remove Selected Accounts.

For instructions about restricting files, see Restricting a Download Package.

About Physical Distribution and Order Media Requests

For producers who want their end users to be able to request download files on physical media, the End-User Portal includes an Order Media control. Configuring the End-User Portal to handle these requests requires some configuration in the Producer Portal.

Download packages for which orders for physical media are supported must have the **Physical Distribution Available** attribute set to **Yes**.

The system configuration settings allow the End-User Portal to show the Order Media control and set a target email address for order media requests. The following settings must be configured on the End-User Portal Setup page.

- **Show Order Media Button**—selected
- **Order Media Destination Email Address**—email address to receive order media requests specified

Tip ▪ *To show the End-User Portal Setup page in the Producer Portal, click* ***System*** > ***Configure*** > ***End-User Portal Setup****.*

About Export Compliance

A download package's export compliance settings are defined on its Add Download Package or Edit Download Package page. These settings play a role in determining whether or not a collection of files can be delivered to a given End-User Portal user. Download packages that are not restricted to the United States and Canada must have valid ECCN, ENC, and CCATS values to be properly delivered to users in countries outside of the United States and Canada.

- Export Compliance Requirement
- Export Compliance Evaluation

- Export Compliance Codes: ECCN, ENC, and CCATS

Export Compliance Requirement

Deliveries of software outside the United States are subject to the Export Administration Regulations, which are administered by the Department of Commerce Bureau of Industry and Security. In addition to embargoed or terrorist countries, to which no products may be sold or delivered, a number of United States government agencies maintain lists of individuals and entities to which software sales and delivery are barred. Revenera is prohibited from delivering to parties appearing on these lists, whether we are delivering from or to the United States or from or to another country.

Export Compliance Evaluation

FlexNet Operations distinguishes and acts on the different BIS-approved processes, depending on the product classification of a particular software product.

FlexNet Operations checks the following data elements for any individual who initiates a download using the service:

- User name on denial list
- User email address domain—check for country of origin/government
- User profile address—check for country of origin/government
- Account Name on denial list
- IP address lookup
- Domain from DNS lookup for IP address (only used if the user profile address check fails)

If any of these checks fail, access is denied—the export is not allowed. When a compliance check fails, FlexNet Operations automatically generates and sends an email message to an internal email alias and, optionally, also forwards it directly to a customer-designated email address. Contact Revenera, if necessary, to follow up for information relevant to the denial.

Export Compliance Codes: ECCN, ENC, and CCATS

The chart, below, displays the valid ECCN, ENC, and CCATS code combinations to comply with the Bureau of Industry and Security's (BIS) export rules. In the chart, "######" indicates that any six digits following D, G, or Z are valid. All characters are upper-case. The Z###### CCATS numbers may also have -P appended to them to indicate that the temporary classification has expired and the final CCATS number is pending.

You can restrict downloads to the US and Canada by setting **Restrict to US/CANADA (NLR)** to **Yes**.

Use “TSR+” for 5D001 products with a TSR license exception, except for those products with "software" controlled by 5D001.a and specially designed for items controlled by 5A001.b.5.

Table 2-27 ▪ Valid code combinations based on BIS compliance taxonomy

Encrypted?	ECCN	ENC	CCATS	Export Rules
Encryption	5D002	Unrestricted (RETAIL)	D###### G###### SELF Z######-P	Broad export. No embargoed countries or “terrorist-supporting states.”
			Z######	Limited export. No countries outside U.S., Canada, and EU+8 (EU+8 referred to in BIS regulations as “Supplement 3 Countries”).

Table 2-27 ▪ Valid code combinations based on BIS compliance taxonomy

Encrypted?	ECCN	ENC	CCATS	Export Rules
Encryption (cont.)	5D002 (cont.)	Restricted (NON_RETAIL)	D###### G###### Z######-P	Limited export. No foreign governments outside the EU+8 (EU+8 referred to in BIS regulations as "Supplement 3 Countries"). No embargoed countries or "terrorist-supporting states." Special click-through must be accepted by end user.
			Z######	Limited export. No countries outside U.S., Canada, and EU+8 (EU+8 referred to in BIS regulations as "Supplement 3 Countries").
		TSU	---	Broad export. No embargoed countries or "terrorist-supporting states." Available for "publicly available" encryption source code.
		TMP_BETA	---	Broad export. No embargoed countries or "terrorist-supporting states." Available for beta testing only. Certain terms must be agreed to by beta tester.
		UNKNOWN	---	Limited export. No countries outside U.S. and Canada.
	5D992	---	--- D###### G###### SELF Z######-P Z######	Broad export. No embargoed countries or "terrorist-supporting states." CCATS=SELF available only for encryption that does not exceed 56 bits, or encryption that is limited to password protection or authentication.

Table 2-27 ▪ Valid code combinations based on BIS compliance taxonomy

Encrypted?	ECCN	ENC	CCATS	Export Rules
No Encryption	EAR99	---	--- SELF	Broad export. No embargoed countries.
	3E201	---	---	No license required. Nuclear Nonproliferation.
	3D002	---	---	Limited export. No countries outside U.S. and Canada.
		TSR	---	Limited export. Group B countries only. Special click-through must be accepted by end user (written assurance).
	3D991	---	---	Broad export. No embargoed countries or “terrorist-supporting states.”
	3E991	---	---	
	4D993	---	---	
	4D994	---	---	
	4E992	---	---	
	4E993	---	---	
	5D001	---	---	Limited export. No countries outside U.S. and Canada.
		TSR	---	Limited export. Subset of Group B countries only. Special click-through must be accepted by end user (written assurance).
		TSR+	---	Limited export. Group B countries only. Special click-through must be accepted by end user (written assurance).
	5D991	---	---	Broad export. No embargoed countries or “terrorist-supporting states.”
	5E991	---	---	
	5E992	---	---	

Table 2-27 ▪ Valid code combinations based on BIS compliance taxonomy

Encrypted?	ECCN	ENC	CCATS	Export Rules
Unknown	NO_EXPORT	UNKNOWN	---	No export. U.S. only.
	UNKNOWN	UNKNOWN	---	No export. U.S. only.

Creating a Download Package

You can create a download package in the Producer Portal.

Note ▪ *Before creating a download package, you must have defined at least one deployed product and a product line. (For instructions about creating products and product lines, see Creating a Product and Managing Product Lines, respectively.)*

A download package contains one or more files for users to download from the End-User Portal. A typical use of download packages is as a container for the files that comprise, say, the installer, documentation, and release notes for a particular software release, but your account can group files together in any way that makes sense for its product offerings. Download packages must exist before they can be associated to products or have files associated to them.

Task ***To create a download package***

1. Click **Products** > **Create Download Package**. This link opens the Create Download Package page.
2. Enter download package attributes.

Attribute	Description
Download Package ID	A unique ID used to associate the download package with products and files.
Download Package Name	The name of the download package to be displayed to users in the End-User Portal.
Extended Description	An optional, additional description attribute for the download package. Maximum: 1000 characters.
Version	The version of the download package.
Release Group	An optional attribute to help sort the download package's appearance in the End-User Portal. Maximum: 20 characters.
Effective Date	The date when the download package becomes available on the End-User Portal. Accounts have access to the download package if the download package's effective date occurs within their entitlement's effective and expiration dates on the line item for that download package.

Attribute	Description
Expiration Date	The date when the download package moves to the archive (Previous Versions) tab or becomes inaccessible from entitlement lines with start dates later than this expiration date. If the expiration date is in the future, the download package appears on the new versions section of the End-User Portal. If the expiration date is in the past, the download package moves to the release archives section. Accounts have access to the download package from the release archives section even if the download package is expired, provided there is an overlap between the download package's effective and expiration dates and the entitlement's effective and expiration dates.
Archive Date	The date on which the download package moves to the archive (Previous Versions) tab. Users may still download it if they have access through an overlap with their entitlement dates, but must find it on the archive tab on the End-User Portal. (New entitlements with beginning dates after the expiration date do not have access to this product at all.)
Download Package Producer	The producer of the product and the download package. (See Managing Producers.)
Product Line	The product line in which the download package appears.
End User License Agreement	An optional, click-through license agreement. (See Managing License Agreements.)
Physical Distribution Available	Specifies whether users on the End-User Portal have the option to request a copy of the download package on physical media. FlexNet Operations offers customizations to integrate with a physical distribution facility. When your site is integrated, this attribute shows whether or not end users have the option to request a physical copy of the download package. .
Restrict to US/Canada	Specifies whether to restrict delivery to users in the United States or Canada or to permit delivery outside those countries. **Yes**—Restricts delivery to users within the United States or Canada. **No**—Permits delivery to users outside the United States and Canada. If you choose No, ECCN, ENC, and CCATS attributes are required. Otherwise, they are not used. See About Export Compliance for more information.

3. Optionally, add **Download Instructions**. Download instructions are directions for End-User Portal users that can be entered as plain text or as HTML content. These instructions are shown to users along with the list of files in the download package. For example, "Please refer to the release notes for installation requirements."
4. Complete or continue the download package creation process:
   - Click **Save Download Package** to save with current settings. The Producer Portal shows the download package's View Download Package page.

- Click **Save & Add Another** to save the current download package and begin creating another download package.
- Click **Save & Add File** to save the current download package and upload a file image for it.
- Click **Save & Associate File** to save the current download package and associate it with a file.
- Click **Save & Copy to Product** to save the current download package and associate it with a product.

Searching for a Download Package

Existing download packages can often be most easily located by performing a quick search based on some attribute of the download package you want to see.

***Tip** ▪ To return a list of all download packages, leave the search criteria blank and click Search. Empty searches match all download packages.*

Task ***To search for a download package***

1. Click **Products > Search Download Packages**. The Search Download Packages page opens.
2. Enter your download package search criteria and click **Search**. The Producer Portal shows a list of the download packages that match your search criteria on the Search Results: Download Packages page.

   From the Search Results: Download Packages page, you can click:

   - **Search Again** to run another download package search
   - **Mass Update** to edit the download packages listed on the Search Results: Download Packages page
   - **Export** to export a set of download packages as a Data Import Template file (see Importing and Exporting Entities)

   See About Download Package Attributes for more information about attributes available in the search criteria.
3. Click the **Download Package ID** for the download package you want to view.

The Producer Portal shows the View Download Package page for the download package you selected.

On the View Download Package page, you can perform any of the download package management activities—such as associating the download package to a product or to one or more files—that are permitted by your user account permissions.

Viewing Download Package Information

Users typically search for a download package they want to view and then click that download package's name to open the **View Download Package** page. The **View** menu on the **View Download Package** page includes several commands to get more details about the download package, where it is used, how it has been managed, who it has been delivered to, and so on. With the commands in the View menu, you can perform the following tasks.

In addition, users can access the download packages associated with a product from the **Create A Product** page

Table 2-28 ▪

Topic	Description
Viewing this Download Package	Explains how to return to the basic **View Download Package** page when performing other download package-related operations.
Viewing Where a Download Package Is Used	Shows how to determine which products a download package is associated with.
Viewing Download Package Restrictions	Describes how to view a list of accounts that are permitted or denied access to a download package. Restricting download package access to designated accounts is optional. By default, download packages are accessible to all entitled accounts.
Viewing Emails Related to a Download Package	Shows how to view email messages sent for a download package.
Viewing Download Package Transactions	Shows how to view transaction history related to a download package.
Viewing Download Packages of a Product	Explains how to access the download packages associated with a specific product from the **Create A Product** page.

Viewing this Download Package

When working with download packages, you can return to the basic **View Download Package** page by clicking **View this Download Package**. Download package-related operations might be checking where the download package is used, associating the package to a product, and so forth. On these download package-related pages, **View this Download Package** is a link in the **View** menu.

The Producer Portal also shows the **View Download Package** page when you add a download package.

Task ***To return to the basic View Download Package page***

- Click **View** > **View this Download Package**.

Viewing Where a Download Package Is Used

You can display a list of the products that use a download package from the download package's View Download Package page.

Task ***To view where the current download package is used***

- On the View Download Package page, click **View** > **View Where Used**.

The Producer Portal opens the Where Download Package Used page. This page lists the products with which the download package is associated. Clicking on the name of a product in the Products list opens the View Product page for that product.

Viewing Download Package Restrictions

Describes how to view a list of accounts that are permitted to see a download package in the End-User Portal. Restricting download package access to designated accounts is optional. By default, download packages are accessible to all entitled accounts.

Task ***To view download package restrictions***

- On the View Download Package page, click **View** > **View Restrictions**.

The Producer Portal opens the View Download Package Restrictions page. Depending on how restrictions were defined, this page either lists the accounts that are permitted or denied access the current download package. (Download package restriction lists can be lists of permitted accounts or denied accounts.)

If no accounts appear in the Download Package Restricted To list, then the download package is accessible by all accounts.

Viewing Emails Related to a Download Package

You can view email messages sent for a download packages from its View Download Package page. These messages appear in a list on the Search Results: Email page. The email messages are sorted from newest (most recently sent) to oldest.

Task ***To view emails related to a download package***

- On the View Download Package page, click **View** > **View Emails**.

The Producer Portal opens the Search Results: Email page. Click the System Email ID to show the View Email page for that email message.

If no emails have been sent for products to which the current download package is associated, the Producer Portal shows an error message that reports: No email messages found.

Viewing Download Package Transactions

You can view transactions related to a download package from the download package's View Download Package page. These transactions appear in a list on the Search Results: Transactions page.

Task ***To view transactions related to a download package***

- On the View Download Package page, click **View** > **View Transactions**.

The Producer Portal opens the Search Results: Transactions page. Transactions are ordered by date with the most recent Transaction first. Click on the System Transaction ID to open its View Transaction page.

A transaction is recorded by the Producer Portal as users make changes to the system. Download Package transactions are recorded for changes like adding a download package or associating a download package with a product.

Viewing Download Packages of a Product

You can view the download packages associated with a specific product from the **Create A Product** page.

Task ***To view the download packages of a specific product***

1. In FlexNet Operations go to **Products > Products**.
2. In the **Package Products** page, click on the name of the product.
3. In the **Create A Product** page, click on the **Download Packages** tab. A table of download packages appears.
4. Click on the ID of the download package to open the **View Download Package** page.

Editing Download Package Information

Users typically search for a download package they want to view and then click that download package's name to open the View Download Package page. The Edit menu on the View Download Package page includes several commands for actions like altering, restricting, or creating an email message for an existing download package. With the commands in the Edit menu, you can perform the following tasks.

Table 2-29 ▪

Topic	Description
Editing a Download Package	Describes how to change a download package's details.
Editing a Download Package File List	Shows how to use Edit File List to modify the sort order of the files associated with a download package and optionally exclude selected files from download limit enforcement.
Reidentifying a Download Package	Discusses how to reidentify a download package to change the download package ID of an existing download package.
Restricting a Download Package	Explains how to restrict access to a download package to designated accounts.
Creating an Email Notification for a Download Package	Describes how to create an email notification for a download package.

Editing a Download Package

You can edit download package details from the View Download Package page. Most of the download package information that you enter when you add a download package can be edited on the Edit Download Package page.

Some commonly edited download package details include

- **Download Package Description**—The name of the download package that End-User Portal users see. It should be brief but descriptive, for example, `Enterprise Server 2.4 Solaris` or `Enterprise Server 2.4 Documentation`.
- **Download Package Name**—The name of the download package as it will appear in the Producer Portal.
- **Extended Description**—An optional, additional description field that can show more information about the download package to your End-User Portal users. Maximum: 1000 characters.
- **Download Instructions**—Additional information that is displayed above the file list on the download page of the End-User Portal. For example, `Please refer to the release notes for installation instructions.`

Note ▪ *A download package's editable attributes may also include the values for any custom download package attributes you have defined. To learn more about custom attributes, including custom download package attributes, see Administering Custom Attributes.*

Many attributes support localization. For localizable attributes, click Show Languages to reveal additional, locale-specific fields for those attributes.

For more information about download package attributes, see About Download Package Attributes.

Task ***To edit download package details***

1. On the View Download Package page, click **Edit** > **Edit this Download Package**. This link opens the Edit Download Package page for the current download package.
2. Make your changes to one or more download package details.
3. Click **Save**.

The Producer Portal saves your changes and returns to the View Download Package page for the current download package.

Tip ▪ *Some download package details, such as its Download Package ID, cannot be altered on the Edit Download Package page. To change a download package's ID, you must reidentify the download package (Edit > Reidentify).*

Editing a Download Package File List

You can edit the file list for a download package from the package's View Download Package page.

The Edit File List page shows all of the files associated with the current download package and allows you to create and edit the file sort order. On the End-User Portal, the files that are part of this package are sorted in ascending order according to the numeric values you enter here. If no sort order is specified or when more than one file has the same Sort Order number, the files are sorted in the alphabetical order by their file description.

The file sort order only applies to the current download package. Therefore, the same file used in more than one download package may have a different sort order value in different packages.

Task ***To edit the file list of a download package***

1. On the View Download Package page, click **Edit** > **Edit File List**. This command opens the Edit File List page.
2. In the Files in this Download Package list, specify **Sort Order** values for each file.

   Tip ▪ *The Edit File List page also allows you to indicate which, if any, of the files in this download package should ignore download limits inherited from the product. To control whether a file can be downloaded more times than the download limit, in the* ***Ignore Download Limit*** *column, select* ***Yes*** *or* ***No****.*
3. Click **Save File List**.

The Producer Portal saves the file list with the specified sort order values.

Reidentifying a Download Package

You can change the download package ID of an existing download package from that download package's View Download Package page.

Task ***To reidentify a download package***

1. On the View Download Package page, click **Edit** > **Reidentify**. This link opens the Reidentify Download Package page.
2. In the **Download Package ID** field, type a new download package ID value.
3. Click **Reidentify**.

The Producer Portal changes the download package ID of the current download package and returns to the download package's View Download Package page. Other download package details are preserved, including its associated products and files.

Restricting a Download Package

You can restrict access to a download package in the Producer Portal to the users of designated accounts. Download packages are not restricted by default. When you restrict access to a download package, you use a search function to locate and identify the account to which you want to permit or deny download package access.

***Note** ▪ When no accounts are listed a download package's Restrict Download Package page, access to the download package is not restricted. See About Download Package Restrictions for more information about how the restriction process works.*

Task ***To set download package restrictions***

1. On the View Download Package page, click **Edit** > **Restrict**. This link opens the Restrict Download Package page.
2. Type search criteria and click **Search Accounts**. The Producer Portal opens the Find an Account page in a pop-up window. This page shows a list of accounts that match your search criteria.
3. On the Find an Account page, click **Restrict Allow** or **Restrict Deny** for an account.
   - If you choose Restrict Allow, only the accounts you choose are permitted to access the download package.
   - If you choose Restrict Deny, the accounts you choose are expressly denied access to the download package.

   The Producer Portal closes the Find an Account window and returns to the Restrict Download Package page.

The Restrict Download Package page shows the account you chose in the Accounts Restricted to Download Package list.

***Tip** ▪ To remove an account from the Accounts Restricted to Package list, select the account's check box in the Remove this Account column and then click **Remove Selected Accounts**.*

Creating an Email Notification for a Download Package

You can create an email notification for the download packages from the View Download Package page.

***Tip** ▪ To successfully send an email notification for a download package, the default variation of the Update Notification Email template must be active and permitted to send messages (**Will Email Be Sent** set to **Yes**).*

Task ***To create a notification email for a download package***

1. On the View Download Package page, click **Edit** > **Notify**. This link opens the Create Notification Email by Download Package page.
2. Set Distribution List Options for the email message.

Setting	Description
Effective Date	The first date (inclusive) that this entitlement is available to the end user.

Setting	Description
Include Expired Entitlements	Determines whether or not to include expired entitlements in the distribution list. By default, only users with active entitlements are included in the distribution list.
Exclude Email Filters	Allows you to identify specific email addresses or email address ranges to exclude from the distribution list. For a single address, type the address in the space provided. For multiple addresses, add a comma-separated list of email addresses in the space provided. Use an asterisk as a wildcard to exclude ranges of email addresses. For example, `*@somedomain.com, *.edu`.
Limit to Countries	Restricts the delivery of notifications to countries identified by their two-character country code. Use a comma-separated list of country codes to permit delivery to multiple countries. For example, specifying `US,FR` permits notification delivery to users in the United States and France. When no country codes are specified, FlexNet Operations places no notification delivery restrictions based on the recipient's country.
Send Separate Email for Each Download Package	Determines whether to send a single message for all download packages (when multiple download packages have been selected) or to send a separate message for each download package.
Send Email Immediately	Determines whether the message is sent as soon as it is created or sent later. If you select this check box, the Producer Portal sends the message as soon as you click Create on this page. Do not use this option if you want to modify the message before it is sent.

3. **Choose an Email Template** variation for this message.

   Download Package notification messages use the Update Notification Email template. Select any active variation of that template for the download package notification.

   ***Tip** ▪ You can manage your email templates in the Producer Portal. For more information about email templates, see Managing Email Templates.*

4. Click **Create**. The Producer Portal creates the email message for the download packages you specified, using the settings you provided, and shows the View Email page.
5. On the View Email page, click **Edit** > **Send Email**. The Producer Portal opens the Send Email page.
6. On the Send Email page, choose to send the email or schedule its delivery.
   - To send immediately, click **Send**.
   - To schedule delivery for a later date,
     1. Click **Queue to be sent at**.
     2. Set the Send Date.
     3. Specify the Send Time (24-hour format).

4. Click **Send**.

The Producer Portal sends the email notification.

Note ▪ *For more information about managing email messages and email templates, see Managing Email and Email Templates.*

Copying Download Packages

You can create a copy of an existing download package using the controls on its View Download Package page.

Tip ▪ *Often, the quickest way to create a new download page for a product update or service pack, for example, is to start with a copy of the original product's download package.*

Table 2-30 ▪

Topic	Description
Copying a Download Package with Files	Describes how to create a copy of a download package that includes the files currently associated with that download package.
Copying a Download Package without Files	Describes how to create a copy of a download package that excludes the files associated with the original download package.

Copying a Download Package with Files

Use the following instructions to create a copy of a download package that includes the file associations in the original download package.

Task ***To copy a download package***

1. On the View Download Package page, click **Copy** > **Copy with Files**. The Producer Portal shows the Add Download Package page with product detail values that match those of the original download package.
2. On the Add Product page, make your changes to the product details. (See Creating a Download Package for information about the product detail fields or download instructions.)
3. Edit the download instructions, as necessary.
4. Click **Save Download Package**.

The Producer Portal creates the new download package and shows its View Download Package page.

Copying a Download Package without Files

Use the following instructions to create a copy of a download package that excludes the file associations in the original download package.

Task ***To copy a download package***

1. On the View Download Package page, click **Copy** > **Copy without Files**. The Producer Portal shows the Add Download Package page with product detail values that match those of the original download package.
2. On the Add Product page, make your changes to the product details. (See Creating a Download Package for information about the product detail fields or download instructions.)
3. Edit the download instructions, as necessary.
4. Click **Save Download Package**.

The Producer Portal creates the new download package and shows its View Download Package page.

Managing Download Package Associations

The download packages you add to the Producer Portal can be associated with one or more existing products and to one or more files from the package's View Download Package page.

Users typically search for a download package they want to view and then click that download package's name in the search results to open the View Download Package page. The Associate menu on the View Download Package page includes commands for adding and removing both product and file associations. With the commands in the Associate menu, you can perform the following tasks.

Table 2-31 ▪

Topic	Description
About Download Package Associations	Discusses the relationships you can create between files, download packages, and products.
Associating a Download Package to a Product	Explains how to set up relationships between download packages and products. Two commands in the Associate menu facilitate making download package-product associations: • Associate to Products • Associate Where
Disassociating a Download Package from a Product	Explains how to remove a previously built relationship between a download package and one or more products.
Associating a Download Package to Files	Explains how to build relationships between files and the download package.

Table 2-31 ▪

Topic	Description
Disassociating a Download Package from Files	Explains how to remove a previously built relationship between a download package and one or more files.

About Download Package Associations

Download packages tie products and together with their download files. A download package can be associated with multiple products. Likewise, a download package can be associated with one or more files.

When you associate a download package to a product, you can either specify the product ID or, if you do not know the ID, you can search for products and select it from a list. (In both cases, you can specify or select multiple products, as necessary.)

One potential difficulty in identifying products to associate arises due to the way FlexNet Operations identifies products. A product ID is a combination of the product name and version. The syntax for product IDs is <product name>::<product version>. For example, SalesView Standard::1.0.

Associating a Download Package to a Product

You can associate a download package to one or more products from the download package's View Download Package page. The Associate menu on the View Download Package page includes two different commands for building download package-product associations:

- **Associate to Products**—Allows you to identify one or more products by providing a product ID or searching for products to associate.
- **Associate Where**—Allows you to quickly associate a number of products with the current download package by copying the product associations from one or more other download packages.

Using Associate to Products to Build Download Package-Product Associations

When you associate a download package to a product, you are indicating that the download package is included within the product. The Associate to Product command allows you to associate this download package to one or more products. Enter the product IDs or search for the products you want to associate with this download package. An existing customer with access to the product has immediate access to new download packages associated to the product.

Task ***To associate a download package to products***

1. On the View Download Package page, click **Associate** > **Associate to Products**. This link opens the Associate Download Package to Products page.
2. Identify the products to associate. Choose whether to enter product IDs or to search for products:
   - Enter product IDs when you already know the product IDs or system product IDs of the products you want to associate.

1. In the **Product IDs** field, type the product IDs as a comma-separated list or enter them one per line. Note: If you enter system product IDs, remember to select the **Use System IDs** check box.
2. Click **Associate Products**.

- Search for products by entering search criteria if you do not know the IDs of the products you want to associate.
  1. Type your search criteria into the product search fields.
  2. Click **Search**. The Producer Portal shows a list of products that match your criteria.
  3. Select the products to associate and click **Associate Download Package to Selected Products**.

Important ▪ *A product ID is a combination of the product name and product version with a syntax like the following: <product name>::<product versions>. For example, SalesView Standard::1.0. One ramification of the product ID syntax is that a search for the product by its product name does not match the product ID. For best results, use an asterisk as a wildcard character to be sure your product search captures the product you are looking for. For example,* `SalesView Standard*`.

The Producer Portal creates associations between the current download package and the products you identified and opens the Where Download Package Used page for the current download package.

Using Associate Where to Copy Product Associations from Other Download Package

Associate Where copies the product associations of one or more existing download packages. This approach allows you to quickly associate the current download package with all the products to which one or more other download packages are already associated.

Task ***To associate a download package with another download package's files***

1. On the View Download Package page, click **Associate** > **Associate Where**. This link opens the Associate this Download Package to Files Where Other Download Packages Are Found page.
2. Identify the download packages from which to copy product associations. Choose whether to enter download package IDs, directly, or to search for download packages:
   - Enter download package IDs when you already know the download package IDs or system IDs of the download packages from which you want to copy associations.
     1. In the **Download Package IDs** field, type the download package IDs as a comma-separated list or enter them one per line. Note: If you enter system IDs, remember to select the **Use System IDs** check box.
     2. Click **Associate**.
   - Enter file search criteria if you do not know the IDs of the download packages you want to associate.
     1. Type your search criteria into the download package search fields.
     2. Click **Search**. The Producer Portal shows a list of download packages that match your criteria.
     3. Select the download package to associate and click **Associate to Files of Selected Download Packages**.

The Producer Portal creates associations based on the product associations of the download packages you identified and opens the Where Download Package Used page for the current package. All products associated with the download packages you identified are now also associated with the current download package.

Disassociating a Download Package from a Product

You can remove a download package's product associations from its View Download Package page.

Task ***To disassociate a download package from a product***

1. On the View Download Package page, click **Associate** > **Disassociate from Products**. This link opens the Disassociate this Download Package from Products page.
2. Choose the products to disassociate and click **Disassociate from Selected Products**.

The Producer Portal removes associations from the selected products and refreshes the Disassociate this Download Package from Products page to show the current download package-product associations, if any.

Tip ▪ *If a download package is associated with multiple products and you intend to remove all product associations, you can skip the step in which you choose the products and just click* ***Disassociate from All Products****.*

Associating a Download Package to Files

You can associate a download package to one or more files from the View Download Package page. The products to which you associate the download package can be identified by their product IDs, their system IDs, or located via a file search.

Task ***To associate a download package to files***

1. On the View Download Package page, click **Associate** > **Associate Files**. This link opens the Associate Download Package to Files page.
2. Identify the files to associate. Choose whether to enter file IDs or to search for files:
   - Enter file IDs when you already know the file IDs or system IDs of the files you want to associate.
     a. In the **File IDs** field, type the file IDs as a comma-separated list or enter them one per line. Note: If you enter system file IDs, remember to select the **Use System IDs** check box.
     b. Click **Associate Files**.
   - Search for files by entering search criteria if you do not know the IDs of the files you want to associate.
     a. Type your search criteria into the file search fields.
     b. Click **Search**. The Producer Portal shows a list of files that match your criteria.
     c. Select the files to associate and click **Associate File to Selected Files**.

The Producer Portal creates associations between the current download package and the files you identified and opens the Where Download Package Used page for the current download package.

Disassociating a Download Package from Files

You can remove a download package's file associations from its View Download Package page.

To remove a bad file from a download package or correct a file association that was made in error, follow the instructions below.

Task ***To disassociate a download package from a file***

1. On the View Download Package page, click **Associate** > **Disassociate Files**. This link opens the Disassociate this Download Package from Files page.
2. Choose the files to disassociate and click **Disassociate from Selected Files**.

The Producer Portal removes associations from the selected files and refreshes the Disassociate this Download Package from Files page to show the current download package-file associations, if any.

Tip ▪ *If a download package is associated with multiple files and you intend to remove all file associations, you can skip the file choosing step and just click* ***Disassociate from All Files****.*

Managing Download Files

Producers who use FlexNet Operations for electronic software delivery can add files and upload file images on the Producer Portal. Producers can add files in the Producer Portal and associate them to products via download packages.

This section discusses download file management activities and concepts.

Important ▪ *For the instructions in this section, it is expected that you are working on the Producer Portal with sufficient permissions to perform the tasks described.*

Table 2-32 ▪

Topic	Description
About Files and File Images	Discusses the Producer Portal's approach to files and file images and how those concepts are related to download packages, producers, and products. It also explains some important file management concepts, such as file restrictions and file aliases. Additionally, this section includes the following subtopics: • About File Attributes • About Aliases • About File Restrictions

Table 2-32 ▪

Topic	Description
Adding Files	Describes how to add files. Once a file has been added, you can perform file-management activities like uploading a file image for it and associate it with download packages.
Searching for Files	Shows how to search for files.
Viewing File Information	Shows how to view information related to the files in FlexNet Operations. Users typically search for a file they want to view and then click that file's name to open the View File page. The following options are available from the View File page: • Viewing this File • Viewing Where a File Is Used • Viewing File Restrictions • Viewing Emails Related to a File • Viewing File Transactions • Viewing File Downloads
Editing File Information	Shows how to edit, delete, or otherwise manipulate files in FlexNet Operations. • Editing a File • Aliasing a File • Uploading a File Image • Deleting a File Image • Reidentifying a File • Restricting a File • Creating an Email Notification for a File
Managing File Associations	Discusses the methods of associating download files with products. • About File Associations • Associating a File to Download Packages • Using Associate Where to Copy Associations from Another File • Disassociating a File from a Download Package

About Files and File Images

On the Producer Portal, you can add and manage the files you want to make available for your customers to download. You can add a file and then upload a file image. Adding a file is little more than creating a placeholder for the actual file and specifying a file description and file ID. Uploading the file image copies the actual file from

your local system into FlexNet Operations. Without the file image upload, the file in FlexNet Operations has no payload when a customer or channel partner tries to download it from the End-User Portal. For instructions, see Adding Files and Uploading a File Image.

This section provides a brief overview of file management concepts and options and provides additional information on the upload manager and other file upload methods as well as a discussion of supported file hosting options.

Download File Management Overview

The creation of a download file adheres, at least, to the following sequence:

1. Add the file—Create a placeholder for the file image in FlexNet Operations and give the file, at minimum, a file ID. Other file details are optional at this point.
2. Upload the file image—Copy the actual file bits into FlexNet Operations. The file bits are what gets delivered to End-User Portal users when they download the file.
3. Associate the file with one or more download packages—Download packages collect one or more files and tie them to a product. Without any association to a download package, the file will never appear for download on the End-User Portal.

Once a file has been added and associated with a download package, it is available for End-User Portal users to download from any product to which the download package is associated and to which the End-User Portal user is entitled. No further actions are necessary; however, there are a number of options in the Producer Portal for editing a file's details, changing its associations, restricting access to it, and sending email notifications to users who are entitled to the products that include it.

- Editing file information and reidentifying a file—Most file details can be edited on the Edit File page, but to change a file's ID, you must reidentify the file. (See Editing a File and Reidentifying a File, for instructions.)
- Aliasing a file creates a duplicate of an existing file that points to the same file image but can be managed separately. File aliases allow you to avoid uploading multiple copies of the same file image. (See About Aliases and Aliasing a File.)
- Restricting access to a file—controls whether a file is shown to specified customers in the End-User Portal. (See About File Restrictions and Restricting a File.)
- Sending a notification email for users who have access to the file—Initiate an email message to all End-User Portal users who have access to the file. (See Creating an Email Notification for a File.)
- Adding and removing download package associations—Reuse the file in other download packages by making additional associations or disassociate the file from a currently associated download package. (See Managing File Associations.)

These file management activities are covered in greater detail in this section. Likewise, instructions are presented in this section for researching a file's associations and restrictions as well as its transaction and download history. See Viewing File Information for instructions.

Anonymous File Download

You can also make files available for users to download without requiring users to log in to the End-User Portal. This enables you as the producer to post a link to a file on your own website, or you can send a URL in an email to your end-users. Typically you would use the anonymous file download for informational files, but not actual software files.

The following instructions describe the sequence for creating an anonymous download. The result is a URL that you can make available to customers. Customers who click on this URL can download the associated file without providing credentials. Note that these instructions assume that you already created a download package and associated it with a file (containing a file image) for the anonymous download.

Task ***To make a file available for anonymous download:***

1. Create a custom attribute called ANONYMOUS_ALLOWED. This involves the following steps:
   a. Click **Administer > Custom Attributes**. The Custom Attributes page opens.
   b. On the Custom Attributes page, click **Add Attribute**.
   c. On the Create Custom Attribute page, specify the following custom attribute settings:
      - Name: **`ANONYMOUS_ALLOWED`** (in capital letters)
      - Entity type: **`File`**
      - Status: **`Active`**
      - Type: **`Text`**
      - Text type: **`Single select`**. Add the valid values **`TRUE`** and **`FALSE`**.

      For more information about custom attribute settings, see Custom Attribute Settings.
   d. Click **Save** to save the custom attribute.
2. Assign the ANONYMOUS_ALLOWED custom attribute that you created to the file that you want to make available to your customers.

   For information about adding attributes to a file, see Editing a File.
3. Open the View Download Package page and make note of the export compliance values assigned to the download package. This information is required to build the URL.

   For more information, see Viewing Download Package Information.
4. Build the download URL. The format of the URL depends on whether export controls apply to the file, and whether you use the system file ID or file ID to identify the file.
   - When no export controls apply, use either of the following formats:
     - `https://<siteID>-esd.flexnetoperations.com/flexnet/operations/AnonymousDownload?systemFileID=<systemFileID>`
     - `https://<siteID>-esd.flexnetoperations.com/flexnet/operations/AnonymousDownload?fileID=<fileID>`

     Replace <siteID> with your organization's DNS name or the specific site ID supplied by Revenera, <systemFileID> with the system file ID, and <fileID> with the file ID. You find the system file ID and file ID on the View File page. For more information about the site ID, see FlexNet Operations Environments.
   - When export controls apply, use either of the following formats:
     - `https://<siteID>-esd.flexnetoperations.com/flexnet/operations/AnonymousDownload?fileID=<fileID>&eccnNum=<ECCNcode>&leEnc=<ENCcode>&ccats=<CCATScode>&nlr=<T/F>`

- `https://<siteID>-esd.flexnetoperations.com/flexnet/operations/AnonymousDownload?systemFileID=<systemFileID>&eccnNum=<ECCNcode>&leEnc=<ENCcode>&ccats=<CCATScode>&nlr=<T/F>`

  Replace <siteID> with your organization's DNS name or the specific site ID supplied by Revenera, <systemFileID> with the system file ID, and <fileID> with the file ID. You find the system file ID and file ID on the View File page. For more information about the site ID, see FlexNet Operations Environments.

  Replace <ECCNcode>, <ENCcode>, and <CCATScode> with the relevant export compliance codes. Replace <T/F> with the value selected for **Restrict to US/CANADA (NLR)**. You obtain these values from the View Download Package page for the download package that is associated with the file that you want to make available.

5. Use the URL to make the file available to your customers.

About Enabling Channel Partners to Download Files

A producer can enable a channel partner to download files, on behalf of end users, for product demonstration and support purposes.

After the product is deployed and associated with a download package, the producer creates the channel partner user, creates an entitlement line item for the product for the channel partner user's account, and assigns an end customer user account to the entitlement.

Important ▪ *This option is limited to entitlements with end customer and channel partner user accounts. It does not work for entitlements with only channel partner users.*

The channel partner user logs in to the FlexNet Operations End-User Portal with the line item's activation ID, navigates to the **List Entitlements** page, and locates the entitlement in the table. From there, the file can be downloaded using the standard download procedure.

About File Localization

Some aspects of a file can be localized: File Description, Extended Description, and Content Detail. To show the locale-specific fields for a localizable attribute, click Show Languages.

About File Attributes

The following attributes apply to files, and are especially important when you are adding files or editing file information.

Table 2-33 ▪

Attribute	Description
File ID	A unique ID used to associate the file with its file image and with download packages.
System File ID	A unique internal numeric identifier of the file.

Table 2-33 ▪

Attribute	Description
File Description	The name of the file to be displayed to users in the End-User Portal (maximum 500 characters). The file description is required when adding a new file. It should be brief but descriptive, for example, Enterprise Server 2.4 Solaris or Enterprise Server 2.4 Documentation.
Alias	A read-only attribute that indicates if the current file is an alias of another file or if any aliases have been created for the current file. If aliases exist for the current file, their IDs are listed here. If the current file is an alias, the ID of the original file appears here. Click a file ID to go to the View File page for that file.
Extended Description	An optional attribute for providing additional information about the file (maximum 1000 characters).
Delivery Source	Indicates if the file is an external source or uploaded to FlexNet Operations.
External Source	If the **External** delivery source is selected, the URL where the file is located.
File Size (bytes)	The file size in bytes. For files with a **FlexNet Operations** delivery source, this is automatically calculated and cannot be changed by the user. For files with an **External** delivery source, this field can be changed by the user either manually or using the calculator icon to automatically calculate the file size. ***Note ▪*** *The calculator icon only works on external sources that use either the HTTP or HTTPS protocols. Any other protocol returns a file size of 0.*
MD5 CheckSum	A 32-character hash algorithm used for validating data integrity. For files with a **FlexNet Operations** delivery source, this field is maintained by the Application and cannot be changed by the User. For files with an **External** delivery source, this field is manually entered by the user.
SHA2 CheckSum	The 64-character hash algorithm used for validating data integrity. For files with a **FlexNet Operations** delivery source, this field is maintained by the Application and cannot be changed by the User. For files with an **External** delivery source, this field is manually entered by the user.
Execute Upon Download?	When selected, the FlexNet Embedded client will execute it as part of the software update download process.

Table 2-33 ▪

Attribute	Description
File Name	The name of the file image to be uploaded, for example `filename.zip` (maximum 255 characters). When you add a file, the file name is optional and, when the file image is uploaded, its filename overwrites any value in the File Name field. (The file name is required after a file image has been uploaded.) After the file image is uploaded, the file name can be edited to show a different file name to End-User Portal users. Non-ASCII characters are not allowed in the file name.
File Status	A read-only attribute that shows the status of a file. A file's status can be ● **Loaded**—A file image has been uploaded for the file. ● **Not Loaded**—No file image is currently related to the file because no image has been uploaded or because the upload process has not completed. ● **Deleted**—A previously uploaded file image has been deleted. (If you successfully upload a new file image, the file's status changes to Loaded.)
Download Available	The status of the download. ● **No**—Download not available ● **Yes**—Download available.
Akamai Sync	The status of the Akamai sync process. ● **No**—Not synced. ● **Yes**—Akamai sync process complete. Refresh the page to see the current status. Note: Sync times are affected by the size of the file, the load on Akamai servers, and the volume of Internet traffic.
Owner	A read-only attribute that shows whether or not your account is the owner of the file. (Files can be shared with other accounts, but only the file's owner can change the file and only one account can be the owner.)
Restricted	Indicates whether or not the file has any restrictions.
File Size	The size of the uploaded file image in bytes.
MD5 CheckSum	The MD5 checksum value for the file.
SHA2 CheckSum	The SHA2 checksum value for the file.
Last Uploaded	The most recent date a file image was uploaded for the file.

Table 2-33 ▪

Attribute	Description
Last Retrieved From Location	The location from which the most recent file image upload originated.
Content Detail	An optional attribute for additional details to be shown to End-User Portal users when they click the Content Detail expansion for this file. If the file image is a ZIP or JAR file, the zipinfo data is added to this field during the file image upload. If necessary, you can edit the information in Content Detail, after the file image has been uploaded, to change what End-User Portal users see when they expand the Content Detail.

Files can also have custom (Producer-defined) attributes. To learn more about custom attributes, including custom file attributes, see Administering Custom Attributes.

About Aliases

Aliases behave just like separate files after they have been created, with one exception: they always use the same file image as their original file. At creation time, an alias is a copy of the original file and includes its file associations and other file attributes. After it is created, any changes made to the alias apply only to the alias itself; they have no impact on the original file. Therefore, an alias can be altered to have attributes and download package associations that differ from the original file. However, all the aliases of a file share the file image of the original file. And if you change the file image uploaded for the original file, all that file's aliases also use the new file image. (You cannot otherwise change the file image for an alias.)

An alias can be edited, reidentified, aliased, restricted independently of its original file. Likewise, you can send notification emails specifically for the alias file.

Note ▪ *When you choose Edit > Alias this File on the View File page of an alias, you create a new alias based on the current alias. This alias takes the attributes and associations of the current alias and uses the file image from the original file.*

When viewing files on the Producer Portal, notice that the Alias field in the file details indicates whether or not the file is an alias.

- If a file is an alias file, the Alias field shows **`Yes (Alias of System FileID <fileID>)`**, where <fileID> is the system file ID for the original file.
- If the file is an original, non-alias file, the Alias field shows one or more system file IDs. These file IDs are links to the file's aliases.

Note ▪ *For instruction on creating an alias, see Aliasing a File.*

About File Restrictions

Producers can set up file restrictions to either permit or deny End-User Portal access to the file for the specified accounts.

***Note** ▪ By default, a file is unrestricted. If no restrictions are created for a file, it is accessible to all entitled accounts.*

Accounts can be added to the Restrict File list one at a time. The process starts with a search for the account to permit or deny access by its account ID or its account name. Search results are shown on the Find an Account page in a pop-up window. When you choose to restrict a previously unrestricted file, the Find an Account page provides the option of specifically permitting (Restrict Allow) or denying (Restrict Deny) access to the file for the selected account. For that file, any accounts you add to the restrictions list must follow the choice (Restrict Allow/Restrict Deny) you made for the first account.

- **Restrict Allow**—Creates a file access "allow list" that stipulates the accounts that are permitted to access the file. Any account not on the list is not permitted to access the file in the End-User Portal, even if they are otherwise entitled to the product.
- **Restrict Deny**—Creates a file access "block list" that stipulates the accounts that are not permitted to access the file. None of the accounts on the list are permitted to access the file in the End-User Portal, even if they are otherwise entitled to the product.

Multiple accounts can be removed from the restrictions list on the Restrict File page by selecting their check boxes in the Remove this Account column and then clicking Remove Selected Accounts.

***Note** ▪ For instructions about restricting files, see Restricting a File.*

Adding Files

The first step in making files available to your customers in the End-User Portal is to add the files to FlexNet Operations.

After a file is added, you can upload a file image and associate the file with one or more download packages. See Editing File Information and Managing File Associations for more information about the actions you can take once a file has been added.

Task ***To add a file***

1. Click **Products** > **Create File**. This link opens the Add File page.
2. On the Add File page, enter file-related details for the file you want to add.
   - **File Description**—(required) The name the End-User Portal displays for the file. Maximum length: 500 characters.
   - **File ID**—(required) Your account's unique identifier for the file. Maximum length: 100 characters.

   If **External** is selected as a **Delivery Source**, enter the following details:

- **External Source—**(required) The URL for the externally sourced file.
- **File Size (bytes)**—(required) Enter a number or use the calculator icon to automatically calculate the file size.

  Note ▪ *The calculator icon only works on external sources that use either the HTTP or HTTPS protocol. All other protocols will return a value of 0.*
- **MD5 CheckSum** and/or **SHA2 CheckSum**—(required) At least one of these must be entered, though, optionally both may be.

Other fields are optional. For more information about file attributes, see About File Attributes.

3. Complete the file addition process by clicking Save, Save and Add Another, or Save and Upload File.
   - Click **Save** to add the file and upload the file image later. The Producer Portal saves the file and shows its View File page.
   - Click **Save and Add Another** to save the current file and start adding a new download file. The Producer Portal saves the current file and resets the Add File page fields for new input.
   - Click **Save and Upload File** to add the file and upload the file image. The Producer Portal saves the file and shows the Upload File page. See Uploading a File Image for file image upload instructions.

Searching for Files

Producers can use the file search feature to locate previously uploaded files on the Producer Portal. Files have a several attributes which you can use to locate the files you are interested in. Some of these searchable attributes include

- **File ID**—Unique value by which your company identifies individual files. The File ID may come from a release management or source code control system.
- **System File ID**—Unique identifier assigned by the Producer Portal when a new file object is created.
- **File Description**—A more descriptive name of the file. The File Description functions as the file name that users see on the End-User Portal download page.
- **File Name**—Actual system level name of the file. For example, `installer_2_7.zip`.
- **File Status**—You can search all files, files for which an image has been loaded, or files for which an image has not been loaded.
- **Created in Date Range (Begin)**—Specifies the start of the date range in which the file was created. Used in conjunction with Created in Date Range (End) to express the beginning date of that range.
- **Created in Date Range (End)**—Specifies the end of the date range in which the file was created. Used in conjunction with Created in Date Range (Begin) to express the ending date of that range.
- **Last Uploaded (Begin)**—Specifies the start of the date range in which the file was last uploaded. Used in conjunction with Last Uploaded (End) to express the beginning date of that range.
- **Last Uploaded (End)**—Specifies the end of the date range in which the file was last uploaded. Used in conjunction with Last Uploaded (Begin) to express the ending date of that range.

Note ▪ *A file's searchable attributes may also include the values for any custom file attributes you have defined. To learn more about custom attributes, including custom file attributes, see Administering Custom Attributes.*

For more information about file attributes, see About File Attributes.

Tip ▪ *To return a list of all files, leave the search criteria blank and click Search. Empty searches match all files.*

Task ***To search for a file***

1. Click **Products** > **Search Files**. The Search Files page opens.
2. Enter your file search criteria and click **Search**. The Producer Portal shows a list of the files that match your search criteria on the Search Results: Files page.

   From the Search Results: Files page, you can click:

   - **Search Again** to run another file search.
   - **Export** to export a set of files as a Data Import Template file (see Importing and Exporting Entities).
   - **Upload files** to upload the files to FlexNet Operations so they are available for your customers to download from the End-User Portal.
3. Click the **File ID** for the file you want to view.

The Producer Portal shows the View File page for the file you selected.

Note ▪ *The file search is not case sensitive and supports the use of the asterisk character as a wildcard. (Wildcards cannot be used for System ID values.)*

Click on the file ID of a file to show its View File page. On a file's View File page, you can

- View file details, restrictions, transactions, emails, and downloads.
- Find all the products where this file is used (**View** > **Where Used**).
- Edit the file information.
- Upload a file (that is, upload the actual bits associated with this file object).
- Associate the file with one or more download packages.
- Associate the file with all the download packages to which some other file is associated. (For example, use `Widget_2_1.ReadMe.txt` wherever `Widget_2_1.exe` is found.)

See the table of topics in Managing Download Files for a list of tasks you can perform on a file.

Viewing File Information

Users typically search for a file they want to view and then click that file's name to open the View File page. The View menu on the View File page includes several commands to get more details about the file, where it is used, how it has been managed, who it has been delivered to, and so on. With the commands in the View menu, you can perform the following tasks.

Table 2-34 ▪

Topic	Description
Viewing this File	Explains how to return to the basic View File page when performing other file-related operations.
Viewing Where a File Is Used	Shows how to determine which products a file is associated with.
Viewing File Restrictions	Describes how to view a list of accounts that are permitted or denied access to a file. Restricting file access to designated accounts is optional. By default, files are accessible to all entitled accounts.
Viewing Emails Related to a File	Illustrates how to view email messages related to a file—email messages sent for products to which the current file is associated.
Viewing File Transactions	Shows how to view transactions related to a file.
Viewing File Downloads	Explains how to view download activity for a file.

Viewing this File

When working with files, you can return to the basic View File page by clicking View this File. File-related operations might be checking where the file is used, associating the file to download packages, and so forth. On these file-related pages, View this File is a link in the View menu.

The Producer Portal also shows the View File page when you add a file.

Task ***To return to the basic View File page***

- Click **View** > **View this File**.

Viewing Where a File Is Used

You can display a list of the download packages that use a file from the View File page.

Task ***To view where the current file is used***

- On the View File page, click **View** > **View Where Used**.

The Producer Portal opens the Where File Used page. This page lists the download packages with which the file is associated. Clicking on the name of a download package in the list opens its View Download Package page.

Viewing File Restrictions

You can view a list of accounts that are permitted to access a file in the End-User Portal. Restricting file access to designated accounts is optional. By default, files are accessible to all accounts.

Task ***To view file restrictions***

- On the View File page, click **View** > **View Restrictions**.

The Producer Portal opens the View File Restrictions page. Depending on how the file restrictions were specified, this page lists the accounts that are permitted or denied access to the current file. (File restriction lists can be lists of permitted or denied accounts.)

If no accounts appear in the File Restricted To list, then the file is accessible by all accounts.

Viewing Emails Related to a File

You can view email messages sent for products to which the current file is associated. These messages appear in a list on the Search Results: Email page. The email messages are sorted from newest (most recently sent) to oldest.

Task ***To view emails related to a file***

- On the View File page, click **View** > **View Emails**.

The Producer Portal opens the Search Results: Email page. Email messages are shown in order of recency (most recently sent first). Click the System Email ID to show the View Email page for that email message.

If no emails have been sent for products to which the current file is associated, the Producer Portal shows an error message that reports: No email messages found.

Viewing File Transactions

You can view transactions related to a file from the file's View File page. These transactions, such as adding a file, associating it to a download package, and uploading its file image, appear in a list on the Search Results: Transactions page.

Task ***To view transactions related to a file***

- On the View File page, click **View** > **View File Transactions**.

The Producer Portal opens the Search Results: Transactions page. Transactions are ordered by date with the most recent Transaction first. Click on the System Transaction ID to open its View Transaction page.

A transaction is recorded by the Producer Portal as users make changes to the system. File transactions are recorded for changes like adding a file or associating a file with a product.

Viewing File Downloads

You can view download activity for a file from the file's View File page.

Task ***To view a downloads for a file***

- On the View File page, click **View** > **View Downloads**.

The Producer Portal opens the File Downloads page for the current file. The File Downloads page shows file details and lists the download history for that file. Each entry in the Download History list shows the date of the download, the account and user who downloaded the file, and the user's email address, as well as the IP address where the file was downloaded, the country where the download request originated, and the download method used.

By default, the File Downloads page shows download activity within the last 180 days.

Editing File Information

Users typically search for a file they want to view and then click that file's name to open the View File page. The Edit menu on the View File page includes several commands for actions like altering, restricting, or creating a notification for an existing file. With the commands in the Edit menu, you can perform the following tasks.

Table 2-35 ▪

Topic	Description
Editing a File	Describes how to change a file's details.
Aliasing a File	Shows how to create an alias of a file. In FlexNet Operations, an alias for a file uses the same file image as an existing file but has its own meta data.
Uploading a File Image	Explains how to upload a file image for an existing file.
Deleting a File Image	Explains how to delete a file image.
Reidentifying a File	Discusses how to reidentify a file to change the file ID of an existing file.
Restricting a File	Explains how to restrict access to a file for designated accounts.

Table 2-35 ▪

Topic	Description
Creating an Email Notification for a File	Describes how to create an email notification for a file.

Editing a File

You can edit file details from the View File page. Most of the file information that you enter when you add a file can be edited on the Edit File page.

Some commonly edited file details include

- **File Description**—(required) The name of the file that End-User Portal users see. It should be brief but descriptive, for example, **`Enterprise Server 2.4 Solaris`** or **`Enterprise Server 2.4 Documentation`**.
- **File Name**—(required) The name of the file as it will appear in the Producer Portal. Please note that during the upload of a file whose delivery source is **FlexNet Operations**, this field is overwritten with the name of the file that is being uploaded.
- **Content Detail**—Additional information that is displayed when the end user clicks the + to see additional file information in the End-User Portal. If the file is a ZIP or JAR file, the Producer Portal automatically sets Content Detail to the file's zipinfo during the file upload process.

If the **Delivery Source** is **External**, several additional fields are displayed:

- **External Source** —(required) The URL where the file is located
- **File Size (bytes)**—(required) The size of the file. This can be manually entered or calculated using the calculator icon.

Note ▪ *The calculator icon only works on external sources that use either the HTTP or HTTPS protocols. Any other protocol will return a file size of 0.*

- **MD5 CheckSum**—(required if SHA2 CheckSum is empty) A 32-character hash algorithm for validating data integrity.
- **SHA2 CheckSum**—(required if MD5 CheckSum is empty) A 64-character hash algorithm for validating data integrity.

Either MD5 or SHA2 CheckSum is required for externally sourced files. Optionally, both can be populated.

Note ▪ *A file's editable attributes may also include the values for any custom file attributes you have defined. To learn more about custom attributes, including custom file attributes, see Administering Custom Attributes.*

Many attributes support localization. For localizable attributes, click Show Languages to reveal additional, locale-specific fields for those attributes.

For more information about file attributes, see About File Attributes.

Task ***To edit file details***

1. On the View File page, click **Edit** > **Edit this File**. This link opens the Edit File page for the current file.
2. Make your changes to one or more file details.
3. Click **Save**.

The Producer Portal saves your changes and returns to the View File page for the current file.

Tip ▪ *Some file details, such as Alias, File Status, Owner, Restricted, and File ID cannot be altered on the Edit File page. To change a file's ID, you must reidentify the file. To change a whether a file is restricted you must use the Restrict File page (Edit > Restrict). To create an alias for the current file, use Edit > Alias this File.*

Aliasing a File

You can create an alias of an existing file from the file's View File page. In FlexNet Operations, an alias for a file uses the same file image as an existing file but has its own attributes. Initially, the file ID, file description, and other attributes are copied from the current file.

The main benefit of creating an alias is that you can maintain a separate file, with its own description, restrictions, and download package associations, without the need to upload redundant file images.

Task ***To add a file alias***

1. On the View File page, click **Edit** > **Alias this File**. This link opens the Add File Alias page.
2. Edit the details for the file alias. The File ID must be unique; hence, you must at least provide a different File ID.
3. Click **Save**.

The Producer Portal adds the file alias and opens the View File page for the file alias.

Note ▪ *The Alias field value is* `Yes (Alias of System FileID <fileID>)`*, where fileID is the system file ID for the original file (the file on which this file alias was based). If you want to view or make changes to the original file, click its system file ID.*

Uploading a File Image

You can upload a file image for an existing file. During the upload process, you select a file from your local file system to upload it to the Producer Portal.

Note ▪ *Uploaded files cannot be downloaded until the* ***Download Available?*** *field of the* ***View File*** *page indicates* ***Yes****. This action is only available when the delivery source is* ***FlexNet Operations****.*

Task ***To upload a file image***

1. On the View File page, click **Edit** > **Upload File**. This link opens the Upload File page.
2. On the Upload File page there are four upload options. Select the tab for the option you want to use and do the following:

Upload Option	Procedure
HTTP Upload	1. Click **Browse** and navigate to the file located on your PC to upload. (The user experience varies depending on the web browser you are using.) The Producer Portal shows the name of the upload file. 2. Optionally, type the expected MD5 checksum value. 3. Click **Upload**.
FTP Upload	1. Click **Browse** to select a file that has been uploaded to the Revenera FTP Server. A window appears with the list of files that are available. Select the box of the desired file. 2. Optionally, type the expected MD5 checksum value. 3. Click **Upload**.
Remote FTP Server	1. Enter the **FTP Hostname**, **Username** and **Password** as well as the path and filename of the file located on the remote FTP server. 2. Optionally, type the expected MD5 checksum value. 3. Click **Upload**.
High Speed Upload	1. Click **Upload** to select a file on your PC to begin a high-speed upload. ***Note*** ▪ *You must have the Aspera Connect high-speed plug-in to use this option. If it is not already installed on your computer, click the link on the tab to access the download file.* 2. Optionally, type the expected MD5 checksum value.

Note ▪ *For MD5 checksums, the value must be a 32 character hexadecimal value. When you enter a value in this field, the Producer Portal checks that the file it received has the same checksum as the value you enter.*

The Producer Portal initiates the file image upload process and returns to the View File page for the current file. Once the upload is complete and successful, the file is available for end users to download (provided the file is properly associated to products and download packages to which the end user is entitled).

***Note** ▪ It is possible to upload files without using the Producer Portal. For example, files can be uploaded via web services to automate the process or upload files into FlexNet Operations from your account's system.*

Deleting a File Image

You can delete a file image previously uploaded for a file from the file's View File page.

Note** ▪ This action is only available when the delivery source is **FlexNet Operations.

Task ***To delete a file***

1. On the View File page, click **Edit** > **Delete File Image**. This link opens the Delete File Image page.
2. Click **Delete**.

The Producer Portal deletes the file image and returns to the View File page for the current file.

Reidentifying a File

You can change the file ID of an existing file from that file's View File page.

A file might have to be reidentified if it was entered in error, or if your account wants to change its file ID naming conventions.

Task ***To reidentify a file***

1. On the View File page, click **Edit** > **Reidentify**. This link opens the Reidentify File page.
2. In the **File ID** field, type a new file ID value.
3. Click **Reidentify**.

The Producer Portal changes the file ID of the current file and returns to the file's View File page. Other file details are preserved, including relationships with the original file's aliases as well as its associated download packages.

Restricting a File

You can restrict access to a file in the Producer Portal for the users of designated accounts. Files are not restricted by default. When you restrict access to a file, you use a search function to locate and identify the account for which you want to grant or deny file access.

***Note** ▪ When no accounts are listed on a file's Restrict File page, access to the file is not restricted. See About File Restrictions for more information about how the file restriction process works.*

Task ***To set file restrictions***

1. On the View File page, click **Edit** > **Restrict**. This link opens the Restrict File page.
2. Type search criteria and click **Search Accounts**. The Producer Portal opens the Find an Account page in a pop-up window. This page shows a list of accounts that match your search criteria.
3. On the Find an Account page, click **Restrict Allow** or **Restrict Deny** for an account.
   - If you choose Restrict Allow, only the accounts you choose are permitted to access the file.
   - If you choose Restrict Deny, the accounts you choose are expressly denied access to the file.

   The Producer Portal closes the Find an Account window and returns to the Restrict File page.

The Restrict File page shows the account you chose in the Accounts Restricted to File list.

Tip ▪ *To remove an account from the Accounts Restricted to File list, select the account's check box in the Remove this Account column and then click* ***Remove Selected Accounts****.*

Creating an Email Notification for a File

You can create an email notification for the download packages that include the current file. (You cannot create an email notification for a file that is not associated with a download package.)

Task ***To create a notification email for a file***

1. On the View File page, click **Edit** > **Notify**. This link opens the Create Notification Email by File page, which lists the download packages with which the file is associated.
2. In the **Download Packages and Files** list, select the check box for the download packages for which you want to create the notification email.
3. Click **Create**. The Create Notification Email by File page shows Distribution List Options and Choose an Email Template sections.
4. Set Distribution List Options for the notification email message.

Setting	Description
Effective Date	The first date (inclusive) that this email notification is available to entitled end users.
Include Expired Entitlements	Determines whether or not to include expired entitlements in the distribution list. By default, only users with active entitlements are included in the distribution list.

Setting	Description
Download Status	Limits message delivery according to whether the file has been downloaded: • **All users**—Deliver to all entitled users regardless of whether they have downloaded the file. • **Users with Download Activity**—Deliver to entitled users who have downloaded the file. • **Accounts with Download Activity**—Deliver to entitled users who are part of an account in which at least one user has downloaded the file.
Exclude Email Filters	Allows you to identify specific email addresses or email address ranges to exclude from the distribution list. For a single address, type the address in the space provided. For multiple addresses, add a comma-separated list of email addresses in the space provided. Use an asterisk as a wildcard to exclude ranges of email addresses. For example, `*@yourdomain.com, *.edu`.
Limit to Countries	Restricts the delivery of notifications to countries identified by their two-character country code. Use a comma-separated list of country codes to permit delivery to multiple countries. For example, specifying `US,FR` permits notification delivery to users in the United States and France. When no country codes are specified, FlexNet Operations places no notification delivery restrictions based on the recipient's country.
Send Separate Email for Each Download Package	Determines whether to send a single message for all download packages (when multiple download packages have been selected) or to send a separate message for each download package.
Send Email Immediately	Determines whether the message is sent as soon as it is created or sent later. By default, Send Email Immediately is not selected, and email notifications are queued for sending. If you select this check box, the Producer Portal sends the message as soon as you click the Create button. Do not use this option if you want to modify the message before it is sent.

5. **Choose an Email Template** variation for this message.

   File notification messages use the Update Notification Email template. Select any active variation of that template for the file notification message.

   Tip ▪ *You can manage your email templates in the Producer Portal. For more information about email templates, see Managing Email Templates.*

6. Click **Create**. The Producer Portal creates the email message for the files you specified, uses the settings you provided, and shows the View Email page.
7. On the View Email page, click **Edit** > **Send Email**. The Producer Portal opens the Send Email page.
8. On the Send Email page, choose to send the email or schedule its delivery.
   - To send immediately, click **Send**.

- To schedule delivery for a later date,
  1. Click **Queue to be sent at**.
  2. Set the Send Date.
  3. Specify the Send Time (24-hour format).
  4. Click **Send**.

The Producer Portal sends the email notification.

***Note** ▪ For more information about managing email messages and email templates, see Managing Email and Email Templates.*

Managing File Associations

The files you add to the Producer Portal can be associated with or disassociated from download packages on the file's View File page.

Users typically search for a file they want to view and then click that file's name in the search results to open the View File page. The Associate menu on the View File page includes commands for adding and removing file-download package associations. With the commands in the Associate menu, you can perform the following tasks.

Table 2-36 ▪

Topic	Description
About File Associations	Discusses the relationships you can create between files, download packages, and products and addresses the use of Associate Where in more detail.
Associating a File to Download Packages	Explains how to build relationships between a file and one or more download packages by specifying the download packages to associate with the file.
Using Associate Where to Copy Associations from Another File	Explains how to build relationships between a file and one or more download packages by copying the download package associations from one or more other files.
Disassociating a File from a Download Package	Explains how to remove a previously built relationship between a file and one or more download packages.

About File Associations

A file can be associated with multiple download packages or with none at all. A file only appears in the End-User Portal within the download packages with which it has been associated. Therefore, you can control the visibility of a file and your customers' access to it (in part) by managing the file's associations with your download packages.

You can manage a file's download package associations from the file's View File page. There, you can see which download packages a file is associated to, make new associations, or remove existing associations. Use the following commands on the View File page:

- **View** > **View Where Used**—To see existing download package associations. See Viewing Where a File Is Used.
- **Associate** > **Associate to Download Packages**—To make new download package associations. See Associating a File to Download Packages.
- **Associate** > **Associate Where**—To make download package associations that match the associations from one or more existing files. See Using Associate Where to Copy Associations from Another File.

Persistence of Associations

A file's download package associations remain even if the file is edited, reidentified, or if its file image is deleted.

Aliases behave just like separate files after they have been created with one exception: they always use the same file image as their original file. At creation time, an alias is a copy of the original file and includes its file associations and other file attributes. After it is created, any changes made to the alias apply only to the alias itself; they have no impact on the original file. Therefore an alias can be altered to have download package associations that differ from the original file.

The Association Where Command

Typically, simple download package associations can be quickly defined using the Associate to Download Packages command—explicitly specifying one or more download packages. In some cases, though, it may be cumbersome to itemize all the download packages to which you want this file associated. Associate Where is a shortcut that copies the download package associations of another file. That is, the Producer Portal associates the current file with all the download packages with which another file is already associated.

Associating a File to Download Packages

You can associate a file to one or more download packages from the file's View File page. The download packages to which you associate the file can be identified by their download package IDs, their system IDs, or located via a download package search.

Note ▪ *If your existing files have the same download package associations you want to make for the current file, it may save time to use the Associate Where command instead. See Using Associate Where to Copy Associations from Another File.*

Task ***To associate a file to download packages***

1. On the View File page, click **Associate** > **Associate to Download Packages**. This link opens the Associate File to Download Packages page.
2. Identify the download packages to associate. Choose whether to enter download package IDs or to search for download packages:
   - Enter download package IDs when you already know the download package IDs or system download package IDs of the download packages you want to associate.

a. In the **Download Package IDs** field, type the download package IDs as a comma-separated list or enter them one per line. Note: If you enter system IDs, remember to select the **Use System IDs** check box.

b. Click **Associate Download Packages**.

- Search for download packages by entering search criteria if you do not know the IDs of the download packages you want to associate.

  a. Type your search criteria into the download package search fields.

  b. Click **Search**. The Producer Portal shows a list of download packages that match your criteria.

  c. Select the download packages to associate and click **Associate File to Selected Download Packages**.

The Producer Portal creates associations between the current file and the download packages you identified and opens the Where File Used page for the current file.

Using Associate Where to Copy Associations from Another File

You can use the Associate Where command to quickly build associations between a file and a number of download packages by copying the associations of one or more existing files.

When you click Associate Where, the Producer Portal shows a file search page. If you know the IDs of the files from which you want to copy associations, you can enter them manually. If not, you can search for them based on their file attributes. (You can use an asterisk as a wildcard to search for and select the files from which to copy download package associations.)

Task ***To associate a file with another file's download packages***

1. On the View File page, click **Associate** > **Associate Where**. This link opens the Associate this File to Download Packages Where Other Files Are Found page.
2. Identify the files from which to copy download package associations. Choose whether to enter file IDs, directly, or to search for files:

   - Enter file IDs when you already know the file IDs or system file IDs of the files from which you want to copy associations.

     a. In the **File IDs** field, type the file IDs as a comma-separated list or enter them one per line. Note: If you enter system file IDs, remember to select the **Use System IDs** check box.

     b. Click **Associate**.

   - Enter file search criteria if you do not know the IDs of the files you want to associate.

     a. Type your search criteria into the file search fields.

     b. Click **Search**. The Producer Portal shows a list of files that match your criteria.

     c. Select the download packages to associate and click **Associate to Download Packages of Selected Files**.

The Producer Portal creates associations based on the download package associations of the files you identified and opens the Where File Used page for the current file. All download packages associated with the files you identified are now also associated with the current file.

***Note** ▪ The Associate Where function updates all download packages that contain the files you identified.*

Disassociating a File from a Download Package

You can remove associations between a file and one or more download packages from the View File page. You might need to disassociate a file from a download package to replace it with a new version of the file for a hotfix or to correct a file-download package that had been made in error.

***Note** ▪ Remember that a file must be associated with a download package for it to appear in the End-User Portal. Therefore, you can effectively cease distribution of an existing file by disassociating it from all download packages.*

Task ***To disassociate a file from a download package***

1. On the View File page, click **Associate** > **Disassociate from Download Packages**. This link opens the Disassociate this File from Download Packages page.
2. Choose the download packages to disassociate and click **Disassociate from Selected Download Packages**.

The Producer Portal removes associations from the selected download packages and refreshes the Disassociate this File from Download Packages page to show the current file-download package associations, if any.

***Tip** ▪ If a file is associated with multiple download packages and you intend to remove all download package associations, you can skip the step in which you choose the download packages and just click **Disassociate from All Download Packages**.*

Managing License Agreements

Producers can use the Producer Portal to create license agreements to show to their users in the End-User Portal. On the End-User Portal, users must accept the terms of the agreement before they are permitted to access your download packages.

***Tip** ▪ For the instructions in this section, it is expected that you are working on the Producer Portal with sufficient privileges/permissions to perform the tasks described.*

End-user license agreements (EULAs) can be defined by Producer Portal users and are related to product lines and download packages. A license agreement commonly contains content supplied by your legal department. End-users are prompted to agree to the terms before proceeding to the download page. The agreement is an attribute of a download package.

Table 2-37 ▪

Topic	Description
About Agreements	Discusses agreements and their use in FlexNet Operations.
Listing Agreements	Shows how to list your account's agreements.
Creating an Agreement	Explains how to add an agreement to FlexNet Operations.
Viewing an Agreement's Transactions	Describes how to display a transaction history list for a selected agreement.
Editing an Agreement	Shows how to change an agreement's name or content.

About Agreements

In FlexNet Operations, producers can add agreements that can be tied to one or more download packages.

A click-through or end-user license agreement (EULA) commonly contains content supplied by your legal department. The license agreement is an optional attribute of a download package.

In the Producer Portal, producers add agreements by providing an agreement name and the content for the agreement text. (The agreement content can be plain text or HTML.) Then, the agreement can be linked to a download package on the Edit Download Package page.

When an agreement is connected to a download package, the End-User Portal prompts users to agree to the terms of that agreement before proceeding with the download.

Note ▪ *Once created, a license agreement cannot be deleted. To ensure an existing license agreement is not shown in the End-User Portal, you must remove any references to it in your download packages. (On the Search Download Packages page, you can search for download packages by their license agreement.)*

Listing Agreements

You can show a list of your account's agreements in the Producer Portal.

Task ***To list agreements***

- Click **Products** > **List Agreements**.

The Producer Portal shows a list of agreements in a table. There you can see the agreement's ID and name. Click an agreement ID to see its View Agreement page.

Creating an Agreement

You can create an agreement, such as an end-user license agreement (EULA) or a support agreement, on the Producer Portal.

Task ***To create an agreement***

1. Click **Products** > **Create Agreement**. This opens the Add Agreement page.
2. Type an **Agreement Name**.
3. Type the content for the agreement in **Agreement Content**.

   Note ▪ *The Producer Portal accepts HTML content and plain text as input for Agreement Content.*
4. Click **Save**.

The Producer Portal saves the agreement. This agreement is now available for use in download packages.

Viewing an Agreement's Transactions

You can see the transaction history of an agreement from its View Agreement page. Transactions are recorded when an agreement is created or edited.

Task ***To view transactions related to an agreement***

- On the View Agreement page, click **View** > **Transactions**.

The Producer Portal opens the Search Results: Transactions page with a list of all the transactions that have occurred for the current agreement. You can view details about a listed transaction by clicking its transaction ID.

Editing an Agreement

You can change the name of an existing agreement on its View Agreement page.

Task ***To edit an agreement***

1. On the View Agreement page, click **Edit** > **Edit this Agreement**. This opens the Edit Agreement page.
2. Edit the **Agreement Name**.
3. Click **Save**.

The Producer Portal saves the agreement with the new name you provide. The agreement name is the display name shown to your users in the End-User Portal.

Managing Producers

Producers can be created, modified, deactivated, and reactivated on the Producer Portal. The following topics provide information about producers and instructions on how to manage them.

Table 2-38 ▪

Topic	Description
About Producers	Discusses how producers are used in the Producer Portal and how they appear to End-User Portal users.
Listing Producers	Shows how to display all producers.
Creating a Producer	Explains how to add a producer.
Viewing a Producer's Transactions	Explains how to view the transaction history of a selected producer.
Editing a Producer	Describes how to change a producer's name.
Reidentifying a Producer	Describes how to use the Reidentify command to change a producer's ID.
Deactivating a Producer	Shows how to change an active producer's status to Inactive.
Reactivating a Producer	Shows how to change a deactivated producer's status back to Active.

About Producers

A producer typically identifies an account that creates the software presented for download on the End-User Portal. You can create any number of producers your account requires. To facilitate the creation of download packages, you must have at least one producer, as it is a required attribute of download packages.

Many companies only use a single producer. Others use the Producer attribute to distinguish between different product groups or families. When you click List Producers in the Products menu, the Producer Portal displays a list of all the producers your account has created. Click a producer name to view the producer information, and if necessary, modify it.

On the End-User Portal, the producer acts as the top level category for the files your users can download. Users who are entitled to products of more than one producer see a list of producers when they look for downloads. For example, users who click Downloads > List All in the End-User Portal must first choose from a list of producers and then from a list of product lines and then product versions to show a list of download packages. So, in normal situations, the producer serves only as a method of grouping products, download packages, and files for display on the End-User Portal.

Listing Producers

You can show a list of producers on the Producer Portal.

Task ***To list producers***

- Click **Products** > **List Producers**.

The Producer Portal shows a list of producers in a table. There you can see the producer's ID, name, and status. Click a producer ID to see its View Producer page.

Creating a Producer

You can create a producer on the Producer Portal.

Task ***To create a producer***

1. Click **Products** > **Add Producer**. This opens the Add Producer page.
2. Type a **Producer ID**.
3. Type a **Producer Name**. This value is what the End-User Portal shows to your users when they are choosing among producers.
4. Click **Save**.

The Producer Portal saves the producer with the ID and name you provide and shows the List Producers page. This producer is subsequently available as an option for setting a producer when you create or edit a download package.

Note ▪ *New producers are automatically set to Active status.*

Viewing a Producer's Transactions

You can see the transaction history of a producer from its View Producer page. Transactions are recorded when a producer is created, edited, or reidentified, and when its status is changed.

Task ***To view transactions related to a producer***

- On the View Producer page, click **View** > **Transactions**.

The Producer Portal opens the Search Results: Transactions page with a list of all the transactions that have occurred for the current producer. You can view details about a listed transaction by clicking its transaction ID.

Editing a Producer

You can change the name of an existing producer on its View Producer page.

Note ▪ *You cannot change the producer ID on the Edit Producer page. To change the ID value, you must use the Reidentify command. See Reidentifying a Producer.*

Task ***To edit a producer***

1. On the View Producer page, click **Edit** > **Edit this Producer**. This opens the Edit Producer page.
2. Edit the **Producer Name**.
3. Click **Save**.

The Producer Portal saves the producer with the new name you provide. The producer name is the display name shown to your users in the End-User Portal.

Reidentifying a Producer

Reidentifying a producer is how you change its producer ID. This is a separate process from editing a producer.

Task ***To reidentify a producer***

1. On the View Producer page, click **Edit** > **Reidentify**. This opens the Reidentify Producer page.
2. Edit the **Producer ID**.
3. Click **Reidentify**.

The Producer Portal saves the producer with the new ID value you provide and shows the List Producers page.

Deactivating a Producer

You can deactivate an active producer from its View Producer page. All newly created producers start out with Active status.

Task ***To deactivate a producer***

1. On the View Producer page, click **Edit** > **Inactivate**. This opens the Inactivate Producer page.
2. Click **Inactivate**.

The Producer Portal changes the producer's status to Inactive.

Reactivating a Producer

You can reactivate an inactive producer from its View Producer page.

Task ***To reactivate a producer***

1. On the View Producer page, click **Edit** > **Reactivate**. This opens the Reactivate Producer page.
2. Click **Reactivate**.

The Producer Portal changes the producer's status to Active.

3

Entitling Customers and Activating Licenses

This section describes how to entitle customers to licenses and activate licenses.

Table 3-1 ▪

Topic	Description
Entitling Customers to Licenses	Defines entitlement terms and explains how to view entitlements, create entitlements, manage bulk operations, merge entitlements, and transfer entitlements.
Activating Licenses	Defines activation terms and describes how to view entitlements to activate, email entitlement line items, activate licenses, transfer entitlement line items, email licenses, perform manual activations, and manage short code activations.

Entitling Customers to Licenses

Entitling a customer to a license is the process of a software producer giving a customer account the right to obtain a license for a product:

- Identifying the customer account that is entitled to the product licenses
- Adding products for which the account is entitled to obtain licenses
- Associating an order ID and line item on that order with an entitlement line item (optional)
- Specifying values for license model attributes that are set at entitlement time

This section includes the following main topics.

Table 3-2 ▪

Topic	Description
Entitlement Terms	Defines terms related to entitlement.

Table 3-2 ▪

Topic	Description
Viewing Entitlements	Describes how to view entitlements.
Creating an Entitlement	Explains how to create an entitlement and configure entitlement line items and maintenance line items.
Creating a Bulk Entitlement	Describes how to create a bulk entitlement, configure a bulk entitlement line item, and manage web register keys.
Bulk Operations: Upgrade, Upsell, or Renew a Product	Discusses bulk upgrades, upsells, and renewals.
Emailing Bulk Operation Notifications	Describes how to initiate the sending of email notifications for bulk operations.
Merging Entitlements	Explains how to merge entitlements.
Transferring Entitlements	Explains how to transfer entitlements.
Viewing Fulfillment History	Describes how to view fulfillment history of a line item.
Viewing Entitlement History	Describes how to view the transaction history of an entitlement.

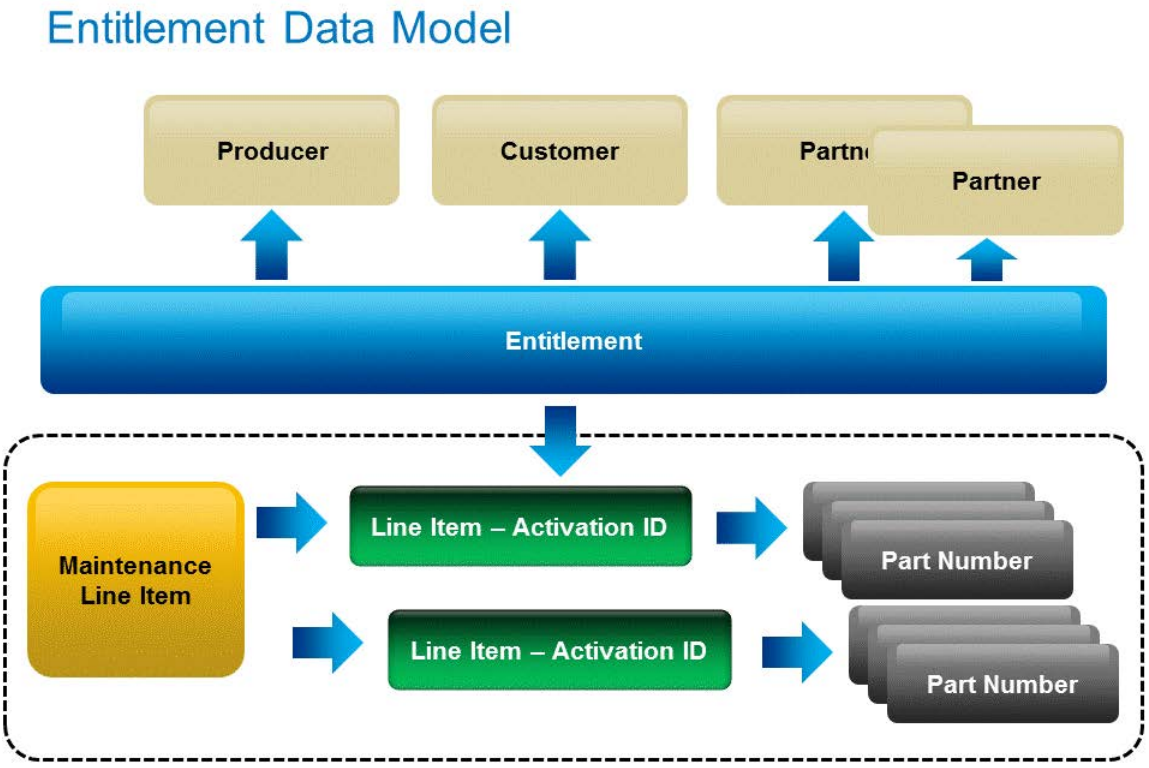
Entitlement Terms

The following terms are referred to when entitling customers to licenses:

- What is an Entitlement?
- What is an Entitlement Line Item?
- What is an Upgrade?
- What is a Test Upgrade?
- What is an Upsell?
- What is a Test Upsell?
- What is a Renewal?
- What is a Test Renewal?
- What is a Merge?
- What is a Transfer?

What is an Entitlement?

An entitlement represents your customers' rights to use your software. An entitlement acts as a container for the licenses purchased in a single order. It is analogous to a bank account: an entitlement contains rights to one or more licenses, and the customer can redeem licenses from or return licenses to this account. The figure below depicts the relationships among entitlements, customers, and line items.



Entitlements are created through the Producer Portal or imported using the Entitlement Order Web service. Entitlements are associated with:

- Multiple tiers of an account
- One or more products

What is an Entitlement Line Item?

Each line item in an entitlement is an activatable unit and has an activation ID.

The details of an entitlement line item specify the product and its options, the quantity, and the duration of the license rights; for example, "15 copies of MyApplication and selected options for two years."

What is a Bulk Entitlement?

A Bulk Entitlement can be created when licenses are distributed through a reseller or channel. The producer creates a bulk entitlement for a single product and generates one or more Web register keys that each provides rights to one or more licenses. The reseller then gives one or more Web register keys to the consumer that purchases the software.

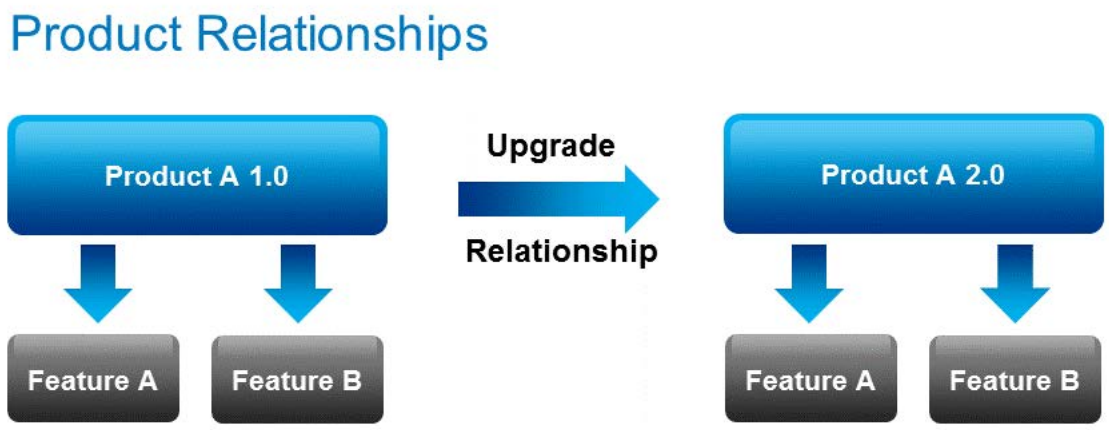
The consumer registers the software with the producer or manufacturer using the Web register key. This allows software producers and device manufacturers to track two pieces of information:

- who purchased the bulk entitlement (the reseller)
- who registered the license (the consumer)

In addition, the reseller can access the End-User Portal to view the bulk entitlements that they purchased, the Web register keys for these bulk entitlements that have not yet been allocated, and the Web register keys that were registered from these bulk entitlements.

What is an Upgrade?

A product is upgraded when a customer replaces an older version of the product with a newer version, such as moving from MyProgram Version 4.5 to MyProgram Version 5.0. The figure below depicts an upgrade of Product A from version 1.0 to version 2.0.



To enable an upgrade in the Producer Portal, both versions of the product must have been added, and a relationship between them (such as **Upgrade To** or **Upgrade From**) must be defined on the **Relate to Different Products** page. Then, go to the **Entitle Customers** page and select Upgrade or Test Upgrade.

Tip ▪ *FlexNet Operations can automatically create upgrade line items for qualifying products and line items with the Product Version Upgrade job. See FlexNet Operations Alert Types.*

What is a Test Upgrade?

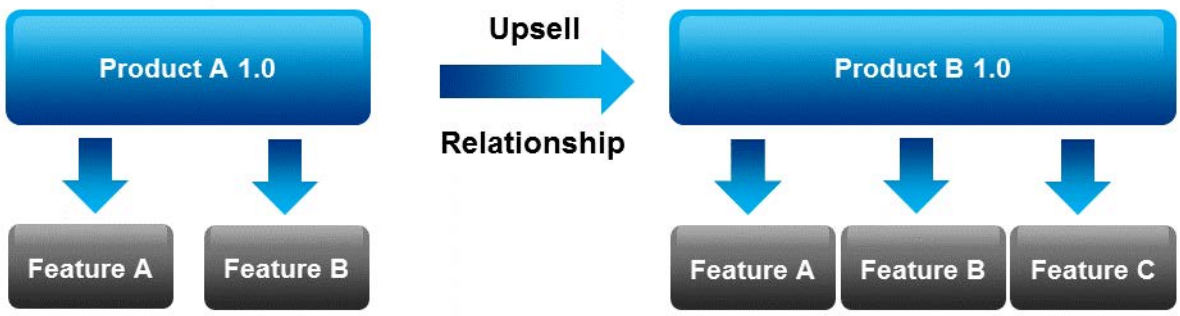
A test upgrade can be created using a draft product and draft license models for testing purposes. It remains in TEST state only. A test upgrade lets software producers and device manufacturers ensure that the products, license models, and relationships are defined properly before deploying them into production.

To enable a test upgrade in the Producer Portal, both versions of the product must have been added, and a relationship between them (such as **Upgrade To** or **Upgrade From**) must be defined on the **Relate to Different Products** page. You can then open the **Entitle Customers** page and upgrade the entitlement line item.

Tip ▪ *FlexNet Operations can automatically create upgrade line items for qualifying products and line items with the Product Version Upgrade job. See FlexNet Operations Alert Types.*

What is an Upsell?

A product is upsold when a customer replaces the product with another product that provides a superset of the original's functionality, such as moving from the MyProgram Standard Edition to the MyProgram Professional Edition. The figure below depicts an upsell of Product A version 1.0 to Product B version 1.0.



To enable an upsell in the Producer Portal, both "editions" of the product must have been added, and a relationship between them (such as **Upsell To** or **Upsell From**) must be defined on the **Relate to Different Products** page.

What is a Test Upsell?

A test upsell can be created using a draft product and draft license models for testing purposes. A test upsell operation enables software producers and device manufacturers to ensure that the products, license models, and product relationships are defined correctly before deploying them into production. To define a test upsell entitlement, you can use draft products and license models.

To enable a test upsell in the Producer Portal, both "editions" of the product must have been added, and a relationship between them (such as **Upsell To** or **Upsell From**) must be defined on the **Relate to Different Products** page.

What is a Renewal?

A renewal is used when you want to extend the expiration date of a product's original entitlement, or its version date, to a date further in the future. It is not necessary to define a relationship for a renew operation because the product involved does not change.

What is a Test Renewal?

A test renewal can be created for testing purposes. A Test Renewal operation lets software producers and device manufacturers use draft products and license models to renew entitlements. This ensures that products and license models are defined correctly before deploying them into production. It is not necessary to define a relationship for a renew operation because the product involved does not change.

What is a Merge?

If Company A acquires Company B and wants to move all license entitlements, fulfillments, and users belonging to Company B over to Company A, a Merge is used. Mergers of company license assets can be accomplished using the FlexNet Producer Portal and Web services.

What is a Transfer?

If a company spins off a division and sets up a separate company, it can transfer some of its license entitlements to the new company by using the Transfer facility in the Producer Portal. Using Web services and the Producer Portal, the producer can transfer the entitlement, or one line item of an entitlement, to the new company. However, an entitlement can be transferred only if there are no active fulfillments against any of its line items. Unfulfilled copies of a line item can be transferred to a different company or entitlement.

Viewing Entitlements

The **List Entitlements by Order** page displays entitlements. To view all entitlements, select **Entitlement ID** from the **Search for** drop-down, and click the **Simple Search** icon. You can also search for entitlements based on specific criteria by

- Specifying some particular values in the simple search, like `Entitlement ID Starts With`
- Clicking **Advanced Search**, which lets you specify multiple search attributes.

Tip ▪ *When an entitlement has been upgraded, upsold, or renewed, the Map Entitlements page shows only the most recent entitlement in its lifecycle chain. Earlier entitlements are grouped under the most recent entitlement but initially hidden. These entitlement groups have a* ***Show Upgrades*** *button to reveal earlier entitlements in the list.*

From this page, you can:

Table 3-3 ▪ Viewing Entitlements

Action	Description
Edit an entitlement	To edit an entitlement, click its entitlement ID. This opens the entitlement's Create an Entitlement (or Create a Bulk Entitlement) page.
Add a new entitlement	To add a new entitlement, click **Add** > **Add entitlement**.
Add a new bulk entitlement	To add a new bulk entitlement, click **Add** > **Add bulk entitlement**.

Table 3-3 ▪ Viewing Entitlements

Action	Description
Copy	To create a copy of an entitlement, select one entitlement and click **Add** > **Copy**. A new entitlement is created. Copies of all line items in the selected entitlement are also created.
Transfer	To transfer an entitlement to a different company, select the entitlement and click **Transfer**.
Change the state of an entitlement	To change the state of one or more entitlements, select the entitlements, click the **Change state** drop-down, and select a state. Entitlements can be in one of the following states: Draft, Deployed, Test, Inactive, or Obsolete. ● **Draft**: Draft entitlements can be created only from deployed products and suites. ● **Deployed**: Deploying a draft entitlement automatically deploys all line items on the entitlement and allows the line items to be activated, upgraded, upsold, or renewed. Line items added to a deployed entitlement must be manually deployed before they can be activated. ● **Inactive**: If an entitlement is made inactive, all of the line items in the entitlement are made inactive and cannot be activated, upgraded, upsold, or renewed. Existing fulfillments against an inactive line item cannot be returned, repaired, or rehosted. ● **Obsolete**: An entitlement can be made obsolete if it is no longer required or it was created and deployed in error. An obsolete line item cannot be fulfilled. Fulfillments of an obsolete entitlement line item cannot be rehosted. ● **Test**: Test entitlements cannot be changed to any other state. They can be created from draft products and suites. Test entitlement line items can be activated, upgraded, upsold, renewed, or deleted. Test fulfillments created from test entitlements can be returned, repaired, rehosted, and deleted. ***Note ▪*** *An entitlement that has been activated on a device can have its state changed to Inactive or Obsolete only if the configuration option* ***Allow used entitlement/line item state change to Inactive or Obsolete*** *is selected.* *When this configuration option is selected, an entitlement or line item that has been activated on a device can still be used until the license expires, even if the entitlement or line item has been deactivated or made obsolete.* *For more information, see General Options in Configuring System Settings.*
Activate licenses for an entitlement	To activate licenses for an entitlement, select the entitlement and click **Activate**. The activatable line items on the entitlement are displayed.

Table 3-3 ▪ Viewing Entitlements

Action	Description
Delete an entitlement	To delete an entitlement, select one or more entitlements and click **Delete**.
Export entitlement(s)	To export an entitlement or entitlements, click **Export** and select an export option from the drop-down menu. Options displayed on the drop-down menu are controlled by a user's Export and Import permission. Users without **Export and Import** permission see only data export options with low impact, such as **Selected Items**, on an entity's **Export** drop-down menu. Users with **Export and Import** permission see the complete list of data export options, including those with high impact, such as **All Items**.
Print an entitlement	To print an entitlement, select one or more entitlements and click **Print**.

Creating an Entitlement

In the **Entitle Customers** view, you can create a new entitlement or test entitlement.

Test entitlements allow testing of draft products and license models before they are deployed. All entitlement actions can be performed on test entitlements, but test entitlements cannot be moved to any other state. When a test entitlement is deleted, any fulfillments against it are also deleted. (The fulfillment records in FlexNet Operations *are* deleted; however, any client-side fulfillment records created in trusted storage as a result of the activation of a test entitlement *cannot* be deleted.)

Task ***To create a new entitlement***

1. Click **Entitlements** > **Create**. This link opens the Create an Entitlement page. (Click **Entitlements > Create Test** to create a test entitlement.)
2. Required fields are indicated by a red asterisk. Provide values for the following fields:

   Table 3-4 ▪ Creating an Entitlement Fields

Field	Description
Entitlement ID	The entitlement identifier uniquely identifies the entitlement. Select **Auto Generate** to let FlexNet Operations assign an entitlement ID, or select **Specify** to enter an entitlement ID of your choice. If the entitlement is in the draft or test state, you can regenerate the activation IDs of draft line items or the entitlement ID by clicking **Regenerate IDs**. If the IDs are based on characteristics of the entitlement that were not set when the entitlement was created, you can use Regenerate IDs to regenerate these IDs after you have set the characteristics.

Table 3-4 ▪ Creating an Entitlement Fields

Field	Description
Allow Portal Login?	If **Yes** is selected, the end customer can use the entitlement ID or activation ID to log into the End-User Portal.
State	An entitlement is created in a draft or test state. Entitlements in draft or test states can be modified or deleted. When the entitlement is ready for use, it can be changed to a deployed state. See Viewing Entitlements for more information about changing the state of an entitlement.
Description	A brief, optional description of the entitlement.
Ship to email	Email address that FlexNet Operations sends the license to.
Ship to mail	Postal address that FlexNet Operations sends the license to.
Email Template variation	Optional. Select an email template from the drop-down menu. If not specified, then the email template configured for the license technology is used. If there is no email template configured for the license technology, then the default email template is chosen. If the chosen template is not active or the send indicator is not switched on, no email is sent.
Channel Partners	Under End Customer and Channel Partners 1. Click **Add** to assign a channel partner to the entitlement. 2. On the Channel Partner page, select a Distribution Tier Type for the partner. 3. Under Accounts, select the partner account. Click **Next**. 4. Under Contacts, select a contact to assign to the entitlement. 5. Click **Save**.

3. Configure line items and maintenance line items for this entitlement.
   - To configure a new line item, click the **Line Items** tab. Then, click **New line item**. See Configuring an Entitlement Line Item.
   - To configure a new maintenance line item, click the **Maintenance Line Items** tab. Then, click **New Maintenance Line Item**. See Configuring a Maintenance Line Item.

Existing line items and maintenance line items can be linked:

- To link to an existing line item to one or more existing maintenance line items, click the **Line Items** tab, and select a line item. Then, click **Link Maintenance Line Items**. Select one or more maintenance line items and click **Save**.
- To link an existing maintenance line item to one or more existing line items, click the **Maintenance Line Items** tab, and select a maintenance line item. Then, click **Link Line Items**. Select one or more line items and click **Save**.

For each entitlement line item, it is possible to show its fulfillment history and transaction history.

Configuring an Entitlement Line Item

When you click **New line item** on the **Create an Entitlement** page, FlexNet Operations opens the Configure Line Item wizard in a pop-up window. Continue configuring the settings for each entitlement line item. You configure entitlement line items using Configure Line Item wizard.

Task ***To configure an entitlement line item***

1. Select Product: Select a product for the line item. You can select multiple products if they have a common license model assigned. Click **Next**.
2. Select Part Number and License Model: Enter values for the following, then click **Next**.
   - The entitlement's part number, if any.
   - Select a license model from the drop-down list, then specify any entitlement-time license model attributes. (Attributes from all license models are displayed.)
   - For FlexNet licensing technologies, an entitlement line item can contain, at most, 1 certificate, 1 trusted storage, and 1 embedded license model. The same line item can be activated using a certificate license, trusted storage activation request, or embedded activation request from a hardware device.
   - Optionally, set the Notice value (customer name and Purchase order number) and Serial Number of the license.
3. Configure Product: Enter values for the following, and then click **Next**.
   - Quantity Per Copy: Quantity per copy of each line item. This is a multiplier. So, for example, if one copy of the line item is fulfilled, the specified quantity of the product is shown in the license.
   - Description: enter a brief description of the product line item.
   - Order ID: enter the order ID. (This may be imported from your ERM/CRP application.)
   - Order Line Number: enter the order line number. (This may be imported from your ERM/CRP application.)
   - Number of Copies: specify the number of copies for the entitlement.
   - Start Date: The start date of the entitlement line item is the start date of the licenses that are generated against the line item. Select a start date option from the drop-down list:
     - Specify at each activation: (not available for FlexNet Embedded licensing) the user is prompted to specify a start date each time the line item is activated. Each fulfillment record gets a new start date, and for duration-based entitlements, each fulfillment record's expiration date is set to start date specified + duration.
     - Specify value now: select the start date value now. All fulfillment records of this line item get this start date. To specify a start date, click the **Calendar** next to the **Start Date** field and select a date.
     - Use first activation date: the date of the first activation is used as the start date. All fulfillment records for this line item get the same start date.

- Specify at first activation: (not available for FlexNet Embedded licensing) the user is prompted to specify a start date when first activating the line item. This start date is used for all fulfillment records.
- Use each activation date: every time the line item is activated, the activation date is used as the start date. Each fulfillment record gets a new start date. As a result, for duration-based entitlements, each fulfillment record's expiration date is set to activation date + duration.

- Expiration: Specify when the line item expires.
  - Permanent: the line item never expires.
  - Specify Expiration Date: the line item expires on the indicated date.
  - Specify Duration: the line item is valid for this period of time after activation.

  Note that if this entitlement line item is delivering usage, then setting or changing the expiration date to a date in the past does not propagate to the usage functionality. This means that the entitled count does not reflect in the usage report user interface. Usage does not allow changes to the past. In this case, the earliest you can set the expiration date to is today.

4. Order Type: select an order type from the drop-down list: Upsell, Upgrade, Renewal, or New. For Upsells, Upgrades and Renewals, if the parent line item is being upgraded, specify it here.
5. Click **Save** or **Complete** to save the entitlement line item.

   An entitlement line item is created as a draft or a test that can be modified. After a draft entitlement is deployed to allow activation, existing line items cannot be modified. After an entitlement is saved, the history of its state change can be viewed by clicking **View History**.

Configuring a Maintenance Line Item

When you click **New maintenance line item** on the **Create an Entitlement** page, FlexNet Operations opens the Configure Line Item wizard in a pop-up window. Continue configuring the settings for maintenance line items. You configure maintenance line items using the Configure Line Item wizard.

A maintenance line item must be linked to one or more product line items for it to be effective during bulk operations.

Task ***To configure a maintenance line item***

1. Select Maintenance: Select a maintenance product for the line item. Click **Next**.
2. Configure Maintenance: Enter values for the following, and then click **Next**.
   - Part Number, if any.
   - Description: enter a brief description of the product line item.
   - Order ID: enter the order ID. (This may be imported from your ERM/CRP application.)
   - Order Line Number: enter the order line number. (This may be imported from your ERM/CRP application.)
   - Number of Copies: specify the number of copies for the entitlement.

- Start Date: The start date of the entitlement line item is the start date of the licenses that are generated against the line item.
- Expiration: Specify when the line item expires.

3. Click **Save** or **Complete** to save the maintenance line item.

Changing the State of a Line Item

You can change the state of entitlement line items and maintenance line items on an existing entitlement's Create an Entitlement page. (In the Entitle Customers view, click on an entitlement ID to see that entitlement's Create an Entitlement page.)

There are five possible states for a line item:

- **Draft**: An entitlement line item is created and can be edited in the draft state.
- **Deployed**: An entitlement line item must be deployed to be activated. Deploying a draft line item allows it to be activated, upgraded, upsold, or renewed.
- **Inactive**: Existing fulfillments against an inactive entitlement line item cannot be returned, repaired, or rehosted. Inactive line items can be changed back to a deployed state as necessary.
- **Test**: Test entitlement line items can be defined for draft products and license models. This helps the producer ensure that products and license models are defined correctly.
- **Obsolete**: An entitlement line item can be made obsolete if it is no longer required, or it was created and deployed in error. An obsolete entitlement line item cannot be fulfilled. Fulfillments of an obsolete entitlement line item cannot be rehosted. The obsolete state is permanent, but the inactive state is not. After you make a line item obsolete, you cannot change it back to a deployed state.

Note ▪ *An entitlement that has been activated on a device can have its state changed to Inactive or Obsolete only if the configuration option* ***Allow used entitlement/line item state change to Inactive or Obsolete*** *is selected.*

When this configuration option is selected, an entitlement or line item that has been activated on a device can still be used until the license expires, even if the entitlement or line item has been deactivated or made obsolete.

For more information, see General Options in Configuring System Settings.

Task ***To change the state of one or more entitlements***

1. On the Create an Entitlement page, click the tab for the type of line items you want to change.
   - For entitlement line items, click the **Line Items** tab (default).
   - For maintenance line items, click the **Maintenance Line Items** tab.
2. Click check boxes to select line items.
3. Click **Change State**, and then click the state you want to assign to the selected line items.
4. Click **OK** to confirm the state change.

Creating a Bulk Entitlement

If you want to create an entitlement for a single product against which multiple end users can generate licenses, create a bulk entitlement. A bulk entitlement can be sold to a retailer that distributes Web register keys to customers.

No licenses can be generated using the entitlement ID of a bulk entitlement; licenses are generated using one of the Web register keys associated with the entitlement. When a Web register key is redeemed, a simple entitlement is created with a configurable entitlement ID (default value is `web_register_keyENT`). Subsequent lifecycle operations are performed on the simple entitlement line item.

Follow the instructions, below, to create a bulk entitlement. Then, continue with the instructions in Configuring a Bulk Entitlement to add a product. Then, add one or more Web register keys by following the steps in Loading Web Register Keys or Adding a Web Register Key.

Task ***To create a bulk entitlement***

1. Click **Entitlements** > **Create Bulk**. This link opens the Create a Bulk Entitlement page. (Click **Entitlements** > **Create Test Bulk** to create a test bulk entitlement.)
2. Required fields are indicated by a red asterisk. Provide values for the following fields:

Table 3-5 ▪ Creating an Entitlement Fields

Field	Description
Entitlement ID	The entitlement identifier uniquely identifies the entitlement. Select **Auto Generate** to let FlexNet Operations assign an entitlement ID, or select **Specify** to enter an entitlement ID of your choice. If the entitlement is in the draft or test state, you can regenerate the activation IDs of draft line items or the entitlement ID by clicking **Regenerate IDs**. If the IDs are based on characteristics of the entitlement that were not set when the entitlement was created, you can use Regenerate IDs to regenerate these IDs after you have set the characteristics.
State	An entitlement is created in a draft or test state. Entitlements in draft or test states can be modified or deleted. When the entitlement is ready for use, it can be changed to a deployed state. See Viewing Entitlements for more information about changing the state of an entitlement.
Description	A brief, optional description of the entitlement.
Ship to email	Email address that FlexNet Operations sends the license to.
Ship to mail	Postal address that FlexNet Operations sends the license to.

Table 3-5 ▪ Creating an Entitlement Fields

Field	Description
Channel Partners	Under Channel Partners, 1. Click **Add** to assign a channel partner to the entitlement. 2. On the Channel Partner page, select a Partner Tier for the partner. (Bulk entitlements are typically sold to a distributor. Thus, the values for End Customer and Tier1 partner are set to the same account for bulk entitlements.) 3. Under Accounts, select the partner account. (If necessary, a new account can be created.) Click **Next**. 4. Under Contacts, select a contact to assign to the entitlement. (If necessary, a new contact can be created.) 5. Click **Save**.

3. To configure a bulk entitlement, click **Add Product**. (See Configuring a Bulk Entitlement.)

Configuring a Bulk Entitlement

When you click **Add Product** on the **Create a Bulk Entitlement** page, FlexNet Operations opens the Configure Line Item wizard in a pop-up window. Continue configuring the settings for this entitlement line item. You configure entitlement line items using the wizard.

Task ***To configure a bulk entitlement***

1. Under Select Product, select one or more products from the list. You can search for a product, a suite, or search for all products. Click **Next**.
2. Specify Quantities: For each product, enter the quantity to be included in each line item. Click **Next**.
3. Select License Model: Select one of the license models that is associated with the selected product. Only deployed license models appear in the drop-down list. Specify any entitlement-time license model attributes. The existing model is displayed, if one was previously assigned. In addition, custom attributes specified at entitlement time are shown here.
4. Configure Product: For each product, specify the following values:

Table 3-6 ▪ Select Product Fields

Field	Description
Description	Describe the characteristics of this entitlement that make it unique.

Table 3-6 ▪ Select Product Fields

Field	Description
Start Date	The start date of the entitlement is the start date of the licenses that are generated against the line item. Select a start date option from the drop-down list: ● Use each activation date as start date: (not recommended for use with FlexNet Embedded licensing) every time the line item is activated, the activation date is used as the start date. Each fulfillment record gets a new start date. As a result, for duration-based entitlements, each fulfillment record's expiration date is set to activation date + duration. ● Specify at first activation: the user is prompted to specify a start date when first activating the entitlement. This start date is used for all fulfillment records. ● Use first activation date: the date of the first activation is used as the start date. All fulfillment records for this entitlement get the same start date. ● Specify at each activation: (not recommended for use with FlexNet Embedded licensing) the user is prompted to specify a start date each time the entitlement is activated. Each fulfillment record gets a new start date, and for duration-based entitlements, each fulfillment record's expiration date is set to start date specified + duration.
Expiration	Specify when the entitlement expires. Permanent: the entitlement never expires. Specify Expiration Date: the entitlement expires on the indicated date. Specify Duration: the entitlement is valid for this period of time after activation.

5. After the bulk entitlement is configured, you can save it in its current state, go to the Load Web Register Keys page to add Web register keys to the bulk entitlement, or deploy it:
   - Click **Save** or **Complete** to save the entitlement. This saves the bulk entitlement in a draft state to allow further editing. After an entitlement is saved, the history of its state change can be viewed by clicking **View History**.
   - Click **Next** to load Web register keys into the bulk entitlement.
   - Click **Deploy** to deploy a draft bulk entitlement. Deploying a bulk entitlement allows activation but, after deploying, a bulk entitlement's existing line items cannot be modified.

Loading Web Register Keys

Each bulk entitlement has a set of Web register keys that end users use to turn on license rights for their software. Web register keys can be added in more than one set and can be added after the bulk entitlement is deployed.

The total number of Web register keys that were added to the entitlement and the number that were already activated are displayed.

Select **Auto Generate** to let FlexNet Operations create Web register keys for the specified number of copies, or select **User Supplied** to specify a file that contains Web register keys. (Web register keys can also be imported using a FlexNet Operations Web service.)

Important ▪ *Whether using the Auto Generate or User Supplied option, you must configure the alert,* ***Importing Bulk Entitlement Web Register Keys****, before loading Web register keys. This alert runs a job that periodically checks whether there are any Web register keys to import, and it can be configured to send an email with the status of the import. See Configuring Alert Behavior for instructions.*

Note ▪ *To show the* ***Load Web Register Keys*** *page, open the* ***Create Bulk Entitlement*** *page for the bulk entitlement to which you want to add Web register keys and click* ***Next****.*

Task ***To load Web register keys***

1. On the Load Web Register Keys page, choose either **Auto Generate** or **User Supplied**:
   - Select **Auto Generate** to automatically generate Web register key values. Then enter the number of Web register keys to generate for this entitlement.
   - Select **User Supplied** to supply Web register key, yourself, from an XML file. Then use the on-page controls to choose the XML file that contains the Web register key values. (See Specifying User-Supplied Web Register Keys for details about the format and syntax of the XML file.)
2. Click **Save** to submit the request to load Web register keys.

   If the **Importing Bulk Entitlement Web Register Keys** alert is configured, FlexNet Operations processes the import request and notifies you of the status of the import request.
3. Click **Complete** when you are done creating or editing the bulk entitlement. The bulk entitlement must be deployed before any activations can be done against it.

Tip ▪ *To manually add individual Web register keys, follow the instructions in Adding a Web Register Key.*

Adding a Web Register Key

You can manually add web register keys, one by one, to an existing bulk entitlement.

Note ▪ *To show the* ***Load Web Register Keys*** *page, open the* ***Create Bulk Entitlement*** *page for the bulk entitlement to which you want to add Web register keys and click* ***Next****.*

Task ***To add a web register key***

1. On the Load Web Register Keys page, click **Add**.
2. Enter the web register key and click **OK**. The web register key is added.
3. Click **Save**.

Tip ▪ *To load several Web register keys at the same time, either from a user-supplied file or by allowing FlexNet Operations to automatically generate the Web register key values, follow the instructions in Loading Web Register Keys.*

Deleting a Web Register Key

You can delete web register keys from bulk entitlements.

Note ▪ *To show the **Load Web Register Keys** page, open the **Create Bulk Entitlement** page for the bulk entitlement from which you want to delete Web register keys and click **Next**.*

Task ***To delete a web register key***

1. On the Load Web Register Keys page, select the web register key you want to delete (or multiple keys) by selecting the corresponding check box.
2. Click **Delete**.
3. Click **Yes** to confirm deletion.

Specifying User-Supplied Web Register Keys

When loading Web register keys from a user-supplied file, you must provide the key values in an XML file. Enter Web register keys into a text file with the following format and save it on the machine on which you are running a browser.

```
<?xml version="1.0" encoding="UTF-8"?>
   <webregkeys>
      <webregkey>web_reg_1</webregkey>
      <webregkey>web_reg_2</webregkey>
      <webregkey>web_reg_3</webregkey>
      ...
   </webregkeys>
```

Use the controls on the Load Web Register Keys page to specify this file. (See Loading Web Register Keys.)

Web register keys can also be imported using the Entitlement Order Web service. See the createWebRegKey operation in the *FlexNet Operations SOAP Web Services Guide* for instructions.

Bulk Operations: Upgrade, Upsell, or Renew a Product

This wizard allows you to create new entitlements for a customer that has purchased either:

- An upgraded version of a product. This allows a customer to move from an older version of a product to a newer version.
- An upsold version of a product. This allows the customer to move from a product with fewer features to one with more features.
- A renewal of a product. This allows a customer to extend an existing entitlement for a licensed product.

The Bulk Operations process allows an Upgrade, Upsell, Renew, Test Upgrade, Test Upsell, or Test Renew of an entire set of entitlements. You are presented with a wizard that prompts you for information about the type of action that you want to perform. Many of the steps for completing each of these processes are identical and are outlined here. You can perform these operations in bulk, for multiple accounts, line items, and products all at once.

***Note** ▪ Before performing an upgrade or upsell action, you must create the appropriate upgrade and upsell relationships between products. In addition, you can perform a Renew only when one of the following conditions is met:*

- *The entitlement line item has an Expiration Term that is temporary. (That is, the Expiration value is not set to Permanent.)*
- *If the Expiration Term for the entitlement line item is Permanent, it specifies a Product containing at least one Feature with the Version Format Type set to Date Based.*

***Important** ▪ FlexNet Operations does not evaluate the count of available copies when an upgrade is created. Therefore, it is possible to create an upgrade count that exceeds the number of available copies; however, the count is evaluated at fulfillment time. On fulfillment, upgrades that exceed the available count are rejected. To avoid errors at fulfillment time, users can invoke the method* `getExactAvailableCount()`*, which returns the exact number of copies available for upgrade fulfillment. This method is available as a web service call and also as part of public API.*

Task ***To use the Bulk Operations wizard***

1. Click **Entitlements** > **Bulk Operations**. This link opens the Bulk Operations page.
2. Select your operation by clicking the corresponding button: **Upgrade**, **Upsell**, **Renew**, **Test upgrade**, **Test upsell**, or **Test renew**. (The Test version of each operation only shows draft and deployed entitlements.)
3. Basic Information: Enter the basic information about the operation, and then click **Next**.
   - Name: The name of the upgrade, upsell, or renewal. You can use this for tracking purposes.
   - Description: A short description of the bulk operation you are performing.
   - (For Upgrades or Upsells Only) Check Maintenance: Select whether or not any maintenance line items are included in the upgrade or upsell. If Yes, select an expiration date for the maintenance using the calendar control. Line items linked to maintenances expiring after this date are displayed later.

- Obsolete Line Items: Indicate whether or not the parent line item of this item will be made obsolete.
- (For Renewals Only) Support Version Date Renewals: For renewals, select whether or not to support version date renewals.
  - If yes, then permanent line items are shown during the renewal process. Only line items that have products with a date-based feature are shown.
  - If no, then you cannot renew permanent line items.

4. Select Product: For upgrades and upsells, a list of products is presented that can be upgraded or upsold. These are products that have been entitled to this account and that either have an Upgrade To relationship or an Upsell To relationship. Select the product (or products, all of which must be in the same entitlement line item) you want to upgrade or upsell and then click **Next**.
5. Select Accounts: If you want to perform the process for all accounts, select Yes. If not, select No and then select the accounts for which you want to perform the process. When complete, click **Next**.
6. Select Line Items: Select the entitlement line items you are upgrading, upselling, or renewing. These are entitlement line items that contain products entitled to the selected accounts. In Count, type the number of copies in the entitlement line item you want to upgrade, upsell, or renew. For Test operations, only Test line items are displayed. Then, click **Next**.
7. Select Product: For upgrades and upsells, a list of products is presented that can be upgraded or upsold. (The products being operated upon in Step 4 must have a common license model for you to select them in this step.) Select the products you want to upgrade, upsell, or renew and then click **Next**.
8. Configure Product Quantities: Enter the quantities of the products being upgraded, upsold, or renewed.
9. Configure Part Number and License Model: Select the part number and license model for the product being upgraded, upsold, or renewed.
10. Line Item Attributes: Specify the version date and auto fulfill option, and enter values for any additional entitlement line item attributes for which you are prompted.

    Specify version date as follows:

    - **Version Date**: Define how the version date is determined. In the drop-down menu, select either:
      - **Use Start Date to compute Version Date**: the Version Date is computed using the duration entered here and the Start Date. Enter a value for a duration of time that is added to the Start Date value. The Start Date Value can be defined on this page or can be defined at the time the Entitlement Line Item is activated.
      - **Specify Value Now**: specify a static date.
      - **Specify the Version Start Date Later**: the Version Date is computed using the duration entered here and the Version Start Date. Enter a value for the duration that is added to the Version Start Date value. The Version Start Date value is defined at the time the entitlement line item is activated.
      - **Specify Version Date Later**: the Version Date is specified at the time the entitlement line item is activated.
      - **Use Activation Date to compute Version Date**: the Version Date is computed using the duration entered here and the Activation Date. Enter a value for the duration that is added to the Activation Date value. The Activation Date is the date when the entitlement line item is activated.
    - **Permanent**: Specify whether this license is Permanent or Temporary.

- **Duration**: If the license is temporary, specify the duration that it is valid.
- **Date**: If the license is temporary, specify a static date when the license expires.

For **Auto Fulfill**, specify Yes or No:

- Click **Yes** to automatically fulfill the line items. All the line items in the bulk operation are automatically fulfilled after the operation is submitted. Example: For a bulk upgrade operation in which the parent line item is already fulfilled, FlexNet Operations creates the new, child (upgrade) line items and automatically activates them.
- Click **No** if you want to manually fulfill the line items. Line items in the bulk operation must subsequently be manually fulfilled as a support action.

11. Configure Policies: Set policies for the following items, and then click **Save** & **Next**.

    - **Number of Rehosts**: How many times and how often can your customers move (or rehost) licenses from one computer to another? Choose from **Ignore Policy** or **Specify Value Now**. If you choose **Specify Value Now,** the Producer Portal reveals controls for setting the number and frequency of rehosts.
    - **Number of Returns**: How many times and how often can your customers return licenses to the pool of available licenses? Choose from **Ignore Policy** or **Specify Value Now**. If you choose **Specify Value Now,** the Producer Portal reveals controls for setting the number and frequency of returns.
    - **Number of Repairs**: How many times and how often can your customers repair licenses? Choose from **Ignore Policy** or **Specify Value Now**. If you choose **Specify Value Now,** the Producer Portal reveals controls for setting the number and frequency of repairs.
    - **Number of Extra Activations**: How many extra seats (or activations) do you want to enable for each entitlement? Choose from **Ignore Policy** or **Specify Value Now**. If you choose **Specify Value Now,** the Producer Portal reveals a field for the extra activations value.

    ***Note** ▪ For additional information about configuring license policies, see Setting License Model Policies.*

12. Submit Job: Select whether to submit the bulk operations job for processing now or later. You may want to select this time based on your system capabilities.

    - Jobs submitted now are processed within 2 minutes.
    - If submitted for later, specify the time FlexNet Operations should process the job. Typically, you should choose a time when demand for processing time is low.

    When complete, click **Submit**. Your bulk operations job is submitted for processing at the specified time. You can check job status on the Bulk Operations page. Failed jobs are displayed on the page as well, along with any errors encountered. More information on failed jobs is contained in the application log.

***Tip** ▪ FlexNet Operations can automatically create upgrade line items for qualifying products and line items with the Product Version Upgrade job. See FlexNet Operations Alert Types.*

Emailing Bulk Operation Notifications

When a bulk operation processes an upgrade for entitlements, you can initiate that end users are sent an email for each upgraded line item.

***Note** ▪ Email notifications can only be sent for completed bulk operations. In addition, ensure that the Ship To Email field on the Create a Bulk Entitlement page has been populated with the recipient email (see Creating a Bulk Entitlement).*

Task ***To send an email notification for a bulk operation***

1. Click **Entitlements** > **Bulk Operations**. This link opens the Bulk Operations page.
2. Select a completed operation (where the Status field shows Completed).
3. Click **Email**. This link opens the Email Bulk Operations page. The Name field shows the name of the upgrade operation.
4. Enter the following information:
   - **Email Type**: Select if you want to send emails for entitlements or fulfillment, or both.
   - **Language for email**: Select the language of the email that will be sent.
   - **Submit Job**: Select **Now** if the notification should be sent immediately, or select **Later** and provide the date and time to schedule the sending of the email.
5. Click **Submit**.

You can check the email bulk operation job status in the Email Status column on the Bulk Operations page. A submitted job can have the status Success, Failed, or Pending. The Notes column shows additional information.

If an email job for a bulk operation has already been submitted, emails will be sent for any records for which an email could not be sent earlier.

***Note** ▪ When entitlements are upgraded during a bulk operation and the same product exists on multiple line items of the upgraded entitlement, a customer will receive a single email notification instead of a notification for every upgraded line item.*

Merging Entitlements

This capability allows you to reassign entitlements and users to another account. When you merge an entitlement, everything in the entitlement remains the same, except the Sold To value. This is changed to reflect the new account. When you merge users, all users and contacts that are associated with the source account are reassigned to the target account.

Any channel partners that are assigned to an account's entitlements are included in the merge.

The following selections are defined when merging entitlements from one account to another.

Table 3-7 ▪ Merge Wizard Selections

Field	Description
Source Account	The company that currently own the assets. This can be either a customer account or a self-registered account.
Target Account	The company that receives the assets. Only customer accounts can be specified.
Assets to be Transferred	Select either or both: • **Entitlements and Fulfillments**: all entitlements, fulfillments, and host ID values are associated with the Target Account. • **Users**: all users and contacts that are associated with the Source Account are associated with the Target Account.

Transferring Entitlements

You can transfer the license rights in a single entitlement from one account to another. All entitlement line items for that entitlement are transferred. Transfer of entitlement is possible only if there are no fulfillments. The system provides an option to return all existing fulfillments automatically during the process of performing the transfer.

Bulk entitlements cannot be transferred. Also, entitlements with line items on an auto-provisioned license server cannot be transferred.

After the license rights are transferred, the status of the entitlement for the origin account changes to Obsolete and a new entitlement is created for the target account.

To transfer individual entitlement line items, see Transferring Entitlement Line Items.

Task ***To transfer activatable entitlements to accounts***

1. Click **Entitlements > List Entitlements**. This link opens the List Entitlements page.
2. Search for a line item by Activation ID and then select the item you want to transfer.
3. Click **Transfer**. The line item is displayed on the next page if it is transferable.
4. Fill in the number of copies of the line item you want to transfer. The total number sold and the number available for transfer is displayed, along with the source account.
5. Click **Search** to select the target account to which the copies are to be transferred, and click **OK**. Alternatively, type the account name in the **Target Account** field.
6. Select whether the target account is to use the original Activation ID. Yes causes the system to generate the Activation ID; No requires you to provide the Activation ID.

7. If you selected No, enter the new Activation ID, and select which parent entitlement the new line item is to belong to: Existing or New.
8. If you selected No in Step 7, select whether you want the system to auto generate the Entitlement ID. If you select No, you must provide the Entitlement ID, and you must fill in the new entitlement details.
9. If you selected Yes in Step 8, the system auto generates the Entitlement ID. You are prompted to provide the address where email is to be sent, and the address where mail is to be sent.
10. Click **Transfer** to transfer the line item to the target account.
11. If you selected Yes in Step 7, select which parent entitlement the new line item is to belong to: Existing or New. If no parent entitlements exist, select New.
12. Select whether you want the system to auto generate the Entitlement ID. If you select No, provide the Entitlement ID, and fill in the new entitlement details.
13. If you select Yes in Step 13, the system auto generates the Entitlement ID and you are prompted to provide the address where email is to be sent, and the address where mail is to be sent.
14. Click **Transfer** to transfer the line item to the target account.

Transfer Entitlements Wizard

Required fields are indicated by a red asterisk.

1. Click **Entitlements > List Entitlements by Order**. This link opens the List Entitlements by Order page.
2. Select the entitlement from the list. You can also search for entitlements based on specific criteria by
   - Specifying some particular values in the simple search, like **`Entitlement ID Starts With`**
   - Clicking **Advanced Search**, which lets you specify multiple search attributes.
3. Click **Transfer**.
4. **Target Account**: click **Search** to select the account that is to receive the entitlement, or directly type in the account name. If there are unreturned licenses, continue with Step 5. If there are no activated licenses, continue with Step 6.
5. **There are some active fulfillments for line items in this entitlement. Would you like the system to automatically return them?**
   - **Yes**: Operations returns all of the activated licenses. Continue with Step 6.
   - **No**: The entitlement (or entitlement line item) cannot contain activated licenses. These existing fulfillments must be returned before transferring the entitlement (or entitlement line item). Click **Cancel** and go to Supporting Licenses to return the Fulfillments associated with this entitlement (or entitlement line item).
6. **Will the Target Account use the same entitlement ID and activation IDs that the source account used?**
   - **Yes**: If you select this option, the new entitlement retains the values defined for the entitlement ID and activation IDs. The entitlement ID and activation IDs values defined in the originating entitlement are changed to reflect the action taken.

     Click **Transfer**. You are prompted that the entitlement is to be transferred to the new account. Continue with Step 8.

- **No**: You are provided the opportunity to change the information. Continue with Step 7.

7. **Would you like the system to generate the entitlement ID and activation IDs?**
   - **Yes**: Operations generates a new entitlement ID and activation IDs. Click **Transfer** and then continue with Step 8.
   - **No**: Operations generates a new entitlement ID and activation IDs, but gives you the ability to change these values. Click **Transfer** and then continue with Step 8.
8. The Creating an Entitlement page is displayed with the Entitlement ID and Activation ID fields populated with values based on your selections. You can either accept the values as they are or you can change them. The account defined in the **Account** field contains the name of the new account. Click **Deploy** to complete this action.

Viewing Fulfillment History

The fulfillment history of an entitlement identified with an activation ID can be displayed when viewing an entitlement order.

Task ***To see the fulfillment history of a line item:***

1. Click **Entitlements > List Entitlements by Order**. This link opens the **List Entitlements by Order** page.
2. Locate the entitlement. You can search for entitlements based on specific criteria by
   - Specifying some particular values in the simple search, like `Entitlement ID Starts With`
   - Clicking **Advanced Search**, which lets you specify multiple search attributes.
3. Click the entitlement ID to open it in the **Create an Entitlement** page.
4. Find the entitlement line item whose history you want to view and click its **Fulfill History** link. A pop-up window is displayed with the fulfillment history.
5. Click **OK** to close the pop-up window.

Viewing Custom Attributes

Custom Attributes appear on the **Maintenance Entitlement Details** pop up.

Task ***To view custom attributes***

- On the **List Entitlements** page, under Maintenance tab, you can click the maintenance hypertext to view the custom attributes in the **Maintenance Entitlement Details** pop up.

Note ▪ *You can also view the custom attributes on the List Entitlements By Order page.*

Viewing Entitlement History

The transaction history of an entitlement including a summary of what was changed and who changed it can be displayed when viewing an entitlement order.

Task ***To see the change detail of an entitlement:***

1. Click **Entitlements > List Entitlements by Order**. This link opens the **List Entitlements by Order** page.
2. Search for an entitlement.
3. Click the entitlement ID to open it in the **Create an Entitlement** page.
4. Click **View Transaction** at the bottom of the page. The **Search Transactions: Results** page opens and list of updates is displayed. See Viewing Transaction Histories for more information.

Activating Licenses

An *activation* represents what the customer installed or redeemed against an entitlement. The activation process generates the actual license rights used by the software application you sell to customers, based on the license models you defined earlier.

When activating licenses, the software producer turns on license rights for a product or set of products for a customer account by performing the following tasks:

- Selecting an entitlement line item, identified by an activation ID, that refers to a specific product name and version
- Specifying values for license model attributes that are set at fulfillment time
- Generating a license

This section includes the following main topics.

Table 3-8 ▪

Topic	Description
Activation Terms	Defines terms used to discuss activations.
Viewing Entitlements to Activate	Explains how to show all activatable line items.
Emailing an Entitlement Line Item	Shows how to email an entitlement line item.
Activating a License	Describes how to activate licenses with either the Activate Licenses wizard or Trusted Activate wizard.
Transferring Entitlement Line Items	Explains how to transfer entitlement line items and use the Transfer Entitlement Line Item Wizard.

Table 3-8 ▪

Topic	Description
Emailing a License	Shows how to email a license.
Manual Activations	Discusses manual activations and how to view a manual activation response.
Short Code Activations	Discusses short code activations and how to view a short code activation response.

Activation Terms

The following topics define the terminology used for activations:

- What is a License?
- What is Activation?
- What is the Activatable Line Item Type?
- What is an Activation ID?
- What is Batch Activation?
- What is License Consolidation?

What is a License?

A license allows the use of software capability. FlexNet licenses are delivered as license certificates or delivered into trusted storage on a machine. License delivery for custom license technologies may vary.

What is Activation?

Activation is the entire process of requesting, generating, delivering, and installing license rights. Generating a license certificate and activating a license in trusted storage using FlexNet Operations are different activation processes.

What is the Activatable Line Item Type?

The *activatable line item type*, which is displayed in the Type column on the List Entitlements page, indicates whether an entitlement is certificate-based, trusted storage-based, or custom.

What is an Activation ID?

The activation ID is the unique identifier of an activatable item. An activatable item is either an entitlement line item in a simple entitlement or a Web register key in a bulk entitlement.

Activation ID in FlexNet Operations corresponds to entitlement ID in FlexNet Publisher Licensing Toolkit. In trusted storage, Entitlement ID is the identifier of the entitlement that contains the activatable item.

The activation ID is listed in the **Activation ID** column on the **List Entitlements** page. A customer can log in to the End-User Portal with an activation ID.

What is Batch Activation?

To simplify activation, FlexNet Operations supports simultaneous activation of multiple entitlement line items, provided the following are *all* true:

- All line items are sold to the same account.
- All line items pertain to the same certificate-based license model, that is, node-locked uncounted, node-locked counted, floating uncounted, or floating counted.

  OR

- All line items pertain to the same custom license technology.

In other words, licenses for different customer accounts, trusted storage-based license models, or different certificate-based license models cannot be activated together. Products in the line items can vary. The line items need not share the same entitlement ID.

You can consolidate licenses generated during batch activation.

What is License Consolidation?

License consolidation is the process of combining multiple licenses into a single license file. Consolidating licenses can simplify subsequent rehosting tasks because it allows you to convert several separate licenses into a consolidated license.

***Note** ▪ The license consolidation feature is not available by default. To enable this feature, the producer must select the **Show Consolidate Licenses Functionality** check box in System > Configure > FlexNet Operations.*

License consolidation can take place during batch activation or post-activation.

License Consolidation Limitations

License consolidation is only possible for certificate licenses, and for custom (non-FlexNet) licenses when a custom consolidation class has been implemented. (See Creating a License Technology for more information.)

It is not possible to consolidate trusted storage licenses.

To be consolidated, licenses must belong to the same customer account. The licenses you consolidate can be based on different license models, use different license generator configurations, or even belong to different license technologies; however, when license technologies are different the consolidation process does not result in a single license. One consolidated license is created for each license technology.

License Consolidation Processing

For certificate licenses, a separate consolidated license is generated for each host. A separate consolidated license file is generated for floating or node-locked licenses on each license server. For example, floating counted and floating uncounted certificates can be consolidated on a single server. Also floating counted and node-locked counted certificates can be consolidated on a single server. (This is because the node-locked counted model requires a license server system.)

***Note** ▪ For custom license technologies, the result of license consolidation depends on how the producer codes the consolidator class, where custom consolidation rules are defined.*

Viewing Entitlements to Activate

The **List Entitlements** page displays all activatable line items (entitlement line items and Web register keys), in order of modification date, most recently modified first. Line items using trusted license models are marked with an icon that looks like a letter T in a blue square.

By default, the following columns are included.

***Note** ▪ Display of these columns can be configured using the OPS_PORTAL_CONFIG table. See the FlexNet Operations On-Premises Installation & Implementation Guide for more information.*

Table 3-9 ▪ List Entitlements Page

Column	Description
Type	Identifies the license type—Certificate, Trusted, or Embedded—for the activatable line item.
Activation ID	The unique identifier of the activatable item. An activatable item is either an entitlement line item in a simple entitlement or a Web register key in a bulk entitlement. Activation ID in FlexNet Operations corresponds to entitlement ID in FlexNet Publisher Licensing Toolkit.
Entitlement ID	The identifier of the entitlement that contains the activatable item. Before a Web register key is activated, its entitlement ID identifies its bulk entitlement.
Parent Bulk	After the Web register key is activated, the ID of the bulk entitlement moves to the **Parent Bulk** column, and the entitlement ID of the simple entitlement created when the Web register key is redeemed replaces it. The ID of the new simple entitlement is `web_register_keyENT`. (Column is hidden by default.)
Sold to	The **Sold to** account has the right to receive licenses generated against this entitlement. The account information is presented in the format *Account ID (Account Name)*.
State	Activatable entitlements must be in the Deployed state. Other entitlement states are Test, Draft, Inactive. (Column is hidden by default.)

Table 3-9 ▪ List Entitlements Page

Column	Description
Product	All products defined for the line item, including version numbers.
Available quantity	Number of activatable copies remaining in the line item: note that this number may be subject to policies.
Total quantity	Total number of activatable copies in the line item.
Expiration	Expiration date or duration of licenses issued from this line item, specified during entitlement creation
Order ID	The entitlement's order ID.
Maintenance	The entitlement's maintenance product.

To view all activatable line items, select **Entitlement ID**, **Parent bulk entitlement ID**, **Activation ID**, **Product**, **Part number**, **Sold-to Account name**, or **Sold-to Account ID** from the **Search for** drop-down, and click the **Simple Search** icon. You can also search for entitlement line items based on specific criteria. Line items in this page can be sorted by the following columns: **Activation ID**, **Entitlement ID**, **Sold to**, **Available quantity**, and **Maintenance**.

From this page, you can do the following:

Table 3-10 ▪ Viewing Activatable Line Items

Action	Description
See the details of an activatable item	To see the details of a line item, click its activation ID.
Activate licenses for an entitlement line item or Web register key	To activate a license, select one or more activation IDs and click **Activate** or **Trusted Activate**, depending on the license type. Use **Activate** for certificate-based and custom activations. Use **Trusted Activate** for trusted-storage-based activations.
Print an entitlement	To print an entitlement line item, select one or more entitlement line items and click **Print**.
View an entitlement certificate	To view an entitlement certificate as it would appear when emailed to a customer, select the box next to a line item and click **View certificate**.
Email an entitlement	To email an entitlement line item, select the box next to it and click **Email**.
View fulfillment history	To view an entitlement's fulfillment history, select the box next to it and click **Fulfill history**. When complete, click **OK**.

Emailing an Entitlement Line Item

Use the **Email** button to send an entitlement to a specified email address or contact in a customer account.

Task ***To email an entitlement line item to a customer***

1. Navigate to the **List Entitlements** page.
2. Select the box next to the line item you want to email; click **Email**.
3. Enter the email address you want the entitlement sent to. Use the search icon to look for contacts in the customer account. All contacts defined in the channel partners of the entitlement are automatically selected.
4. Click **Send**; click **Cancel** to cancel the operation and return to the **List Entitlements** page.

Activating a License

All activatable items are displayed in the **List Entitlements** page: items that generate certificate licenses and items that cause licenses to be written to trusted storage. By default, only line items that have any remaining copies are shown in this page. To see line items that do not have any copies remaining, perform an advanced search.

1. Click **Entitlements > List Entitlements.**
2. Search for an activation ID (entitlement or Web register key) against which to generate a license.
3. Select one or more activation IDs and click **Activate** or **Trusted Activate**, depending on the license type of the line item. You can select two entitlement line items that specify the same license model type (node-locked counted, floating counted, etc.) and activate licenses against them using the same wizard. You cannot do this with upgrade, upsell, or renewal entitlement line items.
4. Complete the steps in the Activate Licenses wizard (certificate) or Trusted Activate wizard (trusted storage).

The following topics provide more detailed instructions for activation wizard tasks.

Table 3-11 ▪

Topic	Description
Activate Licenses Wizard	Describes the fields that comprise the first page of the Activate Licenses wizard.
Trusted Activate Wizard	Describes the fields that comprise the first page of the Trusted Activate wizard.
Specifying Host IDs	Discusses the use of host IDs to provide tighter control over the environments in which the license can be legitimately used. (This is step 2 of the Activate Licenses wizard.)
Configuring Hosts in the Trusted Activate Wizard	Explains how to add a host for the activation. (This is step 2 of the Trusted Activate wizard.)

Table 3-11 ▪

Topic	Description
Special Host ID Types	Identifies the host ID types that can be differentiated by the Vendor Certificate Generator.
Configuring Counts	Explains how to configure counts for entitlement line items for certificate-based activation.
Configuring Counts for Trusted Activation	Explains how to configure counts for entitlement line items for trusted-storage activation.
Reviewing Activations and Generating Licenses	Describes how activations are presented for review and how to generate licenses for those activations.

Activate Licenses Wizard

Required fields are indicated by a red asterisk. Provide values for the following fields and any fulfillment-time license model attributes. Then click **Next** to specify server or node-locked host IDs.

Table 3-12 ▪ License Generation - Required and Optional Fields

Field	Description
Sold to	This field is automatically populated unless the Activation ID was created using a bulk entitlement. When activating a Web register key of a bulk entitlement, the user must specify the Sold To field. This allows the producer to identify company that actually activated the Web register key.
Owner	Optional field. Shows the user who actually bought the web register key.
ActivationID	This field is automatically populated.
Product	Product name and version. This field is automatically populated.
Version	This field is automatically populated.
Expiration Date	This field is automatically populated.

Table 3-12 ▪ License Generation - Required and Optional Fields

Field	Description
Version Date	This field is displayed only in the following case: ● the product defined in this entitlement line item contains a feature that specifies a date-based version format type, and ● you selected Specify Version Date Later when you created the entitlement for this product. If Specify Version Start Date Later is set in a line item, a duration is specified in the line item. In this case, a version start date is set at activation time and the version date is computed as version start date + duration.
Start Date	After the entitlement is activated, the start date is the date that the license becomes valid and the user can begin using the software. ● If the start date option was set in the entitlement line item, it is displayed. Whether it is editable depends on the Allow Editing of Deployed Entities configuration setting. ● If the start date was not set in the entitlement line item, it must be set when the first license is activated against the line item. This start date is written back to the line item. Whether it is editable depends on the Allow Editing of Deployed Entities configuration setting. (This bullet is true for Specify at First Activation or Use First Activation Date; Specify at Each Activation and Use Each Activation Date are not covered.) When activating several line items together, you are prompted to specify the start date for those items without one. This date, once set at activation time, applies to all items that did not have a start date set during entitlement creation.
Ship to email	The email address to which a license generated against this entitlement is to be sent: It can be the email address of an account contact or an address already entered in the entitlement. ● Click **Search** to select an email address for one of the contacts in the sold-to account. ● Additional email addresses can be entered in a comma-separated list that contains no spaces.
Ship to address	The mailing address to which a license generated against this entitlement is to be sent: It can be the mailing address of an account contact or an address already entered in the entitlement.
Vendor String	Enter the producer-specific vendor string.

Table 3-12 ▪ License Generation - Required and Optional Fields

Field	Description
Do you want to consolidate generated licenses?	Select **Yes** (default setting) if you are activating two or more line items together, and would like to consolidate multiple licenses into a single license file. When activating a single license, this option does not appear. This is displayed if the **Show Consolidate Licenses Functionality** flag is enabled in **System > Configure > FlexNet Operations**.

Trusted Activate Wizard

Required fields are indicated by a red asterisk. Provide values for the following fields and any fulfillment-time license model attributes. Then click **Next** to configure a host. (See Configuring Hosts in the Trusted Activate Wizard.)

Note ▪ *This page also shows custom attributes (if any) defined and set at fulfillment time.*

Table 3-13 ▪ License Generation - Required and Optional Fields

Field	Description
Sold to	This field is automatically populated unless the Activation ID was created using a bulk entitlement. When activating a Web register key of a bulk entitlement, the user must specify the Sold To field. This allows the producer to identify the company that actually activated the Web register key.
Owner	Optional field. Shows the user who actually bought the web register key.
ActivationID	This field is automatically populated.
Product	Product name and version. This field is automatically populated.
Version	This field is automatically populated.
Expiration Date	This field is automatically populated.
Ship to email	The email address to which a license generated against this entitlement is to be sent: It can be the email address of an account contact or an address already entered in the entitlement. • Click **Search** to select an email address for one of the contacts in the sold-to account. • Additional email addresses can be entered in a comma-separated list that contains no spaces.

Table 3-13 ▪ License Generation - Required and Optional Fields

Field	Description
Ship to address	The mailing address to which a license generated against this entitlement is to be sent: It can be the mailing address of an account contact or an address already entered in the entitlement.
Reinstall	For server activation requests, select the check box for reinstalls. The effect of the Reinstall check box is that it prevents the activation from consuming the line item count. For retail (client) requests, the Reinstall check box is not shown. (Any repeat retail activation is automatically treated as a reinstall.)
Vendor String	Enter the producer-specific vendor string.

Specifying Host IDs

When a license file (certificate) is issued to the customer, it can contain information to validate that it is being used on only a specific license server. In addition, it can be configured to allow only a specific client to check out the feature. Host IDs are used to define this information.

Note ▪ *Depending on the license model defined for this product, you are prompted for one or more of the following attributes. If host IDs were implemented for this license model, you see a set of options:*

- ***Select Existing Host****: Select a host ID that has been already defined for this account.*
- ***Add New Host****: Create a host ID that has not been already defined for this account.*
- ***Remove****: This allows you remove a host ID value from this list.*

Depending on how the license model is defined for this product, there are two types of hosts you can define. You are provided with the same selections for each host type you must define (Server or Nodelocked). The page displays a label indicating the type of host you are defining.

- **Server host**: this information is used to identify the license server that can serve these licenses.

  For example, when you define the Server host to be HOSTNAME=dogma, the license can only be served from a system with the hostname ‘dogma’. The license cannot be used on a system with a different hostname.

  Each license server machine is identified by a host ID.

  If you specify multiple server host IDs, then multiple license files are created: one for each host ID (that is, each license server system).

  In the case of the nodelocked counted license model, you must define nodelocked host IDs for each server host ID (or three-server configuration) specified.

- **Nodelocked Host**: this information is used to identify the client that is checking out the feature. This creates a restriction that a product can only check out a feature if it is run on a specific client system.

  Enter a host ID value identifying the machine to which the application is to be locked.

  - To lock an application to more than one machine, click **Add Nodelocked Host** and enter multiple host ID values.

In the case of the nodelocked counted license model, you must define nodelocked host IDs for each server (or three-server configuration) specified.

The following table explains the type of host IDs that you are prompted for based on the license model type.

Table 3-14 ▪ Definition of Hosts based on License Model

	If the license type is:			
	Nodelocked Counted	**Nodelocked Uncounted**	**Floating Counted**	**Floating Uncounted**
You are prompted to define the:	Server Host	Not Required	Server Host	Server Host
	Nodelocked Host	Nodelocked Host	Not Required	Not Required

1. In the **Generate Licenses** page, specify the necessary Host IDs (Nodelocked or Server) for the License and then click **Next**.
2. If the License model is counted (nodelocked or floating), you are prompted to specify a fulfill count for each server host ID, then click **Next**. If you are not required to specify a fulfill count (for example, for uncounted license models) do one of the following:
   - To check that the parameter values you have entered are valid, click **Verify**.
   - To generate a license certificate, click **Generate**.

After a license is generated, it can be saved to disk or sent by email. For unconsolidated licenses, a certificate is issued for each product on each server. For consolidated licenses, one file is issued per server. For more information about viewing a consolidated license, see Consolidating Licenses. If you have selected more than one file to view, you can choose among license files by selecting the appropriate Consolidated License ID from the drop-down list provided.

Configuring Hosts in the Trusted Activate Wizard

After identifying the ship-to and specifying any fulfillment-time custom attributes for the activation, you must configure one or more hosts. In this step, you must upload one or more valid retail (client) or server request files (XML).

Task ***To add a host***

1. On the Configure Host page of the Trusted Activate wizard, click **Add host**. This opens the Create Host page in a pop-up window.
2. Click **Browse**, select a valid request file, and click **Save**. The Create Host page closes and the host identified by the request file is added to the Host list on the Configure Host page.

You can add multiple hosts in this step. Click **Next** to configure counts for the trusted activation.

Special Host ID Types

The following FlexNet Publisher host ID types can be differentiated by the Vendor Certificate Generator (VCG):

Table 3-15 ▪ Host ID Types

Host ID Type	Description
ANY	Special FlexNet Publisher Licensing Toolkit host ID `ANY`. Allows the license to run on any machine.
DEMO	Special FlexNet Publisher Licensing Toolkit host ID `DEMO`: Can be used only for node-locked licenses, never for Server host IDs. Allows the license to run on any machine.
Ethernet	Ethernet address and also called MAC address. This is the hardware address from the Network Interface Card (NIC). This value consists of 12 hexadecimal digits (a 48-bit number).
TPM ID	The Trusted Platform Module host ID adds an additional layer of security for Windows platform certificate based licensing to minimize software piracy. This feature is available with VCG kit 16.2.2.0. The length of the TPM ID should be in the following format: xxxxx-xxxxx-xxxxx-xxxxx (4 sequences of 5 characters and 3 hyphens for a total of 23 characters). TPM ID can be used in conjunction with other host ID types in case of redundant servers.
Long	Used only with Solaris machines. It is the Solaris 32-bit hardware machine ID. This value consists of 8 hexadecimal digits (a 32-bit number).
User	User name: Enter as `USER=user_name` in the **Activate Licenses** page. The FlexNet C/C++ Licensing toolkit uses the login name. FlexNet Publisher Licensing Toolkit for Java uses the username environment variable.
Host Name	This can a simple host name or a fully qualified DNS name. Host name: Enter as `HOSTNAME=host_name` in the **Activate Licenses** page.
Display	On Unix, this is the X display name. On Windows, it is the display adapter. Display name: Enter as `DISPLAY=display_name` in the **Activate Licenses** page.
Routable IP Address	This setting allows you to define the host ID as a routable, public IP address. Use the format `INTERNET=w.x.y.z`, where each letter represents an octet with a decimal value between 0 and 255. FlexNet Operations validates that the address is not among the private, non-routable sets. The routable address cannot be an address in the primary three reserved, private network address ranges: 10.0.0.0-10.255.255.255, 172.16.0.0-172.31.255.255, and 192.168.0.0-192.168.255.255. In addition, the address cannot be 127.0.0.1 (localhost). ***Note ▪*** *FlexNet Operations IP address validation can be disabled by unselecting* ***Enable Basic IP Address Host ID Validation*** *in the system configuration settings. (See Configuring System Settings.)*

Table 3-15 ▪ Host ID Types

Host ID Type	Description
Routable IP Address with Wildcards	This setting allows you to define the host ID as a routable, public IP address with a wildcard (*) as one or more octets. Use the format `INTERNET=w.x.y.z`, where each letter represents an octet with a decimal value between 0 and 255. FlexNet Operations validates that the address is not among the private, non-routable sets. The routable address cannot be an address in the primary three reserved, private network address ranges: 10.0.0.0-10.255.255.255, 172.16.0.0-172.31.255.255, and 192.168.0.0-192.168.255.255. In addition, the address cannot be 127.0.0.1 (localhost). The wildcard rules for routable IP addresses also apply. For an IP address of w.x.y.z ● If w is less than or equal to 127, then x, y, and z can be wildcards. ● If w is between 127 and 192, then only y and z can be wildcards. ● If w is greater than or equal to 192, then only z can be a wildcard. ***Note ▪*** *FlexNet Operations IP address validation can be disabled by unselecting* ***Enable Basic IP Address Host ID Validation*** *in the system configuration settings. (See Configuring System Settings.)*
Non-routable IP Address	This setting allows you to define the host ID as a non-routable, private IP address. Use the format `INTERNET=w.x.y.z`, where each letter represents an octet with a decimal value between 0 and 255. The address you specify must be an address within the primary three reserved, private network address ranges: 10.0.0.0-10.255.255.255, 172.16.0.0-172.31.255.255, and 192.168.0.0-192.168.255.255. ***Note ▪*** *FlexNet Operations IP address validation can be disabled by unselecting* ***Enable Basic IP Address Host ID Validation*** *in the system configuration settings. (See Configuring System Settings.)*

Table 3-15 ▪ Host ID Types

Host ID Type	Description
Non-routable IP Address with Wildcards	This setting allows you to define the host ID as a non-routable, private IP address with a wildcard (*) as one or more octets. Use the format `INTERNET=w.x.y.z`, where each letter represents an octet with a decimal value between 0 and 255. FlexNet Operations validates that the address is among the permitted, non-routable sets. The address you specify must be an address within the primary three reserved, private network address ranges: 10.0.0.0-10.255.255.255, 172.16.0.0-172.31.255.255, and 192.168.0.0-192.168.255.255. The wildcard rules for non-routable IP addresses also apply. For an IP address of w.x.y.z ● If w is less than or equal to 127, then x, y, and z can be wildcards. ● If w is between 127 and 192, then only y and z can be wildcards. ● If w is greater than or equal to 192, then only z can be a wildcard. ***Note ▪*** *FlexNet Operations IP address validation can be disabled by unselecting* ***Enable Basic IP Address Host ID Validation*** *in the system configuration settings. (See Configuring System Settings.)*
Disk SN	This is used with Windows systems only and is the disk serial number. Locks the software to a PC with this C:/ drive serial number. Enter as `DISK_SERIAL_NUM=sn` in the **Activate Licenses** page.
FLEX*id*	This is for Windows, Mac, and Linux systems only. Locks the software to a PC with a hardware dongle (hardware key) with serial number `id_string`. The format of this identifier depends on the brand of dongle used. Enter as `FLEXID=id_string` in the **Activate Licenses** page.
Composite	A composite host ID combines multiple FlexNet Publisher Licensing Toolkit host IDs together to provide a more secure host ID. For instance, you can use USER and Disk SN to identify a host ID. A composite host ID is a hashed 12-character hexadecimal value formed by combining the values of multiple simple host IDs types. If you select the Composite format, you must provide your end user with a program to calculate the Composite host ID for the host machine. Enter as `COMPOSITE=comp_id` in the **Activate Licenses** page. For more information about using Composite host IDs, see the FlexNet Publisher Licensing Toolkit documentation.

Table 3-15 ▪ Host ID Types

Host ID Type	Description
Vendor Defined	The user must select the VENDOR_DEFINED item from the drop-down list and then enter the vendor-defined host as <name>=<string> ***Note ▪*** *If you specify a vendor-defined host ID, you must build your VCG to support your vendor-defined host ID type.* ***Note ▪*** *You can use a completely new entity to validate the host. The host ID for this entity is defined in Operations as <name> = <string>, where <name> is the entity name you want to use. You must define a list of allowable name values in the VCG. You must also create the code in the application or vendor daemon that obtains the string value.*
Virtualization-Aware	Virtualization-aware host ID prefixes define server host ID types that permit or restrict the kind of virtual environments, if any, on which a license server can run. These new host ID types begin with PHY_, VM_, VMW_, HPV_, or LMB_. ● Use the PHY_ prefix with ETHER, INTERNET, HOSTNAME, DISPLAY, USER, DISK_SERIAL_NUMBER, or FLEXID to restrict license operation to physical machines. ● Use the VM_ prefix with UUID to restrict license server operation to any supported virtual environments: Xen, Hyper-V, and VMWare. VM_UUID supersedes VMW_UUID and HPV_UUID. ● Use the VMW_ prefix with UUID, ETHER, INTERNET, and HOSTNAME to restrict license server operation to VMWare Workstation and ESX Server virtualizations. VMW_UUID is still supported, but has been superseded by VM_UUID. ● Use the HPV_ prefix with UUID, ETHER, INTERNET, HOSTNAME, and VSN to restrict license server operation to Microsoft Hyper-V virtualizations. HPV_UUID is still supported, but has been superseded by VM_UUID. ● Use the LMB_ prefix with ETHER, INTERNET, HOSTNAME, or FLEXID (9 or 10) to permit license server operation with bare metal binding. This permits operation in a virtualization but binds the license to the physical host machine. ***Note ▪*** *VMW_HOSTNAME, HPV_HOSTNAME, and LMB_HOSTNAME host IDs cannot contain wildcards (asterisks).* ***Note ▪*** *When used with three-server redundancy, virtualization-aware host ID types for all servers in the triad must use the same prefix: PHY_, VW_, VMW_, HPV_, or LMB_.*

Table 3-15 ▪ Host ID Types

Host ID Type	Description
Cloud-Specific	Cloud-specific host ID types permit the kinds of cloud-hosted environments, if any, in which the product can operate. There are two server host ID type options and two nodelocked host ID type options: • **AMZN Routable EIP Address** and **AMZN Routable EIP Address with Wildcards**—The `AMZN_EIP` host ID types permit license server operation in Amazon EC2 (public cloud) environments with binding to an elastic IP address. Routable and Routable with Wildcard addresses are supported. Non-routable addresses are not supported. This host ID type cannot be used with three-server redundancy. • **AMZN AMI Template ID** and **AMZN IID Instance ID**—The `AMZN_AMI` and `AMZN_IID` host ID types permit nodelocked licensing in Amazon EC2 environments with binding to the AMI template ID or AMI instance ID, respectively. Template ID binding is typically used in virtual appliance scenarios. Instance ID binding supports more generic cloud-based usage such as running software in the public cloud or in a virtual private cloud.

Configuring Counts

If the entitlement line item contains a certificate-based, counted license model (nodelocked or floating), you are prompted to specify a fulfill count for each server host ID. If the entitlement line item contains a

- nodelocked uncounted license and you define multiple node-locked host IDs, then:
  - multiple licenses files are created, one for each node-locked host ID.
  - the Copies value for the entitlement line item decrements by the number of node-locked hosts you define.
- nodelocked counted license and you define multiple server host IDs, each with multiple node-locked hosts, then:
  - multiple licenses files are created, one for each server host ID.
  - the Copies value for the entitlement line item decrements by the sum of the fulfillment counts for each server.
- floating counted license and you define multiple server host IDs, then:
  - multiple licenses files are created, one for each server host ID.
  - the Copies value for the entitlement line item decrements by the sum of the fulfillment counts for each server.
- floating uncounted license and you define multiple server host IDs, then:
  - multiple licenses files are created, one for each server host ID.
  - the Copies value for the entitlement line item decrements by the number of server hosts you define.

If this is an upgrade, upsell, or renewal entitlement line item, the available information and options in the **Configure Counts** page are different, depending on the product's license model.

Important ▪ *FlexNet Operations does not evaluate the count of available copies when an upgrade is created. Therefore, it is possible to create an upgrade count that exceeds the number of available copies; however, the count is evaluated at fulfillment time. On fulfillment, upgrades that exceed the available count are rejected. To avoid errors at fulfillment time, users can invoke the method* `getExactAvailableCount()`*, which returns the exact number of copies available for upgrade fulfillment. This method is available as a webservice call and also as part of public API.*

1. Review the prepopulated fields on the **Configure Counts** page. The number of data fields that are displayed varies, depending on how the license model is defined. An important value in this list is:

   Total Remaining Copies: The number of copies in the entitlement line item that can be activated. This is the maximum number of licenses that the customer can fulfill against this entitlement line item, regardless of whether the fulfillment is a new or is an upgrade, upsell, or renewal of another product.

2. **Copies Available to Activate Without Upgrading Previous Fulfillments:**

   Use these fields to define the number of copies you to activate without upgrading an existing product.

   Table 3-16 ▪ Configure Count Fields

Property	Description
Available Copies	The number of copies in the entitlement line item that can be fulfilled as a new activation. It does not include the number of copies that are available as an upgrade to another product. This does not include Extra Activations.
Extra Activations Available	This number is set when you define the license model. This is the number of extra copies of the product (beyond those purchased) that are available to be activated.
Pending Copies	If you have defined multiple server host IDs, this value is the number of copies that have already been assigned to the other Hosts IDs in this activation action.
Fulfill Count	The total number of licenses you want to fulfill for this server host ID. Specify a fulfill count for each of the fulfillments you are generating. In the case of the floating counted license model, you must specify a count for each server or three-server configuration on which you want licenses activated. In the case of the node-locked counted license model, you must provide counts for each server (or three-server configuration) specified, and the nodelocked hosts attached to that server.
Remaining Overdraft	The number of remaining unused Overdraft Licenses.
Overdraft	Enter the number of Overdraft licenses you want to allow for this server host ID.

3. **Copies Available To Upgrade From Previous Fulfillments on host <Host ID>**

Use these fields to define the number of copies you want to activate as part of upgrading an existing product. This question is displayed for each server host ID defined on the previous page.

Table 3-17 ▪ Configure Count Types

Property	Description
Available <Upgrade/Upsell/ Renew> Count	This value is not editable and displays the total number of copies previously fulfilled for this server host ID that can be upgraded, upsold, or renewed to this new product.
Upgrade Count	This field is displayed when you are activating licenses for an upgrade, upsell, or renewal entitlement line item. The number of copies of earlier products that have been activated for this server host ID. Define the number of copies that you want to upgrade/upsell/or renew for this to this new product. This entry allows the upgrade to occur on licenses that have already been fulfilled.

4. What kind of Activation do you want to perform on this host?

   This is displayed only when the license model is uncounted and is displayed for each server host ID defined on the previous page. When the license model is uncounted, you activate one copy at a time. The answer to this question tells the system how that single copy is to be activated.

   - <**Upgrade/Upsell**>: you activate this copy by upgrading or upselling an existing product (that is, fulfillment). If you select this, you are presented with a list of entitlement line items that references fulfillments products previously activated for that server host ID and that can be upgraded or upsold to this new product. You can choose which product you want to be upgraded/upsold.
   - **Activate**: you activate this copy by creating a new fulfillment for this server host ID.
   - **None**: you do not activate any copies of this product for this server host ID.

5. Finish specifying the Configure Counts properties. Then click **Next** to go to the **Generate Licenses - Review** page.

Note ▪ *When the activation includes multiple host IDs, an arrow in the Hosts list indicates the current host ID. Clicking* ***Next*** *on the Configure Counts page advances to the next host ID. When counts are configured for the last host ID, clicking* ***Next*** *advances you to the Review step.*

Configuring Counts for Trusted Activation

If the entitlement line item contains a counted license model (trusted, server), you are prompted to define a fulfill count for each server host. If the entitlement line item contains a

- retail license (uncounted) and you define multiple host IDs, then:
  - multiple licenses files are created, one for each host ID.
  - the Copies value for the entitlement line item decrements by the number of hosts you define.

- server license (counted) and you define multiple host IDs, then:
  - multiple licenses files are created, one for each host ID.
  - the Copies value for the entitlement line item decrements by the sum of the fulfillment counts for each server.

Whether the entitlement line item is an upgrade, upsell, or renewal, the available information and options in the **Configure Counts** page are the same.

Important ▪ *FlexNet Operations does not evaluate the count of available copies when an upgrade is created. Therefore, it is possible to create an upgrade count that exceeds the number of available copies; however, the count is evaluated at fulfillment time. On fulfillment, upgrades that exceed the available count are rejected. To avoid errors at fulfillment time, users can invoke the method* `getExactAvailableCount()`*, which returns the exact number of copies available for upgrade fulfillment. This method is available as a web service call and also as part of public API.*

1. Review the prepopulated fields on the **Configure Counts** page. The number of data fields that are displayed varies depending on how the license model is defined. An important value in this list is:

   Total Remaining Copies: The number of copies in the entitlement line item that can be activated. This is the maximum number of licenses that the customer can fulfill against this entitlement line item, regardless of whether the fulfillment is a new or is an upgrade, upsell, or renewal of another product.

   Table 3-18 ▪ Configure Count Fields

Property	Description
Available Copies	The number of copies in the entitlement line item that can be fulfilled as a new activation. It does not include the number of copies that are available as an upgrade to another product. This does not include Extra Activations.
Extra Activations Available	This number is set when you define the license model. This is the number of extra copies of the product (beyond what was purchased) that is available to be activated.
Pending Copies	If you have defined multiple server host IDs, this is the number of copies that have already been assigned to the other Hosts IDs in this activation action.
Fulfill Count	The total number of licenses you want to fulfill for this server host ID. Specify a fulfill count for each of the fulfillments you are generating.
Remaining Overdraft	The number of remaining unused Overdraft Licenses.
Overdraft	Enter the number of Overdraft licenses you want to allow for this server host ID.

2. Finish specifying the Configure Counts properties for the current host.
3. Click **Next** to go to the **Generate Licenses - Review** page.

***Note** ▪ When the activation includes multiple hosts, an arrow in the Hosts list indicates the current host. Clicking **Next** on the Configure Counts page advances to the next host. When counts are configured for the last host, clicking **Next** advances you to the Review step.*

Reviewing Activations and Generating Licenses

Prior to generating licenses, the Producer Portal allows you to review the activations. (This step is the same in both the Activate License wizard and the Trusted Activate wizard.)

Task** **To review activations and generate licenses

1. On the **Generate Licenses - Review** page, click either:
   - **Verify**: This option evaluates properties defined and determines whether the license is valid. (Not available for trusted activations.)
   - **Generate**: This option activates the license and opens the Generated Licenses page.
2. On the **Generated Licenses** page
   a. For unconsolidated licenses, a certificate is issued for each product on each server.
   b. For consolidated licenses, one file is issued per server.
   c. For trusted licenses, there is one response/license per host.

***Note** ▪ For more information about viewing a consolidated license, see Consolidating Licenses. If you have selected more than one file to view, you can choose among license files by selecting the appropriate Consolidated License ID from the drop-down list provided.*

On the **Generated Licenses** page, you can choose to **Save to File** or **Print** one or more licenses. (For certificate-based licenses, you can also choose to **Email License** or see **Shipment Records**.)

Transferring Entitlement Line Items

You can transfer unfulfilled copies of an entitlement line item from one account to another.

To do this, the account that is to receive the entitlement must be defined in FlexNet Operations. This is done using the Producer Portal's account management capabilities. (See Managing Accounts.)

As part of this transfer process, you can choose to either create a new entitlement for the transferred entitlement line item or to add it to an existing entitlement for that target account. You can also maintain the Activation ID or create a new one. The Transfer Entitlement Line Item Wizard walks you through each of these choices.

After the license rights are transferred, the Activation ID may change (depending on your wizard selections). A new entitlement line item is created for the target account.

To transfer an entire entitlement, see Transferring Entitlements.

Transfer Entitlement Line Item Wizard

Required fields are indicated by a red asterisk. To proceed through the wizard:

1. Click **Entitlements > List Entitlements**. This link opens the **List Entitlements** page.
2. Select an entitlement line item from the list, and then click **Transfer**.
3. Enter the **Transfer Amount**.
4. **Target Account**: Search for and select the account that is to receive the line item.
5. **Do you want to transfer to a similar line item owned by the target account?**
   - **Yes**: The system searches for similar line items.
   - **No**: A new entitlement and line item is created for the target account.

Emailing a License

A new or previously generated license certificate or custom license can be sent as an email attachment to one or more email addresses. The email attachment is sent as a file, by default called `licensexxxxx.lic`, where xxxxx is a random number. The default subject line is `License`.

The **Ship to email** field contains the email address where the license is to be sent. This field contains email addresses that were specified in the entitlement or during license generation. Click **Search** to select an email address for one of the contacts in the sold-to account. Additional email addresses can be entered, and multiple email addresses are formatted in a comma-separated list with no spaces.

After the email is sent, a confirmation message is displayed on the page.

You must configure FlexNet Operations before you can successfully email a license certificate:

- If you are emailing license certificates to customers, in the FlexNet Platform Server configuration settings, set the **Outbound Mail Server Host** to your organization's mail server and **From-Address for Outbound Mail** to the email address you want to use as the sending address for license emails.
- You may want to edit the license file base name, which is **license** by default. The **License File Name** can be changed in the FlexNet Operations system configuration settings. Note that a random number is added to this base name and a `.lic` extension is added.

Manual Activations

Trusted activations are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the activation.

However, an activation request can also be generated and written to a file by a FlexNet Publisher Licensing Toolkit activation utility running on the machine where the license is to be activated. Such a manual activation is useful when there is no internet connectivity on the host.

- The file containing the request is sent to the producer and loaded into FlexNet Operations to generate a response.

- The response is saved to a file; the file is sent to the customer and is used by the FlexNet Publisher Licensing Toolkit activation utility to process the response. The response is processed differently, depending on whether a license has ever been generated on that machine using the transaction key associated with the product to be activated. If a license has never been activated on the target machine using this transaction key, the first response just configures trusted storage. A second request and response must be generated to actually activate the license. This two-step process is handled automatically by programmatic activation.
- If the first response is used to configure trusted storage, the activation utility prompts the customer to generate a second request to activate the license.

Task ***To generate a response to an activation request submitted in a file***

1. Click **Licenses > Manual Activation**.
2. Browse to, and select the XML file that contains the activation request.
3. Click **Submit** to generate and view the activation response.

Viewing a Manual Activation Response

Follow the instructions below to view a manual activation response.

Task ***After an activation response is generated manually***

1. Verify the Activation ID, Product, Version, Fulfillment ID, and Sold To account.
2. Click **Save To File** to save this response to a file. The default file name is `responseXML.xml`.
3. Send the file to the customer with instructions for using the activation utility to process the response and activate the license.

Short Code Activations

Trusted activations are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. Usually, the activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the activation.

However, if a customer's environment does not support communication with the FlexNet Operations server, FlexNet Operations can generate a short code activation specification record (ASR) that can be used to generate an activation request. Short code activations are typically used in activations performed over the phone.

- A producer uses FlexNet Operations to generate a short code ASR and bundles it with the product.
- A FlexNet Publisher Licensing Toolkit activation utility running on the machine where the license is to be activated uses the short code ASR bundled with the product to generate a short request code.
- The short request code is sent to the producer and loaded into FlexNet Operations to generate a short response code.

- The response code is saved to a file; the file is sent to the customer and is used by the FlexNet Publisher Licensing Toolkit activation utility to process the activation response and activate the license.

Task ***To allow a customer to activate a license using a short response code***

1. Create a short code ASR for a product.
2. Bundle the short code ASR with the product or send the customer the short code ASR in a file.
3. Instruct the customer to use the FlexNet Publisher Licensing Toolkit activation utility that you provide to generate a short request code from the short code ASR file.
4. Receive the generated short request code from the customer, along with the customer's activation ID.
5. In FlexNet Operations, click **Licenses** > **Short Code Activation**.
6. Enter values in the following fields.

   Table 3-19 ▪ Short Code Activation Fields

Field	Description
Short Request Code	Short request code generated by the FlexNet Publisher Licensing Toolkit activation utility and sent by the customer.
Activation ID	Activation ID of the line item or web register key that you want to activate.

7. Click **Next** to generate and view the short response code.

Viewing a Short Code Activation Response

Follow the instructions below to view a short code activation response.

Task ***After a short response code is generated manually***

1. Save the short response code to a file.
2. Send the file to the customer with instructions for using the activation utility to process the response and activate the license.

4

Supporting Licenses

Supporting licenses covers additional license lifecycle processes:

- Support Licenses Terminology
- Viewing Fulfillment Records
- Returning a License
- Repairing a License
- Rehosting a License
- Generating an Emergency License
- Correcting a Publisher Error in a License
- Upgrade, Upsell, or Renew a Fulfillment
- Generating a Stop Gap License
- Consolidating Licenses
- Transferring Licenses
- Manual Return
- Manual Repair
- Short Code Return
- Short Code Repair
- Supporting Hosts
- Supporting Embedded Licenses
- Supporting Offline Device Activation

For trusted licenses, these lifecycle processes are usually handled by FlexNet Operations without publisher intervention. However, manual returns and manual repairs can be performed on activations.

Support Licenses Terminology

The following terms are referred to when supporting licenses:

- What is a Fulfillment?
- What is a License Return?
- What is a License Repair?
- What is a License Rehost?
- What is an Emergency License?
- What is a Stop Gap License?
- What is Support Type?
- What is License Consolidation?

What is a Fulfillment?

A fulfillment is a transaction against an entitlement line item in which some portion of the entitlement is assigned to a specific license server system or to a specific FLEXenabled application's machine. A fulfillment can be generated in FlexNet Operations in one of the following ways:

- Through the FlexNet Operations Producer Portal on behalf of an end user
- Through the End-User Portal by an end user
- Using the License Web service

In addition, trusted activations can be performed programmatically.

What is a License Return?

A license return involves removing the license rights from a system and transferring the license rights back to an entitlement line item, generally to allow a different license to be created. The number of allowed license returns per unit time per entitlement line item can be governed by a policy on the license model or entitlement line item.

Most trusted returns are done programmatically, but they can also be done through the FlexNet Operations Producer Portal or End-User Portal.

What is a License Repair?

A repair operation is used to repair a license that does not work for a customer. The meaning of a license repair is different for trusted and certificate licenses:

- For a **certificate license**, a repair is a customer-initiated change to a license to change a license parameter other than a host ID. A repair initiates a license return, then generates a modified license certificate.
- For a **trusted license**, a repair is necessary when a license becomes invalid because the machine hardware configuration has been changed enough that the anchor is broken.

Most trusted repairs are done programmatically, but they can also be done through the FlexNet Operations Producer Portal or the End-User Portal.

The number of allowed license repairs per unit time per entitlement line item can be governed by a policy on the license model or entitlement item.

What is a License Rehost?

For a certificate license, a re-host operation is a customer-initiated change to a license to transfer a license from one host ID to another. No license properties other than the host ID are modified for a re-host operation. A rehost initiates a license return, then generates a modified license certificate.

The number of allowed license rehosts per unit time per entitlement line item can be governed by a policy on the license model or entitlement line item.

What is an Emergency License?

An emergency certificate license is a short-term license that a publisher can provide as a courtesy to a customer who has a license that has not expired, but is not functioning.

When generating an emergency license, you can change only the license duration and host ID relative to the original license. An emergency license is intended to be a short-term license, with a default expiration period of 30 days.

What is a Stop Gap License?

A stop gap certificate license is a short-term license that a publisher can provide as a courtesy a customer whose license has expired, but who has not yet completed the process of updating or renewing an entitlement.

This can occur, for example, during the contract-negotiation period for a license renewal. Similar to an emergency license, for a stop-gap license you can modify only the license duration or license expiration date.

What is Support Type?

The *support type* is listed on the **Support Licenses** page and identifies the type of fulfillment that is generated. The following support types are available:

- **EMERGENCY**: A fulfillment generated by the Emergency operation. An emergency license is a short-term license generated to cover an emergency situation when a customer's license has not expired, but isn't working.
- **PUBLISHER ERROR**: A fulfillment generated by the Publisher Error operation. If a publisher makes an error when generating a license for a customer, it can be corrected and does not count against a customer's return, repair, or rehost policy limits.
- **STOP GAP**: A fulfillment generated by the Stop Gap operation. If a customer's license has expired and the customer has not formally renewed its entitlement, the publisher can generate a short-term stop gap license.
- **MASTER**: A fulfillment record that is created when a license is activated. When any portion of that fulfillment is returned, repaired, upgraded, upsold, or rehosted, the MASTER record is marked as obsolete. In addition:

***Note ▪ For returns**, if the entire fulfill count is returned, there is no additional fulfillment record created because the count goes back to the entitlement line item. If only a partial amount is returned, the partial return count is credited to the entitlement line item and and the obsolete fulfillment record is marked as returned.*

Viewing Fulfillment Records

The **Support Licenses and Maintenance** page displays all active fulfillments, certificate and trusted, in order of modification date, most recently modified first. Trusted fulfillments are marked with an icon with a blue key.

To view fulfillment records, select **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID** from the **Search For** drop-down, and click **Simple Search**. You can also search for fulfillment records based on specific criteria.

From this page, you can:

Table 4-1 ▪ Fulfillment Capabilities

Action	Description
See the details of an fulfillment	To see the details of a fulfillment, click its fulfillment ID.
Return a license	A license is returned to allow it to be activated again at a later time. The number of returns against an entitlement line item can be limited by a return policy. To return a certificate license, select exactly one fulfillment record and click **Support Actions > Return**.
Repair a license	A certificate license is repaired to change license parameters other than a host ID. The number of repairs against an entitlement line item can be limited by a repair policy. Repairing a license in trusted storage means something different and is done differently. To repair a certificate license, select exactly one fulfillment record and click **Support Actions > Repair**.
Rehost a license	A license is rehosted to change one or more host IDs. The number of rehosts against an entitlement line item can be limited by a rehost policy. To rehost a certificate license, select exactly one fulfillment record and click **Support Actions > Rehost**.
Generate an emergency license	An emergency license is a short-term license generated to cover an emergency situation when a customer's license has not expired, but isn't working. To generate an emergency certificate license that is related to a non-working license, select the fulfillment record of the non-working license and click **Support Actions > Emergency**. Generating an emergency license does not return the original license.

Table 4-1 ▪ Fulfillment Capabilities

Action	Description
Correct a publisher error	If a publisher makes an error when generating a license for a customer, it can be corrected and does not count against a customer's return, repair, or rehost policy limits. To correct an error the publisher made to a certificate license, select exactly one fulfillment record and click **Support Actions > Publisher Error**.
Generate a stop gap license	If a customer's license has expired and the customer has not formally renewed its entitlement, the publisher can generate a short-term stop gap license. To generate a stop gap certificate license that is related to an expired license, select the fulfillment record for the expired license and click **Support Actions > Stop Gap**.
Consolidate licenses	You can consolidated the license lines from different certificates into a single file, provided the certificates belong to the same licensing technology and customer account. For FlexNet technology, only certificate licenses can be consolidated.
Upgrade a license	A customer replaces an older version of a product with a newer version, such as moving from MyProgram Version 4.5 to MyProgram Version 5.0.
Upsell a license	A customer replaces a product with another product that provides a superset of the original's functionality, such as moving from the MyProgram Standard Edition to the MyProgram Professional Edition.
Renew a license	Extending the expiration date of a product's original entitlement, or its version date, to a date further in the future. It is not necessary to define a relationship for a renew operation because the product involved does not change.
Save To File	A certificate license can be saved to a file.
Email License	A certificate license can be sent as an email attachment.
View consolidated licenses	You can view a list of consolidated license files and also view the contents of individual files.
Print a fulfillment record	Select one or more fulfillment records on the **Support Licenses** page and click **Print**.

Returning a License

The number of allowed license returns per unit time per entitlement line item can be governed by a policy on the license model or entitlement line item.

Task ***To return a license to regenerate it at a later time***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which a license is to be returned. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select one fulfillment ID. Click Support Actions, and then click **Return**.
4. Enter a **Ship to Email** or a **Ship To Mail** address, if applicable.
5. The **Return Count** shows the entire fulfill count of the returned fulfillment. If you want to return only part of the original fulfill count, specify the **Return Count** to return.
6. The **Return Overdraft Count** shows the entire overdraft count of the returned fulfillment. If you want to return only part of the original overdraft count, specify the **Return Overdraft Count** to return.
7. Click **Return** to return the specified fulfillment.

   When the license has been successfully returned, if the cancel policy allows it, the entitlement line item against which the license was created is credited.

   When a Web register key was redeemed, a simple entitlement was created with an entitlement ID and its fulfill count. Therefore, if a license generated against a Web register key is returned, its simple entitlement line item is credited, not the original bulk entitlement.

   When the license has been successfully returned, the return count entered by the user is credited for the entitlement line item against which the license was created. Therefore, if a license generated against a Web register key is returned, the return count for its simple entitlement line item is credited.

The new fulfillment generated by the return operation is displayed with the Support Type MASTER. The original returned fulfillment record is displayed in the Support Licenses page as Obsolete with support action as RETURN.

Repairing a License

From time to time, customers may require support for license keys. Requests for support of certificate licenses are processed as *repairs* and involve the change of a license parameter other than a host ID.

A publisher can set policies on how many repairs are allowed on a particular line item in a given duration.

Task ***To repair a license because a customer wants to change a license parameter other than a host ID***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which a license is to be repaired. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select one fulfillment ID and click **Repair** from the Support Actions drop-down menu.
4. Enter a **Ship To Email** or a **Ship To Mail** address, if applicable.
5. Replace the original attribute value with the one to be used for the new license. Hostid values cannot be changed with a repair. The entire count of the fulfillment is repaired.

6. To check that the parameter values can be used to generate a valid license before actually generating a license, click Verify. To generate a license certificate, click Repair.
7. After a license is generated, the license text is displayed. The license text can be saved to a file on disk by clicking Save to File or it can be sent as an email attachment by clicking **Email License**.

   For information about the file naming conventions, see FlexNet Operations system configuration settings. The license certificate can be saved to a file on disk by clicking Save to File.

   The shipment history of this license can be displayed by clicking **Shipment Records**.

The new fulfillment generated by the repair operation is displayed with the Support Type MASTER. The original returned fulfillment record is displayed in the Support Licenses and Maintenance page as Obsolete with support action as REPAIR.

Rehosting a License

Rehosting is defined as the process of moving a license from one machine to another. A publisher can define policies to control the number of rehosts in a given duration of time per line item. This policy can be defined on the license model or the entitlement line item.

Task ***To rehost a license because a customer wants to change a host ID***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which a license is to be rehosted. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select one fulfillment ID and click **Rehost** from the Support Actions drop-down menu.
4. Enter a **Ship to Email** or a **Ship To Mail** address, if applicable.
5. Replace the original host ID with the one to be used for the new license. No other license model attributes can be changed.
6. The **Rehost Count** shows the entire fulfill count of the returned fulfillment. If you want to rehost only part of the original fulfill count, specify the **Rehost Count** to return.
7. The **Rehost Overdraft Count** shows the entire overdraft count of the returned fulfillment. If you want to rehost only part of the original overdraft count, specify the **Rehost Overdraft Count** to return.
8. To check that the parameter values can be used to generate a valid license before actually generating a license, click Verify. To generate a rehosted license certificate, click **Rehost**.
9. After a license is generated, the license text is displayed. The license text can be saved to a file on disk by clicking Save to File or it can be sent as an email attachment by clicking **Email License**. The shipment history of this license can be displayed by clicking **Shipment Records**.

   For information about the file naming conventions, see Configuring System Settings.

The new fulfillment generated by the rehost operation is displayed with the Support Type MASTER. The original returned fulfillment record is displayed in the Support Licenses and Maintenance page as Obsolete with support action as REHOST.

Generating an Emergency License

An emergency license is a short-term license generated to cover an emergency situation when a customer's license has not expired, but isn't working. Generating an emergency license does not return the original license.

Task ***To generate an emergency license because a customer cannot use unexpired licenses***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which an emergency license is to be generated. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select one fulfillment ID and click **Emergency**. Generating an emergency license does not cause the original fulfillment to be returned.
4. Enter a **Ship to Email** or a **Ship To Mail** address, if applicable.
5. By default, the **Start Date** of an emergency license is the **Fulfill Date** of the original fulfillment. You can set a different **Start Date** and can set the expiration to be after a set **Duration** or to a specific **Expiration Date**.
6. Replace license parameters for the emergency license. The entire count of the fulfillment is used for the emergency license.
7. To check that the parameter values can be used to generate a valid license before actually generating a license, click Verify. To generate an emergency license certificate, click **Emergency**.
8. After a license is generated, the license text is displayed. The license text can be saved to a file on disk by clicking Save to File or it can be sent as an email attachment by clicking **Email License**. The shipment history of this license can be displayed by clicking **Shipment Records**.

   For information about the file naming conventions, see Configuring System Settings.

Emergency fulfillments appear in the **Support Licenses and Maintenance** page as Support Type **EMERGENCY**.

Correcting a Publisher Error in a License

If a publisher makes an error when generating a license for a customer, it can be corrected and does not count against a customer's return, repair, or rehost policy limits.

Task ***To regenerate a license because the publisher made an error generating the original license***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which a license is to be repaired. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select one fulfillment ID and click **Publisher Error** in the Support Actions drop-down menu.
4. Verify that you want to return the license to correct it.
5. Enter a **Ship to Email** and a **Ship To Mail** address, if applicable.

6. By default, the **Start Date** is the **Fulfill Date** of the original fulfillment. You can set a different **Start Date** and can set the expiration to be after a set **Duration** or to a specific **Expiration Date**.
7. Replace the incorrect values with those to be used for the new license. You can choose to correct a publisher-generated error for the entire fulfill count, or a partial amount.
8. To check that the parameter values can be used to generate a valid license before actually generating a license, click Verify. To generate a license certificate, click **Generate New License**.
9. After a license is generated, the license text is displayed. The license text can be saved to a file on disk by clicking Save to File or it can be sent as an email attachment by clicking **Email License**. The shipment history of this license can be displayed by clicking **Shipment Records**.

   For information about the file naming conventions, see Configuring System Settings.

Corrected fulfillments appear in the Support Licenses and Maintenance page as Support Type MASTER and the Original fulfillment record is marked as Obsolete with a support Type PUBLISHER ERROR.

Upgrade, Upsell, or Renew a Fulfillment

You can upgrade, upsell, or renew one or more seats in a fulfillment. The new license is created for the currently defined server host.

This process is similar to activation of an upgrade, upsell, or renewal entitlement line item. The difference is that this process allows you to control which fulfillments are upgraded, upsold, or renewed.

Important ▪ *Before upgrading or upselling a fulfillment, you must upgrade, upsell, or renew the customer's entitlement line item for the product that this fulfillment references.*

Important ▪ *Some conflicts can prevent the successful activation of upgrade line items. See Avoiding the Creation of Upgrade Line Items with Incompatible License Models for details.*

Tip ▪ *FlexNet Operations can automatically upgrade line items for qualifying products and line items with the Product Version Upgrade job. See FlexNet Operations Alert Types.*

When you upgrade, upsell, or renew a fulfillment, the status of the original fulfillment is changed to **Obsolete** and the **Support Type** is changed to either UPGRADE, UPSELL, or RENEW accordingly. A new fulfillment is created and the Support Type is MASTER. If you upgrade or upsell only a portion of the total **Count** in a fulfillment, then two fulfillments are created. The status of the original fulfillment is changed to **Obsolete** and the **Support Type** is changed to either UPGRADE, UPSELL, or RENEW accordingly.

For example, F1-P1 is a fulfillment for ten seats of product P1 (the **Count** property equals 10). You upgrade only two seats from that fulfillment to product P2. The status of fulfillment F1-P1 is changed to **Obsolete** and the **Support Type** is changed to UPGRADE. Two new fulfillments are created:

- F2-P1 is a fulfillment for the remaining eight seats of product P1.
- F3-P2 is a fulfillment for the two seats of product P2.

If you are upgrading or upselling a product with a floating counted, floating uncounted, and nodelocked counted license model and the entitlement line item for the new product specifies a nodelocked uncounted license model, the user is prompted to define either the server host ID or the nodelocked host ID (see the following table for details).

For example, in case 3 of the following table, the license model changes from floating counted to nodelocked counted, the new fulfillment record requires that nodelocked host IDs be defined. The server host ID is obtained from the original fulfillment record, but the user is prompted to define the nodelocked host IDs. If there is no change in the license model type, then all the information is retained from the original entitlement line item.

Table 4-2 ▪

	Original License Model	Upgrade or Upsell License Model	User is prompted to define the following host IDs (Server or Nodelocked):
1	FC	FC	None
2	FC	FU	None
3	FC	NC	Nodelocked host ID
4	FC	NU	Nodelocked host ID1
5	FU	FC	None
6	FU	FU	None
7	FU	NC	Nodelocked host ID
8	FU	NU	Nodelocked host ID ***Note ▪*** *In this case, the SUPERSEDE keyword is not used in the upgraded license, even if you enabled the* ***Use SUPERSEDE Keyword for Upgrade and Renewal Licenses*** *property in the* ***System > Configure > FlexNet Operations*** *page.*
9	NC	FC	None
10	NC	FU	None
11	NC	NC	None
12	NC	NU	Nodelocked host ID ***Note ▪*** *In this case, the SUPERSEDE keyword is not used in the upgraded license, even if you enabled the* ***Use SUPERSEDE Keyword for Upgrade and Renewal Licenses*** *property in the* ***System > Configure > FlexNet Operations page****.*

Table 4-2 ▪

	Original License Model	Upgrade or Upsell License Model	User is prompted to define the following host IDs (Server or Nodelocked):
13	NU	FC	Server host ID ***Note ▪*** *In this case, the SUPERSEDE keyword is not used in the upgraded license, even if you enabled the* ***Use SUPERSEDE Keyword for Upgrade and Renewal Licenses*** *property in the* ***System > Configure > FlexNet Operations*** *page.*
14	NU	FU	Server host ID ***Note ▪*** *In this case, the SUPERSEDE keyword is not used in the upgraded license, even if you enabled the* ***Use SUPERSEDE Keyword for Upgrade and Renewal Licenses*** *property in the* ***System > Configure > FlexNet Operations*** *page.*
15	NU	NC	Server and nodelocked host ID ***Note ▪*** *In this case, the SUPERSEDE keyword is not used in the upgraded license, even if you enabled the* ***Use SUPERSEDE Keyword for Upgrade and Renewal Licenses*** *property in the* ***System > Configure > FlexNet Operations*** *page.*
16	NU	NU	None
FC=floating counted; FU=floating uncounted; NC=node-locked counted; NU=node-locked uncounted.			

Upgrade Process

The following steps describe the upgrade process:

1. **Upgrade Products for the Activation ID...** page.

   If there are multiple products (or entitlement line items) that this product can be upgraded or upsold to, you are presented with a list of entitlement line items that you can choose from. If there is only one entitlement line item that meets this requirement, you are not prompted to select anything.

2. In the **<Upgrade/Upsell/Renew> Fulfillment...** page, define the required properties.

3. Click:

   - **Verify** to check whether the values entered generate a valid license.
   - **Generate <Upgrade/Upsell/Renew> License** to create the new license and complete the process.

Important ▪ *FlexNet Operations does not evaluate the count of available copies when an upgrade is created. Therefore, it is possible to create an upgrade count that exceeds the number of available copies; however, the count is evaluated at fulfillment time. On fulfillment, upgrades that exceed the available count are rejected. To avoid errors at fulfillment time, users can invoke the method* `getExactAvailableCount()`*, which returns the exact number of copies available for upgrade fulfillment. This method is available as a web service call and also as part of public API.*

Avoiding the Creation of Upgrade Line Items with Incompatible License Models

Some license technology and license model conflicts can prevent the successful activation of upgrade line items. (FlexNet Operations does not prevent the creation of these upgrade line items, but the resulting line items cannot be successfully activated.) The following upgrade paths result in upgrade line items that cannot be activated:

Table 4-3 ▪

Upgrading From	Upgrading To	Notes
Custom licensing	FlexNet Publisher Trusted Licensing	Sharing counts between a license model from a custom license technology and retail activation license model is not supported.
FlexNet Publisher Certificate Licensing	FlexNet Publisher Trusted Licensing	Sharing counts between a floating, counted license model and a retail activation license model is not supported.
FlexNet Embedded Licensing	FlexNet Publisher Certificate Licensing	Sharing counts between an embedded counted license model and a node-locked, uncounted license model is not supported.
FlexNet Embedded Licensing	FlexNet Publisher Trusted Licensing	Sharing counts between an embedded, counted license model and a retail activation license model is not supported.

Using the SUPERSEDE and SUPERSEDE_SIGN Keywords

The SUPERSEDE keyword, available in FlexNet Operations 8.2 and later, is an optional attribute of an INCREMENT line. Normally, INCREMENT lines in certificate licenses are additive: each INCREMENT line adds to the total number of licenses. However, if SUPERSEDE appears in a line, all licenses issued for the listed features earlier than the date specified in ISSUED= or START= are superseded by the contents of the line.

If f1, f2, and f3 are features of a product, an example of the use of SUPERSEDE would be:

```
INCREMENT f1 ... 1 ... ISSUED=1-jan-2008
INCREMENT f1 ... 4 ... SUPERSEDE ISSUED=1-jan-2009
```

The second line supersedes the first, and the first line is ignored.

```
FEATURE f1 ... 1 ... ISSUED=1-jan-2008
FEATURE f2 ... 1 ... ISSUED=1-jan-2008
FEATURE f3 ... 4 ... SUPERSEDE="f1 f2" ISSUED=2-jan-2009
```

In this example, f3 supersedes f1 and f2 and causes the license file to support only f3.

Specifying a start date with the ISSUED= keyword makes this date explicit (such as ISSUED=1-jan-2009). If the ISSUED date is not set, then SUPERSEDE uses the START= date.

Multiple INCREMENT lines for the same feature, specifying SUPERSEDE with the same ISSUED= date, are pooled together rather than superseding one another. The resulting license pool collectively SUPERSEDEs the older feature. For example:

```
INCREMENT f1 ... 1 ... ISSUED=1-jan-2008
INCREMENT f1 ... 4 ... SUPERSEDE ISSUED=1-jan-2009
INCREMENT f1 ... 3 ... SUPERSEDE ISSUED=1-jan-2009
```

results in a license pool containing seven licenses for f1, collectively superseding the first INCREMENT line.

SUPERSEDE_SIGN works similarly to SUPERSEDE, but the supersede is based on signatures available in FlexNet Operations 11.5 or later.

Note ▪ *You cannot use both the SUPERSEDE and SUPERSEDE_SIGN keywords on the same feature definition line (or package line). Do not use both the SUPERSEDE keyword and the SUPERSEDE_SIGN to override the license model for the same feature name or package name. This may produce unexpected results. SUPERSEDE_SIGN is explained in the FlexNet Publishing Licensing Toolkit documentation.*

Considerations When Using SUPERSEDE or SUPERSEDE_SIGN

This section explores issues to consider when using the SUPERSEDE keyword.

Server-based License Model to a Client-based License Model

An upgraded entitlement line item may refer to a different type of license model than the original line item; that is, server-based or client-based. For example, one line item could refer to a floating counted license model and a second line item could refer to a nodelocked uncounted model. As a result, the hosts necessarily are different. This operation is almost like rehosting the license from a server to a client.

Even if FlexNet Operations used the SUPERSEDE keyword in this case, it is not effective if the user chooses not to install the superseded license on the server. As a result, the SUPERSEDE keyword is not generated.

The same problem exists for upgrading from a client-based license model to a server-based license model.

Because SUPERSEDE overrides all features in that server ISSUED prior to the ISSUED date of the SUPERSEDE line, caution must be exercised when using it. Consider these situations before implementing SUPERSEDE.

Different Identifiers for the Same Host

A host can be identified using an IP address or a DNS name in FlexNet Operations, but there is no way to confirm that this is the same host. As a result, FlexNet Operations may not regenerate the licenses for certain fulfillments on that host, causing some features to be superseded inadvertently.

Using host ID policies can help mitigate this problem. Most publishers restrict how a host can be defined. For example, some of them may allow their users to use only DNS names.

Trusted Storage Licensing

Trusted storage licensing currently supports both returns and repairs. Currently, an upgrade operation is implemented as returning the previous license and activating a new one. As a result, FlexNet Operations cannot track that a new fulfillment was created due to upgrading another fulfillment and the SUPERSEDE keyword is not generated for trusted storage licenses.

Also, the SUPERSEDE solution depends on the fact that FlexNet Operations records all the licenses ISSUED for a particular host. If there is a trusted activation on that host, FlexNet Operations only has the Machine Identifier of that host (which is not the same as the host name). As a result, FlexNet Operations does not regenerate the trusted storage license and it can be superseded. Mixing trusted storage and certificate licenses on the same host can cause problems if the SUPERSEDE keyword is used.

Start Date of the Upgraded License

Note that the upgraded license is generated from a new entitlement line item. As a result, that entitlement line item can have a different start date than the original line item.

Original and Upgraded Fulfillment on the Same Day

If a user fulfills a license for a product and gets the upgraded license on the same day, the SUPERSEDE keyword does not override the original product license, as both license lines have the same ISSUED date.

If the host contains any fulfillments ISSUED on the same day with similar features, SUPERSEDE licenses need not be generated for these fulfillments.

HOSTID as ANY

If ANY (or DEMO) is used as the hostname, the license works on any machine. If such a license is upgraded, then regenerating all ANY licenses with the SUPERSEDE keyword is problematic. As a result, FlexNet Operations does not generate the SUPERSEDE keyword for ANY (or DEMO) host ids.

Multiple VCGs

If the publisher supports multiple VCGs, SUPERSEDE does not supersede feature lines from another vendor daemon. As a result, FlexNet Operations does not regenerate licenses belonging to another vendor daemon.

Different Organization Units (Accounts) Using the Same Host

A host is identified by its name and the organization unit (account) in FlexNet Operations. When a license is generated for the first time on a host, the organization unit of the logged-in user is set as the organization unit of the host.

Consider two users who belong to the same company and use the same machine to host their licenses, but identify themselves to FlexNet Operations using two different organization units. (This case is common with the channel sales model, when end customers buy from resellers and come to the publisher separately.) In this case, FlexNet Operations treats the host names defined by these two users as different hosts, but in reality, they may be the same machine. Licenses of one or the other user may become ineffective.

Self-Registered Users

Self-registered users are FlexNet Operations Portal users who do not belong to an organization unit (account). Internally, all self registered users belong to a dummy organization unit called PORTAL_ORG_UNIT. Because a self-registered user name is not used to identify the host, the SUPERSEDE keyword cannot be used if self-registered users are supported. Licenses may be accidentally inactivated if two self-registered users use the same hostname.

Signature Length

SUPERSEDE_SIGN supersedes previous increment lines on a host based on their signatures. As signatures are quite long, sometimes, when a number of signatures are included in the SUPERSEDE_SIGN setting, the limit of the license line length can be equaled or exceeded.

If this occurs, the VCG returns the following error: `Feature <name> has count zero. Increase count for the feature or decrease superseded sign list, where <name> is the feature for which the license line length is reached.`

To resolve this issue, click **System > Configuration > FlexNet Operations > Override older fulfillments on the host using SUPERSEDE_SIGN keyword**. This decreases the number of signatures being added to the increment line.

Example of Using SUPERSEDE

The following is an illustration of the use of the SUPERSEDE keyword.

Consider a product, P1, with 3 features (f1, f2, and f3), and these attributes:

Product Name: P1 (F1, version 1.0) (F2, version 1.0) (F3, version 1.0)

Activation ID: Activation1

Entitlement ID: EL1

Account Name: Org1

Hostname: Mymachine

A user activates 5 out of 10 counts of the product, resulting in this license key:

```
SERVER this_host HOSTNAME=mymachine
VENDOR demo
USE_SERVER
INCREMENT F1 demo 1.0 26-dec-2008 5 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=2-oct-2008 SIGN="002A 20C2 A452 8B82 \
   7CF9 0A2D 1003 CB00 2BFC AC9B B59E D0C9 6CE6 5813 566A"
INCREMENT F2 demo 1.0 26-dec-2008 5 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=2-oct-2008 SIGN="00F0 9DFD 1320 33D9 \
   63B1 FF49 3A87 9400 4A69 C389 E117 9D40 96D2 7578 0E97"
INCREMENT F3 demo 1.0 26-dec-2008 5 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=2-oct-2008 SIGN="005F 56FB 63A7 A359 \
   C40B 5C7B C3BA 2D00 DE42 3BCA FF74 D606 6208 25F1 EB2D"
```

Now consider product P2, with 3 features, which is an upgrade of product P1. Product P2 has these attributes:

Product Name: P2 (F1, version 2.0) (F2, version 1.0) (F4, version 1.0)

Activation ID: upgraded-Act

Entitlement ID: upgraded-EL

Account Name: Org1

Hostname: Mymachine

Now, if the user upgrades 3 copies of P1 to P2, FlexNet Operations would generate the following licenses using the SUPERSEDE keyword:

Fulfillment license text for P2 (the upgraded product):

```
SERVER this_host HOSTNAME=mymachine
VENDOR demo
USE_SERVER
INCREMENT F2 demo 1.0 8-feb-2009 3 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="0025 879F C7B4 798B \
   66B5 262B 9D90 AE00 E62F FF09 2F83 2FBF E75C BA1A 2EC0"
INCREMENT F4 demo 1.0 8-feb-2009 3 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="0069 4F14 9B2A 94F4 \
   DB26 B912 801C 4400 CA61 4D94 78D6 1D1C A080 C8DB B744"
INCREMENT F1 demo 2.0 8-feb-2009 3 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="00C6 6180 7299 E091 \
   8DFD CFB1 497D D400 A1C0 D22F 18C4 54DE 9F45 34DA 4D1C"
```

Fulfillment license text for P1 (the old product):

Note the SUPERSEDE keyword in the license key.

```
SERVER this_host HOSTNAME=mymachine
VENDOR demo
USE_SERVER
INCREMENT F1 demo 1.0 26-dec-2008 2 SUPERSEDE="F3 F1 F2" ISSUER="My \
   Corporation" ISSUED=3-oct-2008 START=2-oct-2008 SIGN="009F \
   996A EA12 7504 32FE 3C14 5910 8300 5B4E 8600 57E1 EB1C A774 \
   AC01 22A3"
INCREMENT F2 demo 1.0 26-dec-2008 2 SUPERSEDE="F3 F1 F2" ISSUER="My \
   Corporation" ISSUED=3-oct-2008 START=2-oct-2008 SIGN="002F \
   1350 4898 5A94 223E 93E2 A2AA 5400 4487 DD7A F305 9D94 87D2 \
   6172 821B"
INCREMENT F3 demo 1.0 26-dec-2008 2 SUPERSEDE="F3 F1 F2" ISSUER="My \
   Corporation" ISSUED=3-oct-2008 START=2-oct-2008 SIGN="0069 \
   210A 84EA 4DD1 1C87 3999 88EB 2000 8D03 A3C4 ACC1 B783 6CD0 \
   816F 0E7C"
```

As can be seen from these license files, the user would receive:

- 5 copies of F1 (2 copies of the F1, 1.0 feature and 3 copies of the F1, 2.0 feature)
- 5 copies of F2
- 2 copies of F3
- 3 copies of F4

If users later activate 2 copies of an upgradable line item from the Activate License page on the same host, FlexNet Operations generates the following license without using the SUPERSEDE keyword:

```
SERVER this_host HOSTNAME=mymachine
VENDOR demo
USE_SERVER
```

```
INCREMENT F2 demo 1.0 8-feb-2009 2 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="001D 82E1 DAA5 E0FD \
   88A9 F261 AD14 8900 AB02 9BCC F774 E196 12EF DD5B 20CD"
INCREMENT F4 demo 1.0 8-feb-2009 2 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="00B0 26BD FD33 FBC4 \
   68FE C9B5 C38E 3300 33F3 521F 2588 B763 9470 E2EA C1AE"
INCREMENT F1 demo 2.0 8-feb-2009 2 ISSUER="My Corporation" \
   ISSUED=3-oct-2008 START=31-oct-2008 SIGN="0080 1869 FA9D 2B87 \
   920B 16DF 0636 E200 30FE D8E8 954A 2D16 3685 7722 E64C"
```

Example of Using SUPERSEDE_SIGN

The following is an illustration of the use of the SUPERSEDE_SIGN keyword.

Product Name: P1 (F1, version 1.0) (F2, version 1.0) (F3, version 1.0)

Activation ID: Activation1

Entitlement ID: EL1

Account Name: Org1

Hostname: Mymachine

A user activates 5 out of 10 counts of the product, resulting in these license keys:

License Key for Product P1:

SERVER this_host HOSTNAME=Mymachine

VENDOR opsqa

USE_SERVER

```
INCREMENT F1 opsqa 1.0 permanent 5 2575363D2F8A ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 SIGN="004E \
   5318 9887 61FF 6F2F 9039 210E 2D00 29C0 41D9 5B9A ADBE F33E \
   1FF2 CB16" SIGN2="0099 75D7 B158 0059 9AE5 650C 977C AE00 AE32 \
   56A9 FC6C 6831 23C8 951E 7489"
INCREMENT F2 opsqa 1.0 permanent 5 25AE6544D8E1 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 SIGN="0061 \
   68BC 9E59 962F 36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D \
   4007 6615" SIGN2="001F E152 80F2 1858 053B D75B 3710 5500 9B82 \
   BADA 4D5C D39D 50A2 B2D3 4E56"
INCREMENT F3 opsqa 1.0 permanent 5 2DFA5C27ED28 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 SIGN="0013 \
   8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 36FE 585E \
   E9C0 580E" SIGN2="00B2 4E2B 4C49 DABC 2EFC 503E A6A0 9F00 D931 \
   106C 0E1E 4605 489B 2410 C638"
```

Product Name: P2 (F1, 2.0) (F2, 1.0) (F4, 1.0)

Activation ID: upgraded-Act

Entitlement ID: upgraded-EL

Account Name: Org1

Hostname: Mymachine

Now, if the user upgrades 3 copies of P1 to P2, then the old license of Product P1 become obsolete, and FlexNet Operations generates the following license using the SUPERSEDE_SIGN keyword:

Fulfillment license text for Product P2 (Upgraded Product)

```
SERVER this_host HOSTNAME=Mymachine
VENDOR opsqa
USE_SERVER
INCREMENT F2 opsqa 1.0 7-feb-2009 3 B16BDF658A55 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="008F \
   8BE8 4D9E 5EF5 B5F7 1037 F882 8B00 CA90 C2C3 DE1F B29F 5D71 \
   CEF8 4C05" SIGN2="0016 6763 55B6 CF4C 3659 02BA BE89 8300 DF02 \
   36FE EB6B 133F CE15 F849 B22D"
INCREMENT F4 opsqa 1.0 7-feb-2009 3 4072393334B7 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="00DC \
   10B8 CBAE 2B32 8EE5 7ECF 8744 7C00 9E54 0C40 7621 0697 36B4 \
   EF21 555A" SIGN2="0005 84B2 3B51 D9C7 6D20 3CA0 1B47 9C00 DE53 \
   C962 CC1B 745A B4E0 C962 6854"
INCREMENT F1 opsqa 2.0 7-feb-2009 3 43026EA5EC87 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="00A5 \
   CF1B E66A 3D04 5679 B3F4 E4C6 2D00 DE42 95B4 DC62 E752 B5AC \
   04AC 77AB" SIGN2="0056 719E D96A D643 51C9 3EF5 65DE E100 00E2 \
   5C55 16E5 8415 EFB5 6AE5 47C5"
```

Fulfillment license text for P1 (the old product). Note the SUPERSEDE SIGN keyword in the license key.

```
SERVER this_host HOSTNAME=Mymachine
VENDOR opsqa
USE_SERVER
INCREMENT F1 opsqa 1.0 permanent 2 6BD0062092EC ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="0029 3648 50D1 9BD1 EE19 1182 6B1D \
   6800 CB0E FFD6 A951 0378 518D B381 A59D" SIGN2="00DC 766F A4CB \
   7FCD D1DA CB78 9C1F A400 CC6B 3060 2AC8 6823 FADF E653 21CF"
INCREMENT F2 opsqa 1.0 permanent 2 C2B2737DA117 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="0000 937B A809 AF06 5AB3 883A AEA2 \
   9600 79F5 432B AF02 5722 6B16 F093 43E9" SIGN2="0046 C582 FBB5 \
   E97A 8B4B D48B 6720 FE00 7BC3 AFA1 5D6D 5DCC CB1F 8561 CF2A"
INCREMENT F3 opsqa 1.0 permanent 2 8FB794EE24AA ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="002A EEEB AFE4 2002 D145 4082 0FAA \
   7A00 CF17 2073 B7A8 BC70 EA1F 664E CB04" SIGN2="00B9 91E6 C380 \
   4CF9 F1A1 660E 7C8C AB00 E511 994F 3CBE 2E71 5A1D F687 A65D"
```

A user can consolidate both of the above licenses into a single license file for convenience.

Consolidated License: CID_33c0d5d6_11cd97c2d8e__7fff

Sold To: Account

Consolidation Criteria: Server HOSTNAME=Mymachine

Consolidated License

```
SERVER this_host HOSTNAME=Mymachine
VENDOR opsqa
USE_SERVER
INCREMENT F1 opsqa 1.0 permanent 2 6BD0062092EC ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="0029 3648 50D1 9BD1 EE19 1182 6B1D \
   6800 CB0E FFD6 A951 0378 518D B381 A59D" SIGN2="00DC 766F A4CB \
   7FCD D1DA CB78 9C1F A400 CC6B 3060 2AC8 6823 FADF E653 21CF"
INCREMENT F2 opsqa 1.0 permanent 2 C2B2737DA117 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="0000 937B A809 AF06 5AB3 883A AEA2 \
   9600 79F5 432B AF02 5722 6B16 F093 43E9" SIGN2="0046 C582 FBB5 \
   E97A 8B4B D48B 6720 FE00 7BC3 AFA1 5D6D 5DCC CB1F 8561 CF2A"
INCREMENT F3 opsqa 1.0 permanent 2 8FB794EE24AA ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=6-oct-2008 \
   SUPERSEDE_SIGN={"F1:004E 5318 9887 61FF 6F2F 9039 210E 2D00 \
   29C0 41D9 5B9A ADBE F33E 1FF2 CB16" "F2:0061 68BC 9E59 962F \
   36AD 014B 0A52 A500 220C F2A2 50F8 B7FB C06D 4007 6615" \
   "F3:0013 8996 1A1D 84EF D0E1 C0EC 7B32 0600 1B07 3E12 7413 \
   36FE 585E E9C0 580E"} SIGN="002A EEEB AFE4 2002 D145 4082 0FAA \
   7A00 CF17 2073 B7A8 BC70 EA1F 664E CB04" SIGN2="00B9 91E6 C380 \
   4CF9 F1A1 660E 7C8C AB00 E511 994F 3CBE 2E71 5A1D F687 A65D"
INCREMENT F2 opsqa 1.0 7-feb-2009 3 B16BDF658A55 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="008F \
   8BE8 4D9E 5EF5 B5F7 1037 F882 8B00 CA90 C2C3 DE1F B29F 5D71 \
   CEF8 4C05" SIGN2="0016 6763 55B6 CF4C 3659 02BA BE89 8300 DF02 \
   36FE EB6B 133F CE15 F849 B22D"
INCREMENT F4 opsqa 1.0 7-feb-2009 3 4072393334B7 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="00DC \
   10B8 CBAE 2B32 8EE5 7ECF 8744 7C00 9E54 0C40 7621 0697 36B4 \
   EF21 555A" SIGN2="0005 84B2 3B51 D9C7 6D20 3CA0 1B47 9C00 DE53 \
   C962 CC1B 745A B4E0 C962 6854"
INCREMENT F1 opsqa 2.0 7-feb-2009 3 43026EA5EC87 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="00A5 \
   CF1B E66A 3D04 5679 B3F4 E4C6 2D00 DE42 95B4 DC62 E752 B5AC \
   04AC 77AB" SIGN2="0056 719E D96A D643 51C9 3EF5 65DE E100 00E2 \
   5C55 16E5 8415 EFB5 6AE5 47C5"
```

As can be seen from the above license files, the user receives:

- 5 copies of F1 (2 copies of the F1, 1.0 feature and 3 copies of the F1, 2.0 feature)

- 5 copies of F2
- 2 copies of F3
- 3 copies of F4

Note that if a user activates 2 copies of an upgradable line item on the same host, FlexNet Operations generates the following license without using the SUPERSEDE SIGN keyword:

```
SERVER this_host HOSTNAME=Mymachine
VENDOR opsqa
USE_SERVER
INCREMENT F2 opsqa 1.0 7-feb-2009 2 882127379F59 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="008A \
   0A65 CAD8 DDC4 85AA 48A7 A9CA BD00 17AB 7BF8 9F2E 666A 7A53 \
   E700 5375" SIGN2="0068 A545 B631 9773 9017 24BC C1C9 8D00 F062 \
   1ACE 8C33 BE7C 4995 C091 2478"
INCREMENT F4 opsqa 1.0 7-feb-2009 2 09B95D118D97 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="00F5 \
   C68F 4978 FC24 ECC6 9A2D 4BAB 8300 A09B 3332 4CF3 E00C 4D9F \
   4C95 2719" SIGN2="004C 09FF 27E8 B631 9320 C85E 329C 4F00 6E38 \
   CCC7 81D7 9D22 1EE0 48EC 51E8"
INCREMENT F1 opsqa 2.0 7-feb-2009 2 AACDA415B7B9 ISSUER="My \
   Corporation" ISSUED=7-oct-2008 START=30-oct-2008 SIGN="0041 \
   7961 1A8F A373 767F B5AC BBA7 4400 18AE 38B7 296D 8038 0D16 \
   4DA3 36CE" SIGN2="0013 FA4B FBA6 1CF2 39A6 D8D4 5D6D 7A00 FEED \
   80E8 6765 8E56 3044 B52B F6CE"
```

Configuring the SUPERSEDE or SUPERSEDE_SIGN Keyword

Configure the SUPERSEDE keyword in the Producer Portal (**System > Configure**). Click FlexNet Operations, then under Use SUPERSEDE or SUPERSEDE_SIGN keyword, select the circumstances under which you want to use either keyword: for upgrades, renewals, or both. You can use SUPERSEDE or SUPERSEDE_SIGN, but not both at the same time.

Generating a Stop Gap License

If a customer's license has expired and the customer has not formally renewed its entitlement, the publisher can generate a short-term stop gap license.

Task ***To generate a stop gap license because a customer has not yet renewed an expired license***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Search for a fulfillment for which a stop gap license is to be generated. Search by **Activation ID**, **Product**, **Sold To**, **Hostid**, or **Fulfill ID**.
3. Select exactly one fulfillment ID and click **Stop Gap**. Generating a stop gap license does not cause the original fulfillment to be returned.
4. Enter a **Ship to Email** or a **Ship To Mail** address, if applicable.

5. By default, the **Start Date** of a stop gap license is the **Fulfill Date** of the original fulfillment. You can set a different **Start Date** and can set the expiration to be after a set **Duration** or to a specific **Expiration Date**.
6. No license parameters can be modified for the stop gap license. The entire count of the fulfillment is used for the stop gap license.
7. To check that the parameter values can be used to generate a valid license before actually generating a license, click **Verify**.
8. To generate an stop gap license certificate, click **Stop Gap**.
9. After a license is generated, the license text is displayed. The license text can be saved to a file on disk by clicking Save to File, or it can be sent as an email attachment by clicking **Email License**. The shipment history of this license can be displayed by clicking **Shipment Records**.

   For information about the file naming conventions, see Configuring System Settings.

Stop gap fulfillments appear in the **Support Licenses and Maintenance** page as Support Type **STOP GAP**.

Consolidating Licenses

License consolidation, or the generation of a single license file for several certificate-based or custom licenses, can be done during batch activation, or post-activation, from the Support Licenses page.

To enable this capability, the **Show Consolidate Licenses Functionality** flag must be enabled. This is configured under System > Configure > FlexNet Operations.

Task ***To consolidate a license***

1. Click **Licenses** > **Licenses**. This link opens the Support Licenses and Maintenance page.
2. Select the boxes next to the fulfillments you want to consolidate. Ensure that these records meet the consolidation criteria.
3. Click **Consolidate** to view the consolidated license file. One file is generated for each group of floating or nodelocked licenses on each server.

Consolidated Licenses Page

The **Consolidated Licenses** lists all consolidated license files. The files are listed with the following information:

Table 4-4 ▪ Consolidated License File Information

Information	Description
Type	Shows if the license is active or not.
Consolidated License ID	Machine-generated unique identifier for each consolidated license file.
Consolidation Criteria	Mostly lists the host ID of the machine on which node-locked or floating licenses have been consolidated.

Table 4-4 ▪ Consolidated License File Information

Information	Description
Sold To	Name of the customer account that owns the consolidated licenses.
Consolidation Date	Date on which licenses were consolidated: not necessarily the same as activation date.

From this page you can do the following:

- Click a consolidated license ID.
- View **Shipment History** for the license.
- **View Fulfillments** contained with the consolidated license.
- Click Rehost to rehost a consolidated license.
- Save or email the license.
- If you have selected more than one file to view, you can choose among license files by selecting the appropriate **Consolidated License ID** from the drop-down list provided.
- The license text can be saved to a file on disk by clicking Save to File or it can be sent as an email attachment by clicking **Email**.

For information about the file naming conventions, see FlexNet Operations system configuration settings.

Rehosting a Consolidated License

Rehosting a consolidated license reassigns it from one host ID to another.

Task ***To rehost a consolidated license***

1. Click **Licenses** > **Consolidated Licenses**.
2. On the Consolidated Licenses page, search for the fulfillment for the license by, for example, **Consolidated License ID** or **Consolidation Criteria** (usually, a server host ID).
3. Select the box next to the fulfillment ID you want to rehost.
4. Select a new Host ID for the consolidated license. Alternatively, add a new host ID to rehost this license by creating a new host on the Create License Host page.
5. Click **Rehost**. The license is assigned to the new Host ID.

Batch Rehosting

Using the Batch Rehost feature, you can use redistribute licenses for a group of products among various license servers and change the license count of products on different servers. For example, you can change 20 licenses for Product 1 on Server A, to 10 licenses on Server A and 10 on Server B. Batch rehosting only works for counted licenses – that is, floating counted or node-locked counted models.

Task ***To batch rehost a group of products***

1. Click **Licenses** > **Batch Rehost**. This link opens the Batch Rehost - Select Customer Account Unit and Hosts page.
2. In Account, select the account for which you want to redistribute licenses.
3. Select the products whose licenses you want to redistribute, and click Next.
4. If desired, enter the common attributes you want to assign to each of the redistributed licenses, and click Next.
5. Add new hosts as needed.
6. In Final Count, enter the number of copies to assign to each selected host. (The green arrow indicates the current host assignment. The green check mark indicates that the count has been changed.) Click Next.
7. Review the summary page for your redistribution. If necessary, click Back to correct any incorrect entries. If correct, click Generate. The licenses are redistributed.

Transferring Licenses

When you transfer licenses, you move all licenses for one account from one host to another. This is typically used when a host crashes and licenses on it must be moved to a new machine.

Task ***To transfer licenses from one account to another***

1. Click **Licenses** > **Transfer Licenses**. This link opens the Transfer Licenses page.
2. In Account, select the account from which you want to transfer licenses.
3. In Source Host, select the host of the source licenses.
4. In Target Host, select the host that you will transfer licenses to.
5. Select whether or not you want to consolidate the licenses into a single file.
6. Click **Next**.
7. On the summary page, review the details of your transfer. If necessary, click Back to correct any incorrect entries. If correct, click Transfer. The licenses are transferred to the specified host.

Manual Return

Trusted returns are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the return.

However, when there is no internet connection, a return request can also be generated and written to a file by a FlexNet Publisher Licensing Toolkit activation utility running on the machine from which the license will be returned.

- The file containing the request is sent to the publisher and loaded into FlexNet Operations to generate a response.
- The response is saved to a file; the file is sent to the customer and is used by the FlexNet Publisher Licensing Toolkit activation utility to process the response and return the license.

Task ***To generate a response to a return request submitted in a file***

1. Instruct the customer to use the FlexNet Publisher Licensing Toolkit activation utility that you provide to generate and save to a file a return request. The activation utility requires the fulfillment ID of the license.
2. Click **Licenses** > **Manual Return**. This link opens the Manual Return page.
3. Browse to the XML file that contains the return request.
4. Click **Submit** to generate and view the return response.

Viewing a Manual Return

Follow this procedure to view a return after you manually generate a return response.

Task ***After a return response is generated manually***

1. Verify the Activation ID, Product, Version, Fulfillment ID, and Sold To.
2. Click **Save to File** to save this response to a file. The default file name is `responseXML.xml`.
3. Send the file to the customer with instructions for using the activation utility to process the response and return the license.

Manual Repair

Trusted repairs are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the repair.

However, a repair request can also be generated and written to a file by a FlexNet Publisher Licensing Toolkit activation utility running on the machine on which the license will be repaired.

- The file containing the request is sent to the publisher and loaded into FlexNet Operations to generate a response.
- The response is saved to a file; the file is sent to the customer and is used by the FlexNet Publisher Licensing Toolkit activation utility to process the response and repair the license.

Task ***To generate a response to a repair request submitted in a file***

1. Instruct the customer to use the FlexNet Publisher Licensing Toolkit activation utility that you provide to generate and save to a file a repair request. The activation utility requires the fulfillment ID of the license.
2. Click **Licenses** > **Manual Repair**.
3. Browse to the XML file that contains the repair request.
4. Click **Submit** to generate and view the repair response.

Viewing a Manual Repair

Follow this procedure to view a repair after you manually generate a repair response.

Task ***After a repair response is generated manually***

1. Verify the Activation ID, Product, Version, Fulfillment ID, and Sold To.
2. Click **Save to File** to save this response to a file. The default file name is `responseXML.xml`.
3. Send the file to the customer with instructions for using the activation utility to process the response and repair the license.

Short Code Return

Trusted returns are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the return.

However, some customer environments do not support communication with the FlexNet Operations server. If the publisher created a short code ASR that was packaged with the software, whether the license was activated with short code or programmatically, it can be repaired using a short code.

A FlexNet Publisher Licensing Toolkit activation utility, running on the machine from which the license is to be returned, uses the short code ASR to generate a short request code.

- The short request code is sent to the publisher, who loads it into FlexNet Operations to generate a short response code.
- The response code is saved to a file and sent to the customer, who uses the FlexNet Publisher Licensing Toolkit activation utility to process the response and return the license.

Task ***To allow a customer to return a license with a short response code***

1. The customer's license must have been activated with a short code ASR, the short code ASR must have been packaged with the product, and the activation utility must be able to generate a short code return request

and process a short code return response. The license to be returned may have been originally activated online or with a short code request.

2. Instruct the customer to use the FlexNet Publisher Licensing Toolkit activation utility, which you provide, to generate a short code return request using the short code ASR file.
3. Receive the generated short code from the customer, along with the activation ID (or web register key) used to activate the original license.
4. Click **Licenses** > **Short Code Return**.
5. Enter values in the following fields.

Table 4-5 ▪ Short Code Return Fields

Field	Description
Short Request Code	Short code return request generated by the FlexNet Publisher Licensing Toolkit activation utility and sent by the customer.
Activation ID	Activation ID or a Web register key associated with the short code ASR's bulk entitlement.
Reason for Return	Reason for the short code return, if any: REHOST, UPGRADE, UPSELL, UPGRADE, RENEW.

6. Click Generate to generate and view the short response code.

Viewing a Short Code Return

Follow this procedure to view a short code return after you manually generate a short code return response.

Task ***After a short code return response is generated manually***

1. Save the response code to a file.
2. Send the file to the customer with instructions for using the activation utility to process the response and return the license.

Short Code Repair

Trusted storage repairs are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the repair.

However, some customer environments do not support communication with the FlexNet Operations server. If the publisher created a short code ASR that was packaged with the software, the customer who originally activated the license with that short code ASR can use the short code ASR file to generate a short code request to repair the license.

A FlexNet Publisher Licensing Toolkit activation utility, running on the machine on which the license is to be repaired, uses the short code ASR to generate a short request code.

- The short request code is sent to the publisher, who loads it into FlexNet Operations to generate a short response code.
- The response code is saved to a file and sent to the customer, who uses the FlexNet Publisher Licensing Toolkit activation utility to process the response and repair the license.

Task ***To allow a customer to repair a license with a short response code***

1. The customer's license must have been activated with a short code ASR, the short code ASR must have been packaged with the product, and the activation utility must be able to generate a short code repair request and process a short code repair response. The license to be repaired may have been originally activated online or with a short code request.
2. Instruct the customer to use the FlexNet Publisher Licensing Toolkit activation utility, which you provide, to generate a short code repair request using the short code ASR file.
3. Receive the generated short code from the customer, along with the activation ID (or Web register key) used to activate the original license.
4. Click **Licenses** > **Short Code Repair**.
5. Enter values in the following fields.

   Table 4-6 ▪ Short Code Repair Fields

Field	Description
Short Request Code	Short code repair request generated by the FlexNet Publisher Licensing Toolkit activation utility and sent by the customer.
Activation ID	Activation ID or a Web register key associated with the short code ASR's bulk entitlement.

6. Click Generate to generate and view the short response code.

Viewing a Short Code Repair

Follow this procedure to view a short code repair after you manually generate a short code repair response.

Task ***After a short code repair response is generated manually***

1. Save the response code to a file.
2. Send the file to the customer with instructions for using the activation utility to process the response and repair the license.

Supporting Hosts

You can view fulfillment or license information associated with previously-defined hosts.

Task ***To manage host information***

1. Click **Licenses** > **Hosts**.
2. Select the host you want to view or manage information for.
3. Do one of the following:
   - Click **View Fulfillments** to view fulfillments associated with the host.
   - Click **Download License** to download license files associated with the host. Choose a location to save the license file to, then click **OK**.
   - For a manual, replacement license technology, click **Set License** to set the license file information for the host. Then complete the requested information for your license file.
   - Click **Delete** to delete the host from FlexNet Operations.
   - Click **Transfer** to move the selected hosts (and their entitlements) to a different account. (See Transferring Hosts.)

Transferring Hosts

Transfer Hosts allows you to transfer fulfillments from one or more hosts to a related account.

Note ▪ *When a host is moved, entitlements that belong to devices assigned to that host are moved as well. The result of the move is to either create new entitlements for the target account or to pool the line items—incrementing the counts of the target account's existing (and matching) entitlements by the counts on the hosts' entitlements that were moved.*

Task ***To transfer hosts***

1. In the Producer Portal, click **Licenses** > **Hosts**. On the Hosts page you can select hosts to transfer.
2. On the Hosts page, select the hosts you want to transfer and click **Transfer**. This button opens the Transfer Hosts page.
3. On the Transfer Hosts page, set the **Target Account**:
   a. Click the **Search Account** button to open the Select Account page in a pop-up window.
   b. Select the customer account to which you want to move the selected hosts.
   c. Click **OK**. This button closes the Select Account window and returns you to the Transfer Hosts page. Note that the Target Account is now set to the account you selected.
4. Next, choose a setting for **Pool Line Items**:

- **Yes**—If matching entitlements exist in the target account, those entitlements are incremented by the counts in the hosts' entitlements. Otherwise, if no matching entitlements exist, new entitlements are created at the target account.
- **No**—FlexNet Operations creates new entitlements at the target account, even if matching entitlements already exist.

5. Click **Transfer**. FlexNet Operations queues the transfer for processing.
6. Click **Complete**.

***Note** ▪ You can check the status of the host transfer job by its Job ID on the **Host Transfer Jobs** page. To go to the Host Transfer Jobs page, click **Licenses** > **Host Transfer Jobs**.*

Supporting Embedded Licenses

To support embedded licenses, you can easily add or delete additional licenses, or re-allocate them between devices, in response to customer demands, maintenance, or market conditions. Some of the operations you can perform include:

- RMAs: Return material authorization
- Upgrades
- Transfers
- Temporary (emergency or stop-gap, for example) licenses

Task ***To edit additional licenses for a particular device***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, select a device to manage.
4. Under Entitlements, edit the entitlements for the selected device.

Changes to additional licenses are not performed in real time, but take effect on each device the next time the affected devices connect to FlexNet Operations, or the next time the license is copied by a user to a given device.

Pre-installed licenses are not transferable between devices.

Return Material Authorizations (RMAs)

A customer might be required to return a malfunctioning device to a manufacturer or reseller, and get a new device. The existing license is transferred to the new device. This process is known as a return material authorization (RMA).

After you have determined that a device must be replaced, you can process the RMA in FlexNet Operations.

Task ***To process an RMA***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, click the ID for the old device. This link opens the View Device page.
4. Click **Edit** > **Make Obsolete**.
5. Click **Devices** > **Create Device** and create a new device with the same characteristics as the old, but a new Device ID.
6. Click **Licenses** > **Map Entitlements**. The Producer Portal opens the Map Entitlements page where you select the entitlement line items for the new device (which is the same as the old device).
7. Under **Entitlements Available**, specify the amount to add in **Qty to Add** for the entitlements you want to map, and click **Save**.

A newly authorized device has been created in FlexNet Operations.

Upgrades, Renewals, and Upsells

upgrade — Transferring a customer from a specified version of a product to a more recent version of the same product, with potentially new features.

renewal — Extending the expiration date of a license to a later date.

upsell — Transferring a customer to an expanded version of the same product that provides more functionality.

These three processes are supported for FlexNet Embedded licenses and work the same way.

Task ***To process an upgrade, renewal, or upsell manually***

1. Create an entitlement representing the upgraded/renewed/upsold product. For example, if the regular entitlement gives access to a feature, the upgrade entitlement would represent the new or expanded feature.
2. Click **Devices** > **Search Devices**. The Producer Portal opens the **Search Devices** page.
3. Specify search criteria to locate the device you want to change and click **Search**.
4. From the list of devices, click the ID for device to upgrade/renew/upsell. This link opens the **View Device** page.
5. Click **Licenses** > **Remove Licenses**.
6. Under **Licenses Currently Mapped**, specify the amount to remove in **Qty to Remove**, and click **Save**. The previously assigned counts are added back to the entitlement. The entitlements can now be assigned to new devices.
7. Click **Licenses** > **Map Entitlements**. The Producer Portal opens the **Map Entitlements** page, where you select the upgraded/renewed/upsold entitlement line items for the device.

8. Under **Entitlements Available**, specify the amount to add in **Qty to Add** for the entitlements you want to map, and click **Save**.

About Automatic Version Upgrades, Renewals, and Upsells for Devices and Servers

For FlexNet Operations to apply the automatic upgrade, renewal, or upsell process, you must create relationships between the two product versions and between the two entitlement line items for those product versions.

When mapping an upgrade entitlement to a device that already has copies of the related pre-installed entitlement, FlexNet Operations automatically reduces the copies of the pre-installed entitlement by the number of copies of the upgrade entitlement being mapped. This is particularly helpful as the copies are shared between the pre-installed entitlement and the upgrade entitlement, and frequently the upgrade entitlement cannot be mapped until copies of the pre-installed entitlement are unmapped (to free up available copies).

The return of the pre-installed copies skips the normal confirmation process, as the returned copies are immediately consumed by the upgrade being mapped. Also, for the same reason, potential limitations for duration based entitlements do not apply.

Limitations:

- You are not permitted to mix the different relationship types within a single parent-child chain of product relationships.
- The type of relationship—upgrade, renewal, or upsell—you use in the product relationship must be the same as the type of relationship between the entitlement line items.
- The application does not support multiple upgraded products that have the same parent.
- The application does not support a child entitlement having a higher license quantity than its parent. In this case, you must create two entitlement lines: one that is for the same quantity as the parent and one that is for the remaining extra quantity.
- If there are no copies currently available for an upgrade entitlement, the **Map Entitlements** page does not show the upgrade entitlement as an option to map, even if there are copies of the pre-installed entitlement mapped to the device being acted on (that could be automatically returned to enable the operation to succeed). Activation via capability request does not have this limitation.
- If both pre-installed and upgrade entitlements are specified in a capability request, the order in which they are listed matters. If the pre-installed entitlement is listed first, the mapped copies are unmapped by the upgrade item listed second (if the upgrade copies requested are greater or the same; some are left if the pre-installed request is for more copies). If the pre-installed entitlement is listed second, it is successfully mapped in addition to the upgrade listed first. When the same is done from the user interface, the result is not well defined.
- If a device has a device series limiting the copies of a feature in the upgrade/pre-installed entitlement, the feature-limiting logic does not properly take into account the copies being returned in the pre-installed entitlement and may prevent mapping via the user interface.

***Tip** ▪ FlexNet Operations can automatically upgrade line items for qualifying products and line items with the Product Version Upgrade job. See FlexNet Operations Alert Types.*

Transfers

Transferring licenses is defined as the process of moving licenses from one device to another. A publisher can define policies to control the number of rehosts in a given duration of time per line item. This policy can be defined on license model or the entitlement line item.

Task ***To process a transfer***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, click the ID for the old device. This link opens the View Device page.
4. Click **Licenses** > **Remove License**.
5. Under Licenses Currently Mapped, specify the amount to remove in **Qty to Remove**, and click **Save**. The previously assigned counts are added back to the entitlement. The entitlements can now be assigned to new devices.
6. Click **Devices** > **Create Device** and create a new device with the same characteristics as the old, but a new Device ID.
7. Click **Licenses** > **Map Entitlements**. The Producer Portal opens the Map Entitlements page where you select the entitlement line items for the new device (which is the same as the old device).
8. Under **Entitlements Available**, specify the amount to add in **Qty to Add** for the entitlements you want to map, and click **Save**.

A newly authorized device has been created in FlexNet Operations.

Temporary (Emergency and Stop-Gap) Licenses

Temporary licenses are limited in duration for a specific purpose. A temporary license can be issued in the following circumstances:

- An emergency license allows a customer to temporarily move features from an old device to a new device.
- A stop-gap license allows a customer to temporarily use an expiring license until another license can be issued.
- A temporary license allows a customer to demonstrate a product for trial purposes, and expires after a short trial period.

Task ***To issue a temporary license***

1. Create a limited-duration entitlement representing the upgraded product.
2. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
3. Specify search criteria to locate the device you want to change and click **Search**.
4. From the list of devices, click the ID for device to change. This link opens the View Device page.

5. Click **Licenses** > **Map Entitlements**. The Producer Portal opens the Map Entitlements page where you select the temporary entitlement line items for the device.
6. Under **Entitlements Available**, specify the amount to add in **Qty to Add** for the entitlements you want to map, and click **Save**.

The Producer Portal maps the entitlement line items to the current device and shows its View Device page.

Supporting Offline Device Activation

If necessary, FlexNet Operations can be used to upload license requests (Generate License) and download both pre-installed and additional licenses.

Table 4-7 ▪

Topics	Description
Offline Activation: Generating a License	Steps through the process of uploading a binary license request file.
Offline Activation: Downloading a Pre-Installed License	Describes how to download a previously generated, pre-installed license.
Offline Activation: Downloading an Additional License	Describes how to download a previously generated, additional license.

Offline Activation: Generating a License

Some devices may follow an offline activation model in which the device generates a binary license request file (for an additional license) that can be manually uploaded on the FlexNet Operations Producer Portal or the End-User Portal. FlexNet Operations processes the request file to generate a license appropriate for the request.

If the license request is made for an existing device, FlexNet Operations generates a regenerative license. If the request is made for a new device, FlexNet Operations enters the device into the system, adds the corresponding entitlement, and generates a license for it.

Task ***To upload a license request file for an existing device***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, click the ID of the device for which you want to upload a license request. This link opens the View Device page.
4. Click **Browse** and locate the license request file on your local system. (Button names vary depending on the web browser you are using.)

5. Click **Upload Capability Request**.

The Producer Portal uploads the request file. FlexNet Operations generates a regenerative license.

Task ***To upload a license request file for an existing license server***

1. Click **Devices** > **Search License Servers**. The Producer Portal opens the Search License Servers page.
2. Specify search criteria to locate the server you want to change and click **Search**.
3. From the list of devices, click the ID of the server for which you want to upload a license request. This link opens the View Server page.
4. Click **Browse** and locate the license request file on your local system. (Button names vary depending on the web browser you are using.)
5. Click **Upload Request**.

The Producer Portal uploads the request file. FlexNet Operations generates a regenerative license.

Task ***To upload a license request file for a new device***

1. Click **Licenses** > **Offline Device Activation**. The Producer Portal opens the Generate License page.
2. On the Generate License page, click **Browse**. (Button names vary depending on the web browser you are using.)
3. Click **Upload Request**.

The Producer Portal uploads the request file. FlexNet Operations enters the device into the system, adds the corresponding entitlement, and generates a license for it.

Offline Activation: Downloading a Pre-Installed License

You can download a license response file for a pre-installed license after the pre-installed license has been generated.

Task ***To download a pre-installed license***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, click the ID of the device for which you want to download a license. This link opens the View Device page.
4. Click **View** > **Download License File**.

The Producer Portal downloads the license response file (`license.bin`) to your local machine.

Offline Activation: Downloading an Additional License

You can download a license response file for an additional license after the license has been generated.

Task ***To download an additional license***

1. Click **Devices** > **Search Devices**. The Producer Portal opens the Search Devices page.
2. Specify search criteria to locate the device you want to change and click **Search**.
3. From the list of devices, click the ID of the device for which you want to download a response. This link opens the View Device page.
4. Click **View** > **Download Response**.

The Producer Portal downloads the license response file as a binary (typically `<device ID>.bin`) to your local machine.

5

Managing Devices

Producers who use FlexNet Embedded licensing can manage their devices from the **Devices** menu.

Use the topics in this section to learn more about managing FlexNet Embedded devices.

Table 5-1 ▪

Topic	Description
About Device Management	Introduces FlexNet Embedded licensing concepts and discusses device and server attributes, management, and support.
Listing Devices	Shows how to list existing devices.
Filtering the Devices List	Explains how to filter the devices list by device type and activation status.
Previewing Licenses on a Device	Explains how to quickly view which licenses are on a device.
Searching for Devices	Shows how to search for devices.

Table 5-1 ▪

Topic	Description
Viewing Devices	Explains how to view a device, its device history, and so on. The tasks described here explain how to use the commands in the **View** menu on the default view for a device or server page. • Viewing this Device • Viewing a Server's Served Devices • Viewing Device History • Viewing Device Requests • Viewing a Vendor Dictionary for a Device • Downloading a License File for a Device • Viewing a License File for a Device • Downloading a Response for a Device Request • Viewing a Response for a Device Request
Creating Devices	Explains how to create a device.
Editing Devices	Explains how to edit a device's attributes, assign it to an account, and so on. The tasks described here explain how to use the commands in the **Edit** menu on the default view for a device or server page. • Editing Device Attributes • Adding a Pre-installed Product to a Device • Assigning an Account to a Device • Associating a Device with a Device User • Returning a Device • Moving a Device • Making a Device Obsolete
Working with Licenses on a Device	Describes how to add entitlements to, and remove licenses from devices. • Mapping an Entitlement • Mapping Entitlements by Activation IDs • Removing Licenses
Supporting Devices	Shows how to generate license files and capability responses, and how to manually upload capability requests for devices. • Generating a License File • Generating a Capability Response • Uploading a Capability Request from the Device Page

Table 5-1 ▪

Topic	Description
Offline Device Management	Describes offline device management activities. ● Uploading a Capability Request from the Offline Device Management Page ● Uploading Synchronization History

About Device Management

The following topics discuss FlexNet Embedded licensing concepts.

Table 5-2 ▪

Topic	Description
About Standalone Devices, Servers, and Served Devices	Introduces the concepts of FlexNet Embedded devices, servers, and served devices.
About Device Ownership	Discusses how ownership originates and flows with transactions in FlexNet Operations.
About Device Attributes	Describes the attributes of standalone and served devices. These attributes are important when creating or editing devices, as well as for device searches.
About Server Attributes	Describes attributes of servers. These attributes are important when creating or editing servers, as well as for server searches.
About Device Status	Discusses the possible states for devices.
About Overriding the Expiration Date of an Entitlement	Discusses the conditions under which a license expiration date can be overridden on a device and the limitations of doing so.
About the Device–Device User Association	Describes what a device user is, the system configuration options, and the user permissions required to view and edit device users.

About Standalone Devices, Servers, and Served Devices

A device is a hardware component that has its features licensed using FlexNet Embedded (FNE). Examples of devices include high-end medical equipment, routers, and microchip ID scanners.

A device is identified by a device ID and its type. Device types are:

- **Standalone**—FlexNet Embedded device that connects to FlexNet Operations, which manages device ownership, state, features, and more. See Creating Devices for more information.

- **Server**—FlexNet Embedded server that communicates with FlexNet Operations to manage device ownership, state, and features for a collection of served devices. (When a FlexNet Embedded server is used, its served devices connect with the FlexNet Embedded server rather than connecting directly to FlexNet Operations.)
- **Served**—FlexNet Embedded device that is managed via a FlexNet Embedded server. In FlexNet Operations, served devices are essentially read-only entities.

For more information about FlexNet Embedded licensing, see your FlexNet Embedded documentation.

About Device Ownership

For any device that exists in the Producer Portal, producers can perform all device management actions that are possible for a user with their roles and permissions. Typically, producers can create devices, view a device, map entitlements, remove licenses, and so forth. However, by default, mapping entitlements to a device involves an ownership check.

In the End-User Portal, the device owner always retains full control over the device and the licenses on it. But for users in other accounts, the visibility and control of devices depends upon multiple factors, mainly related to the end user's accounts, the accounts that are on entitlements, and the accounts that own the device.

These factors, along with expected behavior in both the Producer Portal and End-User Portal, are discussed in detail in the following subsections:

- Ownership Account Check
- Skip Account Check
- Assignment of Ownership for Unowned Devices
- Device Visibility in the End-User Portal

***Note** ▪ In all cases, users working with devices must have the appropriate permissions to interact with them. For example, users who do not have roles with the **Manage Devices** permission cannot make changes to FlexNet Embedded devices.*

***Tip** ▪ In the Producer Portal, producers can directly assign device ownership to an end user or partner account from the default view for a device or server page. For instructions, see Assigning an Account to a Device.*

Ownership Account Check

By default, FlexNet Operations performs an account check when entitlements are mapped to a device. Different factors are considered for this account check, depending on whether entitlements are being mapped in the Producer Portal or the End-User Portal.

In the Producer Portal, producers can map entitlements from the device owner's account or its sub-accounts to any device that account owns (or any unowned device). Entitlements that belong to other accounts outside the device owner's sub-account hierarchy cannot be mapped.

In the End-User Portal, the account check compares the user's accounts, entitlement accounts, and device owner accounts when entitlements are mapped to a device. Specifically, in the End-User Portal,

- Users can map any entitlement owned by their accounts to any device they can see in the End-User Portal. (See Device Visibility in the End-User Portal, below, to learn about which devices a user can see in the End-User Portal.)
- Users with roles that include the **View Child Devices** permission can also map entitlements owned by sub-accounts of their accounts.
- Users with roles that include the **Claim Device and Activate** permission can also map their entitlements to unowned devices if they can identify the device by its device ID.

Producers can configure FlexNet Operations to permit mapping of entitlements from unrelated accounts on the same device by enabling the **Skip Account Check** system configuration setting.

Skip Account Check

The ownership check that FlexNet Operations performs by default can be ignored by enabling the **Skip Account Check** system configuration setting. This setting removes the account check ordinarily performed when an entitlement is mapped to a device. Because the account check is not performed, FlexNet Operations permits entitlements that belong to accounts unrelated to the device owner to be mapped.

Note ▪ *The **Skip Account Check** system configuration setting applies to certain activations (End-User Portal, Web Service activations, and capability requests) that map new activation IDs or increase quantities.*

In the Producer Portal, skipping the account check allows producers to map any entitlement to a device regardless of which account owns the device. The account check is not used.

In the End-User Portal, skipping the account check permits users to map entitlements to devices that are owned by unrelated accounts. With **Skip Account Check** turned on, End-User Portal users can perform all the operations permitted when the account check is run. But they can also map any of their entitlements to any device as long as they know its device ID and the activation IDs of the entitlements. (Standard permission requirements apply.)

End users with entitlements on a device owned by an unrelated account can only manage their own entitlements (removing licenses or reducing quantities) on that device.

Channel partner users can only manage entitlements for which they are a distribution partner.

Important ▪ *Channel partners cannot map entitlements to devices unless the **Skip Account Check** system configuration setting is enabled.*

Note ▪ *In the End-User Portal, skipping the account check applies only to mapping methods for which the user is free to specify device IDs and activation IDs: capability requests, mapping by activation ID, and claiming and activating. It does not apply for methods in which the system pre-determines the list of available entitlements (based on account check rules), such as mapping an entitlement to a device.*

Tip ▪ *To enable this system configuration setting, click **System** > **Configure** > **FlexNet Operations** and, in the **Embedded Device Settings** group, select the check box for **Skip Account Check**.*

Assignment of Ownership for Unowned Devices

As new devices are created, the account that owns the device is determined by a number of different factors. Devices can be created in FlexNet Operations manually or programmatically. For example, producers can manually create a device via the Producer Portal, as described in the instructions in Creating Devices.

In some cases, such as when a device is manually created in the End-User Portal, ownership is assigned when the device is created. In other cases, devices are created without an owner.

Unowned devices can be claimed by end users in the End-User Portal or can be assigned an owner by the producer in the Producer Portal.

- For producers, the process of assigning an owner account to an unowned device is relatively simple and direct. (See Assigning an Account to a Device for instructions.) The specified account becomes the device owner.
- In the End-User Portal, the process of claiming and activating a device can also assign an owner to an unowned device. When an end user clicks **Devices > Claim and Activate**, the End-User Portal shows the **Claim and Activate** page. On this page, the user identifies the device—typically by specifying its device ID—and then lists one or more activation IDs for licenses to activate on that device. In this process, for an unowned device, the account to which the first activation ID belongs becomes the owner of the device.

***Tip** ▪ **Claim and Activate** only appears in the **Devices** menu of the End-User Portal for users with roles specifically granted the End-User Portal permissions, **Claim Device and Activate** and **Generate Licenses**. (By default, only the Producer Portal system administrator role has this permission; no End-User Portal roles have this permission.) See FlexNet Operations Permissions for more information about these permissions.*

Device Visibility in the End-User Portal

A user's ability to see a device in the End-User Portal depends on the accounts he or she belongs to and the user's relationship (if any) with the account that owns the device. The visibility of devices to End-User Portal users also depends on whether or not one of the user's accounts (or sub-accounts thereof) has an entitlement mapped to the device.

Device Visibility Guidelines

The following organizational and entitlement factors determine which devices are visible to an end user:

- Devices that are owned by an account to which a user belongs are visible.
- Devices that are owned by a sub-account of the accounts to which a user belongs are also visible, if the user has a role with **View Child Devices** permission.
- Devices with an entitlement that belongs to one of the user's accounts are visible to that user.
- Devices with an entitlement that belongs to a sub-account of the user's accounts are also visible, if the user has a role with **View Child Devices** permission. (This is true even if the device itself is not owned by any of the user's related accounts.)
- For channel partner users, devices with an entitlement for which the channel partner account is a distribution partner are visible.

- For channel partner users, devices with an entitlement for which one of the sub-accounts to the user's account is a distribution partner are also visible, if the user has a role with the **View Child Devices** permission.

Devices that are visible to an end user appear in search results for devices.

Restricted Information on the View Device and View Server Pages

The end user can see these devices, but not all details about the device are shown in cases where none of the end user's related accounts is the device owner. In particular, while the activation IDs of licenses owned by an end users accounts (or their sub-accounts) are shown, the activation IDs of unrelated accounts are masked—all but the last three characters of the activation ID are replaced with asterisks.

Similarly, channel partner users can see all the entitlements on a visible device, but the End-User Portal masks the activation IDs of the entitlements for which the channel partner is not a distribution partner. And, for greater privacy among producers, distributors, resellers, and end customers, entitlements that belong to accounts other than the channel partner account or its sub-accounts do not show the account that owns the entitlement. In these cases, instead of the owner account, they see `Name Withheld`.

(For more information about channel partner accounts, see Account Types and Partners and Distribution Tiers in the About Accounts section.)

About Device Attributes

The following attributes are used when creating, editing, and searching for standalone and served devices.

Table 5-3 ▪

Attribute	Description
Activation ID	An activation ID associated with the device.
Device ID	The device's unique identity.
Device ID Type	One of several possible device host ID types. • **Ethernet** • **Internet** • **Internet IPV6** • **FlexID 9** • **FlexID 10** • **String** • **User** • **VM UUID** • **Container Id** • **Extended** • **Publisher defined**

Table 5-3 ▪

Attribute	Description
Device Model	The device's model. When creating a device, you can choose from existing device models or keep the default setting: **Use Default Device Model**. See Managing Device Models for more information about models.
Device Name	A short, alternate name for the device.
Entitlement ID	An entitlement ID associated with the device.
Identity	The publisher identity to use for the current device. When creating a device, you can choose from existing identities or keep the default setting: **As Defined by Device Model**. See Managing Publisher Identities for more information about identities.
Last Modified	The last date that the device was changed, or had entitlements mapped or licenses removed. For served devices, the date is updated when a sync record is processed.
Notes	Additional information about the device for internal use by the producer's account.
Account ID	The ID of the customer or partner account that owns the device.
Account Name	The name of the customer or partner account that owns the device.
Part Number	The part number of the device.
Pre-installed Product	The product that determines the features included in the pre-installed license for the device. Pre-installed product settings also determine the license model, license model attributes, and expiration terms used for the pre-installed product on the device. If no pre-installed product is specified, the device inherits the pre-installed product that was added to its device model. If no pre-installed product is specified in the device model, the device includes no built-in features in its pre-installed license.
Product, Product Name	The name of a product on the device.
Served by Server ID	The ID of the server for a device whose type is SERVED_CLIENT.
Site Name	The device's site name.
Status	The status of the device. See About Device Status for information about possible status values.
Type	CLIENT for standalone devices, SERVED_CLIENT for served devices.
User	The device user associated with the device. See About the Device–Device User Association for more information about device users.

Table 5-3 ▪

Attribute	Description
Updates	The update activity for a device. In the Devices grid view, the Updates column displays either **Updates** with a link to the Updates tab for that device or **No updates**. Hovering over the **Updates** link triggers a pop-up that contains the update name, update ID, the status of the update and the date of the last activity. See Creating Devices for more information.

About Server Attributes

The following attributes are used when creating, editing, and searching for servers.

Table 5-4 ▪

Attribute	Description
Backup License Server ID	The ID of the server's backup server.
Deployment	The deployment type for the server. Choose from **Local License Server** and **Cloud Licensing Service**.
Device Name	A short, alternate name for the server.
Host ID Type	One of several possible device host ID types. • **Ethernet** • **Internet** • **Internet IPV6** • **FlexID 9** • **FlexID 10** • **String** • **User** • **VM UUID** • **Container ID** • **Tolerant** • **Extended** • **Publisher defined** **Host ID Type** is not shown for servers with the Cloud Licensing Service deployment type. In this case, the host ID type is set by the **Server Host Type**.

Table 5-4 ▪

Attribute	Description
Identity	The publisher identity to use for the current server. When creating a server, you can choose from existing identities or keep the default setting: **As Defined by Server Host Type**. See Managing Publisher Identities for more information about identities.
Last Modified	The last date that the server was changed, had entitlements mapped, or had licenses removed.
License Server ID	A unique identity for the server. **License Server ID** is not shown for servers with the Cloud Licensing Service deployment type. In this case, FlexNet Operations automatically generates a License Server ID. (The **License Server ID** serves as the instance ID to identify this server in endpoint URLs.)
Notes	Additional information about the device for internal use by the producer's account.
Account	The name of the account specified in **Account ID**.
Account ID	The account ID for the owner, enterprise, or other account that currently holds the device.
Pre-installed Product	The product that determines the features included in the pre-installed license for the server. Pre-installed Product settings also determine the license model, license model attributes, and expiration terms used for the pre-installed product on the server. If no pre-installed product is specified, the server inherits the pre-installed product that was added to its server host type. If no pre-installed product is specified in the server host type, the server includes no built-in features in its pre-installed license.
Server Host Type	The server host type for the device. When creating a server, you can choose from existing server host types or keep the default setting: **Use Default Server Host Type**. See Managing Server Host Types for more information about server host types.
Site Name	**Site Name** is optional for local license servers but required for servers that use the Cloud Licensing Service deployment type. The **Site Name** is a label used to distinguish between different servers when a customer account is given multiple Cloud Licensing Service servers.
Status	The status of the server. See About Device Status for information about possible status values.
Type	SERVER for a license server.
User	The device user associated with the server. See About the Device–Device User Association for more information about device users.

About Device Status

FlexNet Embedded device status is indicated on various pages of the Producer Portal.

Device Status for Standalone Devices and Servers

The state of a device or server is indicated by its status in the devices list of the search results, and its default view for a device or server page. A device or server's status can be **ACTIVE**, **RETURNED**, or **OBSOLETE**.

The status of a device affects the types of operations you can perform on that device.

- **Active**—An active device can be the target for any normal operation (like activation, download, and return).
- **Returned**—When a device is returned, its licenses can be moved to a designated device or, if no target device is provided, those licenses are returned to the pool. The returned state is permanent; returned devices cannot be made active again.
- **Obsolete**—When a device is made obsolete, its licenses are unmapped and returned to the pool, and the device is unable to acquire licenses. The device ID of a device that is made obsolete also changes to reflect its status. FlexNet Operations appends **`-OBSOLETE-<datetime>`** to the end of the device ID value. The obsolete state is permanent; obsolete devices cannot be made active again.

Device Status for Served Devices

The status of served devices appears in the same locations on the Producer Portal, but it is not managed on the Producer Portal. (You cannot manually make a served device obsolete.) The possible status values for a served device include normal, returned, dropped, and expired.

- **Normal**—Served device is operating and currently managed by its parent FlexNet Embedded server.
- **Returned**—Served device still belongs to the FlexNet Embedded server, but has returned all its licenses to the entitlement pool.
- **Dropped**—Served device has been manually dropped by a user on the FlexNet Embedded server. (Dropped device licenses return to the entitlement pool.)
- **Expired**—Served device's features have expired and the device has not checked in with its parent FlexNet Embedded server.

About Overriding the Expiration Date of an Entitlement

FlexNet Operations enables End-User and Producer Portal users to override an entitlement's configured expiration date with an earlier, user-specified expiration date when the entitlement is mapped to a device as an additional product. This feature allows finer control of license expiration, and makes licenses available for other hosts in a more planned and automated way.

To enable this capability in the End-User and Producer Portals, select the **Override license expiration date** setting (in the Producer Portal, click **System > Configure > FlexNet Operations > Embedded Devices Settings**). When it is enabled, both portals display the **License expiration date** field—in which the user can enter a short-term expiration date—on their **Map Entitlements** page.

The user-specified expiration date must be later than the current date and earlier than the configured license expiration date. For example:

- If the license is configured to be a permanent license, the user can set the expiration to any date later than the current date.
- If the license is configured with an expiration date such as 31 December 2025, the user can set the expiration to any date later than the current date and before 31 December 2025.
- If the license is configured with a duration-based expiration and a “Use Each Activation Date” start, the start date (license generation date) is the current date.
- If the license is configured with a duration-based expiration and a “Use First Activation Date” start, the start date is the first license generation date. In other words, the current date is the start date if no licenses have been generated for the entitlement on that device yet. However, after licenses have been generated, the actual activation date is the start date.

A user-specified expiration date can be set for each entitlement (however, additional copies of an entitlement are assigned the same user-specified expiration date) and can be different for each host with the same entitlement. After it is set, the date is displayed in the **Expiration Date** column of the default view for a device or server page of both portals.

Licenses with user-specified expiration dates are automatically removed from a host when that date has passed. An automated process removes licenses with a user-specified expiration date when they expire,

- regardless of other rules about license removal,
- once a day at 10 AM Coordinated Universal Time (UTC)
- and does not require confirmation from the host (in other words, the licenses are returned directly to the pool and are available for other hosts).

Limitations

A user-specified expiration date can be set only in the End-User or Producer Portal interface; it cannot be set in capability requests or Web Services.

Because of the risk for license abuse, the user-specified expiration date cannot be changed. If the wrong user-specified expiration date is entered, it can be changed using standard license removal and entitlement mapping procedures.

About the Device–Device User Association

A FlexNet Operations device can be associated with an end user or a contact called the **Device User.** Associating a device with a device user allows an End-User Portal administrator to communicate with someone regarding the licenses on that device. For example, if the End-User Portal administrator needs a license for a new device but there are no licenses available, the administrator can search for all existing devices using that license and request that one of those device users return their license so it can be used on the new device.

With the proper combination of system configuration and user permission settings, a device user can be added, edited, or deleted via capability request, sync request, the End-User Portal, the Producer Portal, or Web Services. The same device user can be associated with multiple devices, but a device can only be associated with one device user.

System Configuration

Use the `Device User Option` (click **System > Configure > FlexNet Operations > Embedded Device Settings**) to enable and configure this capability. Values are:

- `Off` – The **User** field is not visible in either portal, and device user data sent in a capability request, sync request, or Web Service is ignored.
- `On with no validation` – The **User** field is shown in both portals, and with the correct permission (refer to User Permissions) can be edited by the user. The value entered is not validated, so it can be anything. For example, it can be an email address or a phone number.
- `On with validation` – The **User** field is shown in both portals, and with the correct permission (refer to User Permissions) can be edited by the user. The value can only be set to an active user or a contact chosen from the **Select User** window.

Important ▪ *When the device is a license server, the device **User** field is not validated.*

When the `Device User Option` is set, the **User** field appears on the default view for a device or server page in the End-User and Producer Portals. A validated device user is displayed as an email address that links to the **Users** page. Device user is also returned in Web Services and capability responses. Device users who are not active FlexNet Operations users are identified as inactive.

User Permissions

An End-User Portal user with `Edit user on device` permission can edit the **User** field of a device.

A Producer Portal user with `Manage devices` permission can view and edit the **User** field (`Edit user on device` permission is not required).

When `Device User Option` is `ON with validation`, an End-User Portal user with `Manage User` permission can click the user name link—located below the **User** name—to display the **View/Edit Device User** page. Similar functionality is available in the Producer Portal.

Listing Devices

Use the following instructions to list existing standalone devices, servers, and served devices on the Producer Portal.

Task ***To list devices***

1. Click **Devices > Devices**. The **Devices** page opens.
2. On the **Devices** page, you can filter the device list by device type and status.
3. To view a particular device, click its **Name**. On the default view for a device or server page, you can perform device editing and support activities.

Filtering the Devices List

To quickly reduce the size of the devices list displayed on the **Devices** page, filter it by device type and activation status.

Task ***To filter the devices list***

1. On the **Devices** page, hover the cursor over the filter icon to display the filter selection list.
2. On the selection list, select the device **Type** (or types) and **Status** you want to view.
3. Click **Apply** to filter the devices according to your selection(s). The number in the red bubble indicates how many filters are active.
4. You can also search a filtered devices list.

Previewing Licenses on a Device

In the **Devices** page list, the **Licenses** column enables you to quickly view the licenses on a device and decide whether to view that device in more detail. A preview pane shows up to ten of the licenses on the device, and includes a link to view the rest of the licenses if there are more than ten on that device. Served devices have features only; their licenses reside on a server, so no license information is available for them. If there are no licenses on a device, that is also indicated.

Task ***To preview licenses on a device***

- In the **Devices** page list, hover the cursor over the **License info** link in the **Licenses** column cell for the device whose licenses you want to preview.

Searching for Devices

Existing devices can be easily located by performing a search of the **Devices** page list based on an attribute of the device you want to see. You can perform a simple search on a single attribute, or an advanced search on multiple attributes. For both searches, you can use the * wild card to match zero or more characters in the text string.

Task ***To search for a device***

1. Optionally, to reduce the size of your devices list, you can filter it by device type and activation status before you search:
   a. On the **Devices** page, hover the cursor over the filter icon to display the filter selection list.
   b. On the selection list, select the device **Type** (or types) and **Status** you want to view.
   c. Click **Apply** to filter the devices according to your selection(s). The number in the red bubble indicates how many filters are active.

2. Perform a simple search or an advanced search for a device:

   Simple Search

   a. On the **Devices** page, click the drop-down list next to the filter icon and select the search criterion.

   b. Type the search string in the text field next to the drop-down list.

   c. Click **Search**.

   Advanced Search

   a. On the **Devices** page, click the + icon (next to the **Search** button) to open the **Advanced Search** window.

   b. Type search criteria in the attribute text fields.

   c. Click **Search**.

   The Producer Portal shows a list of the devices that match your search criteria on the **Devices** page.

Note ▪ *FlexNet Operations tenants configured with a* `Device user option` *setting other than* `Off`*, listed below, can enter these User search criteria with wildcards:*

- `On with no validation` – *free-form string*
- `On with validation` – *email address*

The Producer Portal shows a list of the devices that match your search criteria on the **Device Search Results** page. See About Device Attributes or About Server Attributes for more information about attributes available in the search criteria.

You can also locate served devices from the **View Server** page of their server. See Viewing a Server's Served Devices for instructions.

Note ▪ *Searches that include* ***Account*** *as a search criterion may return devices that are not owned by an account that matches the search criteria. When* ***Account*** *is part of the search criteria, search results include*

- *Devices owned by an account that matches the search criteria*
- *Devices with licenses that belong to an account that matches the search criteria*

Tip ▪ *To view a particular device, click on its device* ***Name****. On the default view for a device or server page, you can perform device editing and support activities—such as changing device or server attributes, or moving a device—that are permitted by your user account permissions. See Viewing Devices.*

Viewing Devices

Users typically search for a device they want to view and then click that device's **Name** to open the default view for a device or server page. The **View** menu on the device's page includes several commands to get more details about the device, the device history, device requests, and so on. With the commands in the **View** menu, you can perform the following tasks.

Table 5-5 ▪

Topic	Description
Viewing this Device	Explains how to return to the default view for a device or server page when performing other device-related operations.
Viewing a Server's Served Devices	Shows how to see devices that are served by a license server.
Viewing Device History	Explains how to view the device history for a selected device.
Viewing Device Requests	Explains how to view requests made by a device.
Viewing a Vendor Dictionary for a Device	Shows how to see vendor dictionary entries for a device.
Downloading a License File for a Device	Describes how to download a license file for a device.
Viewing a License File for a Device	Shows how to see a license file for a device.
Downloading a Response for a Device Request	Describes how to download a response for a capability request.
Viewing a Response for a Device Request	Shows how to see a response generated for a capability request.

Viewing this Device

When working with a device, you can return to the default view for a device or server page by clicking **View this Device/Server/Served Device**. Device-related operations are downloading a capability response, viewing device requests, assigning an account to the device, mapping entitlements, and so forth. On these device-related pages, **View this Device/Server/Served Device** is a command in the **View** menu.

The Producer Portal also shows the default view for a device or server page after you create a device on the **Create Device/Server** page.

Task ***To return to the default view for a device or server page***

- Click **View** > **View this Device/Server/Served Device**.

The default view for a device or server page opens. For standalone devices, the Overview tab is selected.

Viewing a Server's Served Devices

Producers can view the devices served by a particular server from the server's **View Server** page.

Task ***To view the served devices of a server***

- Click **View** > **View Served Devices**.

The **Served Devices Search Results** page opens.

Viewing Device History

You can view a device's history from its default view for a device or server page. The **Host History** page shows a history of device management events such as device creation, ownership changes, transfers, and device status changes.

Task ***To view the history of a device***

- Click **View** > **View Device/Server/Served Device History**.

The **Host History** page opens.

Viewing Device Requests

You can view the history of all device activation requests, as well as the sync message records (for servers and served devices), from a device's default view page.

Task ***To view device request history***

- Click **View** > **View Device/Server Requests**.

The **View Host Requests** page opens.

Viewing a Vendor Dictionary for a Device

You can view vendor dictionary entries for a device from its default view page.

Task ***To view vendor dictionary entries***

- Click **View** > **View Vendor Dictionary**.

The **View Vendor Dictionary** page opens.

Downloading a License File for a Device

If a license has been generated for a device, you can download its license file from the default view for a device or server page.

Task ***To download a license file***

- Click **View** > **Download License File**.

The Producer Portal sends the license file (typically, `license.bin`). The download experience depends on the web browser you are using.

Tip ▪ *A device's license format settings determine which, if any, of its features are included in a license file. Devices inherit their license format settings from their device model. You can download a license file for a device that stores either its pre-installed license or its pre-installed license plus additional licenses in a license file. (Devices that store both the pre-installed license and additional licenses in trusted storage use capability requests and responses rather than license files.)*

Viewing a License File for a Device

If a license has been generated for a device, you can view its license file from the default view page.

Task ***To view a license file***

- Click **View** > **View License File**.

The **View License File** page opens. This page shows the text of the license file that was generated for the device.

Tip ▪ *A device's license format settings determine which, if any, of its features are included in a license file. Devices inherit their license format settings from their device model. You can view a license file for a device that stores either its pre-installed license or its pre-installed license plus additional licenses in a license file. (Devices that store both the pre-installed license and additional licenses in trusted storage use capability requests and responses rather than license files.)*

Downloading a Response for a Device Request

If a capability response has been generated for a device, you can download that response from the default view for a device or server page.

Task ***To download a capability response***

- Click **View** > **Download Response**.

The Producer Portal sends the capability response (typically `<device ID>.bin` for a device, `<license server ID>.bin` for a server). The download experience depends on the web browser you are using.

Tip ▪ *A device's license format settings determine which, if any, of its features are described in capability responses. Devices inherit their license format settings from their device model. You can download a response for a device that stores either its pre-installed license or its pre-installed license plus additional licenses in trusted storage. (Devices that store both the pre-installed license and additional licenses in a license file do not have response files to download.)*

Viewing a Response for a Device Request

If a capability response has been generated for a device, you can view the response from the default view for a device or server page.

Task ***To view a capability response***

- Click **View** > **View Response**.

The **View Response** page opens. This page shows the a human-readable representation of the capability response that was generated for the device.

Tip ▪ *A device's license format settings determine which, if any, of its features are described in capability responses. Devices inherit their license format settings from their device model. You can view a response for a device that stores either its pre-installed license or its pre-installed license plus additional licenses in trusted storage. (Devices that store both the pre-installed license and additional licenses in a license file do not have response files to view.)*

Creating Devices

You can create new devices in the Producer Portal. Each device is identified by a device ID (typically, a serial number) and its host type. You can create a set of devices for which licenses can be generated, as well as generate pre-installed licenses for the device. Entitlements can be linked to devices.

A new server can submit its own capability requests to FlexNet Operations and serve its own licenses to separate FlexNet Embedded served devices.

Producers who use FlexNet Cloud Licensing Service can choose from two **Server deployment** options to create a server as a **Local** (default) or as a **Cloud** license server. If auto provisioning is permitted by the license model, Cloud Licensing Service servers can be automatically created when the entitlement is deployed.

Note ▪ *You are permitted to create a server and a nodelocked device with the same **Device ID** and **ID Type**.*

Task ***To create a device***

1. Click **Devices** > **Create Device**. The **Device | New Device** page opens.
2. On the **Device | New Device** page, type a device **Name** (required).
3. Select an **ID Type** from the drop-down menu; below it, type the device's **ID** (required).
4. Select an **Account** to specify which account owns the device:
   a. Click the search icon next to **Account**. The **Assign Device Owner** window appears.
   b. In the **Assign Device Owner** window, click the **Customers** or **Partners** tab, as appropriate.
   c. Choose an account and click **Select**. The **Assign Device Owner** window closes and the **Account** field on the **Device | New Device** page is populated.
5. Optionally, specify values for **Model**, **Identity**, **Site name**, and **Notes**. (See About Device Attributes for details about these attributes.)

   Important ▪ *Be aware that the device model you specify may include a default pre-installed product. In this case, adding a pre-installed product to the device overrides the device model's pre-installed product.*
6. Click **Save**.

The Producer Portal creates the new device and opens its default view page.

Task ***To create a local license server***

1. Click **Devices** > **Create Device**. The **Device | New Device** page opens.
2. On the **Device | New Device** page, type a device **Name** (required).
3. Select the **Runs license server?** check box. For **Server deployment**, choose **Local**.
4. Select an **ID Type** from the drop-down menu; below it, type the server's **ID** (required).
5. Select an **Account** to specify which account owns the device (required):
   a. Click the search icon next to **Account**. The **Assign Device Owner** window appears.
   b. In the **Assign Device Owner** window, click the **Customers** or **Partners** tab, as appropriate.
   c. Choose an account and click **Select**. The **Assign Device Owner** window closes and the **Account** field on the **Device | New Device** page is populated.

6. Optionally, specify values for **Model**, **Identity**, **Site name**, and **Notes**. (See About Server Attributes for details about these attributes.)

Important ▪ *Be aware that the device model you specify may include a default pre-installed product. In this case, adding a pre-installed product to the device overrides the default pre-installed product in the device model.*

7. Click **Save**.

The Producer Portal creates the new server and opens its **View Server** page.

Task ***To create a Cloud Licensing Service license server***

1. Click **Devices** > **Create Device**. The **Device | New Device** page opens.
2. On the **Device | New Device** page, type a device **Name** (required).
3. Select the **Runs license server?** check box. For **Server deployment**, choose **Cloud**.
4. Select an **Account** to specify which account owns the device (required):
   a. Click the search icon next to **Account**. The **Assign Device Owner** window appears.
   b. In the **Assign Device Owner** window, click the **Customers** or **Partners** tab, as appropriate.
   c. Choose an account and click **Select**. The **Assign Device Owner** window closes and the **Account** field on the **Device | New Device** page is populated.
5. Optionally, specify values for **Model**, **Identity**, **Site name**, and **Notes**. (See About Server Attributes for details about these attributes.)

Important ▪ *Be aware that the device model you specify may include a default pre-installed product. In this case, adding a pre-installed product to the device overrides the default pre-installed product in the device model.*

6. Click **Save**.

The Producer Portal creates the new server and opens its **View Server** page.

Editing Devices

Users typically search for a device they want to edit and then click its device **Name** to open its default view for a device or server page. The **Edit** menu on the default view for a device or server page includes several commands for actions—like editing device attributes, assigning an account, or making a device obsolete—for an existing device. With the commands in the **Edit** menu, you can perform the following tasks.

Table 5-6 ▪

Topic	Description
Editing Device Attributes	Explains how to edit a device's changeable attributes. (Some attributes are read-only after a device has been created.)
Adding a Pre-installed Product to a Device	Explains how to add a pre-installed product to a device to define a set of built-in features.
Assigning an Account to a Device	Describes how to change the current account that holds a device.
Associating a Device with a Device User	Explains how to associate a device with a device user.
Returning a Device	Explains how to return a device.
Moving a Device	Shows how to change the account of a device that has not yet been assigned to a customer account.
Making a Device Obsolete	Describes how to make a device obsolete.

Some device changes are made as part of support activities. These are described in Supporting Devices.

Editing Device Attributes

You can edit a device's details from the default view for a device or server page. Most of the device information that you enter when you create a device can be edited on the **Edit Device /Server/Served Device** page.

Note ▪ *A device's editable attributes may also include the values for any custom device attributes you have defined. To learn more about custom attributes, including custom device attributes, see Administering Custom Attributes.*

For more information about device attributes, see About Device Attributes. For more information about server attributes, see About Server Attributes.

Task ***To edit device attributes***

1. On the default view for a device or server page, click **Edit** > **Edit this Device/Server/Served Device**. The default edit page for a server or device page opens for the current device.
2. Make changes to one or more device attributes.
3. Click **Save**.

The Producer Portal saves your changes and returns to the default view for a device or server page for the current device.

Adding a Pre-installed Product to a Device

You can add pre-installed products to a device from the default view for a device or server page. A pre-installed product defines a set of built-in features for a device. A device with no pre-installed products is a device with no built-in features; all features would be additional features.

Important ▪ *Be aware that a device model may include a default pre-installed product. In this case, adding another pre-installed product to the device overrides the device model's pre-installed product.*

Task ***To add a pre-installed product***

1. On the **default view for a device or server** page, click **Edit > Edit this Device/Server**. The default Edit page for a device or server appears.
2. In the **Pre-installed Licenses** section of the page, click **Add**. The **Add Pre-installed Product** window opens.
3. In the **Add Pre-installed Product** window, click **By product**. The **Select Product** window opens. The **Select Product** window lists products with features permitted by the restrictions imposed (if any) by the device model's device series.
4. In the **Select Product** window, select the pre-installed product and then click **OK**. The **Select Product** window closes, and the product name and product version of the selected product are shown on the **Add Pre-installed Product** page.
5. In the **Add Pre-installed Product** window, specify a license model, license model attributes (optional), and expiration terms.

Setting	Description
License Model	Choose a **License Model** for the pre-installed product. The license models that are available are determined by the license models that are linked to the selected pre-installed product.
License Model Attributes	Optionally, provide settings for license model attributes (such as **Notice** and **Vendor String**).

Setting	Description
Expiration Terms	Set the **Start Date** and **Expiration** for the pre-installed product.

6. Click **Add**. The **Add Pre-installed Product** window closes and the default edit page for a device or server is displayed. Notice that the **Pre-installed Licenses** settings show the product you selected, as well as its expiration terms.
7. Click **Save**.

The Producer Portal saves your changes and returns to the default view for a device or server page for the current device.

Assigning an Account to a Device

You can assign a customer or partner account to an existing device from the device's default view for a device or server page. (See About Accounts for more information about customer and partner accounts.)

Note ▪ *The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:*

- *License servers cannot be moved to another account.*
- *Only unused licenses for metered features can be removed using Licenses > Remove Licenses.*
- *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

Task ***To assign an account to a device***

1. Click **Edit** > **Assign Account**. The **Assign Account** page opens.
2. For **Account ID**, click the search icon. The **End Customer and Channel Partners** window opens.
   a. Choose an account.
   b. Click **Save**.

   The **End Customer and Channel Partners** window closes, the **Account ID** is set to the ID of the account you chose, and the **Account Name** is populated.
3. Click **Assign account**.

The Producer Portal changes the account of the device and opens its default view for a device or server page.

Devices that do not have a customer account assigned to them can also be moved to a partner account. (See Moving a Device.)

Associating a Device with a Device User

When the `Device User Option` is enabled, the **User** field is visible and a device can be associated with an end user or contact called the **Device User**. Associating a device with a device user allows an End-User Portal administrator to communicate with someone regarding licenses on the device.

Note ▪ *When the* `Device user option` *is enabled (not set to* `Off`*), device user is in one of these formats:*

- *Free-form string for* `On with no validation` *– see To associate a device with a device user—no user validation*
- *Email address link for* `On with validation` *– see To associate a device with a device user—validated user*

You can associate a device with a device user from the default view for a device or server page.

Task ***To associate a device with a device user—no user validation***

1. Click **Edit > Edit this Device/Server**. The default edit page for a device or server opens.
2. In the **User** field, type the device user information for the device.

   To remove an associated user, clear the **User** field.
3. Click **Save** to save the change. The default view for a device or server page opens, showing the updated **User**.

Task ***To associate a device with a device user—validated user***

1. Click **Edit > Edit this Device/Server**. The default edit page for a device or server opens.
2. In the **User** field, click the search icon to display a list of available users.

   To remove an associated user, clear the **User** field.
3. Select one user, then click **Select** to close the list and set the device user.
4. Click **Save** to save the change. The default view for a device or server page opens, showing the updated **User**.

Returning a Device

Important ▪ *Returning a device is an irreversible action. It is intended for devices that no longer receive capability responses or license files, or servers that no longer serve devices or communicate with the FlexNet Operations back office.*

A customer may be required to return a malfunctioning device to a manufacturer or reseller. During the return process, you have the option to move all of the malfunctioning device's licenses to a replacement device. If you do not move a license, the license is returned to the pool of unused licenses and you can allocate it to another device.

You can return a device from the default view for a device or server page.

Task ***To return a device***

1. Click **Edit** > **Return Device/Server**. The default return page for a device or server opens.
2. Optionally, identify the device to receive the current device's licenses in **Destination Device/License Server ID**.
   - Type the **ID** of the device to receive the current device's licenses.
   - Click the search icon to open the **Find Device** or **Search License Servers** window.
     a. Choose a device.
     b. Click **Submit**.

     The **Find Device**/**License Servers** window closes and the default destination ID page for a device or license server value is set to the device you chose.
3. Optionally, type an RMA number for **Return Material Authorization (RMA) Number**. RMA number values are recorded by the Producer Portal but are not required by FlexNet Operations.
4. Click **Confirm**.

The Producer Portal returns the device and shows its default view for a device or server page. The status of a returned device is RETURNED.

Moving a Device

A device that does not have a customer account assigned to it can be moved from one account to a related account. For example, the parent account can move the device from one of its child accounts (a regional division, for example) to another child account.

When a device is moved, any entitlements that belong to that device are moved as well. The result of such a move is to either create new entitlements for the receiving account, or to increment the count of that account's existing (and matching) entitlements by the count on the device that was moved.

Note ▪ *The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:*

- *License servers cannot be moved to another account.*
- *You cannot remove licenses using Licenses > Remove Licenses.*
- *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

You can move a device from the default view for a device or server page.

Task ***To move a device***

1. Click **Edit** > **Move Device/Server**. The **Move Host** page opens.
2. In the **Target Account** section, click the **System Account ID** search icon. The **End Customer and Channel Partners** window opens.
   a. Choose an account.
   b. Click **Save**.

   The **End Customer and Channel Partners** window closes, the **System Account ID** is set to the ID of the account you chose, and the **Account ID** and **Account Name** fields are populated.
3. Click **Move Device/Server**.

The Producer Portal changes the account of the device and opens its default view for a device or server page.

Making a Device Obsolete

You can make an active device obsolete from its default view for a device or server page. When a device is made obsolete, its licenses are unmapped and returned to the pool, and it becomes unable to acquire new licenses.

Important ▪ *Obsolete status is permanent. Obsolete devices cannot be re-activated.*

Note ▪ *The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:*

- *License servers cannot be moved to another account.*
- *You cannot remove licenses using Licenses > Remove Licenses.*
- *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

Task ***To make a device obsolete***

1. Click **Edit** > **Make Obsolete**. The Producer Portal warns that this process is irreversible and asks you to confirm before changing the current device's status to OBSOLETE.
2. Click **OK**.

The Producer Portal changes the status of the device to OBSOLETE and shows its default view for a device or server page.

Working with Licenses on a Device

Additional features are capabilities that can be mapped (added) to or removed from a device. (Pre-installed capabilities, on the other hand, are features included with a device or server.) The following topics describe how to manage additional capabilities in the Producer Portal.

Table 5-7 ▪

Topic	Description
Mapping an Entitlement	Shows how to map additional entitlements to a device.
Mapping Entitlements by Activation IDs	Shows how to map additional entitlements by activation ID (for users who know the activation IDs of the capabilities they want to add).
Removing Licenses	Shows how to remove previously mapped licenses from a device.

For more information about creating additional capabilities as features for your FlexNet Embedded devices, see Working with Features.

Mapping an Entitlement

Devices often include pre-installed licenses but also permit the addition of new features or more capacity via additional entitlements.

When the current account of a device is entitled to additional capabilities, you can manually map those entitlements to it via the Producer Portal. (Entitlements can also be mapped programmatically from the device using an activation ID.)

You can map entitlements from the default view for a device or server page.

Task ***To map an entitlement***

1. Click **Licenses** > **Map Entitlements**. The **Map Entitlements** page opens. The table lists entitlements that can be mapped to the current device.

   Tip ▪ *When an entitlement has been upgraded, upsold, or renewed, the Map Entitlements page shows only the most recent entitlement in its lifecycle chain. Earlier entitlements are grouped under the most recent entitlement but initially hidden. These entitlement groups have a* ***Show Upgrades*** *button to reveal earlier entitlements in the list.*

2. In the table, type values into **Qty to add** for the entitlements you want to map.
3. (Optional) If the capability is enabled, you can override an entitlement's configured **Expiration**, as shown in the **Licenses** table, with a shorter-term expiration. (Refer to About Overriding the Expiration Date of an Entitlement for details.)

   To override an entitlement's expiration,

a. Click the pencil icon next to its expiration. The Producer Portal opens a calendar control.

b. In the calendar control, select the shorter-term expiration.

After the change is saved, the new expiration appears in the **Licenses** table of the default view for a device or server page, and is denoted by an asterisk in the table on the device's **Map Entitlements** page.

4. Click **Save**.

The entitlement is mapped to the current device and its default view for a device or server page is shown.

Mapping Entitlements by Activation IDs

Devices often include pre-installed capabilities, but also permit the addition of new features or more capacity via additional entitlements.

When the current account of a device is entitled to additional capabilities, and you know the activation IDs for those entitlements, you can manually map those entitlements to the device via the Producer Portal, as shown below. (Entitlements can also be mapped programmatically from the device or server using an activation ID.)

First locate the device or server to which you want to map new activation IDs. (See Searching for Devices or Viewing Devices for instructions.) Then you can map entitlements by activation ID from the default view for a device or server page.

On the **Map by Activation IDs** page, you can type the activation IDs to map to the current device.

Note ▪ *This operation is for producers who know the activation IDs for the entitlements they want to map.*

Task ***To map an entitlement by activation ID***

1. Click **Licenses** > **Map by Activation IDs**. The **Map by Activation IDs** page opens.
2. In the **Activation IDs** field, type one or more activation IDs (one activation ID per line) to map to the current device.
3. Click **Validate**. The Producer Portal evaluates the activation IDs you provided and shows whether they can be mapped to the current device.
   - If all activation IDs provided can be mapped to the device, proceed to Step 4.
   - If one or more activation IDs cannot be mapped to the device, the Producer Portal highlights the activation IDs that did not pass validation and allows you to either remove them from the list or cancel the mapping operation.
     - To continue without the activation IDs that failed validation, first remove the failed activation IDs and then click **Re-validate**. When the re-validation passes successfully, proceed to Step 4.
     - To cancel the mapping, click **Cancel**.
4. After the activation IDs have been validated, type values into **Qty to Add** for the entitlements you want to map.
5. Click **Save**.

The activation ID is mapped to the current device and its default view for a device or server page is shown.

Removing Licenses

Licenses already mapped to a device can be manually removed via the default view for a device or server page. Licenses that are unmapped are returned to the pool of unused licenses.

***Note** ▪ The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:*

- *License servers cannot be moved to another account.*
- *You cannot remove licenses using Licenses > Remove Licenses.*
- *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

Task ***To remove a license***

1. Click **Licenses** > **Remove Licenses**. The **Remove Licenses** page opens. On this page, the **Licenses Currently Mapped** table lists licenses that can be removed from the current device.
2. In the **Licenses Currently Mapped** table, type values into **Qty to remove** for the licenses you want to remove.
3. Click **Save**.

The Producer Portal removes the licenses from the current device and shows its default view for a device or server page.

Supporting Devices

Device support activities, like generating license files and capability responses or manually uploading capability requests, are covered here.

Table 5-8 ▪

Topic	Description
Generating a License File	Describes how to generate a license file for a device.
Generating a Capability Response	Explains how to generate a capability response for a device.
Uploading a Capability Request from the Device Page	Explains how to upload a capability request for a device from the **Device** page.

Some device support activities, such as assigning accounts and returning devices, are covered in the Editing Devices topic. For instructions on manually downloading a generated license file or capability response, see Viewing Devices.

Generating a License File

You can generate a license file for a device from its **Device** | *<device name>* page.

Task ***To generate a license file for a device***

- In the **Pre-installed Licenses** section of the **Device** | *<device name>* page, click **Generate license file**.

The license file is generated and a confirmation message is shown.

After a license has been generated, you can download it by clicking **View > Download License File**. See Downloading a License File for a Device for details.

Generating a Capability Response

You can generate a capability response for a device from its default view for a device or server page.

Task ***To generate a capability response for a device***

- In the **Model Details** section of the default view for a device or server page, click **Generate capability response** (**Generate response**).

The response is generated and a confirmation message is shown.

After a response has been generated, you can download it by clicking **View > Download Response**. See Downloading a Response for a Device Request for details.

Uploading a Capability Request from the Device Page

Capability requests can be manually uploaded by producers on the Producer Portal. You can upload a capability request from a device's default view for a device or server page.

Task ***To upload a capability request for a device***

1. In the **Model Details** section of the default view for a device or server page, click **Browse** and locate the capability request on your local system. (The exact controls vary depending on the browser you are using.)
2. Click **Upload capability request** (**Upload request**).

The capability request is processed.

After the capability request is processed, download the capability response and process it on your device. (See Generating a Capability Response.) In offline activation scenarios, for example, the producer communicates the capability response to the end user of a device that cannot connect directly to the Internet, and the end user applies it to their device to activate the capabilities to which they are entitled.

Offline Device Management

Offline device management activities are covered here.

Table 5-9 ▪

Topic	Description
Uploading a Capability Request from the Offline Device Management Page	Explains how to upload a capability request for a device from the **Offline Device Management** page.
Uploading Synchronization History	Explains how to upload synchronization history from the **Offline Device Management** page.

Uploading a Capability Request from the Offline Device Management Page

Capability requests can be manually uploaded by producers on the Producer Portal. You can upload a capability request from the **Offline Device Management** page.

Task ***To upload a capability request for a device from the Offline Device Management page***

1. On the **Offline Device Management** page, for **Upload type**, select **Generate license**.
2. Click **Browse** and locate the capability request on your local system. (The exact controls vary depending on the browser you are using.)
3. Click **Upload**.

The capability request is processed.

After the capability request is processed, download the capability response and process it on your device. (See Generating a Capability Response.) In offline activation scenarios, for example, the producer communicates the capability response to the end user of a device that cannot connect directly to the Internet, and the end user applies it to their device to activate the capabilities to which they are entitled.

Uploading Synchronization History

Synchronization history can be manually uploaded by producers on the Producer Portal. You can upload synchronization history from the **Offline Device Management** page.

Task ***To upload synchronization history***

1. On the **Offline Device Management** page, for **Upload type**, select **Upload synchronization history**.
2. Click **Browse** and locate the sync history (.syncreq) files on your local system; up to 100 files per submission can be selected. (The exact controls vary depending on the browser you are using.)

   Important ▪ *All files uploaded as part of one submission must be located on the same license server.*
3. Click **Upload**. The sync history files are uploaded, device details are displayed, and a confirmation message is shown.
4. The application offers you a response file (sync acknowledgment) to download and process on your license server.

6

Managing Usage

Producers who use FlexNet Operations with FlexNet Usage Management and FlexNet Embedded licensing can create software and devices that support usage-based, pay-for-use and pay-for-overage models. The following topics cover the management of usage data and reporting in the Producer Portal.

Table 6-1 ▪

Topic	Description
About Usage Management	Discusses usage management concepts in the following subsections: ● Usage Management Concepts ● About Usage Models ● About Usage Reports
Viewing Usage Reports	Explains how to show usage history reports for your product lines.
Listing Usage Models	Shows how to list usage models.
Uploading Usage Data	Describes how to upload historical usage data for internal testing purposes.

For information about creating license models that support usage-based licensing, see Administering License Models. For information about usage functionality in products and features, see Packaging Products.

About Usage Management

This section describes general concepts involved in working with FlexNet Usage Management in FlexNet Operations.

Table 6-2 ▪

Topics	Description
Usage Management Concepts	Discusses the way features, capability requests, and capability responses are used in software and devices that use usage-based licensing.
About Usage Models	Describes usage models and how they are used to designate the statement interval and reset period (if any) for usage history reports.
About Usage Reports	Covers the usage history reporting available in the Producer Portal: usage gauges, tables, timelines, and comparisons.

Usage Management Concepts

Software and devices that incorporate usage-based licensing make use of the same features and capability requests and responses as other FlexNet Embedded software and devices. This section discusses the use of features and capability requests and responses in the context of FlexNet Usage Management.

Features

The smallest unit for which usage can be captured is a *feature*. You define the feature or features that make up your products in FlexNet Operations, and your usage-capture code sends information about these features. In addition, feature-clipping code checks for the availability of certain features to determine a product's functionality.

During execution, your capped-usage or feature-clipping code uses FlexNet Embedded functions that attempt to *acquire* a license. The FlexNet Embedded libraries validate such conditions as the feature not having expired. If the license acquisition succeeds, your code would then enable the corresponding capability.

Capability Requests and Responses

When your usage-capture code communicates with FlexNet Operations, the communications involve *capability requests* and *capability responses*. A capability request is generated by the client (either a client reporting usage or requesting features that it will acquire). The request data contains some combination of a host identifier, one or more desired features, and other optional data to pass to FlexNet Operations.

The hosted server instance then processes the request, reading the various identifiers, desired features, and custom data. If FlexNet Operations determines that the client requires a response, it generates a capability response. The response data contains current license rights available for the client. The capability response is then conveyed back to the client, which processes the response, after which the features in the response can be queried for the sake of detecting if a quota has been exceeded or for feature clipping (programmatically restricting access to features based on the capability response).

Your usage-capture code specifies one or more *desired features*, which represent features whose usage is being reported or features desired for the sake of feature clipping, in the capability request.

Your code also specifies an *operation* in the capability request, which indicates whether it is simply reporting feature usage, or whether a response is expected. The “report” operation is used in uncapped-usage scenarios, when no response is needed; and the “request” operation is used in capped-usage and feature-clipping scenarios, where a response is needed. The request operation can also be used in untrusted environments to report uncapped usage to force a confirmation response from the server, ensuring that the usage has been reported. (There is also an “undo” operation, which enables recent information to be undone, in case of error or canceled usage.)

Hosted Servers

Your usage-capture clients send usage data to a FlexNet Embedded license server referred to in this guide as a *hosted server*. The hosted server can be a local license server or a license server instance in FlexNet Cloud Licensing Service that captures the metered usage data your usage-capture clients send.

About Usage Models

Usage models designate the statement interval and reset period for usage-enabled products.

Statement interval describes how usage history data is summarized. Usage models support monthly, quarterly, and yearly statements.

Reset period defines whether or not usage history data is reset. When the usage model includes no reset, usage counts accumulate over time and across reporting interval statements. When the usage model includes a reset period, usage counts that accumulate during the statement interval are reset monthly or yearly.

Table 6-3 ▪

Usage Model ID	Description
1	**Quarterly Statements (Reset yearly)** Usage history data is summarized by quarter in usage reports. Counts are accumulated across quarters but reset annually.
2	**Quarterly Statements (No Reset)** Usage history data is summarized by quarter in usage reports. Counts are accumulated across quarters with no automatic reset.
3	**Yearly Statements (Reset yearly)** Usage history data is summarized by year in usage reports. Counts are reset each year so that multi-year usage reports show only the usage for each individual year.
4	**Yearly Statements (No Reset)** Usage history data is summarized by year in usage reports. Counts are accumulated across years with no automatic reset.
5	**Monthly Statements (Reset monthly)** Usage history data is summarized by month in usage reports. Counts are reset each month so that multi-month usage reports show only the usage for each individual month.

Table 6-3 ▪

Usage Model ID	Description
6	**Monthly Statements (No Reset)** Usage history data is summarized by month in usage reports. Counts are accumulated across months with no automatic reset.

When you create or edit a product, you specify the usage model to identify how usage history data is summarized in usage reports, whether or not usage data is reset and, if so, how often.

Important ▪ *Products using the same feature must be configured with the same usage model per account. For an account, the usage model that is specified for a product containing a specific feature will be the usage model that is used for subsequent entitlements or products containing that specific feature.*

Example:

- *Product A (feature f1) and product B (features f1 and f2)*
- *Account C is first entitled to product A (feature f1) with usage model Monthly Statements (No Reset)*
- *Account C is then entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly)*
- *Account C will use usage model Monthly Statements (No Reset) for both products A and B because they both contain feature f1 which was included in the first entitlement.*

If Account C was first entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly), this usage model would be used for both products/entitlements for the account.

About Usage Reports

FlexNet Operations enables you to view end users' current usage data in the Producer Portal. Similarly, your enterprise customers can view their current usage data in Usage Management in the enterprise portal you set up.

The following types of reports are supported with respect to usage capture. Usage data can also be downloaded as a text file in CSV format. After selecting what usage data to display—as described in Viewing Usage Reports—and selecting the desired usage period, you can select the type of graph in which to display the usage data.

Figure 6-1: Buttons for selecting the usage report type

These report type buttons correspond to Usage Gauges, Usage Tables, and Usage Timelines and Comparisons.

Usage Gauges

This type of graph shows usage data as a graphical gauge representing the percentage of usage compared to the overall entitled amount. The green region of the gauge indicates usage of none to 75 percent of the available count; the yellow region indicates 75 percent to 100 percent of the available count; and the red region indicates over 100 percent (overage) of the entitled amount.

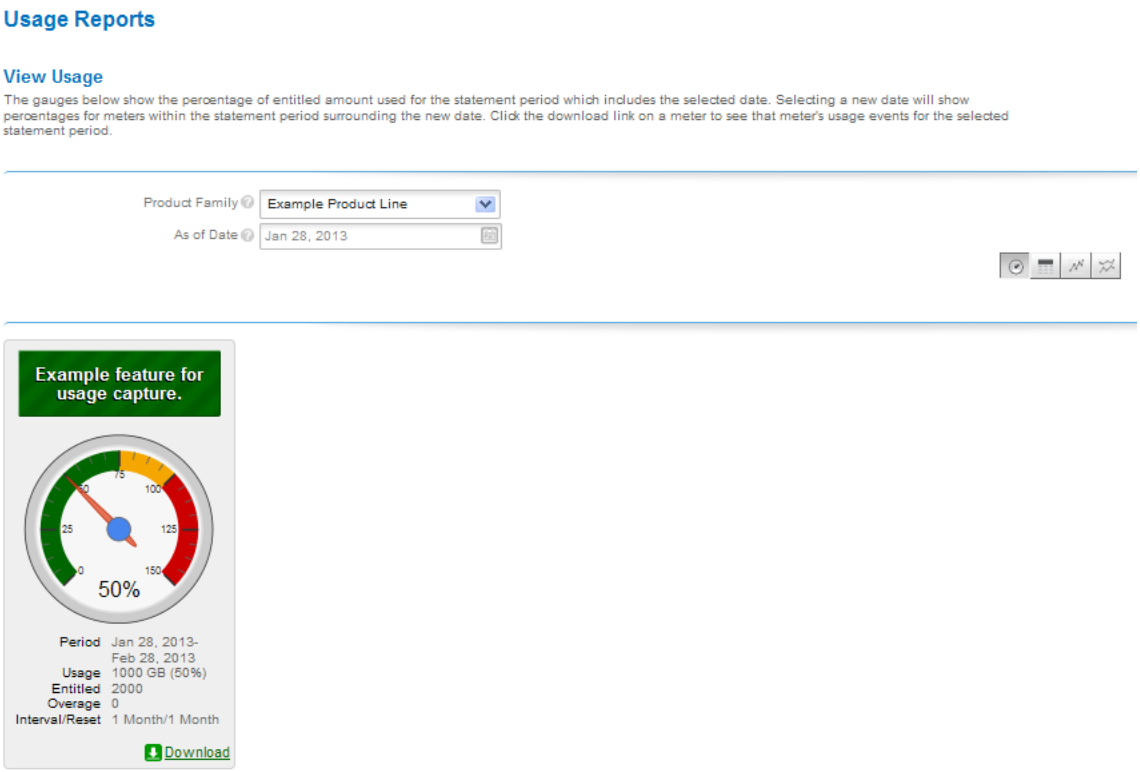


Figure 6-2: Usage gauge

Details of the usage information are displayed beneath the gauge.

Usage Tables

Usage information can also be displayed in a textual table.

Meter	Unit	Actual Use	Entitled	Overage (since statement)	Overage (since reset)	%	Interval/Reset	Period
End2EndUHRP_MC-ReCH Download	copies	111	150	0	0	74	3 Month/12 Month	Feb 11, 2015-May 11, 2015
End2EndUHRP_MUC-NonRe Download	gb	101	100	0	1	101	3 Month/Never	Feb 11, 2015-May 11, 2015

Figure 6-3: Usage table

Usage Timelines and Comparisons

Usage information can also be displayed in an interactive Flash-based timeline. Commands in the upper left corner enable zooming in to different time periods, and you can click and drag the graph left and right to control the dates for which data are being displayed.

Figure 6-4: Interactive usage timeline

A similar interactive option is the **Compare Meters** graph, which simultaneously displays multiple features' usage information over the same period of time.

Viewing Usage Reports

Producers who use FlexNet Usage Management can view usage history reports in the Producer Portal. You first search for reports on your usage-enabled products by usage search criteria. The search results show matching usage reports primarily by the associated account ID. You can click the account ID for a particular report to view usage gauges (default), tables, and timelines for that account's report.

Usage Search Criteria

The table below describes the usage search criteria available on the Usage Search page.

Table 6-4 ▪

Attribute	Description
Account ID	The ID of the customer account for which you want to see usage reports.
Usage Threshold	Specifies a minimum usage percentage for any usage meter. To see usage reports for accounts that meet or exceed fifty percent of their entitled counts, for example, set Usage Threshold to 50. To see only accounts that are at or over their entitled limits, set Usage Threshold to 100. Only accounts for which at least one meter that meets or exceeds the specified threshold are included in the search results.

Table 6-4 ▪

Attribute	Description
As of Date	The date limit for usage reports. Reports that occur after the specified As of Date value are excluded from the search results.
Product Line	The product line for which you want to see usage reports. Only reports that include usage history for products in the specified product line are included in the search results.
Meter Name	The name of the meter (usually a feature name) for which you want to see usage reports.

Searching for Usage Reports

The following steps explain how to obtain usage reports for your customer accounts.

Task ***To view a usage report***

1. In the Producer Portal, click **Usage** > **Usage Search**. The Producer Portal opens the Usage Search page.
2. Specify search criteria for the usage reports you want to see.
3. Click **Search**. The Producer Portal shows a list of usage reports that match your search criteria.
4. Click the **Account ID** value for a report to see the usage report page for that account.

The Producer Portal opens the View Usage for Account: <customer account> page. This page includes usage gauges, tables, and timelines for the designated product line and date. Click the report type buttons to switch between report types.

This page also allows you to select different product lines and to alter the dates for which usage history data is shown.

- Click the **Product Family** control to choose from the product families to which the current customer account is entitled.
- Click the **As of Date** control to set a different date limit for the usage reports.

Listing Usage Models

Producers who use FlexNet Usage Management can view available usage models in the Producer Portal. Usage models are selected when you create or edit a usage-enabled product. They mainly define the reporting interval for usage history reports.

Task ***To list usage models***

- Click **Usage** > **List Usage Models**.

The Producer Portal opens the List Usage Models page.

Uploading Usage Data

Mainly for internal testing, producers can upload raw usage data to the Producer Portal. This option allows you to see how usage data captured by your usage-enabled FlexNet Embedded clients is rendered in usage history reports without waiting for the clients to report data over long periods.

To upload historical usage data, you must create a comma-separated value file in which each line follows the syntax shown below:

```
ISO 8601 date,count,feature name,activation code[,requestor ID,acquisition ID,key=value, ...]
```

Additional file content and format requirements appear on the Upload Historical Usage page.

Task ***To upload usage data***

1. In the Producer Portal, click **Usage** > **Upload Historical Usage**. The Producer Portal opens the Upload Historical Usage page.
2. On the Upload Historical Usage page, use the browser controls to specify a CSV file on your system to upload. (The exact controls vary in different web browsers.)
3. Click **Upload**.

The Producer Portal uploads the usage data.

7

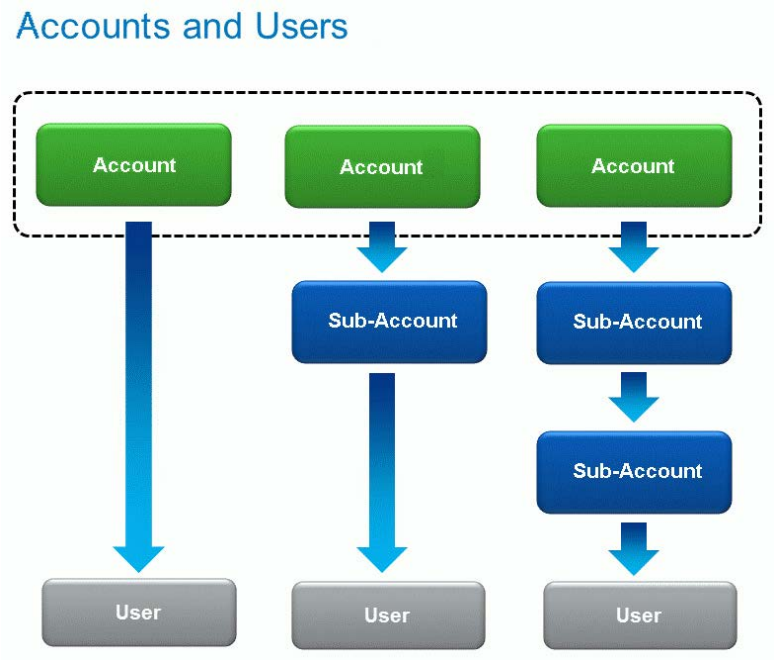
Managing Accounts and Users

You can manage accounts and users using the commands in the Accounts & Users menu. See the following sections for instructions on account and user management:

Table 7-1 ▪

Topic	Description
Managing Users	Manage users and roles (sets of permissions) of an account.
Managing Accounts	Manage accounts and contacts.
Account Health	View account health parameters including overall health, renewal health, and consumption.

The figure below depicts relationships among accounts, sub-accounts, and users.



Managing Users

This section is organized into the following topics.

Table 7-2 ▪ Managing Users

Topic	Description
About Users	Discusses users as they exist in FlexNet Operations.
FlexNet Operations Default Users	Describes the built-in, default users included with FlexNet Operations.
Managing Your Profile	Explains how to edit your profile and how to change your password.
Browsing Users	Shows how to browse existing users in the Producer Portal.
Creating a User	Explains how to create new users manually and how to import a new user from a directory service.
Editing a User	Covers editing existing users and resetting a user password.
Linking Product Lines to User Accounts	Describes how to link user accounts to product lines.
Deleting a User	Shows how to delete users from FlexNet Operations.

Table 7-2 ▪ Managing Users

Topic	Description
Deactivating and Reactivating a User	Explains how to set a user's status to active or inactive.
Working with Roles and Permissions	Includes a discussion about the use of roles and permissions as well as instructions about adding, editing, activating and deactivating, and deleting roles.

About Users

A user can belong to one of four types. On the Manage Users page, each of these types has a tab as described below.

- Customer Users – End users of a producer's software or device.
- Producer Users – Software producer or intelligent device manufacturer users.
- Partner Users – Distribution partner users like wholesalers, distributors, resellers, and retailers.
- Self Registered Users – Users who self-register by logging in to the End-User Portal with an entitlement ID or activation ID and set up their own user account. Optionally, users can select to be associated with an existing Self-Registered account by providing the account ID upon self-registration, instead of creating a new account.

To log in to FlexNet Operations, a user must provide a user name and password. Revenera creates the initial user account for a producer's FlexNet Operations system administrator. Then that system administrator creates any additional users required for the producer's account and for the producer's customers (end users).

Beyond the ability to simply log in, the activities a user can perform are based on the permissions that user has been granted. However, permissions are not assigned to users directly. Instead, permissions are grouped into roles and FlexNet Operations users are assigned one or more roles. FlexNet Operations users belong to either a producer account or a customer account. Users who self-register through the End-User Portal belong to the accounts for Portal Accounts. If a self-registered user supplies a company name while registering, a new account is created for the new company name and the user assigned to it.

Some user names are intended to be shared logins. A shared login is intended as a proxy user, not as a user that logs in directly. For example, when any customer logs in to the End-User Portal with an activation ID, a shared login, `portaluser`, logs in on behalf of the customer. Shared logins are indicated on the Users page with an icon. They do not appear in the **Logged-In Users** page, their last login date is not recorded, nor are they deactivated automatically after a number of bad logins. The profile of a shared login cannot be edited.

Both shared and non-shared users can log in to FlexNet Operations from multiple browsers simultaneously.

FlexNet Operations Default Users

By default, the following users are provided with FlexNet Operations:

Table 7-3 ▪ FlexNet Operations Users

User Name	Description
admin	Non-shared login with the System Administrator role. This user cannot be made inactive.
portaluser	Shared login for users of the End-User Portal who log in with entitlement ID or activation ID. This user is assigned the Portal User role.
trustedstorageuser	Shared login that does not appear in any of the user management pages. It is displayed in the fulfillment history as the user who performs trusted transactions.
legacyuser	Shared login that does not appear in any of the user management pages. It is displayed in the fulfillment history as the user who imported legacy fulfillments from another system.

Managing Your Profile

The following topics cover how to manage your own user profile and password settings.

Table 7-4 ▪

Topic	Description
Editing Your User Profile	Discusses how to change your user profile settings.
Changing Your FlexNet Password	Explains how to change your password.
If You Forget Your FlexNet Password	Explains how to follow the password recovery procedure when you forget your password.

Editing Your User Profile

You can edit your profile using the User menu. (The User menu is near the System menu at the top of the Producer Portal page. It shows the user name of the current user.)

If you are not a shared user, you can edit your user profile. A shared user can only view the profile.

Task ***To view your profile or edit your profile***

1. In the User menu, click your user name and then click **My Profile**.
2. Edit any of the following fields:
   - First Name
   - Last Name
   - Email Address
   - Receive Email Messages (No, Yes)
   - Old Password
   - New Password
   - Confirm Password
   - Secret Question and Secret Answer
   - Phone Number and Fax Number
   - Street
   - City
   - State/Province
   - Zip/Postal Code
   - Country
   - Time Zone

   Your user name, accounts, and whether the user name is a Shared Login cannot be edited through the user profile.

   Note ▪ *The roles assigned to you are not displayed in the Edit Profile page.*
3. Click **Save**.

Note ▪ *To change your password, enter the old password; then enter and confirm the new password. No email message is sent reminding you of your new password. The next time you log in, enter your new password.*

Changing Your FlexNet Password

The Change Password page appears when you enter your user name and a system-generated FlexNet Operations password the first time you log in to FlexNet Operations. Use this page to change your system-assigned password to one that you choose.

Task ***To change your FlexNet Operations password***

1. Enter your old password, the system-generated password that you entered when you logged in.
2. Enter and confirm a new password of your choice.
3. Select a secret question and the answer in case you forget your password. You must define a secret question and answer to reset your password yourself if you forget it.
4. Click **Continue** to complete the login process.

Note ▪ *You can change your password or add a secret question and answer at a later time by editing your user profile.*

If You Forget Your FlexNet Password

If you forget your password in the future and have specified a secret question and its answer, you can have your password sent to you by email.

Task ***To have your FlexNet Operations password sent to you by email***

1. On the FlexNet Operations login page, click **Forgot your password?**
2. On the **Password Reset** page, enter your FlexNet Operations user ID and click **Continue**.

   If FlexNet Operations recognizes your account, it displays your secret question and prompts you to enter the answer you specified when the account was created. This is required.
3. Enter the answer to your secret question and click **Continue**.

If you correctly answer the security question, FlexNet Operations sends an email containing a system-generated password to your email address. When you log in with that password, FlexNet Operations prompts you to change your password.

Note ▪ *If you did not specify a secret question and answer, you must contact the FlexNet Operations administrator to have a new password sent to you.*

Browsing Users

FlexNet Operations users are displayed in the Users page. Users assigned roles with the **View Users**, **View and Manage Users**, **View and Manage Customer Users**, or **View and Manage Partner Users** permissions can view users in the Producer Portal.

Task ***To browse existing users***

- Click **Accounts & Users** > **All Users**.

The Producer Portal shows the Manage User page. On the Manage Users page, you can view the following information:

- Whether a user is a shared user. (Shared users are marked with an icon showing several people.)
- **Display Name**: Full name of user.
- **User Name**: Login name of the user.
- **Email Address**: The user's email address.
- **Type:** Select either **User** or **Contact**. A contact is a user account that cannot log in, and is maintained for account contact purposes.
- **Account**: All accounts to which the user belongs.

Click on a user to view user details, edit the user, view the transaction history for the user account, and so forth.

Creating a User

FlexNet Operations users appear in the Users page of FlexNet Operations.

Note ▪ *To perform tasks using FlexNet Operations, a user is required to have one or more permissions that are defined by the application. Permissions are not assigned to users directly. Instead permissions are grouped into roles and FlexNet Operations users are assigned one or more roles. Users assigned a role with* ***View and Manage Users*** *permission can view, add, and edit all types of users. Users assigned roles with the* ***View and Manage Customer Users*** *permission or* ***View and Manage Partner Users*** *permission can view all users but can add and edit only customer users or partner users, respectively.*

Task ***To add a FlexNet Operations user***

1. Click **Accounts & Users** > **Create User**. This link opens the Create a User page.
2. On the **Create a User** page, select **FlexNet User**, and click **Next**.
3. In **User Details**
    a. **End-User Portal Access**?: A user who can log in is able to access FlexNet Operations. If not, the user account is maintained for contact purposes only. Such users are sometimes referred to as *contacts*.
    b. **User Name**: Specify a login name for the user.
    c. **Time Zone**: If the user can log in, select the user's time zone from the drop-down list.
    d. **Status**: Leave the user status set to Active. (The records of an Inactive user remain on file, but the user no longer has access to FlexNet Operations.)

***Note** ▪ Multiple entries of an incorrect password automatically set the user's status to Inactive. The user can be reactivated by an administrator after the user's legitimacy is confirmed.*

e. **Shared Login**: Select Shared Login if this user account is to be shared by multiple people. A shared login can be useful for setting up proxy or group user accounts, such as a user who submits web service requests.

4. In **Contact Details**

   a. Enter the **First Name** and **Last Name** of the user (required).

   b. Enter the **Email Address** of the user (required). If this is a shared login, specify the email address of a FlexNet Operations administrator in this field.

   c. **Opt-in to receive email**: Select whether the user receives marketing email messages.

   d. **Expiring Entitlements Email**: Select whether the user receives renewal reminders about expiring and expired entitlements (only for customer users).

   e. Enter the user's contact information: **Phone Number**, **Fax Number**, **Street**, **City**, **State/Province**, **ZIP/Postal Code**, and **Country**.

   f. Select the **Locale** of the user. This setting is applied when using the option **View As End User** (see View End-User Portal as End-User). This setting will be overwritten by the default locale or the locale explicitly selected by the user when logging in to the End-User Portal. In addition, the **Locale** setting specifies the language of some of the emails sent by FlexNet Operations (such as the Reset Password email).

5. Link the user to one or more accounts. Each user must be linked to one or more accounts. If the user must log in to the Producer Portal (an internal user), link the user account with a producer account. If the user must log in to the End-User Portal, either as a customer or a partner, link the user account to a customer or partner account. A user can belong to multiple accounts but all of those accounts must be of the same type. After a user is saved as a member of a customer account, the account can be changed only to another customer account.

   To link users to an account, click **Link Existing Accounts** to link existing accounts to the user. Select the accounts you want to link and click **OK**.

   ***Note** ▪ When linking a user to an account, an optional expiration date can be set if the **Enable User Expiration** is enabled in the system configuration. See Configuring System Settings for more information.*

6. Optionally, for customer users, link the user to one or more product lines now, or product lines can be linked later. See Linking Product Lines to User Accounts.

   ***Note** ▪ Linking of product lines is available only when product lines functionality is enabled in the system configuration page (**System** > **Configure** > **FlexNet Operations**). See Managing Product Lines for details.*

7. Click **Save**.

When a new user account is saved, an email containing a system-generated password and login instructions is sent to the user's email address. To log in the first time, the user logs in using the system-generated password and is immediately prompted to change the password.

Editing a User

Users assigned a role with the **View and Manage Users** permission can view, add, and edit all types of users. Users assigned roles with the **View and Manage Customer Users** permission or **View and Manage Partner Users** permission can edit only customer users or partner users, respectively. The **Create a User** page displays the date the user was created and last logged in (if a non-shared user) and is also used to reset the user's password.

Edit User Information

Use the following instructions to modify a user's details, contact information, or account. Remember: To locate a difficult to find user, use the search feature on the Manage Users page.

Task ***To edit an existing FlexNet Operations user***

1. Click **Accounts & Users** > **All Users**. This link opens the Manage Users page.
2. On the Manage Users page, locate the user you want to edit. Note: Users can appear on different tabs. Be sure you are looking at the right tab for the user.
3. In the **Users** list, click a user name to view the **Create a User** page.
4. Edit the values of any of the editable fields. Email address is never editable. At least one account must be linked to the user. If the user must log in to the End-User Portal or Producer Portal, at least one role must be assigned.
5. Click **Save** to save your changes to the user.

Reset a Password

Use the following steps to reset the password of a user.

Task ***To reset a user's password***

1. Click **Accounts & Users** > **All Users**. This link opens the Manage Users page.
2. On the Manage Users page, locate the user you want to edit. Note: Users can appear on different tabs. Be sure you are looking at the right tab for the user.
3. In the **Users** list, click a user name to view the **Create a User** page.
4. On the Create a User page, click **Reset Password**.

If the user is not shared, an email is sent to the user with a new system-generated password. The user logs in with the system-generated password and is immediately prompted to change the password.

If the user is shared, the email containing a system-generated password is sent to a FlexNet Operations administrator (if you specified the administrator's email address when the user was created). The administrator must log in to FlexNet Operations with the system-generated password, then change the password and keep a record of it. The administrator must send this new password to all users of the shared login.

View End-User Portal as End-User

Users assigned a role with the **View As End User** permission can access the End-User Portal as a selected end-user in view-only mode. Any data that is updated when acting as end-user does not persist.

Task ***To view the End-User Portal as end-user***

1. Click **Accounts & Users** > **All Users**. This link opens the Manage Users page.
2. On the Manage Users page, locate the user you want to act as. Note: Users can appear on different tabs. Be sure you are looking at the right tab for the user.
3. In the **Users** list, click a user name to view the **Create a User** page.
4. On the Create a User page, click **View As End User**.

Set or Clear an Expiration Date

Use the following instructions to control how long a user is linked to an account.

Version ▪ *This option is only available if the **Enable User Expiration** field is enabled in the System Configuration. See Configuring System Settings for more information.*

Task ***To set or clear the expiry date for a user***

1. Click **Accounts & Users** > **All Users**. This link opens the Manage Users page.
2. On the Manage Users page, locate the user you want to edit. Note: Users can appear on different tabs. Be sure you are looking at the right tab for the user.
3. In the **Users** list, click a user name to view the **Create a User** page.
4. Under **Accounts**, find the account you want to limit the user's access to.
5. Under **Expiry date** for an Account, either enter a date to set an expiration date or clear the field to remove an expiration date. To disable the expiration date for all users, unselect the **Enable User Expiration** in the System Configuration. If the expiration date is cleared or disabled, a user's access to the account does not expire. See Configuring System Settings for more information.

Linking Product Lines to User Accounts

When the product lines functionality (with visibility restrictions) is enabled, FlexNet Operations filters what customer users see based on the product lines linked to the users' accounts. Only line items that include products in product lines to which the user account is linked are visible.

Important ▪ *A user account cannot be linked to product lines until the user has been linked to accounts.*

The required product lines functionality can be enabled in **System** > **Configure** > **FlexNet Operations** > **Enable Product Lines for Products, Users, and Accounts**. (See Managing Product Lines for details.)

Task ***To link product lines to a user account***

1. On the Create a User page, click **Link Product Lines**. The Select Product Lines for the User page opens in a pop-up window.
2. On the Select Product Lines for the User page, select the product lines you want to link, and click **OK**.

Product lines are linked to the current user account when you click OK. It is only necessary to save the user account if you have made other changes to the user.

Task ***To remove product lines from a user account***

1. On the Create a User page, select the product lines you want to remove and click **Remove Product Lines**.
2. Click **OK** to confirm the removal.

Deleting a User

You can delete users from FlexNet Operations if users have no dependencies (such as, for example, line items, entitlements, or alert subscriptions). Deleted users are removed permanently from the database. If you want to keep the user in the database but restrict access, consider deactivating the user instead.

You cannot permanently delete a user who has dependencies. However, you can perform a force delete by confirming that you want to remove a user, when prompted by a dialog. The force delete ensures that the user record and its dependencies are retained but placed in an inactive state. In this state, all fields on the user record are rendered obsolete, login-credential resets for the user are prohibited, and no further access to the user record is allowed.

Note that his option applies only to the forced deletion of non-producer users with dependencies.

Task ***To delete a user***

1. Click **Accounts & Users** > **All Users**. The Manage Users page opens.
2. On the Manage Users page, select the user you want to delete.
3. Click **Delete**.
4. Click **OK** to confirm deletion.
5. If the user has dependencies, click **Delete** to confirm the force delete.

Deactivating and Reactivating a User

User status is displayed in the Create a User page. Both shared and non-shared users can be deactivated manually or automatically. A non-shared user can be reactivated only manually; a shared user can be reactivated manually or automatically.

Users assigned a role with the **View and Manage Users** permission can deactivate and reactivate all types of users manually. Users assigned roles with the **View and Manage Customer Users** permission or **View and Manage Partner Users** permission can deactivate and reactivate only customer users or partner users, respectively.

Task ***To deactivate a user manually***

1. Click **Accounts & Users** > **All Users**. The Manage Users page opens.
2. In the **Users** list, click a user name to deactivate.
3. In the Status drop-down list, select **Inactive**.
4. Click **Save**.

A user is deactivated automatically after more incorrect consecutive login attempts than allowed. For non-shared users, the default number of consecutive failed authentications is 3; for shared users, the default number of consecutive failed authentications is 6. This number can be configured in the FlexNet Platform Server configuration (setting **Consecutive Failed Authentications**). When a user is deactivated automatically, the User Deactivated alert is triggered (if that alert is configured).

A deactivated non-shared user must be reactivated manually.

Task ***To reactivate a user manually***

1. Click **Accounts & Users** > **All Users**. The Manage Users page opens.
2. In the **Users** list, click a user name to reactivate.
3. In the Status drop-down list, select **Active**.
4. Click **Save**.

A reactivated user is informed by email. Reactivation does not affect a user's password. If the reactivated user is shared, an administrator receives the email stating that the user is reactivated.

Automatically Reactivating Shared Users

When a shared user account is deactivated due to too many failed consecutive login attempts, it can be automatically reactivated after a specified time. You can set this time in the FlexNet Platform Server configuration (setting **Minutes for re-enabling a shared login after deactivation**). The default is 3 minutes.

Reactivating Using Google reCAPTCHA

The Google reCAPTCHA mechanism enables a shared user whose account is locked (due to too many consecutive failed login attempts) to have their account reactivated before the timeout (set in the FlexNet Platform Server configuration) has elapsed. In this case, the login screen of the End-User Portal shows the "I'm not a robot" check box which enables the shared user to validate their account. To use Google reCAPTCHA, you need to provide the site key and the secret key in the FlexNet Platform Server configuration.

Working with Roles and Permissions

You can administer roles and permissions for user access.

Important ▪ *Regarding FlexNet Operations roles and permissions, keep in mind the following:*

- *Permissions do not have hierarchies. For one user to manage another user, the managing user must have at least all of the permissions of the user they want to manage.*
- *A permission can only be assigned to a user if that assignee has that permission themselves.*

Table 7-5 ▪ Working with Roles and Permissions

Topic	Description
Assigning a Role to a User	Shows how to assign one or more roles to an existing user.
Browsing Roles	Explains how to browse roles from the Administer Roles and Permissions page.
Browsing Users with a Role	Describes how to view users who are assigned a particular role.
Adding a Role	Shows how to add a user-defined role.
Editing a Role	Describes how to edit an existing role.
Deleting a Role	Explains how to delete a role.
Deactivating and Reactivating a Role	Shows how to manually deactivate or reactivate a role.
FlexNet Operations Permissions	Describes FlexNet Operations permissions. Permissions are grouped into roles.
FlexNet Operations Roles	Describes FlexNet Operations roles. Permissions are grouped into roles. Roles are assigned to user accounts.

Assigning a Role to a User

You can assign a role to a user on the user's Create a User page. These assignments are made per account in the Account table near the end of the page.

Note ▪ *Not all users have sufficient permissions to assign or remove roles.*

Task ***To assign a role to a user***

1. On the Create a User page, select the check boxes for the roles you want to assign to the current user. The user must have at least one role assigned for each account to which they are linked. (Possible roles appear in the Roles column of the Accounts table—one set per account.)
2. Click **Save**.

The Producer Portal saves the role modifications and refreshes the Create a User page.

Task ***To remove a role from a user***

1. On the Create a User page, select the check boxes for the roles you want to remove from the current user.
2. Click **Save**.

The Producer Portal saves the role modifications and refreshes the Create a User page.

Browsing Roles

Roles for FlexNet Operations are displayed in the **Roles** page. Users assigned a role with the **View Roles** or **View and Manage Roles** permission can view a summary of roles.

Task ***To view a summary of existing roles***

1. Click **Accounts & Users** > **All Roles**.
2. In the **Roles** page, you can view the following information:
   - **Role Name**: Name of the role.
   - **Status**: Whether the role is active or inactive and whether it is a system-defined role.
   - **Mapped Users**: Shows links to users who are assigned to this role.

Browsing Users with a Role

It is possible to view all of the users who have been assigned a particular role. Users assigned a role with the **View Users** and **View Roles** permissions can view users with a particular role.

Task ***To view the users who have been a assigned a particular role***

1. Click **Accounts & Users** > **All Roles**.
2. To see the users with a specific role, click the Users link for that role under Mapped Users.
3. In the **Users for Role** page, you can view the list of users who are assigned this role. In addition, you can determine whether a user is shared. Shared users are marked with an icon showing several people. The following summary information is displayed.

- **User Name**: Login name of the user (typically, an email address).
- **Display Name**: Full name of the user.
- **Date Created**: Date the user was created.
- **Date of Last Login**: Date of last login by the user; this date is not recorded for shared users.
- **Status**: Whether the user is active or inactive.

Adding a Role

To perform tasks using FlexNet Operations, a user must have the appropriate permissions defined by the application. Permissions are not assigned to users directly; permissions are grouped into roles and FlexNet Operations users are assigned one or more roles.

Roles are either system-defined or user-defined. System-defined roles cannot be edited by any users; users assigned a role with the **View and Manage Roles** permission can view, add, and edit user-defined roles.

Task ***To add a user-defined role***

1. Click **Accounts & Users** > **All Roles**.
2. Click **Add Role**.
3. In the **Add Role** page:
   a. Enter the **Name** of the role, for example, User Management Administrator. A role is usually given the name of a type of user.
   b. Enter the **Description** of the role.
   c. In Type, select Producer if the role is intended for producer users, or Portal if the role is intended for End-User Portal users.
   d. Leave the **Status** of the role **Active**.
   e. Assign one or more permissions to the role.
4. Click **Save**.
5. Verify in the **Roles** page that the role was added.

Editing a Role

Roles are either system-defined or user-defined. System-defined roles cannot be edited; users assigned a role with the **View and Manage Roles** permission can view, add, and edit user-defined roles.

Task ***To edit an existing role***

1. Click **Accounts & users** > **All Roles**.
2. In the **Roles** table, click a role name to view the **Edit Role** page.

3. Edit the values of any of the editable fields. At least one permission must be assigned to a role.
4. Click **Save** to save your changes to the role.

Deleting a Role

Roles can be deleted from FlexNet Operations.

Task ***To delete an existing role***

1. Click **Accounts & Users** > **All Roles**.
2. In the **Roles** table, click the name of the role you want to delete.
3. Click **Delete**.
4. Click **OK** to confirm deletion.

Deactivating and Reactivating a Role

A role can be deactivated or reactivated manually. Users assigned a role with the **View and Manage Roles** permission can deactivate and reactivate roles.

Task ***To deactivate or activate an existing role***

1. Click **Accounts & Users** > **All Roles**.
2. In the **Roles** table, click a role name to view the **Edit Role** page.
3. Set the **Status** to **Inactive** or **Active**.
4. Click **Save** to save your changes to the role.

FlexNet Operations Permissions

Permissions are grouped into roles, and roles are assigned to users. The following permissions are available in FlexNet Operations:

- Alert Management
- System Administration
- Operations Feature Bundles
- Operations License Models
- Operations Entitlements (Producer Portal)
- Accounts (End-User Portal)
- Trusted Storage Licensing (End-User Portal)
- Operations Web Services

- Operations Export Import
- User Management
- Account Management
- Operations Features
- Operations Products, Suites, and Maintenance
- Operations Part Numbers (Producer Portal)
- Operations License Management (Producer Portal)
- Operations Policies
- Operations Trusted Storage Licensing (Producer Portal)
- Reporting
- Child Account (End-User Portal)
- License Technologies
- FlexNet Embedded
- FlexNet Embedded (End-User Portal)
- Customer Growth
- Usage
- Updates
- Producer User Roles
- End-User Customer Roles

Alert Management

The following Alert Management permissions are available:

Table 7-6 ▪ Alert Management Permissions

Permission	Description
View and Subscribe Alerts	Allows a user to browse available alerts and subscribe to them.
View and Manage Alert Configurations	Allows administrator to configure alerts and access the alert cleanup service.

System Administration

The following System Administration permissions are available:

Table 7-7 ▪ System Administration Permissions

Permission	Description
View System Information	View system information displayed in the **System Information** page (click **System** > **About Advanced Lifecycle Management Module**).
View and Manage Configurations	Configure the database connection, the behavior of the FlexNet Platform Server, the behavior of the Producer Portal, and the behavior of different portions of FlexNet Operations. Access to all functionality of the **System Configuration** page (click **System** > **Configure**).
View and Manage Custom Content	Create and maintain custom content, including the ability to enable/disable its visibility on the End-User Portal.
View and Manage Email Templates	Maintain email templates, including enabling/disabling and creating variations.
Create Custom Attribute	Create and edit generic custom attributes.
Merge Entitlements from Self-Registered Account to Customer Account	Merge data (entitlements and users) from self-registered account to customer accounts.

Operations Feature Bundles

The following FlexNet Operations Feature Bundles permissions are available:

Table 7-8 ▪ Operations Feature Bundles Permissions

Permission	Description
View Feature Bundles	View feature bundles in read-only mode.
Update Feature Bundles	Edit feature bundles. ***Important ▪*** *If* ***Update Feature Bundles*** *is assigned to a role, also assign* ***View Feature Bundles****.*
Create Feature Bundles	Add feature bundles. ***Important ▪*** *If* ***Create Feature Bundles*** *is assigned to a role, also assign* ***Update Feature Bundles****.*

Table 7-8 ▪ Operations Feature Bundles Permissions

Permission	Description
Change Feature Bundle State	Change the state of feature bundles, such as deploying a feature bundle. ***Important ▪*** *If* ***Change Feature Bundle State*** *is assigned to a role, also assign* ***Update Feature Bundles****.*
Delete Feature Bundles	Delete feature bundles. ***Important ▪*** *If* ***Delete Feature Bundles*** *is assigned to a role, also assign* ***View Feature Bundles****.*

Operations License Models

The following FlexNet Operations License Models permissions are available:

Table 7-9 ▪ Operations License Models Permissions

Permission	Description
View License Models	View license models in read-only mode.
Create License Models	Add license models. ***Important ▪*** *If* ***Create License Models*** *is assigned to a role, also assign* ***View License Models****.*
Update License Models	Edit license models. ***Important ▪*** *If* ***Update License Models*** *is assigned to a role, also assign* ***View License Models****.*
Delete License Models	Delete license models. ***Important ▪*** *If* ***Delete License Models*** *is assigned to a role, also assign* ***View License Models****.*

Table 7-9 ▪ Operations License Models Permissions

Permission	Description
Change License Model State	Change the state of license models. ***Important ▪*** *If* ***Change License Model State*** *is assigned to a role, also assign* ***Update License Models****.*

Operations Entitlements (Producer Portal)

The following FlexNet Operations Entitlements permissions are available:

Table 7-10 ▪ Operations Entitlements (Producer Portal) Permissions

Permission	Description
View Entitlements	View entitlements in read-only mode.
Update Entitlements	Edit entitlements. This includes changing any attributes of the entitlement, adding line items to the entitlement, upgrading an entitlement, renewing an entitlement, merging entitlements and fulfillments, and upselling an entitlement. ***Important ▪*** *If* ***Update Entitlements*** *is assigned to a role, also assign* ***View Entitlements****.*
Upsell Entitlements	Upsell entitlements. ***Important ▪*** *If* ***Upsell Entitlements*** *is assigned to a role, also assign* ***Update Entitlements*****.**
Upgrade Entitlements	Upgrade entitlements. ***Important ▪*** *If* ***Upgrade Entitlements*** *is assigned to a role, also assign* ***Update Entitlements****.*
Renew Entitlements	Renew entitlements. ***Important ▪*** *If* ***Renew Entitlements*** *is assigned to a role, also assign* ***Update Entitlements****.*

Table 7-10 ▪ Operations Entitlements (Producer Portal) Permissions

Permission	Description
Create Entitlements	Add entitlements. ***Important ▪*** *If* ***Create Entitlements*** *is assigned to a role, also assign* ***Update Entitlements****.*
Change Entitlement State	Change the state of entitlements. ***Important ▪*** *If* ***Change Entitlement State*** *is assigned to a role, also assign* ***Update Entitlements****.*
Delete Entitlements	Delete entitlements. ***Important ▪*** *If* ***Delete Entitlements*** *is assigned to a role, also assign* ***View Entitlements****.*
Edit Sent Emails	Allows email content to be updated after the message has been sent. Used to correct errors.
Edit Unsent Emails	Allows the user to copy an email, and edit email content and distribution list.
Create Email Notifications	Send email to users entitled to download packages or files.
Queue Email	Allows the user to schedule email delivery after approving the message content.

Accounts (End-User Portal)

The following End-User Portal account permissions are available:

Table 7-11 ▪ Accounts (End-User Portal) Permissions

Permission	Description
View Entitlements	View entitlements for user's accounts in read-only mode.

Table 7-11 ▪ Accounts (End-User Portal) Permissions

Permission	Description
Generate Licenses	Generate a certificate license through the End-User Portal. ***Important ▪*** *If* ***Generate Licenses*** *is assigned to a role, also assign* ***View Entitlements****.* For FlexNet Embedded, when **Generate Licenses** permission is assigned to a role, an end user can map add-ons to a device.
Rehost	Rehost a certificate license through the End-User Portal. ***Important ▪*** *If* ***Rehost*** *is assigned to a role, also assign* ***Generate Licenses****.*
Repair	Repair a certificate license through the End-User Portal. ***Important ▪*** *If* ***Repair*** *is assigned to a role, also assign* ***Generate Licenses****.*
Return	Return a certificate license through the End-User Portal. ***Important ▪*** *If* ***Return*** *is assigned to a role, also assign* ***Generate Licenses****.* For FlexNet Embedded, when **Return** permission is assigned to a role, an end user can remove add-ons from a device.
Manage Users	Manage users through the End-User Portal. ***Important ▪*** *This permission does not work for external domain (LDAP) users. For LDAP users, assign the separate,* ***Manage Accounts and Users by Domain Users*** *permission instead.*
Manage Accounts	Manage accounts through the End-User Portal. ***Important ▪*** *This permission does not work for external domain (LDAP) users. For LDAP users, assign the separate,* ***Manage Accounts and Users by Domain Users*** *permission instead.*
View Licenses	View licenses for a user's accounts in read-only mode.
Transfer Line Items	Transfer entitlement line items through the End-User Portal.

Table 7-11 ▪ Accounts (End-User Portal) Permissions

Permission	Description
View Devices	View devices for a user's accounts in read-only mode.
Split Line Items or Bulk Entitlements	Split line items or bulk entitlements through the End-User Portal.
View Accounts	View accounts in read-only mode.
View Users	View users in read-only mode.
Transfer Hosts/Move Devices	Transfer hosts or move devices through the End-User Portal.
Get Downloads	Get downloads through the End-User Portal.
View Expiring Entitlements	View the Expiring Entitlements page, subscribe to renewal reminders, receive Renewal Reminder email messages. The View Expiring Entitlements covers both expiring entitlement and expired entitlement features.

Trusted Storage Licensing (End-User Portal)

The following End-User Portal trusted storage licensing permissions are available:

Table 7-12 ▪ Trusted Storage Licensing (End-User Portal) Permissions

Permission	Description
Short Code Activation	Enable short code activation in End-User Portal.
Manual Activation	Allow manual activation of trusted storage rights in End-User Portal.
Manual Return and Repair	Allow manual return and repair of trusted storage rights in End-User Portal.
Short Code Return and Repair	Allow short code return and repair of trusted storage rights in End-User Portal.

Operations Web Services

The following FlexNet Operations Web Services permission is available:

Table 7-13 ▪ Operations Web Services Permissions

Permission	Description
Execute Web Services	The authenticated Web services user must have this permission to perform any FlexNet Operations task through the public Web services. ***Important ▪*** *In addition to this permission, the user must have task-specific permissions as well.*

Operations Export Import

The following FlexNet Operations Export Import permission is available:

Table 7-14 ▪ Operations Export Import Permissions

Permission	Description
Export and Import	This permission allows the user to import legacy fulfillments using the Importing and Exporting Entities page. For more information about how to export fulfillments from a previous version of FlexNet Operations and import them into this version, refer to Importing and Exporting Entities. It also enables producers to control user access to data export options for a FlexNet Operations entity to prevent inexperienced users from exporting large amounts of data and negatively impacting system performance or causing an outage. Users without **Export and Import** permission see only data export options with low impact, such as **Selected Items**, on an entity's **Export** drop-down menu. Users with **Export and Import** permission see the complete list of data export options, including those with high impact, such as **All Items** and **Data Import Template**.

User Management

The following User Management permissions are available:

Table 7-15 ▪ User Management Permissions

Permission	Description
View Users	View the list of users.

Table 7-15 ▪ User Management Permissions

Permission	Description
View and Manage Users	View, add, and edit all types of users (customer users, producer users, partner users, and self-registered users). Reset a user's password. Access to all functionality of the **Manage Users** page. ***Important ▪*** *If* ***View and Manage Users*** *is assigned to a role, the role automatically also has the permissions defined in* ***View and Manage Customer Users*** *and* ***View and Manage Partner Users****.*
View Roles	View the list of users and view the definition of a role in read-only mode.
View and Manage Roles	View, add, and edit roles. Access to all functionality of the **Administer Roles** pages.
View Logged-In Users	View the list of logged in users in the system.
View Domains	View the list of user domains and view the configuration of a domain in read-only mode.
View and Manage Domains	View, add, and Manage Users domains. Access to all functionality of the **Administer Domains** pages.
View As End User	Allows the producer to act as the end user in view-only mode. The end-user role remains unchanged, but updated data does not persist.
View and Manage Customer Users	View, add, and edit customer users. Reset a customer user's password. Access to all functionality of the **Customer Users** tab on the **Manage Users** page. ***Important ▪*** *If you want to only assign permissions to view and manage customer users (but not producer users), do not assign* ***View and Manage Users*** *as well as* ***View and Manage Customer Users****.*
View and Manage Partner Users	View, add, and edit partner users. Reset a partner user's password. Access to all functionality of the **Partner Users** tab on the **Manage Users** page. ***Important ▪*** *If you want to only assign permissions to view and manage partner users (but not producer users), do not assign* ***View and Manage Users*** *as well as* ***View and Manage Partner Users****.*

Account Management

The following Account Management permissions are available:

Table 7-16 ▪ Account Management Permissions

Permission	Description
View Accounts	View the list of accounts and view an account and its contacts in read-only mode.
View and Manage Accounts	View, add, and edit accounts and their contacts. Access to all functionality of the **Accounts** pages.

Operations Features

The following FlexNet Operations Features permissions are available:

Table 7-17 ▪ Operations Features Permissions

Permission	Description
View Features	View features in read-only mode. Features are the bottom level in the product hierarchy.
Update Features	Edit features. ***Important ▪*** *If **Update Features** is assigned to a role, also assign **View Features**.*
Create Features	Add new features. ***Important ▪*** *If **Create Features** is assigned to a role, also assign **Update Features**.*
Change Feature State	Change the state of features, such as deploying a feature. ***Important ▪*** *If **Change Feature State** is assigned to a role, also assign **Update Features**.*
Delete Features	Delete features. ***Important ▪*** *If **Delete Features** is assigned to a role, also assign **View Features**.*

Table 7-17 ▪ Operations Features Permissions

Permission	Description
Set Feature Override	View and set the following license strings on an individual feature, overriding the license string values specified for a license model: Vendor String, Notice, and Serial Number. To see these fields, the FlexNet Operations license file must contain the FlexNet_Ops.FeatureOverride feature.

Operations Products, Suites, and Maintenance

The following FlexNet Operations Product, Suite, and Maintenance permissions are available:

Table 7-18 ▪ Operations Products, Suites, and Maintenance Permissions

Permission	Description
View Products, Suites, and Maintenance	View products, suites, and maintenance in read-only mode.
Update Products, Suites, and Maintenance	Edit products, suites, and maintenance. ***Important*** *▪ If* ***Update Products*****,** ***Suites*****, and** ***Maintenance*** *is assigned to a role, also assign* ***View Products*****,** ***Suites*****, and** ***Maintenance****.*
Create Products, Suites, and Maintenance	Add products, suites, and maintenance. ***Important*** *▪ If* ***Create Products, Suites*****, and** ***Maintenance*** *is assigned to a role, also assign* ***Update Products*****,** ***Suites*****, and** ***Maintenance****.*
Change Products, Suites, and Maintenance State	Change the state of products, suites, and maintenance. ***Important*** *▪ If* ***Create Products*****,** ***Suites*****, and** ***Maintenance*** *is assigned to a role, also assign* ***Update Products*****,** ***Suites*****, and** ***Maintenance****.*
Delete Products, Suites, and Maintenance	Delete products, suites, and maintenance. ***Important*** *▪ If* ***Delete Products*****,** ***Suites*****, and** ***Maintenance*** *is assigned to a role, also assign* ***View Products*****,** ***Suites*****, and** ***Maintenance****.*

Table 7-18 ▪ Operations Products, Suites, and Maintenance Permissions

Permission	Description
Assign Product Lines	Link product lines to user accounts in a customer account. (The FlexNet Operations administrator must enable product lines functionality in system configuration settings.) This permission is provided only to accounts with the administrator or portal administrator user roles by default. Permission to link product lines to user accounts can be granted to other user accounts by an administrator. In all cases, a user with this permission can assign only those product lines to which he or she is currently linked. ***Note ▪*** *The ability to map products to product lines operates independently from the* ***Assign Product Lines*** *permission.*
Delete File Images	Remove the physical file; only the metadata remains.
Download File Images	Download the file from the Producer Portal.
Deliver to Account	Subset of **View and Manage Download Packages** permission: creating/updating/uploading files, associating files/download packages, and restricting files to accounts.
View and Manage Download Packages	Manage download packages and files: creating/updating/uploading files, creating/updating download packages, associating files/download packages, associating download packages/products, EULA management, restricting download packages to accounts, and restricting files to accounts.

Operations Part Numbers (Producer Portal)

The following FlexNet Operations Part Numbers permission is available:

Table 7-19 ▪ Operations Part Numbers (Producer Portal) Permissions

Permission	Description
Create Part Numbers	Import part numbers.

Operations License Management (Producer Portal)

The following FlexNet Operations License Management permissions are available:

Table 7-20 ▪ Operations License Management (Producer Portal) Permissions

Permission	Description
View Licenses	View licenses in read-only mode. ***Important ▪*** *If* ***View Licenses*** *is assigned to a role, also assign* ***View Entitlements****.*
Generate Licenses	Generate a license. ***Important ▪*** *If* ***Generate Licenses*** *is assigned to a role, also assign* ***View Licenses****.*
Rehost Licenses	Transfer a license from one host ID to another. ***Important ▪*** *If* ***Rehost Licenses*** *is assigned to a role, also assign* ***Generate Licenses****.*
Repair Licenses	Modify license attributes other than the supported host IDs. ***Important ▪*** *If* ***Repair Licenses*** *is assigned to a role, also assign* ***Generate Licenses****.*
Correct Publisher Error	Regenerate a license because the publisher made an error generating the original license. ***Important ▪*** *If* ***Correct Publisher Error*** *is assigned to a role, also assign* ***Generate Licenses****.*
Stop Gap Renewal	Generate a license to provide to a customer whose license has expired and has not yet completed the process of updating or renewing an entitlement. ***Important ▪*** *If* ***Stop Gap Renewal*** *is assigned to a role, also assign* ***Generate Licenses****.*

Table 7-20 ▪ Operations License Management (Producer Portal) Permissions

Permission	Description
Generate Emergency Licenses	Generate an emergency license: a short-term license to provide to a customer whose license has not expired but is not functioning. ***Important ▪*** *If* ***Generate Emergency Licenses*** *is assigned to a role, also assign* ***Generate Licenses****.*
Return Licenses	Return licenses. ***Important ▪*** *If* ***Return Licenses*** *is assigned to a role, also assign* ***Generate Licenses****.*
Email Licenses	Email a license. ***Important ▪*** *If* ***Email Licenses*** *is assigned to a role, also assign* ***View Licenses****.*

Operations Policies

The following FlexNet Operations Policies permission is available:

Table 7-21 ▪ Operations Policies Permissions

Permission	Description
Override Policies	Override any policies. ***Important ▪*** *If* ***Override Policies*** *is assigned to a role, also assign* ***Generate Licenses****,* ***Rehost Licenses****,* ***Repair Licenses****, and* ***Return Licenses****.*

Operations Trusted Storage Licensing (Producer Portal)

The following FlexNet Operations Trusted Storage Licensing permissions are available. Additional permissions must also be assigned to view the **Package Products**, **Activate Licenses**, and **Support Licenses** pages to access the trusted storage licensing functionality.

Table 7-22 ▪ Operations Trusted Storage Licensing (Producer Portal) Permissions

Permission	Description
View Transaction Keys	View transaction keys in read-only mode.

Table 7-22 ▪ Operations Trusted Storage Licensing (Producer Portal) Permissions

Permission	Description
Create Transaction Keys	Create transaction keys. ***Important ▪*** *If* ***Create Transaction Keys*** *is assigned to a role, also assign* ***View Transaction Keys****.*
Delete Transaction Keys	Delete transaction keys. ***Important ▪*** *If* ***Delete Transaction Keys*** *is assigned to a role, also assign* ***View Transaction Keys****.*
View Activation Specification Records (ASRs)	View Local Trial and Short Code Activation Specification Records (ASRs).
Create Local Trial ASRs	Create Local Trial ASRs. ***Important ▪*** *If* ***Create Local Trial ASRs*** *is assigned to a role, also assign* ***View Activation Specification Records (ASRs)****.*
Delete Local Trial ASRs	Delete Local Trial ASRs. ***Important ▪*** *If* ***Delete Local Trial ASRs*** *is assigned to a role, also assign* ***View Activation Specification Records (ASRs)****.*
Create Short Code ASRs	Create Short Code ASRs. ***Important ▪*** *If* ***Create Short Code ASRs*** *is assigned to a role, also assign* ***View Activation Specification Records (ASRs).***
Delete Short Code ASRs	Delete Short Code ASRs. ***Important ▪*** *If* ***Delete Short Code ASRs*** *is assigned to a role, also assign* ***View Activation Specification Records (ASRs)****.*
Manual Activations	Activate a trusted storage license.
Manual Returns	Return a trusted storage license.

Table 7-22 ▪ Operations Trusted Storage Licensing (Producer Portal) Permissions

Permission	Description
Manual Repairs	Repair a trusted storage license.
Short Code Activations	Activate a trusted storage license using a short code.
Short Code Returns	Return a trusted storage license using a short code.
Short Code Repairs	Repair a trusted storage license using a short code.

Reporting

The following FlexNet Operations Reporting permissions are available.

Table 7-23 ▪ Reporting Permissions

Permission	Description
View Reports	Allows viewing, creating and editing of any report.
Data Api	Grants access to the Data API.

Child Account (End-User Portal)

The following sub-accounts permissions are available:

Table 7-24 ▪ Child Account (End-User Portal) Permissions

Permission	Description
View Child Line Items	View entitlement line items belonging to all sub-accounts of the user's accounts.
Return Child Fulfillments	Perform returns on fulfillments belonging to all sub-accounts of the user's accounts.
Rehost Child Fulfillments	Perform rehosts on fulfillments belonging to all sub-accounts of the user's accounts.
Upgrade Child Fulfillments	Perform upgrades on fulfillments belonging to all sub-accounts of the user's accounts.
Renew Child Fulfillments	Perform renewals on fulfillments belonging to all sub-accounts of the user's accounts.
Transfer Child Line Items	Perform transfers of entitlement line items belonging to all sub-accounts of the user's accounts.

Table 7-24 ▪ Child Account (End-User Portal) Permissions

Permission	Description
View Child Licenses	View licenses belonging to all sub-accounts of the user's accounts.
Generate Licenses for Child Line Items	Generate licenses for all sub-accounts of the user's accounts.
Repair Child Fulfillments	Perform repairs on fulfillments belonging to all sub-accounts of the user's accounts.
Manage Child Users	Create, manage and delete users for all sub-accounts of the user's accounts.
Manage Child Accounts	Create, manage and delete accounts for all sub-accounts of the user's accounts.
View Child Devices	View devices belonging to all sub-accounts of the user's accounts.
View Child Accounts	View all sub-accounts of the user's accounts.
View Child Users	View users for all sub-accounts of the user's accounts.

License Technologies

The following FlexNet Operations License Technologies permission is available:

Table 7-25 ▪ License Technologies Permissions

Permission	Description
License Technologies	This permission allows the user to manage license technologies using the License Technologies page in FlexNet Operations.

FlexNet Embedded

The following FlexNet Embedded permissions are available:

Table 7-26 ▪ FlexNet Embedded Permissions

Permission	Description
Manage Devices	This permission allows the user to manage hardware devices using the Manage Devices page. See also: FlexNet Embedded permissions Generate Licenses and Return.
Manage Publisher Identities	This permission allows the user to manage publisher identities using the Manage Publisher Identity page.

Table 7-26 ▪ FlexNet Embedded Permissions

Permission	Description
Create Server	This permission allows the user to create a FlexNet Embedded license server.

FlexNet Embedded (End-User Portal)

The following FlexNet Embedded-specific permissions affect the functionality available to End-User Portal users:

Table 7-27 ▪ FlexNet Embedded (End-User Portal) Permissions

Permission	Description
Map by Activation IDs	This permission allows the user see the Map by Activation IDs page in the End-User Portal. On this page, an end user can map one or more entitlements to an existing device or license server. ***Important ▪*** *To succeed for users who are not in the account that owns the device or license server, this process also requires that the Skip Account Check system configuration setting be enabled.*
Claim Device and Activate	This permission allows the user to see the Claim and Activate page in the End-User Portal. Users who can view the Claim and Activate page can potentially map entitlements to devices that are owned by unrelated accounts. ***Important ▪*** *To succeed, this process also requires that the Skip Account Check system configuration setting be enabled.*
Edit User on Device	This permission allows the user to update the device user.

Customer Growth

The following Customer Growth permissions are available:

Table 7-28 ▪ Customer Growth Permissions

Permission	Description
Manage and View Customer Growth	This permission allows users to view and manage customer growth menus and pages.

Usage

The following Usage permissions are available:

Table 7-29 ▪ Usage Permissions

Permission	Description
View Usage	This permission allows users to view usage menus and pages.
Edit Usage	Allows users to view the Usage Model drop down in the Create Product page and the ability to create Metered Usage model.

Updates

The following Update permissions are available:

Table 7-30 ▪ Updates Permissions

Permission	Description
Manage and View Updates	This permission allows users to view and manage update menus and pages.

FlexNet Operations Permission Dependencies

This section lists only the FlexNet Operations permissions that have dependencies on other permissions or system configuration settings. For the complete list of permissions and their descriptions, including any dependencies, refer to FlexNet Operations Permissions.

Operations Feature Bundles

The following FlexNet Operations Feature Bundles permission dependencies exist:

Table 7-31 ▪

Permission	Dependency
Update Feature Bundles	If **Update Feature Bundles** is assigned to a role, also assign **View Feature Bundles**.
Create Feature Bundles	If **Create Feature Bundles** is assigned to a role, also assign **Update Feature Bundles**.
Change Feature Bundle State	If **Change Feature Bundle State** is assigned to a role, also assign **Update Feature Bundles**.
Delete Feature Bundles	If **Delete Feature Bundles** is assigned to a role, also assign **View Feature Bundles**.

Operations License Models

The following FlexNet Operations License Models permission dependencies exist:

Table 7-32 ▪

Permission	Dependency
Create License Models	If **Create License Models** is assigned to a role, also assign **View License Models**.
Update License Models	If **Update License Models** is assigned to a role, also assign **View License Models**.
Delete License Models	If **Delete License Models** is assigned to a role, also assign **View License Models**.
Change License Model State	If **Change License Model State** is assigned to a role, also assign **Update License Models**.

Operations Entitlements - Producer Portal

The following FlexNet Operations Entitlements permission dependencies exist:

Table 7-33 ▪

Permission	Dependency
Update Entitlements	If **Update Entitlements** is assigned to a role, also assign **View Entitlements**.
Upsell Entitlements	If **Upsell Entitlements** is assigned to a role, also assign **Update Entitlements.**
Upgrade Entitlements	If **Upgrade Entitlements** is assigned to a role, also assign **Update Entitlements**.
Renew Entitlements	If **Renew Entitlements** is assigned to a role, also assign **Update Entitlements**.
Create Entitlements	If **Create Entitlements** is assigned to a role, also assign **Update Entitlements**.
Change Entitlement State	If **Change Entitlement State** is assigned to a role, also assign **Update Entitlements**.
Delete Entitlements	If **Delete Entitlements** is assigned to a role, also assign **View Entitlements**.

End-User Portal

The following End-User Portal permission dependencies exist:

Table 7-34 ▪

Permission	Dependency
Generate Licenses	If **Generate Licenses** is assigned to a role, also assign **View Entitlements**.

Table 7-34 ▪

Permission	Dependency
Rehost	If **Rehost** is assigned to a role, also assign **Generate Licenses**.
Repair	If **Repair** is assigned to a role, also assign **Generate Licenses**.
Return	If **Return** is assigned to a role, also assign **Generate Licenses**.

Web Services

The following FlexNet Operations Web Services permission dependency exists:

Table 7-35 ▪

Permission	Dependency
Execute Web Services	In addition to this permission, the user must have task-specific permissions as well.

Operations Features

The following FlexNet Operations Features permission dependencies exist:

Table 7-36 ▪

Permission	Dependency
Update Features	If **Update Features** is assigned to a role, also assign **View Features**.
Create Features	If **Create Features** is assigned to a role, also assign **Update Features**.
Change Feature State	If **Change Feature State** is assigned to a role, also assign **Update Features**.
Delete Features	If **Delete Features** is assigned to a role, also assign **View Features**.

Operations Products, Suites, and Maintenance

The following FlexNet Operations Product, Suite, and Maintenance permission dependencies exist:

Table 7-37 ▪

Permission	Dependency
Update Products, Suites, and Maintenance	If **Update Products, Suites, and Maintenance** is assigned to a role, also assign **View Products, Suites, and Maintenance**.
Create Products, Suites, and Maintenance	If **Create Products, Suites, and Maintenance** is assigned to a role, also assign **Update Products, Suites, and Maintenance**.

Table 7-37 ▪

Permission	Dependency
Change Products, Suites, and Maintenance State	If **Create Products, Suites, and Maintenance** is assigned to a role, also assign **Update Products, Suites, and Maintenance**.
Delete Products, Suites, and Maintenance	If **Delete Products, Suites, and Maintenance** is assigned to a role, also assign **View Products, Suites, and Maintenance**.

Operations License Management

The following FlexNet Operations License Management permission dependencies exist:

Table 7-38 ▪

Permission	Dependency
View Licenses	If **View Licenses** is assigned to a role, also assign **View Entitlements**.
Generate Licenses	If **Generate Licenses** is assigned to a role, also assign **View Licenses**.
Rehost Licenses	If **Rehost Licenses** is assigned to a role, also assign **Generate Licenses**.
Repair Licenses	If **Repair Licenses** is assigned to a role, also assign **Generate Licenses**.
Correct Publisher Error	If **Correct Publisher Error** is assigned to a role, also assign **Generate Licenses**.
Stop Gap Renewal	If **Stop Gap Renewal** is assigned to a role, also assign **Generate Licenses**.
Generate Emergency Licenses	If **Generate Emergency Licenses** is assigned to a role, also assign **Generate Licenses**.
Return Licenses	If **Return Licenses** is assigned to a role, also assign **Generate Licenses**.
Email Licenses	If **Email Licenses** is assigned to a role, also assign **View Licenses**.

Operations Policies

The following FlexNet Operations Policies permission dependency exists:

Table 7-39 ▪

Permission	Dependency
Override Policies	If **Override Policies** is assigned to a role, also assign **Generate Licenses**, **Rehost Licenses**, **Repair Licenses**, and **Return Licenses**.

Operations Trusted Storage Licensing

The following FlexNet Operations Trusted Storage Licensing permission dependencies exist:

Table 7-40 ▪

Permission	Dependency
Create Transaction Keys	If **Create Transaction Keys** is assigned to a role, also assign **View Transaction Keys**.
Delete Transaction Keys	If **Delete Transaction Keys** is assigned to a role, also assign **View Transaction Keys**.
Create Local Trial ASRs	If **Create Local Trial ASRs** is assigned to a role, also assign **View Activation Specification Records (ASRs)**.
Delete Local Trial ASRs	If **Delete Local Trial ASRs** is assigned to a role, also assign **View Activation Specification Records (ASRs)**.
Create Short Code ASRs	If **Create Short Code ASRs** is assigned to a role, also assign **View Activation Specification Records (ASRs).**
Delete Short Code ASRs	If **Delete Short Code ASRs** is assigned to a role, also assign **View Activation Specification Records (ASRs)**.

FlexNet Embedded - End-User Portal

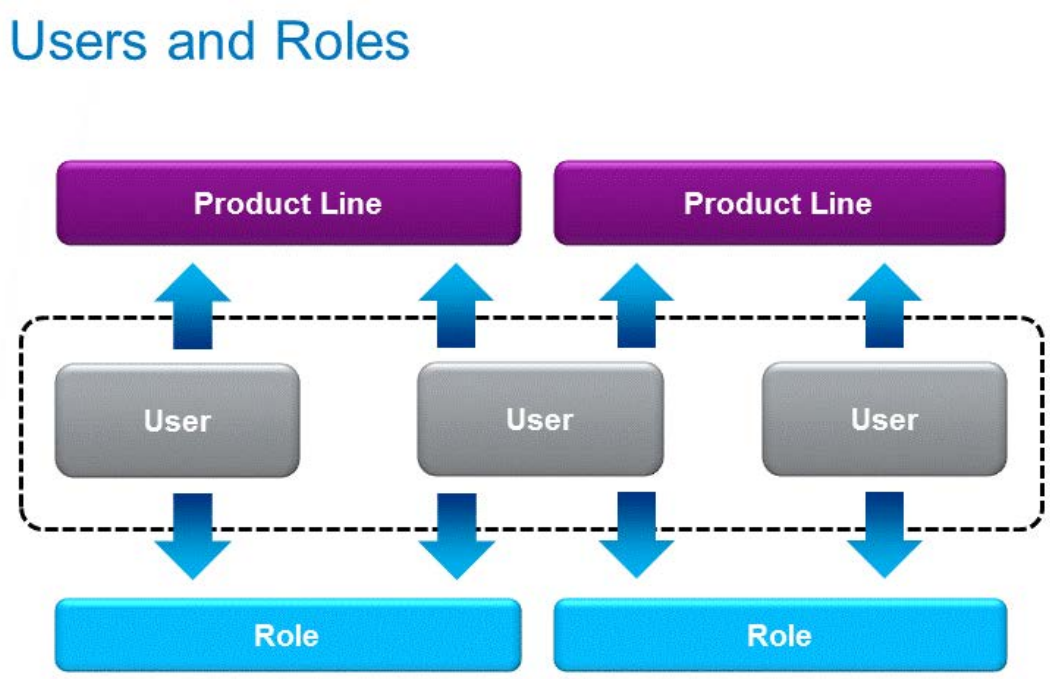
The following FlexNet Embedded-specific permission dependencies exist:

Table 7-41 ▪

Permission	Dependency
Map by Activation IDs	To succeed for users who are not in the account that owns the device or license server, this process also requires that the Skip Account Check system configuration setting be enabled.
Claim and Activate	To succeed, this process also requires that the Skip Account Check system configuration setting be enabled.

FlexNet Operations Roles

The figure below depicts relationships among users, product lines, and user roles.



The following producer and end-user roles are available by default in FlexNet Operations.

Producer User Roles

These FlexNet Operations producer user roles are available: Customer Support Representative, Executive, IT Back Office Manager, Order Entry, Product Manager, Sales Operations Manager, and System Administrator.

Customer Support Representative

The Customer Support Representative processes activation requests and provides post-activation support for licenses, such as processing license returns and repairs.

Table 7-42 ▪

Customer Support Representative Permissions	
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
View Entitlements	Update Entitlements
Change Entitlement State	

Table 7-42 ▪

Customer Support Representative Permissions	
Account Permissions – Producer Portal	
View Entitlements	Generate License
Return	View Licenses
Repair	View Devices
Rehost	
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Activation Specification Records (ASRs)	Short Code Activations
Manual Activations	Short Code Repairs
Manual Returns	Short Code Returns
Manual Repairs	
Usage	
View Usage	Edit Usage
User Management	
View As End User	
Account Management	
View Accounts	
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	Download File Images
Operations License Management – Producer Portal	
View Licenses	Stop Gap Renewal
Return Licenses	Generate Emergency Licenses
Rehost Licenses	Generate Licenses
Repair Licenses	Email Licenses
Correct Publisher Error	

Table 7-42 ▪

Customer Support Representative Permissions
Customer Growth
Manage and View Customer Growth
Updates
Manage and view Updates

Executive

The Executive role is for upper management personnel who want to view product definitions, associated license models, and existing entitlements.

Table 7-43 ▪

Executive Permissions	
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
View Entitlements	
Account Permissions – End-User Portal	
View Entitlements	View Devices
View Licenses	
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Transaction Keys	View Activation Specification Records
Usage	
View Usage	Edit Usage
Account Management	
View Accounts	
Operations Features	
View Features	

Table 7-43 ▪

Executive Permissions
Operations Products, Suites and Maintenance
View Products, Suites and Maintenance
Operations License Management – Producer Portal
View Licenses
Customer Growth
Manage and View Customer Growth
Updates
Manage and view Updates

IT Back Office Manager

The IT Back Office Manager is responsible for integrating FlexNet Operations with an ERP or CRM application.

Table 7-44 ▪

IT Back Office Manager Permissions	
System Administration	
View System Information	View and Manage Configurations
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
View Entitlements	Queue Email
Edit Unsent Emails	
Account Permissions – End-User Portal	
View Entitlements	View Devices
View Licenses	
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Activation Specification Records (ASRs)	

Table 7-44 ▪

IT Back Office Manager Permissions	
Usage	
View Usage	Edit Usage
User Management	
View Users	View As End User
Account Management	
View Accounts	
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	Deliver to Account
Delete File Images	View & Manage Download Packages
Download File Images	
Operations License Management – Producer Portal	
View Licenses	
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

Order Entry

Order Entry personnel convert order information into entitlements and fulfillments. They can also provide post-fulfillment support.

Table 7-45 ▪

Order Entry Permissions
Operations Feature Bundles
View Feature Bundles
Operations License Models
View License Models

Table 7-45 ▪

Order Entry Permissions	
Operations Entitlements – Producer Portal	
View Entitlements	Upsell Entitlements
Change Entitlement State	Upgrade Entitlements
Update Entitlements	Renew Entitlements
Create Entitlements	
Account Permissions – End-User Portal	
View Entitlements	Generate License
Return	View Licenses
Repair	View Devices
Rehost	
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Activation Specification Records (ASRs)	Short Code Activations
Manual Activations	Short Code Repairs
Manual Returns	Short Code Returns
Manual Repairs	
Usage	
View Usage	Edit Usage
User Management	
View As End User	
Account Management	
View Accounts	
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	

Table 7-45 ▪

Order Entry Permissions	
Operations License Management – Producer Portal	
View Licenses	Stop Gap Renewal
Return Licenses	Generate Emergency Licenses
Rehost Licenses	Generate Licenses
Repair Licenses	Email Licenses
Correct Publisher Error	
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

Product Manager

The Product Manager is responsible for defining and packaging products.

Table 7-46 ▪

Product Manager Permissions	
System Administration	
View and Manage HTML Content	View and Manage Email Templates
	Create Custom Attributes
Operations Feature Bundles	
Delete Feature Bundles	Change Feature Bundle State
Create Feature Bundles	Update Feature Bundles
View Feature Bundles	
Operations License Models	
Update License Models	Create License Models
Delete License Models	View License Models
Change License Model State	
Operations Entitlements – Producer Portal	
View Entitlements	Edit Unsent Emails

Table 7-46 ▪

Product Manager Permissions	
Account Permissions	
View Entitlements	Create Email Notifications
View Licenses	Queue Email
View Devices	
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Transaction Keys	Create Local Trial ASRs
Create Transaction Keys	Delete Local Trial ASRs
Delete Transaction Keys	Create Short Code ASRs
View Activation Specification Records (ASRs)	Delete Short Code ASRs
Usage	
View Usage	Edit Usage
Account Management	
View Accounts	
Operations Features	
Delete Features	Change Feature State
Create Features	Update Features
View Features	Set Feature Override
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	Delete File Images
Update Products, Suites and Maintenance	Download File Images
Change Products, Suites and Maintenance State	Deliver to Account
Delete Products, Suites and Maintenance	View & Manage Download Packages
Create Products, Suites and Maintenance	
Operations Part Numbers – Producer Portal	
Create Part Numbers	
Operations License Management – Producer Portal	
View Licenses	
Reporting	
Create and Edit Reports	View Reports

Table 7-46 ▪

Product Manager Permissions
Customer Growth
Manage and View Customer Growth
Updates
Manage and view Updates

Sales Operations Manager

The Sales Operations Manager is a supervisory role above Order Entry personnel and Customer Support Representatives. The Sales Operations Manager has complete entitlement and fulfillment permissions.

Table 7-47 ▪

Sales Operations Manager Permissions	
System Administration	
View and Manage Email Templates	
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
View Entitlements	Create Entitlements
Change Entitlement State	Edit Unsent Emails
Update Entitlements	Create Email Notifications
Delete Entitlements	Queue Email
Account Permissions – End-User Portal	
View Entitlements	Generate License
Return	View Licenses
Repair	View Devices
Rehost	
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair

Table 7-47 ▪

Sales Operations Manager Permissions	
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Activation Specification Records (ASRs)	Short Code Activations
Manual Activations	Short Code Repairs
Manual Returns	Short Code Returns
Manual Repairs	
Usage	
View Usage	Edit Usage
User Management	
View As End User	
Account Management	
View Accounts	
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	
Operations License Management – Producer Portal	
View Licenses	Stop Gap Renewal
Return Licenses	Generate Emergency Licenses
Rehost Licenses	Generate Licenses
Repair Licenses	Email Licenses
Correct Publisher Error	
Operations Policies	
Override Policies	
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

System Administrator

System Administrator Permissions are:

Table 7-48 ▪

System Administrator Permissions	
Alert Management	
View and Subscribe Alerts	View and Manage Alert Configurations
System Administration	
View System Information	View and Manage HTML Content
View and Manage Configurations	View and Manage Email Templates
Merge Entitlements from Self-Registered Account to Customer Account	Create Custom Attribute
Operations Feature Bundles	
Delete Feature Bundles	Change Feature Bundle State
Create Feature Bundles	Update Feature Bundles
View Feature Bundles	
Operations License Models	
Update License Models	Create License Models
Delete License Models	View License Models
Change License Model State	
Operations Entitlements – Producer Portal	
View Entitlements	Upgrade Entitlements
Change Entitlement State	Renew Entitlements
Update Entitlements	Edit Sent Emails
Delete Entitlements	Edit Unsent Emails
Create Entitlements	Create Email Notifications
Upsell Entitlements	Queue Email
Account Permissions – End-User Portal	
View Entitlements	Generate License
Return	View Licenses
Repair	Transfer Line Items
Rehost	View Devices
View Expiring Entitlements	

Table 7-48 ▪

System Administrator Permissions	
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Transaction Keys	Delete Short Code ASRs
Create Transaction Keys	Manual Activations
Delete Transaction Keys	Manual Returns
View Activation Specification Records (ASRs)	Manual Repairs
Create Local Trial ASRs	Short Code Activations
Delete Local Trial ASRs	Short Code Repairs
Create Short Code ASRs	Short Code Returns
License Technologies	
License Technologies	
Child Account Permissions	
View Child Line Items	Generate License for Child Line Items
Return Child Fulfillments	Repair Child Fulfillments
Rehost Child Fulfillments	View Child Devices
Upgrade Child Fulfillments	View Child Accounts
Renew Child Fulfillments	Manage Child Accounts
Transfer Child Fulfillments	View Child Users
View Child Licenses	Manage Child Users
Usage	
View Usage	Edit Usage

Table 7-48 ▪

System Administrator Permissions	
User Management	
View Users	View Logged-In Users
View and Manage Users	View Domains
View Roles	View and Manage Domains
View and Manage Roles	View As End User
	View and Manage Customer Users
	View and Manage Partner Users
Account Management	
View Accounts	View and Manage Accounts
Operations Features	
Delete Features	Change Feature State
Create Features	Update Features
View Features	Set Feature Override
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	Delete File Images
Update Products, Suites and Maintenance	Download File Images
Change Products, Suites and Maintenance State	Deliver to Account
Delete Products, Suites and Maintenance	View & Manage Download Packages
Create Products, Suites and Maintenance	Assign Product Lines
Operations Part Numbers – Producer Portal	
Create Part Numbers	
Operations License Management – Producer Portal	
View Licenses	Stop Gap Renewal
Return Licenses	Generate Emergency Licenses
Rehost Licenses	Generate Licenses
Repair Licenses	Email Licenses
Correct Publisher Error	
Operations Policies	
Override Policies	

Table 7-48 ▪

System Administrator Permissions	
Operations Web Services	
Execute Web Services	
Operations Export Import	
Export and Import	
Reporting	
Create and Edit Reports	View Reports
FlexNet Embedded	
Manage Devices	Manage Publisher Identities
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

End-User Customer Roles

These FlexNet Operations end-user customer roles are available: Portal Administrative User and Portal User.

Portal Administrative User

Portal Administrative User is an end-user customer role. Permissions are:

Table 7-49 ▪

Portal Administrative User Permissions	
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
Change Entitlement State	Update Entitlements

Table 7-49 ▪

Portal Administrative User Permissions	
Account Permissions – End-User Portal	
View Entitlements	Split Line Items or Bulk Entitlements
Return	View Accounts
Repair	Manage Accounts
Rehost	View Users
Generate License	Manage Users
View License	Transfer Hosts / Move Devices
Transfer Line Items	Get Downloads
View Devices	View Expiring Entitlements
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Transaction Keys	View ASRs
Child Account Permissions	
View Child Line Items	Generate License for Child Line Items
Return Child Fulfillments	Repair Child Fulfillments
Rehost Child Fulfillments	View Child Devices
Upgrade Child Fulfillments	View Child Accounts
Renew Child Fulfillments	Manage Child Accounts
Transfer Child Fulfillments	View Child Users
View Child Licenses	Manage Child Users
Usage	
View Usage	Edit Usage
User Management	
View Users	View and Manage Customer Users
View and Manage Users	View and Manage Partner Users
View Roles	

Table 7-49 ▪

Portal Administrative User Permissions	
Account Management	
View Accounts	View and Manage Accounts
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	Assign Product Lines
Operations License Management – Producer Portal	
View Licenses	Generate Licenses
Return Licenses	Email Licenses
Repair Licenses	
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

Portal User

Portal User is an end-user customer role. Permissions are:

Table 7-50 ▪

Portal User Permissions	
Operations Feature Bundles	
View Feature Bundles	
Operations License Models	
View License Models	
Operations Entitlements – Producer Portal	
Change Entitlement State	Update Entitlements

Table 7-50 ▪

Portal User Permissions	
Account Permissions – End-User Portal	
View Entitlements	View Licenses
Return	View Devices
Repair	View Accounts
Rehost	Get Downloads
Generate License	
Trusted Storage Permissions	
Short Code Activation	Manual Return and Repair
Manual Activation	Short Code Return and Repair
Access to Trusted Storage Licensing Functionality in Producer Portal	
View Transaction Keys	View ASRs
Usage	
View Usage	Edit Usage
Account Management	
View Accounts	
Operations Features	
View Features	
Operations Products, Suites and Maintenance	
View Products, Suites and Maintenance	
Operations License Management – Producer Portal	
View Licenses	Generate Licenses
Return Licenses	Email Licenses
Repair Licenses	
Customer Growth	
Manage and View Customer Growth	
Updates	
Manage and view Updates	

Managing Accounts

FlexNet Operations provides a set of flexible tools for defining and managing accounts, sub-accounts, and distribution tiers. These tools allow you to define account relationships that mirror your customer and distribution partner relationships.

***Note** ▪ Not all users have access to the account pages.*

This section explains account concepts and includes instructions for account management tasks.

Table 7-51 ▪

Topic	Description
About Accounts	Discusses concepts related to accounts: default accounts, account types, and account tiers.
Browsing Accounts or Sub-accounts	Describes how to navigate to the Manage Accounts page and browse different account types. Not all users have access to the account pages.
Creating a New Account	Explains how to create a new account, sub-account, or partner account and link users and other accounts to the new account.
Editing an Account or Sub-account	Explains how to alter an existing account or sub-account.
Deleting an Account	Describes the process of deleting an account.

About Accounts

An account is an entity in FlexNet Operations. Accounts can represent the structure of a customer enterprise, the internal structure of your software publisher or device manufacturer and, optionally, the relationships between the publisher and its distribution chain. Each entitlement is tied to at least one account

Accounts can have sub-accounts, which can be used to reflect the hierarchical nature of corporate structures. Accounts and sub-accounts are defined in a parent-child relationship. For example, you could define Acme Global as the main account, and set up Acme US and Acme EMEA as sub-accounts.

An account hierarchy can have multiple levels to flexibly accommodate different models. For example, a single account can have multiple sub-accounts, which would share a sibling relationship. Sub-accounts can themselves have sub-accounts. In addition, accounts can have multiple parents.

***Note** ▪ It is recommended that the total number of associated sub-accounts for any given account does not exceed 1000.*

The following topics provide more information about account concepts.

Table 7-52 ▪

Topic	Description
Default Accounts	Identifies the accounts that FlexNet Operations supports without any additional configuration: MYORG, UNKNOWN_ORG_UNIT, and PORTAL_ORG_UNIT.
Account Types	Describes the different account types possible in FlexNet Operations: Producer, Customer, Partner, and Self-Registered.
Partners and Distribution Tiers	Explains how FlexNet Operations handles partner accounts and distribution tiers.

Default Accounts

The following accounts are available in FlexNet Operations by default:

Table 7-53 ▪ FlexNet Operations Accounts

Account	Description
My Organization (MYORG)	The producer account. Only the account name (My Organization) can be updated on the Edit Account page. This account cannot be deleted.
Information Not Available UNKNOWN_ORG_UNIT	The account set as Sold To for any web register keys when account information is not provided and as the End Customer or Channel Partner for entitlements and devices that have not been assigned an owner account. UNKNOWN_ORG_UNIT is a temporary holding account used by FlexNet Operations, internally, when no owner account is assigned. When UNKNOWN_ORG_UNIT is the owner of an entitlement or a device, the Producer Portal shows **Information Not Available** for End Customer or Channel Partner. This account cannot be updated or deleted.
Account ID for Portal Accounts (PORTAL_ORG_UNIT)	The account that maps to end users who choose to self-register through the End-User Portal: Users who log in to the portal with an entitlement ID or activation ID can subsequently choose to self-register, set up a user account, or be associated with an existing Self-Registered account. This account cannot be updated or deleted.

Account Types

FlexNet Operations categorizes accounts into four account types. On the Manage Accounts page, each of these account types has its own tab: Producer, Customer, Partner, and Self Registered.

Table 7-54 ▪ Account types

Type	Description
Producer	The account for the software publisher or intelligent device manufacturer. Producers can also create sub-accounts to their producer account.
Customer	The category of accounts that are the end users of your software or device. This category includes PORTAL_ORG_UNIT—the default account that maps to users who choose to self-register through the End-User Portal.
Partner	The category of accounts that are distribution partners, like wholesalers, distributors, resellers, and retailers. Producers can map their distribution tiers by defining their distribution partners as partner accounts. These accounts then play a special role in FlexNet Operations.
Self Registered	This category includes users who self-register by logging in to the portal with an entitlement ID or activation ID and set up a their own user account. Optionally, users can select to be associated with an existing Self-Registered account by providing the account ID upon self-registration, instead of creating a new account.

Partners and Distribution Tiers

Version ▪ *Channel partner and distribution tier functionality is only available to producers who purchase FlexNet Operations with FlexNet Advanced Account Management.*

Partner accounts identify accounts in your distribution chain—those accounts that act as distributors of your products and entitlements. Partner accounts exist in a distribution tier between your producer account and your end customers. You can add multiple partner accounts on the Manage Accounts page. These partner accounts all occupy the default distribution tier.

By default, FlexNet Operations provides a Distributor tier and an End Customer tier for entitlements and devices. The distribution chain allows entitlements and devices to move from the producer account to a distributor (partner account) to an end user (customer account). However, you can customize the distribution chain and add multiple tiers. Changes to the tiers in the distribution chain require customizations to the FlexNet Operations database and related properties files. For details, see the *FlexNet Operations On-Premises Installation & Implementation Guide*.

Unique to partner accounts is their relationship to the parent, producer account. Information about the transactions in the partner accounts flows up through the distribution chain so that these transactions are visible on the Producer Portal.

Some FlexNet Operations features are only available to the producer account and partner accounts. For example, only partner accounts can move a device to other distribution tiers on the End-User Portal site.

Browsing Accounts or Sub-accounts

Accounts and sub-accounts are displayed in the **Accounts** page. Users assigned roles with the **View Accounts** or **View and Manage Accounts** permission can browse accounts in the Producer Portal.

You can also view an account hierarchy, viewing the parent account and any sub-accounts associated with it.

The Manage Accounts page shows the following information:

- **Account ID**: Unique identifier of the account
- **Account Name**: User-friendly name of the account
- **Description**, **City**, **State**, **Country**: If included in the account settings, these columns are also populated in the Manage Accounts list.

Task ***To browse existing accounts***

1. Click **Accounts & Users** > **All Accountss**. The Producer Portal opens the Manage Accounts page.
2. Click the tab for the account type of the accounts you want to see. Choose from
   - **Producers**
   - **Customers** (default)
   - **Partners**
   - **Self Registered**

   Note ▪ *You can also use the search feature to rapidly locate a specific account, especially when there are several pages of accounts to browse.*
3. To view details about any existing account, click its **Account ID**.

To view any sub-accounts of an account, click the **+** icon to expand the tree view in the Manage Accounts list.

Creating a New Account

To be associated with an entitlement, a company must be entered as an account in FlexNet Operations. This procedure includes tasks that explain how to create a new account, sub-account, or partner account.

Users assigned a role with the **View and Manage Accounts** permission can view, add, and edit accounts.

Task ***To create a new account***

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. Choose an **Account Type** tab, and then click **Create an Account**.
3. On the **Create Account** page:
   a. Enter the **Account ID** (required).

b. Enter the **Account Name** of the account (required).

c. Add additional address information as desired.

***Note** ▪ Producers who use download packages and who want to restrict end-users access to download packages by geographical location should populate the Country and Region fields.*

d. Set the **Visible to Others** check box (it is selected by default).

- To prevent partners in different distribution tiers from seeing information about this account, un-select **Visible to Others**.
- To allow partners to see information about this account, select **Visible to Others**.

4. Optionally, for producer accounts, link product lines to the account. Click **Link Product Lines**. Then, select the product lines to link and click **OK**. All members of the account have access to the linked product lines.

***Note** ▪ Link Product Lines appears on this page only when product lines functionality is properly enabled in the system configuration page (**System** > **Configure** > **FlexNet Operations**). See Managing Product Lines for details.*

5. To link users to the account, do one of the following:

- Click **Create a User** to link a new user to the account. Then follow the steps outlined in Creating a User to create the new user account.
- Click **Link Existing Users** to link existing users to the account. Select the users (and roles, if applicable) you wish to link and click **OK**.

6. Click **Next**. On the Linked Sub-accounts page, select any sub-accounts you want to link to this account.

7. Click **Complete**.

After you have created an account, you can create sub-accounts for it.

Task ***To create a new sub-account***

If you use the optional Advanced Organization Management module you can create new sub-accounts associated with a parent account.

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. On the **Manage Accounts** page, choose an **Account Type** tab.
3. Select the account with which you want to associate a sub-account, then click **Create a Sub-account**.
4. On the **Create an Account** page:

a. Enter the **Account ID** (required) of the sub-account.

b. Enter the **Account Name** of the sub-account (required).

c. Add additional information as desired.

5. Click **Save**.

You can add additional sub-accounts by repeating Step 3 through Step 5.

***Note** ▪ It is recommended that the total number of associated sub-accounts for any given account does not exceed 1000.*

Task ***To create a new partner account***

Partners are special accounts in FlexNet Operations. (See Partners and Distribution Tiers for more information.)

Users assigned a role with the **View and Manage Accounts** permission can view, add, and edit accounts.

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. Click the **Partners** tab, and then click **Create an Account**.
3. On the **Create an Account** page:
   a. Enter the **Account ID** (required).
   b. Enter the **Account Name** of the account (required).
   c. Add additional address information as desired.
   d. Set the **Visible to Others** check box (it is selected by default).
      - To prevent partners in different distribution tiers from seeing information about this account, un-select **Visible to Others**.
      - To allow partners to see information about this account, select **Visible to Others**.
4. If you want to link users to the account, do one of the following:
   - Click **Create a User** to link a new user to the account. Then follow the steps outlined in Creating a User to create the new user account.
   - Click **Link Existing Users** to link existing users to the account. Select the users (and roles, if applicable) you want to link and click OK.
5. Click **Next**. On the Linked Sub-accounts page, select any sub-accounts you want to link to this account.
6. Click **Next**. On the Relate Accounts page, select any partners you want to relate to this account.
7. Click **Complete**.

Editing an Account or Sub-account

An account or sub account can be edited to change its name or to add, edit or delete users.

Task ***To edit an existing account***

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. Click the tab for the Account Type (**Producers**, **Customers**, **Partners**, or **Self Registered**) of the account you want to edit.
3. In the **Manage Accounts** list, click the account you wish to edit. The **Create an Account** page is displayed.
4. Edit the account name and identifier, or create or edit existing users.
5. Click **Save**.

Deleting an Account

An account or sub-account can be deleted from FlexNet Operations. You can use the Delete Account or the Delete Subtree buttons on the Manage Accounts page to delete accounts.

- **Delete Account**—removes the selected accounts. If the account has sub-accounts, those sub-accounts no longer have a parent account. The sub-accounts are retained but become top-level accounts. (For example, any sub-accounts of a deleted customer account become regular customer accounts.) Any sub-accounts that were also parents of sub-accounts also retain the hierarchy of sub-accounts beneath them.
- **Delete Subtree**—removes the selected account and all the sub-accounts in its hierarchy.

Task ***To delete an account***

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. Click the tab for the Account Type (**Producers**, **Customers**, **Partners**, or **Self Registered**) of the accounts you want to delete.
3. In the **Manage Accounts** list, select the accounts or sub-accounts you want to delete.
4. Click **Delete Account**.
5. Click **OK** to confirm deletion.

The Producer Portal deletes the selected accounts and refreshes the Manage Accounts page.

Task ***To delete an account and all its sub-accounts***

1. Click **Accounts & Users** > **All Accounts**. The Producer Portal opens the Manage Accounts page.
2. Click the tab for the Account Type (**Producers**, **Customers**, **Partners**, or **Self Registered**) of the accounts you want to delete.
3. In the **Manage Accounts** list, select the parent account to delete.

   Remember that this operation deletes the selected account and all its sub-accounts.
4. Click **Delete Subtree**.

5. Click **OK** to confirm deletion.

The Producer Portal deletes the selected account along with its account hierarchy and refreshes the Manage Accounts page.

Account Health

Account health indicators provide users with insight into the key indicators that FlexNet Operations provides for accounts. These include:

- Service consumption (counts of total entitled vs. consumed)
- Renewal Health
- Total account health

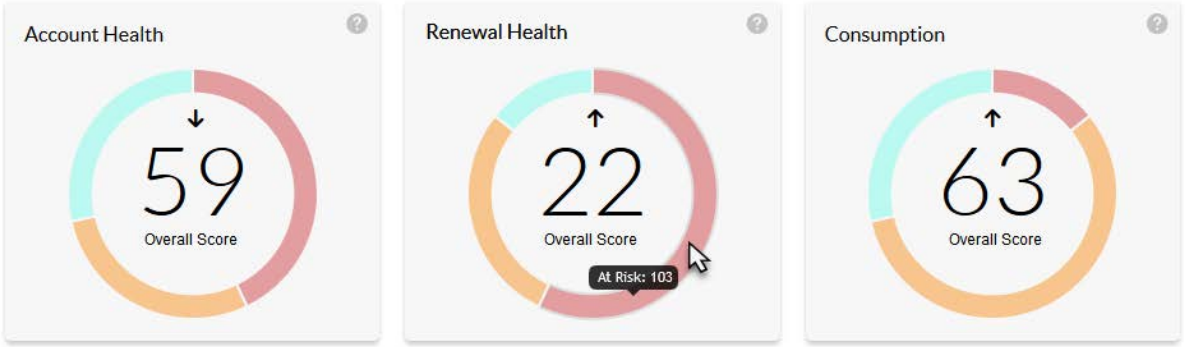
Table 7-55 ▪

Topic	Description
Customer Growth Dashboard	Displays aggregated score for all accounts, alerts and selected individual accounts.
Accounts	Detailed health data for an account's products users, renewals and alerts.
Alert List	List of health alerts.

Customer Growth Dashboard

Health Indicators

Visible from both the FlexNet Operations Home page and the Customer Growth Dashboard page (by going to **Accounts & Users > Dashboard**), the Health Indicators provide an at-a-glance view of overall health scores. This information is an aggregation of all accounts and displays the number of healthy, warning and at risk items for account health, renewal health, and consumption in a donut chart.



The overall score for all accounts is represented by the number in the middle of the donut. Hover over the colored sections to find the number of accounts in that category. Click on a donut to be taken to the Account page. The arrows indicate trends, whether the scores are going up or down. In addition, you can display all accounts or only those selected to be on a watchlist.

Accounts

The Customer Growth Dashboard page also displays the overall health score and 30 day trend for all accounts. The list can be filtered to show only those accounts on the watchlist by selecting the **Watchlist** button.

Alerts

The Customer Growth Dashboard page also displays a list of alerts, the accounts, and type of alerts. Alerts are only displayed if the watched accounts are selected by clicking the **Watchlist** button. An alert is generated when either a renewal or consumption score crosses a threshold: Healthy, Warning, or At Risk—in either direction.

The alert shows:

- How long ago the alert was triggered
- The score when the alert was triggered
- The type of change, i.e. from Warning to At Risk

Clicking on an alert notice takes you to the Alerts tab for that account and filters the results based the type of alert selected (i.e. Renewal Health or Consumption). See Configuring System Settings for more information on setting Renewal and Consumption Health thresholds.

Alert List

Use the topics in this section to learn more about viewing Account Alerts:

Table 7-56 ▪

Topic	Description
Listing Account Alerts	Shows how to list alerts for all accounts.
Filtering Accounts Alerts	Explains how to filter the alert list by account type, alert type, or the direction the alert score changed.

Listing Account Alerts

Task ***To see a list of alerts for all accounts***

- Click **Accounts & Users** > **Alerts**. The **Accounts Health** page opens.

On the **Accounts Alerts** page, you can filter the account list by account type and alert type. See To filter the Accounts Alerts list for more information. The list contains the following information:

Column	Description
Alert	The type of alert that was triggered.
Account name	The name of account the alert was triggered for. Click on the name to be taken to the account's Alerts tab. See Account Alerts for more information.
Account ID	The unique identifier of the account.
Score	The score at the time of the alert along with an arrow indicating whether the alert score increased or decreased.
Date	The date the alert was triggered.
Alert age	The age of the alert in whole days (i.e. 24 hour periods).

Filtering Accounts Alerts

By default, the alerts list defaults to display all account types (watched and unwatched) by alert date and all alert types and directions of alert changes. To quickly reduce the size of the accounts list displayed on the accounts alerts page, filter it by account type, alert type and/or the direction the alert score changed.

Task ***To filter the Accounts Alerts list***

1. On the **Accounts Alerts** page, hover the cursor over the filter icon to display the filter selection list. By default, the **Accounts Alerts** page is set to display the Renewal Health and Consumption scores for all accounts (whether they are on the watchlist or not) as well as the direction the score changed for the alert.
2. To change the default filter setting, do one of the following:
   - Select the Watched box to only view accounts on the Watchlist.
   - Unselect one of the Alert types, **Renewal Health** or **Consumption**. If both the Alert type boxes are unselected, a warning appears to remind you that at least one alert type must be selected.
   - Select either the **Increased** or **Decreased** direction of the alert score. Both directions unselected is the same as both directions selected.
3. Click **Apply** to filter the accounts according to your selections.

The number in the red bubble indicates how many filters are active.

You can also search a filtered account list. Use the drop-down list to narrow your search to **Account name** or **Account ID**.

Accounts

Use the topics in this section to learn more about viewing and managing account health metrics.

Table 7-57 ▪

Topic	Description
Listing Accounts	Shows how to list existing accounts.
Filtering the Account List	Explains how to filter the account list by account type and health status.
Account Health Overview	Shows the current overall health, renewal health, and consumption scores.
Account Product Health	Shows the health score for products consumed, as well as the number of items consumed and the total quantity of consumable items.
Account Renewal Health	Shows the list of account renewals so producers can take action on accounts that are near expiration.
Account Alerts	Shows the account alerts so producers can be aware of accounts that have passed a threshold, either up or down.

Listing Accounts

Use the following instructions to list health metrics for existing accounts on the Producer Portal.

Task ***To list accounts***

- Click **Accounts & Users > Accounts**. The **Accounts Health** page opens.

On the **Accounts Health** page, you can filter the account list by account type, scores, and health status. See Filtering the Account List for more information. The list contains the following information:

Table 7-58 ▪

Column	Description
Account Name	The account name.
Account ID	Unique identifier of the account.
Products	The score of all consumed products to the total number of consumable items.

Table 7-58 ▪

Column	Description
Consumption	Total of all consumed products for an account vs the actual quantity. Consumed products include: • Licensing technologies • Fulfillments generated • Licenses activated • Features acquired See Account Product Health for more information about how consumption is counted.
Renewal Health	The Renewal Health score is a weighted calculation of days until expiration and the consumption value. See Account Renewal Health for more details on how the renewal score is calculated.
Account Health	The Account Health score is a combination of Consumption and Renewal Health scores: `(Renewal Score+Consumption Score)/2`.
Watchlist	Select the icon to add or remove an account from the watchlist. - Unwatched - Watched

To view a particular account, click its **Account name**. On the **Account *<account name>*** page, you can view details of the health metrics and alerts.

Note ▪ *You can sort the list by Account name, Account ID, Consumption, Renewal Health, or Account Health.*

Filtering the Account List

By default, the account list defaults to display all account types (watched and unwatched) by Account health score and all health statuses. To quickly reduce the size of the accounts list displayed on the accounts Health page, filter it by type, score, and health status.

Task ***To filter the accounts list***

1. On the **Accounts Health** page, hover the cursor over the filter icon to display the filter selection list. By default, the **Accounts Health** page is set to display the Account Health score with all statuses.
2. To change the default filter setting, do one of the following:
   - Select the Watched box to only view accounts on the Watchlist.

- Unselect the Account Health and select either the Renewal Health or Consumption scores.

  Note ▪ *At least one of the scores must be selected: Account Health, Renewal Health, or Consumption. Only one score can be selected at a time; the other scores are inactive. To change scores, unselect the active one to make them all active before selecting the score to be filtered on.*

- Unselect one or more of the statuses. All statuses unselected is the same as all statuses selected.

3. Click **Apply** to filter the accounts according to your selections.

The number in the red bubble indicates how many filters are active.

You can also search a filtered account list. Use the drop-down list to narrow your search to **Account name** or **Account ID**.

Account Health Overview

On the **Account <account name>** page, the **Overview** tab is displayed by default.

The **Overview** tab displays the account, renewal, and consumption scores related to that account.

There is also a health meter line graph showing the trends for that health metric. Hover over a point on the graph to see the date and its related health score for that metric.

To add or remove the account from the watchlist, click the **Watch** or **Unwatch** button in the upper right hand corner.

Account Product Health

On the **Account <account name>** page, click on the **Products** tab to see the list of products.

The list contains the following information:

Table 7-59 ▪

Column	Description
Score	The calculated health score. This number is based on the number of consumed versus total available consumable features and/or licenses for that product. The number is then assigned a status of healthy, warning, or at risk, depending on the threshold set in the system configuration. See the Customer Growth settings under Configuring System Settings.

Table 7-59 ▪

Column	Description
Consumed quantity	The total number of licenses and/or features that have been consumed. If feature consumption exists, this number is displayed as a link. Consumed products include • FlexNet Publisher—fulfillments generated from entitlements • FlexNet Embedded (Standalone device)—licenses mapped from entitlements • FlexNet Embedded (Local or Cloud license server)—features checked out by served devices • Third part license technology—fulfillments generated from entitlements
Total quantity	The sum of all possible features or licenses plus all possible quantities not mapped to a server.
Product name	The name of the product.
Description	A description of the product.

Note ▪ *The list can be sorted by Score, Consumed quantity, Total quantity, and Product name.*

Task ***To filter the products list***

1. On the **Products** tab, hover the cursor over the filter icon to display the filter selection list. By default, the **Products** tab is set to display the product health score with all statuses, **At risk**, **Warning**, or **Healthy**.
2. To change the default filter setting, unselect one or more of the conditions. If all the condition boxes are unselected, a warning appears to remind you that at least one of the score filters must be selected.
3. Click **Apply** to filter the products according to your selections.

The number in the red bubble indicates how many filters are active.

You can also search a filtered product list. Use the drop-down list to target your search to a product's **Product Name** or **Description**.

Task ***To view Feature Consumption***

- Click on the **Consumed quantity** value to open the **Feature Consumption** window.

The **Feature Consumption** window displays the consumption of features attached to any given product, if there are any. Any feature with an embedded license model, and mapped to a license server, is included in the consumption numbers.

Note ▪ *The list can be sorted by Score, Consumed quantity, Total quantity, or Feature name.*

Task ***To filter the feature consumption list***

1. On the **Feature Consumption** window, hover the cursor over the filter icon to display the filter selection list. By default, the **Feature Consumption** window is set to display the feature health score with all conditions, **At risk**, **Warning**, or **Healthy**.
2. To change the default filter setting, unselect one or more of the conditions. If all the status boxes are unselected, a warning appears to remind you that at least one of the score filters must be selected.
3. Click **Apply** to filter the features according to your selections.

The number in the red bubble indicates how many filters are active.

You can also search a filtered feature list. Use the drop-down list to target your search to for a feature by **Name** or **Description**.

Account Renewal Health

On the **Account <account name>** page, click on the **Renewals** tab to see the renewal health of each product the account has licenses for.

The list contains the following information:

Table 7-60 ▪

Column	Description
Score	A calculated value based the number of days until the product expires and the consumption value.
Days remaining	The number of days before the license expires.
Expiration	The date the license expires.
Product name	The name of the product.
Type	The type of product. Options include: • Subscription • Maintenance
Activation ID	The activation ID of the product. Click on the **Activation ID** to see the `Entitlement Details`.

Note ▪ *The list can be sorted by Score, Days remaining, Expiration, or Product name*

Calculating the Renewal Score

The formula for calculating the Renewal Score is based on two factors:

1. How far the products are from their expiration dates (for subscription or maintenance lines).
2. The Consumption value. The Consumption score is derived from the ratio of consumed quantities to purchased quantities for the account, on a 100-point scale. For example, if an account purchased a quantity of 42 but consumed a quantity of 21, the Consumption value is 0.5 and the Consumption score is 50.

For the first factor, there are three weighted renewal periods, based on how close the entitlements are to their expiration dates: Renewal Look Ahead, Expiring Window, and Renewal Critical. These renewal periods are labels for how close an entitlement is to its expiration date.

Table 7-61 ▪ Weights and Thresholds for Each Renewal Period

Renewal Period	Weight	Default Threshold
Renewal Look Ahead	.25	200 days
Expiring Window	.50	90 days
Renewal Critical	.90	30 days

The renewal period *weights* are fixed and not configurable; however, producers can configure the renewal period *threshold* values in their system configuration settings. In the Producer Portal, click **System** > **Configure** > **FlexNet Operations** > **Renewals**.

The complete formula for the renewal score is

```
(1-((Renewal Look Ahead*.25)+(Expiring Window*.50)+(Renewal Critical*.90)+Consumption Value))/2
```

where the value for each renewal period is either 0 or 1.

Using the renewal period values, only one renewal period (Renewal Look Ahead, Expiring Window, or Renewal Critical) is factored into the score at a time. After a product enters a specific renewal period, that renewal period has a value of 1 and all other renewal periods have a value of 0.

Task ***To filter the renewals list***

1. On the **Renewals** tab, hover the cursor over the filter icon to display the filter selection list. By default, the **Accounts** page is set to display the product health score with all conditions, **At risk**, **Warning**, or **Healthy**, with types, **Subscription** and **Maintenance**, and with a status of **Expiring**.
2. To change the default filter setting, unselect one or more of the statuses, types and/or conditions. If all the status boxes are unselected, a warning appears to remind you that at least one status must be selected. All types unselected is the same as all types selected.
3. Click **Apply** to filter the renewals according to your selections.

The number in the red bubble indicates how many filters are active.

You can also search a filtered renewal list. Use the drop-down list to target your search to a **Product Name** or **Activation ID**.

Task ***To view Entitlement Details***

- Click on the **Activation ID** value to open the **Entitlement Details** window.

The **Entitlement Details** window displays the information for a particular entitlement including ID information (Entitlement ID, state, sold-to, description and activation ID), the name and description of the products the entitlement is associated with, and the activation information.

Account Alerts

On the **Account <account name>** page, click on the **Alerts** tab to see the alerts for an account.

The list contains the following information:

Table 7-62 ▪

Column	Description
Alert	The type of alert generated. One of the following: • Renewal Health • Consumption
Score	The score at the time of the alert. The score also includes an arrow to show if the alert level was raised or lowered.
Date	The date the alert was generated.
Alert age	The age of the alert in days. Maximum days: 30. By default, the list is sorted by the alert age.

Note ▪ *You can sort the list by either Alert or Alert age.*

Task ***To filter the alerts list***

1. On the **Alerts** tab, hover the cursor over the filter icon to display the filter selection list. By default, the **Alerts** page is set to display both the Renewal Health and Consumption score. If the page was loaded by clicking on an account from the Customer Growth Dashboard, it automatically filters the list based on the selected alert.
2. To change the default filter setting, unselect one of the Alert types and/or select either the Raised or Lowered direction. If all Alert type boxes are unselected, a warning appears to remind you that at least one alert type must be selected. Both directions unselected is the same as both directions selected.
3. Click **Apply** to filter the alert types according to your selections.

The number in the red bubble indicates how many filters are active.

8

Branding the End-User Portal

Producers can alter the appearance of their End-User Portal to fit their company's branding guidelines. This section discusses different End-User Portal customization approaches and explains how to use them to control how the End-User Portal appears to your company's customers.

Table 8-1 ▪ End-User Portal Branding

Section	Description
Branding Overview	Discusses the different approaches to branding the End-User Portal, provides an overview of branding configuration options, and provides basic instructions for applying branding settings in the Producer Portal system configuration pages.
End-User Portal Settings	Provides a complete list of the system configuration settings available in the Producer Portal's End-User Portal Setup page.
End-User Portal Page Structure	Includes graphics to illustrate the structure of End-User Portal pages.

Branding Overview

This section discusses the different approaches to branding the End-User Portal, provides an overview of branding configuration options, and basic instructions for applying branding settings in the Producer Portal system configuration pages.

Section	Description
About the Standard Branding Approach	Introduces the standard branding options producers can use to customize the appearance of their End-User Portal.
About the Advanced Branding Approach	Discusses the additional branding options available for producers who want greater control of End-User Portal branding.

Section	Description
Overview of Producer-Configurable Branding Options	Describes the End-User Portal configuration settings that are most commonly used for branding.
Changing End-User Portal Settings	Provides basic instructions for specifying configuration settings in the Producer Portal to control the appearance of the End-User Portal.

About the Standard Branding Approach

The standard approach allows a producer to apply their account's branding to the End-User Portal without the need for HTML or CSS knowledge. Some of the changes a Producer Portal administrator can apply include

- Inserting your account's logo
- Choosing the page-position of the End-User Portal's primary navigation (top, left, or right)
- Setting the color for body text
- Setting the color for heading text
- Setting the color for anchor text (links)
- Setting primary color for buttons

For many producers, these configuration settings suffice to ensure your End-User Portal shows continuity with your account's branding guidelines. For greater control over the End-User Portal appearance, Producer Portal administrators can take advantage of more advanced branding capabilities.

About the Advanced Branding Approach

The advanced approach allows for a high degree of customization. With enough effort, most producers can mirror the appearance of their account's other online properties. Taking advantage of these advanced branding capabilities requires HTML and CSS skills to achieve the desired result, whether those skills come from your account's personnel or a Revenera services engagement.

The advanced branding approach leverages all the standard branding options, plus the ability to

- Replace header/footer with branded HTML content
- Inject custom CSS

For more details about available system configuration settings related to End-User Portal appearance and behavior as well as page structure guidelines, see the next section, End-User Portal Page Structure.

Overview of Producer-Configurable Branding Options

Producer Portal administrators can access these End-User Portal configuration features via the System menu. (In the Producer Portal, click System > Configure > End-User Portal Setup.) From a branding perspective, there are a few key options to work with. They are broken down by section below.

- Branding-Specific Settings

- General Settings

Branding-Specific Settings

The configuration settings for the End-User Portal that exclusively support branding of the portal are collected into a group called Custom Branding.

Table 8-2 ▪ Custom Branding settings on the End-User Portal Setup page

Option	Description
Upload Company Logo	Upload your company logo to replace the Revenera logo in End-User Portal. When a file is uploaded, it will appear in the upper-left of the portal and above the login form. Make sure the logo image is no more that 30px in height, with a file size no greater than 40KB, and set either on a white or transparent background. The Producer Portal shows the path to the uploaded logo file just below the file upload control. For administrators pursuing an advanced branding approach, this path can be used in your custom CSS to link the image (for example, in a custom page header). At this time, only logo uploads are supported. No additional image assets can be uploaded via the system configuration options. Speak with your Revenera representative to learn about additional options.
Upload CSS	Upload custom CSS to change look of your End-User Portal. Part of the advanced branding approach, this field allows you to upload custom CSS selectors as a text file. These style settings override other style settings (including the default styles or styles defined via standard system configuration settings). In addition, CSS selectors can be added here to support custom HTML added for the page header and footer. When configured, a `custom.css` file is loaded as the last linked CSS file in the HTML document head. This location takes advantage of inheritance to override base style selectors. Normal cascade rules of specificity and inheritance apply here. Intermediate to advanced CSS and HTML knowledge is recommended to take advantage of this option for all but minor CSS changes. Customizing the CSS comes with the potential for disruptive effects on the End-User Portal user interface.
Upload Header	Upload custom HTML, as a text file, to replace the existing header. This is the area that contains the logo and current user information. When configured, the End-User Portal's User menu and system help are moved into the main content area. The custom HTML header must be a self-contained HTML fragment with all elements closed.

Table 8-2 ▪ Custom Branding settings on the End-User Portal Setup page

Option	Description

Upload Footer	Upload custom HTML, as a text file, to replace the existing footer. This is the grey, shaded area at the bottom of each view.
	
	The custom HTML footer must be a self-contained HTML fragment with all elements closed. If the height of your footer differs from the default, you must to add custom CSS to ensure it is positioned properly at the bottom of the page. For example
	
	`#page-footer-nudge {`
	`  height: [ yourFooterOuterHeight + 40 ]px`
	`  }`
	`#page-footer {`
	`  height: [ yourFooterOuterHeight + 20 ]px;`
	`  margin-top: -[ yourFooterHeight + 40 ]px;`
	`  }`

Primary Navigation Position	Select an orientation for End-User Portal's main navigation. If, for example, your custom header includes your own site's primary navigation, the End-User Portal navigation can be positioned to the left or right of the main content area. It then acts as a sub-navigation for the Entitlement & Delivery section of your site.
Default Button Label Color	Change the color of default button label in the End-User Portal. This option is set within the Color Configurator. Use a color that ensures enough contrast with default button color. White (#FFFFFF) or black (#000000) are usually safe alternatives. (Hex values accepted.)
Default Button Color	Change the color of default action buttons in the End-User Portal. This option is set within the Color Configurator. Buttons generally represent page-level commands—Save, Submit, Activate, for example. (Hex values accepted.)
Background Color	Change the background color of pages in the End-User Portal. This option is set within the Color Configurator. This setting is applied to the <body/> element of every page. (Hex values accepted.)
Title Color	Change the color of page headings and sub-headings in the End-User Portal. This option is set within the Color Configurator. (Hex values accepted.)
Link Color	Change the color of text links (anchors) in the End-User Portal. This option is set within the Color Configurator. (Hex values accepted.)

Table 8-2 ▪ Custom Branding settings on the End-User Portal Setup page

Option	Description
Primary Navigation	Change the background color the primary navigation menus in the End-User Portal. This option is set within the Color Configurator. (Hex values accepted.)
Primary Navigation Open	Change the background color open (active) primary navigation menus in the End-User Portal. This option is set within the Color Configurator. (Hex values accepted.)
Primary Navigation Text	Change the color of all text in the End-User Portal's primary navigation menus. This option is set within the Color Configurator. (Hex values accepted.)

General Settings

Many End-User Portal configuration settings control the appearance or behavior of the portal without being branding-specific. Often these settings correspond to the functionality your account wants to provide in its End-User Portal.

Table 8-3 ▪ Non-branding-specific configuration settings

Option	Description
Hide Top-level Navigation	Select to hide the top-level navigation portal-wide. Use this option with caution; hiding the primary navigation restricts access to all but the initial landing page. This may be appropriate for some embedded implementations—for example, included via an iframe in another application page.
Hide Header	Select to hide header on each page. The header is the area above the primary navigation. This setting is useful when the End-User Portal is to be embedded in your own online property. When configured this way, the End-User Portal shows the user menu and system help in the main content area.

Changing End-User Portal Settings

Whether producers use a standard or advanced branding approach, their choices are stored in the Producer Portal's End-User Portal-related system configuration settings. These settings apply resources, like your account's graphics and style sheets, combined with your design choices to govern the appearance of your account's End-User Portal.

Follow the instructions, below, to configure the End-User Portal.

***Important** ▪ A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for the End-User Portal through the Producer Portal.*

***Tip** ▪ Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To configure the End-User Portal***

1. In the Producer Portal, click **System** > **Configure**.
2. Click **End-User Portal Setup** to open the configuration page for the End-User Portal.

   Initially, the General Options group is expanded. Click on the name of a group to expand the settings list for that group. For example, click **Custom Branding** to show all branding-specific system configuration settings for the End-User Portal.
3. Make any setting changes that suit your configuration needs.

   Refer to the following sections for additional information:

   - For administrators performing standard branding, consult the system configuration setting tables in for additional information about the settings in each section in End-User Portal Settings.
   - For administrators performing advanced branding, also review the End-User Portal Page Structure section.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes.

End-User Portal Settings

The following tables include all system configuration settings for End-User Portal appearance and behavior in the Producer Portal. All of these settings are found on the **End-User Portal Setup** tab of the **System Configuration** page.

The settings that apply expressly to branding appear in the Custom Branding group, below. However, other settings also have an impact on the appearance of portal to your end users. (Many of these non-branding-specific settings pertain more to the behavior and included functionality rather than branding.)

***Important** ▪ A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for the End-User Portal through the Producer Portal.*

Tip ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

This section includes the following sub-sections with instructions for changing End-User Portal settings and descriptions of different End-User Portal setting groups:

- General Options Configurations
- Login Page Configurations
- Portal Navigation Configurations
- End-User Portal Home Page Configurations
- Entitlements Page Configurations
- Bulk Entitlements Page Configurations
- License Support Page Configurations
- Devices Page Configurations
- Downloads Page Configurations
- Recent Releases Configurations
- Recent Files Page Configurations
- Download Order Page Configurations
- Download Packages Page Configurations
- Manage Accounts & Users Configurations
- Custom Branding Configurations
- Custom Tags Configurations

General Options Configurations

These settings correspond to the **General Options** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-4 ▪ End-User Portal: General Options Configurations

Name	Possible Values	Description	Rqd
Transferred Items Set to On Hold	Selected or unselected	Set the state of items transferred in the End-User Portal to **On Hold** and send an email to the FlexNet Operations administrator to approve the transfer by releasing the hold.	
Enable Auto Login	Selected or unselected	Select to enable an end user to log in to the portal by passing an activation ID or entitlement ID in the login URL.	

Table 8-4 ▪ End-User Portal: General Options Configurations

Name	Possible Values	Description	Rqd
Hide Header	Selected or unselected	Hides the header in all pages of portal. Select to enable when End-User Portal is embedded into an external portal.	
Skip Home Page	Selected or unselected	Skips the **Home** page after a user logs in and proceeds directly to the List Entitlements page.	
Resource Bundle Time-to-Live	30 or specify	Reload the resource bundle cache at this time interval (minutes). Specify the number of minutes between resource bundle cache reloads.	*
Enable Self-Registration for an existing Account	Selected or unselected	Select to enable an end user to be associated with an existing Self-Registered account when they self-register in the End-User Portal with an entitlement ID or activation ID.	
Enable terms and conditions panel	Selected or unselected	Show or hide the **Privacy Terms and Conditions** link on the Register for Account page for self-registering users. If enabled, users are reminded to read the privacy terms and conditions when they click Complete on the Register for Account page. When a user clicks the link, the Privacy Terms and Conditions are opened in a new tab. Customers are not required to acknowledge that they have read the Privacy Terms and Conditions.	
Terms and conditions URL	Specify	If you selected **Enable terms and conditions panel**, enter the URL to the Privacy Terms and Conditions that a self-registering user should read before registering.	
Show Download Button	Selected or unselected	Show or hide the **Download** button on the **Downloads** tab on the device's default view. If selected, the **Download** button enables a user to download entire download packages or individual files contained in a download package. Requires that the configuration setting **Hide Download Manager** (in the Downloads Page section) be unselected and **Show Downloads Tab** (in the Devices Page section) be selected. Default: Unselected. ***Version ▪*** *This setting is only available for producers who use the Software Delivery module.*	

Login Page Configurations

These settings correspond to the **Login Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-5 ▪ End-User: Portal Login Page Configurations

Name	Possible Values	Description	Rqd
Hide Register Link	Selected or unselected	Hides the **Register** link for self-service registration near **Log In**.	
Hide Log in With Entitlement ID Option	Selected or unselected	Hides **With Entitlement ID** link in the login page. ***Important*** *▪ Hiding any two login methods will remove the option box from the login form.*	
Hide Log in With Activation ID Option	Selected or unselected	Hides **With Activation ID** link in the login page. ***Important*** *▪ Hiding any two login methods will remove the option box from the login form.*	
Hide Log in With User Name Option	Selected or unselected	Hides **With User Name** link in the login page. ***Important*** *▪ Hiding any two login methods will remove the option box from the login form.*	

Portal Navigation Configurations

These settings correspond to the **Portal Navigation** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-6 ▪ End-User Portal: Navigation Configurations

Name	Possible Values	Description	Rqd
Hide Top-level Navigation	Selected or unselected	Hides the top-level navigation/menu in all pages of portal. Select to hide navigation/menu when End-User Portal is embedded into an external portal.	
Hide System Help	Selected or unselected	Hides the system help links in the top-level navigation.	

Table 8-6 ▪ End-User Portal: Navigation Configurations

Name	Possible Values	Description	Rqd
Hide Home Button	Selected or unselected	Hides **Home** in the top-level navigation.	
Hide Activation & Entitlements Menu	Selected or unselected	Hides the **Activation & Entitlements** menu in the top-level navigation.	
Hide Claim Activation IDs Link	Selected or unselected	Hides the **Claim Activation IDs** link in the **Activation & Entitlements** menu.	
Hide Devices Menu	Selected or unselected	Hides the **Devices** menu in the top-level navigation.	
Hide Users & Accounts Menu	Selected or unselected	Hides the **Users & Accounts** menu in the top-level navigation.	
Hide Host Transfer Jobs Link	Selected or unselected	For customer users, hides the **Host/Device Transfer Jobs** links in the **License Support** menu.	
Hide Downloads Menu	Selected or unselected	Hides the **Downloads** menu in the top-level navigation.	
Hide List Downloads Link	Selected or unselected	Hides the List **Downloads** link in the **Downloads** menu.	
Hide Recent Files Added Link	Selected or unselected	Hides the **Recent Files Added** link in the **Downloads** menu.	
Hide Recent Releases Link	Selected or unselected	Hides the **Recent Releases** link in the **Downloads** menu.	
Hide Usage Menu	Selected or unselected	Hides the **Usage** menu in the top-level navigation.	
Hide License Support Menu	Selected or unselected	Hides the **License Support** menu in the top-level navigation.	

End-User Portal Home Page Configurations

These settings correspond to the **Portal Home Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-7 ▪ End-User Portal: Home Page Configurations

Name	Possible Values	Description	Rqd
Hide Recent Entitlements Widget	Selected or unselected	Hides the **Recent Entitlements** panel on the **Home** page.	
Hide Recent Releases Widget	Selected or unselected	Hides the **Recent Releases** panel on the **Home** page.	
Hide Recent Files Widget	Selected or unselected	Hides the **Recent Files** panel on the **Home** page.	
Hide Downloads Widget	Selected or unselected	Hides the **Downloads** panel on the **Home** page.	
Hide Announcements Widget	Selected or unselected	Hides the **Announcements** panel on the **Home** page. See Managing Custom Content for information about publishing announcements to the home page.	
Hide Quick Links Widget	Selected or unselected	Hides the **Quick Links** panel on the **Home** page.	

Entitlements Page Configurations

These settings correspond to the **Entitlements Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-8 ▪ End-User Portal: Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide Activate	Selected or unselected	Hides the **Actions > Activate** link on the **Entitlements** page.	
Hide Trusted activate	Selected or unselected	Hides the **Actions > Trusted activate** link on the **Entitlements** page. For producers that support only trusted storage activation, hiding the **Trusted Activate** link prevents users from activating anything from the End-User Portal. However, the short code activation link is still shown and is usable.	

Table 8-8 ▪ End-User Portal: Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide Transfer	Selected or unselected	Hides the **Action > Transfer** link on the **Entitlements** page.	
Hide Split	Selected or unselected	Hides the **Action** > **Split** link on the **Entitlements** page.	
Hide Short Code Activation	Selected or unselected	Hides the **Action > Short Code Activation** link on the **Entitlements** page.	
Hide Print	Selected or unselected	Hides the **View > Print** link on the **Entitlements** page.	
Hide View Certificate	Selected or unselected	Hides the **View > View certificate** link on the **Entitlements** page.	
Hide Email	Selected or unselected	Hides the **View > Email** link on the **Entitlements** page.	
Hide Claim Activation IDs	Selected or unselected	Hides the **Action > Claim Activation IDs** link on the **Entitlements** page.	
Hide Export	Selected or unselected	Hides the **Export** button on the **Entitlements** page.	

Bulk Entitlements Page Configurations

These settings correspond to the **Bulk Entitlements Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-9 ▪ End-User Portal: Bulk Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide View Web Register Keys Button	Selected or unselected	Hides the **View > View Web Register Keys** link on the **Bulk Entitlements** page. Default: Unchecked.	

License Support Page Configurations

These settings correspond to the **License Support Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-10 ▪ End-User Portal: License Support Page Configurations

Name	Possible Values	Description	Rqd
Hide Return	Selected or unselected	Hides the **Action** > **Return** link on the **License Support** page.	
Hide Rehost	Selected or unselected	Hides the **Action** > **Rehost** link on the **License Support** page.	
Hide Repair	Selected or unselected	Hides the **Action** > **Repair** link on the **License Support** page.	
Hide Upgrade	Selected or unselected	Hides the **Action** > **Upgrade** link on the **License Support** page.	
Hide Upsell	Selected or unselected	Hides the **Action** > **Upsell** link on the **License Support** page.	
Hide Renew	Selected or unselected	Hides the **Action** > **Renew** link on the **License Support** page.	
Hide Manual Return	Selected or unselected	Hides the **Action** > **Manual Return** link on the **License Support** page.	
Hide Manual Repair	Selected or unselected	Hides the **Action** > **Manual Repair** link on the **License Support** page.	
Hide Save to File	Selected or unselected	Hides the **View** > **Save to File** on the **License Support** page.	
Hide Email License	Selected or unselected	Hides the **View** > **Email License** link on the **License Support** page.	
Hide Shipment Records	Selected or unselected	Hides the **View** > **Shipment Records** link on the **License Support** page.	
Hide View Fulfillments Button	Selected or unselected	Hides the **View** > **View Fulfillments** button on the **License Support/Consolidate Licenses** page.	
Hide Print	Selected or unselected	Hides the **View** > **Print** link.	

Table 8-10 ▪ End-User Portal: License Support Page Configurations

Name	Possible Values	Description	Rqd
Hide Export Menu	Selected or unselected	Hides the **Export** menu above lists of licenses.	
Hide Consolidate Link	Selected or unselected	Hides the **Action** > **Consolidate** link on the **License Support** page.	
Hide Verify	Selected or unselected	Hides the **Action** > **Verify** link (shown when user generates a license).	
Hide Transfer Licenses	Selected or unselected	Hides the **Action** > **Transfer Licenses** link on the **License Support** and **Manage Hosts** pages.	
Hide Product Version Details	Selected or unselected	Hides the **Product Version** details for activatable line items on all pages. Select the box to prevent the product version from being rendered in the **Product** column after the product name.	
Hide Batch Rehost	Selected or unselected	For customer users, hides the **Action** > **Batch Rehost** link.	
Hide Short Code Return	Selected or unselected	Hides the **Action** > **Short Code Return** link on the **License Support** page.	
Hide Short Code Repair	Selected or unselected	Hides the **Action** > **Short Code Repair** link on the **License Support** page.	
Hide List Hosts Link	Selected or unselected	Hides the **List Hosts** link in the **License Support** menu.	

Devices Page Configurations

These settings correspond to the **Devices Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-11 ▪ End-User Portal: Devices Page Configurations

Name	Possible Values	Description	Rqd
Hide View History Button	Selected or unselected	Hides **View History** option on the device's default view.	
Hide Download Capability Response Link	Selected or unselected	Hides the **Download Capability Response** link in the **Action** menu for the device's default view and **View Server** pages.	

Table 8-11 ▪ End-User Portal: Devices Page Configurations

Name	Possible Values	Description	Rqd
Allow Standalone Device Creation	Selected or unselected	Allows creation of standalone devices in the End-User Portal. If **Allow Standalone Device Creation** and **Allow Server Device Creation** are unselected, the **Create Device** menu item and button are hidden.	
Allow Server Device Creation	Selected or unselected	Allows creation of server devices in the End-User Portal. If **Allow Standalone Device Creation** and **Allow Server Device Creation** are unselected, the **Create Device** menu item and button are hidden.	
Hide Move Button	Selected or unselected	Hides the **Move Device** button in the **Action** menu on the device's default view.	
Allow Device Name Editing	Selected or unselected	Allows editing of device name in the End-User Portal.	
Display Site Name in Devices Page	Selected or unselected	Displays the **Site Name** attribute on the **Devices** page.	*
Enable Return Device/Server	Selected or unselected	Allows devices and servers to be returned via the End-User Portal.	
Allow Backup Server ID Editing	Selected or unselected	Allows End-User Portal users to add backup servers.	
Display vendor dictionary information in Devices page	Selected or unselected	Controls whether vendor dictionary information is visible on the device's default view in the End-User Portal. Default: selected (vendor dictionary information is visible on the device's default view).	
Show Downloads Tab	Selected or unselected	Controls whether the **Downloads** tab is visible on the device's default view. If selected, the **Downloads** tab shows all downloads that are available for a standalone device. Default: unselected. ***Version ▪*** *This setting is only available for producers who use the Software Delivery module.*	

Downloads Page Configurations

These settings correspond to the **Downloads Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-12 ▪ End-User Portal: Downloads Page Configurations

Name	Possible Values	Description	Rqd
Show File Count	Selected or unselected	Show or hide the download file count on the **Download** page. Select the box to have the End-User Portal show how many times each file has been downloaded.	
Hide Download Log Tab	Selected or unselected	Show or hide the **Download Log** tab on the **Downloads** page. Select the box to hide the **Download Log** tab.	
Hide Notification Log Tab	Selected or unselected	Show or hide the **Notification Log** tab on the **Downloads** page. Select the box to hide the **Notification Log** tab.	
Hide Date Added	Selected or unselected	Show or hide the **Date Added** column in the **Files** list. Select the box to hide the **Date Added** column.	
Hide Extended File Description	Selected or unselected	Show or hide the extended file description in the expanded file details. Select the box to hide the extended file description.	
Hide Custom Attributes	Selected or unselected	Show or hide custom file attributes in the expanded file details. Select the box to hide custom attributes.	
Hide File Checksums	Selected or unselected	Show or hide the checksum values in the expanded file details. Select the box to hide the checksums attribute.	
Show Download Package Version	Selected or unselected	Show or hide the version number for each download package next to the download package name above the file list on the **Download List** page. Note that download packages are not required to have a version. If no download package version is available, no download package version will appear in the End-User Portal. Select the box to show the download package version numbers.	
Hide File Details	Selected or unselected	Show or hide all additional file details in the expanded file details. Select the box to hide all such details.	
Show Order Media	Selected or unselected	Show or hide **Order Media** on the **Downloads** page. **Order Media** enables End-User Portal users to request copies of the files to which they are entitled on physical media.	
Order Media Request Recipient	Specify	The email destination for the Order Media request messages. Set the email address the End-User Portal uses when an end user wants to order physical media.	*

Table 8-12 ▪ End-User Portal: Downloads Page Configurations

Name	Possible Values	Description	Rqd
Hide Download Manager	Selected or unselected	Show or hide the **Download Selected Files** button on the **Download List** page.	

Recent Releases Configurations

These settings correspond to the **Recent Releases** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-13 ▪ End-User Portal: Recent Releases Configurations

Name	Possible Values	Description	Rqd
Default Days to Show	30 or specify	Set the default recency of the release for the recent files list. This setting determines the recency, in days, for download packages to be included in the recent releases list. Common settings are 30, 60, 90, and 120.	

Recent Files Page Configurations

These settings correspond to the **Recent Files Page** section of the E**nd-User Portal Setup** page in **System > Configure**.

Table 8-14 ▪ End-User Portal: Recent Files Page Configurations

Name	Possible Values	Description	Rqd
Default Days to Show	30 or specify	Set the default recency for the recent files list. This setting determines the recency, in days, for files to be included in the recent files list. Common settings are 30, 60, 90, and 120.	

Download Order Page Configurations

These settings correspond to the **Download Order Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-15 ▪ End-User Portal: Download Order Page Configurations

Name	Possible Values	Description	Rqd
Show Version	Selected or unselected	Show or hide the **Version** column in the **Download Package** list of the **Available Downloads** page. The **Available Downloads** page lists the download packages associated with an entitlement. In the End-User Portal, the **Available Downloads** page appears when you click an entitlement's **Download Now** link on the **List Entitlements** page.	

Download Packages Page Configurations

These settings correspond to the **Download Packages Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-16 ▪ End-User Portal: Download Packages Page Configurations

Name	Possible Values	Description	Rqd
Show Version	Selected or unselected	Show or hide the **Version** column in the **Download Package** list on the **Download Packages** page. The **Download Packages** page lists the download packages for a product. In the End-User Portal, the **Download Packages** page appears when you click on a product name. For example, an end user might click on a product name that appears in **Your Downloads** on the **Home** page or in the list that appears after clicking **Downloads > List Downloads**.	

Manage Accounts & Users Configurations

These settings correspond to the **Manage Accounts & Users** section of the **End-User Portal Setup** page in **System > Configure**.

Note ▪ *You can also configure the display of the Created By column on the Accounts page in the End-User Portal using the OPS_PORTAL_CONFIG table. See the FlexNet Operations On-Premises Installation & Implementation Guide for more information.*

Table 8-17 ▪ End-User Portal: Manage Accounts & Users Configurations

Name	Possible Values	Description	Rqd
Hide Create a Sub Account	Selected or unselected	Hides the **Create a Sub Account** link in the **Actions** menu on the **Accounts** page.	
Hide Delete Account	Selected or unselected	Hides the **Delete Account** link in the **Actions** menu on the **Accounts** page.	
Hide Delete Subtree	Selected or unselected	Hides the **Delete Subtree** link in the **Actions** menu on the **Accounts** page.	
Hide Create a User	Selected or unselected	Hides the **Create a User** link in the **Actions** menu on the **Accounts** and **Users** pages.	
Hide Delete a User	Selected or unselected	Hides the **Delete User** link in the **Actions** menu on the **Accounts** and **Users** pages.	
Prevent editing Account ID and Account Name	Selected or unselected	Prevents customer users and partner users from editing their account ID and account name.	
Hide Create an Account	Selected or unselected	Hides the **Create partner account** and **Create customer account** links in the **Actions** menu on the **Accounts** page.	

Custom Branding Configurations

These settings correspond to the **Branding** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-18 ▪ End-User Portal: Custom Branding Configurations

Name	Possible Values	Description	Rqd
Upload Company Logo	Specify	Choose an image file (PNG or JPG format) to serve as your account's logo in the End-User Portal and upload it. Use the controls to choose a file from your local machine to upload. After an image file is uploaded, a reset button is available to enable you to clear the uploaded image. Maximum file size: 40KB Recommended image height: 30 pixels	
Upload CSS	Specify	Choose a CSS file to replace the style settings used by default for the End-User Portal. Uploading a customized CSS file allows for a broader range of style changes consolidated into a single place. For smaller changes, it may be simpler to use one of the override settings instead. Use the controls to choose a CSS file from your local machine to upload. (When no custom CSS file is present, the End-User Portal uses its default CSS.)	
Upload Header	Specify	Choose an HTML file to replace the default header content for the End-User Portal. Use the controls to choose a file from your local machine to upload. (When no custom header HTML is present, the End-User Portal uses its default header content.)	
Upload Footer	Specify	Choose an HTML file to replace the default footer content for the End-User Portal. Use the controls to choose a file from your local machine to upload. (When no custom footer HTML is present, the End-User Portal uses its default footer content.)	
Primary Navigation Position	Top, Left, or Right	Specify where to show the high-level navigation menu for the End-User Portal. Default: Top.	

Table 8-18 ▪ End-User Portal: Custom Branding Configurations

Name	Possible Values	Description	Rqd
Configure Portal Colors		Click **Open Configurator** to show the **Color Configurator** panel. The **Color Configurator** allows you to set the colors to use in your End-User Portal pages for the following content: ● Default button label color – sets the color of the label on default buttons in the End-User Portal. ● **Default button color** – sets the color of the default buttons in the End-User Portal. ● **Background color** – sets the background page color for all End-User Portal pages. ● **Title color** – sets the text color of the page titles in the End-User Portal. ● **Link color** – sets the color of the link text and lightweight button text on End-User Portal pages. ● **Primary navigation** – sets the background color for the primary navigation menu. ● **Primary navigation open** – sets the background color for open (active) primary navigation menu items. ● **Primary navigation text** – sets the color for all text in the primary navigation menu. Specify all colors using hexadecimal format. For example, `#000000` for black, `#ffffff` for white, or `#228B22` for forest green. Click **Preview** to show a sample of your color settings within the **Color Configurator**. Click **Undo** to revert any changes that have not yet been saved. Click **Use Defaults** to restore color settings to the FlexNet Operations default colors. Click **Save** to store your changes to these color settings.	

Custom Tags Configurations

These settings correspond to the **Custom Tags** section of the **End-User Portal Setup** page in **System > Configure**.

Table 8-19 ▪ End-User Portal: Custom Tag Configurations

Name	Possible Values	Description	Rqd
Last in Head		Custom script tags added here will be inserted last in the document <head/> of the End-User Portal.	
Last in Body		Custom script tags added here will be inserted last in the document <body/> of the End-User Portal.	

End-User Portal Page Structure

The following graphics illustrate the general page structure as well as specific page structure for scenarios where a custom header and footer have been applied and also where a custom header and footer have been applied with navigation left-aligned.

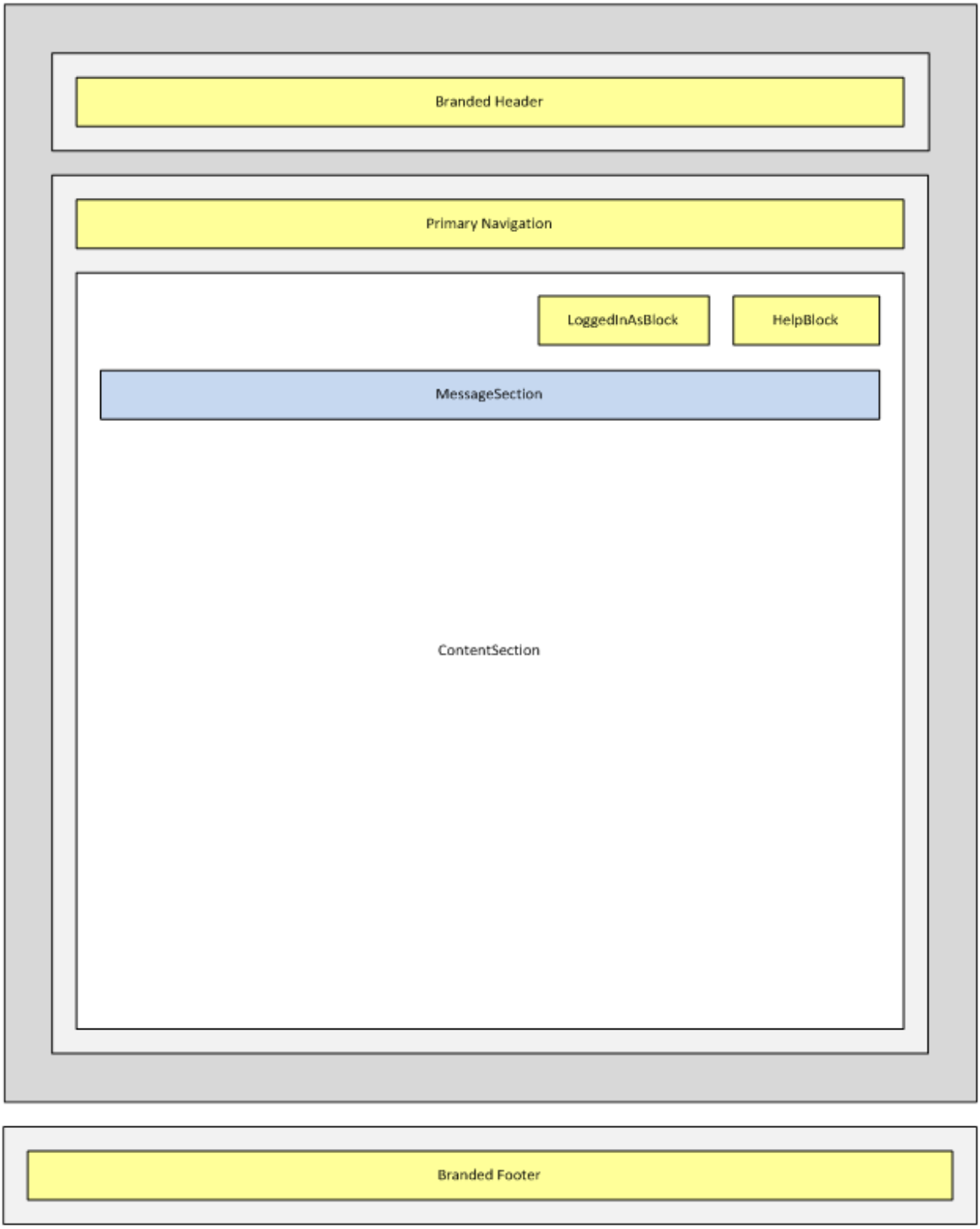
- General Page Structure
- Page Structure with Custom Header and Footer
- Page Structure with Custom Header and Footer, and Navigation Aligned Left

General Page Structure

The following is a graphic illustrating the general page structure of an End-User Portal page.

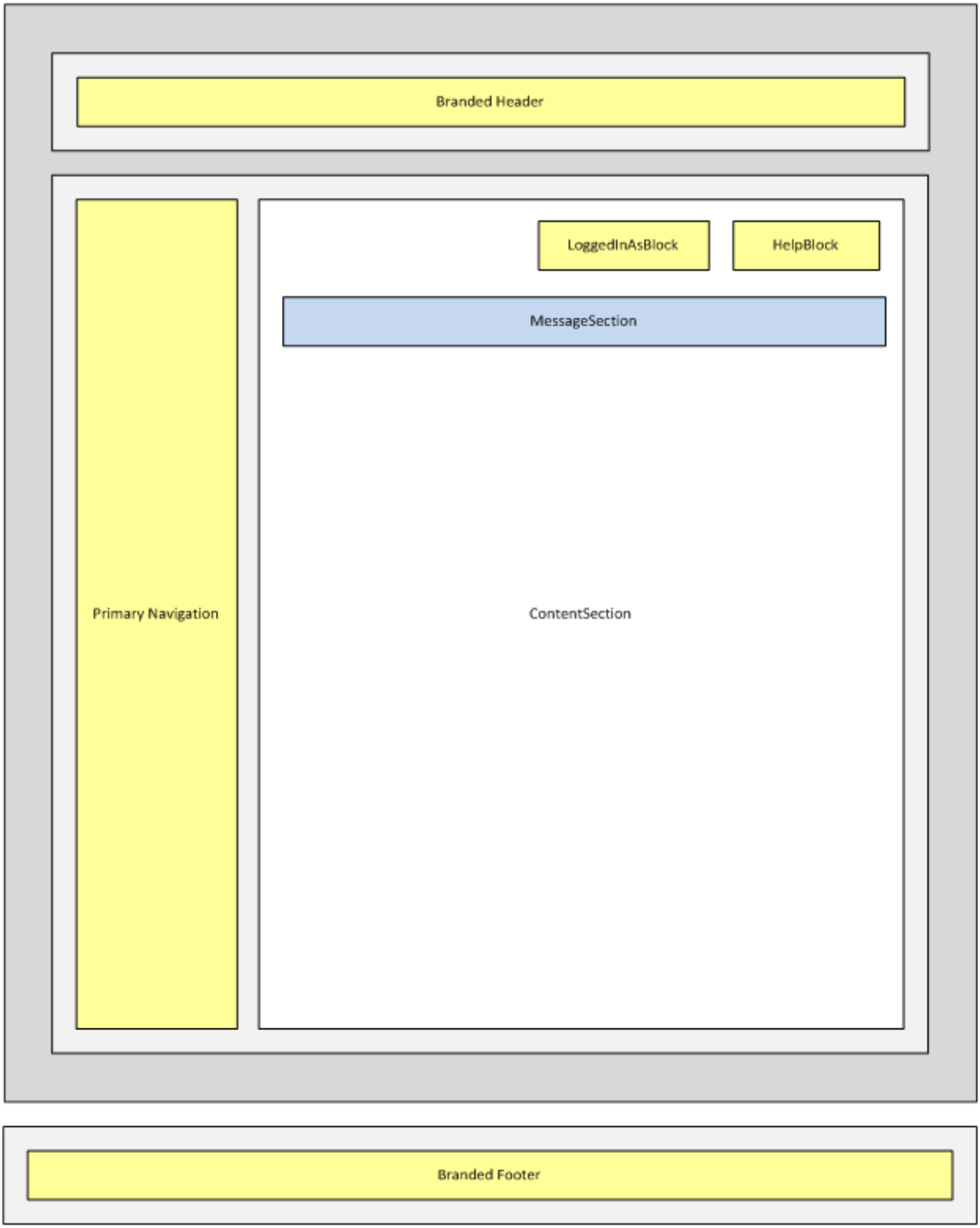
Page Structure with Custom Header and Footer

The following graphics illustrate a specific page structure for a scenario where a custom header and footer have been applied.



Page Structure with Custom Header and Footer, and Navigation Aligned Left

The following graphics illustrate a specific page structure for a scenario where a custom header and footer have been applied with navigation left-aligned.


Branded Header
LoggedInAsBlock
HelpBlock
MessageSection
Primary Navigation
ContentSection
Branded Footer

Part 2
Getting Started

This part of the FlexNet Operations User Guide includes the following sections:

- Getting Started with FlexNet Embedded Licensing
- Getting Started with FlexNet Publisher Trusted Storage-Based Licensing
- Getting Started with FlexNet Publisher License File-Based Licensing
- Getting Started with Non-FlexNet Licensing Technologies
- Getting Started with Cloud Licensing Service
- Getting Started with Entitlement Management
- Getting Started with Electronic Software Delivery
- Getting Started with Usage Management
- Getting Started with FlexNet Customer Growth
- Getting Started with Advanced Organization Management

9

Getting Started with FlexNet Embedded Licensing

This section *Getting Started with FlexNet Embedded Licensing* presents fundamental FlexNet Operations concepts and uses exercises to guide you through basic FlexNet Embedded licensing setup, and creation of FlexNet Embedded devices. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience. This getting started section is organized into the following topics.

Topic	Content
Introduction	Overview of this getting started section, exercise prerequisites, summary of the FlexNet Operations license lifecycle, and FlexNet Operations embedded licensing concepts.
Setup	FlexNet Operations publisher and product concepts and exercises that demonstrate how to set up a publisher account and products, then entitle a customer to those products. Brief descriptions of advanced topics with references for more information.
Devices	FlexNet Operations embedded device concepts and exercises that demonstrate how to create FlexNet Embedded standalone devices and generate pre-installed product licenses for them. End-User Portal exercises that demonstrate how to map an entitlement to a device; claim a device and map an entitlement to it; then automatically create a device, claim it for a customer account, and activate its licenses. Brief descriptions of advanced topics with references for more information.
License Servers	FlexNet Operations embedded license server concepts, and exercises that demonstrate how to create a FlexNet Embedded license server and map an entitlement to it. Brief descriptions of advanced topics with references for more information.

To view a brief, informative video that walks you through the exercises in the *Getting Started with FlexNet Embedded Licensing*, click **here**. We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

Introduction

This section lists the exercise prerequisites, a summary of the FlexNet Operations license lifecycle, and FlexNet Operations embedded licensing concepts.

- Exercise Prerequisites
- The License Lifecycle: FlexNet Embedded
- FlexNet Embedded Licensing Key Concepts
- Advanced Topics

Exercise Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured
- FlexNet Operations seed data and demonstration database must be loaded

Important ▪ *These exercises require a FlexNet Operations database populated with demonstration data. For more information, refer to the step-by-step instructions in the FlexNet Operations On-Premises Installation & Implementation Guide to create seed data using the* **`flexnet loaddb`** *command and to populate the sample data using the* **`flexnet demodata`** *command.*

- You must have access to the FlexNet Operations Advanced Lifecycle Management module.
- The FlexNet Embedded SDK must be properly installed and configured.
- The FlexNet Operations email templates must be set up (verify that the Entitlement Certificate email template is set to active).
- You must have a FlexNet Operations Producer Portal login and a System Administrator role.
- You must complete the exercises in the section Getting Started with Entitlement Management.

The License Lifecycle: FlexNet Embedded

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 9-1: FlexNet Operations License Lifecycle

The delivery/installation and activation stages of the FlexNet Embedded license lifecycle are covered in this getting started section.

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define an customer's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.
- **Return/Rehost** – Manage license transfers from one user or system to another.
- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

FlexNet Embedded Licensing Key Concepts

FlexNet Embedded Licensing

Software on a device controls the product feature set expressed on that particular device. If the device has Internet connectivity, it can connect directly to FlexNet Operations and receive the license for its particular product feature set. A device can also be activated offline or using a FlexNet Embedded license server.

FlexNet Embedded license technology can also be integrated with a producer's software to make it capable of enforcing perpetual, subscription, or demo software license models.

FlexNet Embedded licenses are of two types:

- An *uncounted* license allows a customer to deploy an unlimited number of licenses.
- A *counted* license restricts deployment to a limited number of licenses. The count is specified during the entitlement process.

Linking multiple license models to a single product is permitted. If multiple license models are linked to a product, it must be specified, when an entitlement line is created, which license model applies to the entitlement line. If only a single license model is linked to a product, then it is used by default.

FlexNet Embedded SDK

To use FlexNet Embedded, FlexNet Operations works in conjunction with the FlexNet Embedded SDK, a licensing library. Before you continue, ensure that you have access to the following:

- FlexNet Operations Producer Portal
- FlexNet Embedded SDK

Installing and Configuring the FlexNet Embedded SDK

Install and configure the FlexNet Embedded SDK as explained in your FlexNet Embedded documentation. Consult the user guide and getting started guide for your FlexNet Embedded SDK. For example, if you are using the FlexNet Embedded C SDK, consult the *FlexNet Embedded C SDK Getting Started Guide* and the *FlexNet Embedded C SDK User Guide*.

Building Product Binaries

Using the FlexNet Embedded SDK, your development team must create Flex-enabled product binaries that are able to take advantage of the FlexNet licensing technology. Some sample license-enabled code is included in your FlexNet Embedded SDK. Consult the user guide for your FlexNet Embedded SDK for details.

Configuring the Device Servlet

The device request servlet handles incoming binary HTTP requests (capability requests) from FlexNet Embedded devices. The servlet URL is `http://<fnoServer>:<httpPort>/flexnet/deviceservices/`. This URL must be accessible to networked devices to obtain their licenses from FlexNet Operations. Your development team must configure the connection method using the device servlet.

Using the Capability Request Command Line Utility

The `caprequestutil` capability request utility, located in `<FlexNet_Embedded_install_dir>\bin\tools`, enables you to manually generate a capability request and save it as a file or send it to a back office server. This utility is intended for quick testing involving capability requests. It is implemented using Java, and uses a text file as a substitute for trusted storage. This command line utility works for all platforms.

Embedded Activation

A FlexNet Embedded entitlement can be activated online or offline.

- **Online activation** – The Flex-enabled application generates a capability request for entitled features, then sends the request to FlexNet Operations via the Internet. FlexNet Operations sends a capability response to the device, which processes the response and places the license into trusted storage.
- **Offline activation** – The Flex-enabled application generates a capability request file, which is manually transferred to a connected system from which it can be uploaded to FlexNet Operations. The capability response is downloaded from FlexNet Operations and transferred to the Flex-enabled application for processing.

Embedded License Support

The license lifecycle extends beyond activation; support is also an important part of the lifecycle. Embedded licenses can easily be added, deleted, or re-allocated in response to customer demands, maintenance, or market conditions.

Next Steps

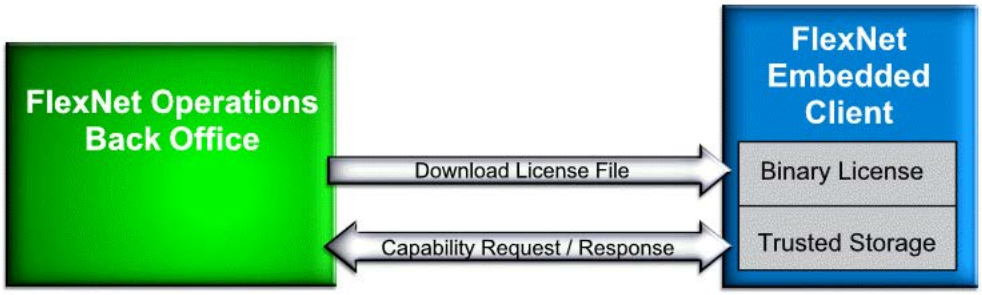
This topic introduced fundamental FlexNet Operations Embedded licensing concepts. In the next topic, you are introduced to FlexNet Embedded licensing setup.

Advanced Topics

For more information about this topic, refer to Administering License Models.

License Formats

FlexNet Embedded supports different ways of representing license rights on a system. A producer can create customized license models by combining the two different ways to store licenses:



- **Trusted Storage:** License rights can be fulfilled or upgraded by a back office server, either online or offline. This type of license is kept in trusted storage, a secure location bound to a particular device, and which supports verifiable returns to the back office server and subsequent transfer to a different device.
- **Binary License:** License can be stored as an array of bytes, either imported by license-enabled code during execution or compiled into the executable code. This type of license is typically locked to a particular device, and may contain an expiration date.

When a device model is created in FlexNet Operations, one of three license formats must be selected:

- **Pre-installed license in file, additional licenses in trusted storage:** The pre-installed license is stored in a binary file, and additional licenses are stored in trusted storage.

- **Pre-installed license and additional licenses in file:** The pre-installed license and additional licenses are stored in a binary file.
- **Pre-installed license and additional licenses in trusted storage:** The pre-installed license and additional licenses are stored in trusted storage.

Setup

This topic introduces FlexNet Embedded licensing and its setup. Setup tasks include adding a publisher and publisher identity; deploying the Embedded Counted license model; adding product features, a product, and deploying the product; and entitling the customer account to the product. For more information, refer to Administering License Models.

The exercises in this topic guide you through the basic FlexNet Embedded licensing setup work flow.

- Setup: Key Concepts
- Setup: Exercises
- Setup: Next Steps
- Setup: Advanced Topics

Setup: Key Concepts

Publishers and Publisher Identities

Before FlexNet Embedded can be used, a publisher and identity must be set up on the FlexNet Operations Producer Portal. A publisher identity is binary data that contains a publisher or producer name and encryption data. The publisher owns the license and validates it; the identity secures communication between the back office and the device.

Revenera supplies each publisher with a unique name and a series of five publisher keys. The keys cannot be regenerated or duplicated.

The publisher can create any number of identities, each providing a different level of security for different classes of devices or licenses. For example, a line of high-end devices may require higher security than a line of low-end devices. When an identity is created, a digital signature algorithm is selected to prevent forgery and tampering on the device.

Products and Features

Products—hardware or software—are packages of features that can be sold by a producer. A feature is a software functionality or set of functionalities. Feature definitions are created in the FlexNet Operations Producer Portal that correspond to product features defined in the code. For more information about products and features, refer to Getting Started with Entitlement Management.

Entitling a Customer Account

You entitle a customer account to a product linked to one or more FlexNet Embedded license models, then you license the product. For more information about entitlements, refer to Getting Started with Entitlement Management.

Setup: Exercises

These exercises use examples to guide you through the following FlexNet Embedded setup tasks:

Exercise	Description
Adding a Publisher and a Publisher Identity	Add publisher `demo` and publisher identity `ABCNetworks`.
Deploy the Embedded Counted License Model	Deploy the FlexNet Licensing technology's Embedded Counted license model.
Adding Product Features	Add product features `SimultaneousUsers`, `Encryption_Throughput`, and `Redundancy`.
Adding a Product	Add the `VPN5050` and `10MbpsVPN5000` additional encryption throughput products and link them to the Embedded Counted license model.
Deploying a Product	Deploy the `VPN5050` and `10MbpsVPN5000` products.
Entitling a Customer Account to a Product	Entitle the `Barry Photography Studio` customer account to the `VPN5050` and `10MbpsVPN5000` products.

Adding a Publisher and a Publisher Identity

In this exercise, you add publisher `demo` and publisher identity `ABCNetworks`.

Task ***To add the demo publisher***

1. Log in to the FlexNet Operations Producer Portal. The **Producer Portal Home** page appears.
2. Click **Administer** > **Publishers**. The **List Publishers** page appears.
3. Click **Create Publisher**. The **Create A Publisher** page appears.
4. In the **Publisher Name** field, type `demo`
5. In the **Notes** field, type `FlexNet Embedded Demo Publisher`.
6. In the **Publisher Keys** fields, type `0x9ddcd080 0x99aa8309 0x33995896 0x271213a5 0x0b165dcb` and click **Save**. The **Create Identity** page appears with this message: `The publisher was created successfully.`

Task ***To add the ABCNetworks identity to the demo publisher***

1. On the **Create Identity** page, enter the publisher identity's attributes:
   - **Identity Name**: Type `ABCNetworks`
   - **Signature Algorithm**: Select any algorithm

Note ▪ *The* **Custom IdentityBackOffice.bin** *field is not mandatory. For this exercise, leave it blank.*

2. Click **Save**. The **List Identities** page appears with publisher identity name `ABCNetworks` and the message `The identity was created successfully.`

Deploy the Embedded Counted License Model

In this exercise, you deploy the FlexNet Licensing technology's Embedded Counted license model. You deployed FlexNet Licensing and the Nodelocked Uncounted license model in section Getting Started with Entitlement Management. The Embedded Counted license model deployment procedure is similar to the one you performed for Nodelocked Uncounted.

Note ▪ *If the Embedded Counted license model is already deployed in your FlexNet Operations instance, you can skip this task and continue with To add the Encryption_Throughput, SimultaneousUsers, and Redundancy features.*

Task ***To deploy the Embedded Counted license model***

1. In the Producer Portal, click **Administer** > **License Models**. The Package Product**s** – License **Models** page appears.
2. Search for and select the Embedded Counted license model, click **Change State** ?, then select **Deploy** from the menu.
3. Click **OK** in the verification message. This message appears: `Deployed the following License Model(s) successfully: Embedded Counted.` In the **License Models** table, **Embedded Counted** has a state of deployed.

Adding Product Features

In this exercise, you add product features `SimultaneousUsers`, `Encryption_Throughput`, and `Redundancy`. Features `SimultaneousUsers` and `Encryption_Throughput` are counted, and feature `Redundancy` is uncounted (enabled or disabled).

Task ***To add the Encryption_Throughput, SimultaneousUsers, and Redundancy features***

1. In the Producer Portal, click **Products** > **Features**. The **Package Products** page appears.
2. Click **Add New Feature**.
3. Under **Create A Feature**, enter the first feature's attributes:
   - **Feature Name**: Type **`Encryption_Throughput`**
   - **Version**: Type **`1.0`**
   - **Description**: Type **`Encryption throughput in Mbps`**

4. Click **Add New Feature**. The first feature is saved and this message appears: `Feature Encryption_Throughput successfully added.`
5. Under **Create a Feature**, enter the second feature's attributes:
   - **Feature Name**: Type **`SimultaneousUsers`**
   - **Version**: Type **`1.0`**
   - **Description**: Type **`Number of simultaneous users`**
6. Click **Add New Feature**. The second feature is saved and this message appears: `Feature SimultaneousUsers successfully added.`
7. Under **Create a Feature**, enter the third feature's attributes:
   - **Feature Name**: Type **`Redundancy`**
   - **Version**: Type **`1.0`**
   - **Description**: Type **`Redundancy`**
   - Under **Feature Overrides**, from the **Counted** list, select **No** (`Redundancy` is enabled or disabled)
8. Click **Save**. The third feature is saved and this message appears: `Feature Redundancy successfully added.` Note that the three new features are listed in the table on the right side of the **Package Products** page.

Adding a Product

In this exercise, you add the `VPN5050` and `10MbpsVPN5000` additional encryption throughput products and link them to the Embedded Counted license model. The procedure is similar to the one you used to create `PhotoPrint` in the section Getting Started with Entitlement Management.

Task ***To add product ABC VPN 5050***

1. In the Producer Portal, click **Products** > **Products**. The **Package Products** page appears.
2. Click **Add New Product**.
3. Under **Create A Product**, enter the product attributes:
   - **Product Name**: Type **`VPN5050`**
   - **Description**: Type **`ABC VPN 5050 Basic Features`**
   - **Version**: Type **`1.0`**
   - **License Technology**: Select **FlexNet Licensing**
   - **Can be used on a device**: Select **Yes**
   - **License Generator**: Select **demo**
4. Click **Add Features**. The **Add Features To Product** window opens.
5. In the **Add Features To Product** window, under **Available Features**, search for and select `Encryption_Throughput,1.0`, `SimultaneousUsers,1.0`, and `Redundancy,1.0`.

6. Click **Add** ? to move `Encryption_Throughput,1.0`, `SimultaneousUsers,1.0`, and `Redundancy,1.0` to **Selected Features**, then click **Add**. The features are added to product VPN5050 and the window closes.
7. In the feature table, enter a number in the **Quantity** field for each feature:

Feature	Quantity
Encryption_Throughput	5
SimultaneousUsers	5
Redundancy	1

8. Click **Next**. Under **Link License Models To Product**, click **Link License Models**. The **Select License Models** window opens.
9. Under **Available License Models**, select **Embedded Counted** then click **Add** ? to move it to **Selected License Models**.
10. Click **Add** to add the license model and close the window. On the **Package Products** page, the **Embedded Counted** license model is shown.
11. Click **Save** to save the product. This message appears: `License models linked successfully.` Note that the new `VPN5050` product is listed in the table on the right side of the **Package Products** page.

Task ***To add product ABC VPN 5000 Encryption Throughput (10 Mbps)***

1. On the **Package Products** page, click **Add New Product**.
2. Under **Create A Product**, enter the product attributes:
   - **Product Name**: Type `10MbpsVPN5000`
   - **Description**: Type `ABC VPN 5000 Encryption Throughput (10 Mbps)`
   - **Version**: Type `1.0`
   - **License Technology**: Select **FlexNet Licensing**
   - **Can be used on a device**: Select **Yes**
   - **License Generator**: Select **demo**
3. Click **Add Features**. The **Add Features To Product** window opens.
4. In the **Add Features To Product** window, under **Available Features**, search for and select `Encryption_Throughput,1.0`.
5. Click **Add** ? to move `Encryption_Throughput,1.0` to **Selected Features**, then click **Add**. The feature is added to product `10MbpsVPN5000` and the window closes.
6. In the feature table, on the `Encryption_Throughput` line, type `10` in the **Quantity** field.
7. Click **Next**. Under **Link License Models To Product**, click **Link License Models**. The **Select License Models** window opens.

8. Under **Available License Models**, select **Embedded Counted** then click **Add** ? to move it to **Selected License Models**.
9. Click **Add** to add the license model and close the window. On the **Package Products** page, the **Embedded Counted** license model is shown.
10. Click **Save** to save the product. This message appears: `License models linked successfully.` Note that the new `10MbpsVPN5000` product is listed in the table on the right side of the **Package Products** page.

Deploying a Product

In this exercise, you deploy the `VPN5050` and `10MbpsVPN5000` products. The procedure is similar to the one you used to deploy `PhotoPrint` in Getting Started with Entitlement Management.

Task ***To deploy products VPN5050 and 10MbpsVPN5000***

1. In the Producer Portal, click **Products** > **Products**. The **Package Products** appears.
2. Under **Recently Accessed Products**, search for and select products `VPN5050` and `10MbpsVPN5000`.
3. Click **Change State** ? and select **Deploy** from the menu. Click **OK** in the verification message. Deployment information for the `VPN5050` and `10MbpsVPN5000` products is shown under **Deploy Products** and **Following Features Will Also Be Deployed**.
4. Click **Deploy**. This message appears: `Products deployed successfully.`

Entitling a Customer Account to a Product

In this exercise, you entitle the `BarryPhoto` customer account and customer end user `Lisa Barry` to the `VPN5050` and `10MbpsVPN5000` products. The procedure is similar to the one you used to entitle `BarryPhoto` to product `PhotoPrint` in Getting Started with Entitlement Management.

Task ***To entitle customer account BarryPhoto to product VPN5050***

1. In the Producer Portal, click **Entitlements** > **Create**. The **Entitle Customers to Licenses** page appears.
2. Under **Create An Entitlement**, on the **Entitlement ID** list, select **Specify** and type **`ENT-VPN5050`** in the field that appears next to it.
3. Under **End Customer And Channel Partners**, click **Add**. The **End Customer And Channel Partners | Accounts** window opens.
4. On the **Customers** tab under **Accounts**, select `Account` from the **Search For** menu, search for and select `BarryPhoto`, then click **Next**. The **End Customer And Channel Partners | Contacts** window opens.
5. Under **Contacts**, search for and select `Lisa Barry`, then click **Save**. The window closes. On the **Entitle Customers to Licenses** page, under **End Customer And Channel Partners**, the end customer's account name, contact, and email address are populated.
6. On the **Line Items** tab, click **New Line Item**. The **Configure Line Item** wizard opens. Search for and select the `VPN5050` product.

7. At the bottom of the wizard, click **Next** twice to advance to the **Configure Product** step. Enter the VPN5050 line item attributes:
   - **Qty**: Type 5
   - **Start Date**: Select Use First Activation Date
   - **Expiration**: Select Specify Duration, type **1**, then select Years
   - Keep the default values for all other attributes.

   Click **Save**.
8. On the **Line Items** tab, review the draft VPN5050 line item, then click **Save & Deploy**. The line item is deployed and this message appears: Entitlement deployed successfully.
9. Click the VPN5050 line item's **Activation ID**, review the **Line Item Details** window, then click **Cancel** to close it.
10. At the bottom of the **Entitle Customers to Licenses** page, click **View** and select **View History** from the menu. The **Change History** window opens for the ENT-VPN5050 entitlement.
11. Review the change history of the ENT-VPN5050 entitlement, then click **OK** to close the window.
12. On the **Entitle Customers to Licenses** page, click **Email** to send entitlement notification email to Lisa Barry at Barry Photography Studio. The **Entitle Customers to Licenses** page appears with the customer's address in the **Ship To Email** field.

    ***Note** ▪ To include additional recipients, type their email addresses into the* **Ship To Email** *field separated by commas.*
13. Add your email address to the recipients list so you receive a copy of the entitlement email.
14. Click **Send**. The **Entitle Customers to Licenses** page appears with the message Email sent to the recipients <address list>.
15. Review the entitlement notification email you receive.

Task ***To entitle customer account BarryPhoto to product 10MbpsVPN5000***

Repeat Step 1 through Step 15 of task To entitle customer account BarryPhoto to product VPN5050 to entitle the customer to a product with these attributes:

- **Entitlement ID**: Type **ENT-10MbpsVPN5000**
- **Product**: Type **10MbpsVPN5000**

  Line item attributes:
  - **Qty**: Type **10**
  - **Start Date**: Select Use first activation date
  - **Expiration**: Select Specify duration, type **1**, and select Years
- **Customer**: Select Barry Photo
- **Contact**: Select Lisa Barry

Log out of the Producer Portal or continue with Devices.

Setup: Next Steps

This topic introduced FlexNet Embedded licensing setup. In the next topic, you are introduced to FlexNet Embedded devices and device management tasks.

Setup: Advanced Topics

Adding a FlexNet Embedded License Model

A FlexNet Embedded license model assigns default parameters for either a pre-installed license that is used for a device model, or licenses for additional products to which a customer account can be entitled. The license model specifies sources for the values of feature record properties in generated licenses. For more information, see Creating a License Model.

Digital Signature Algorithms

The publisher can define any number of identities, each providing a different level of security for different classes of devices or licenses. For example, a line of high-end devices may require higher security than a line of low-end devices.

When an identity is created, a digital signature algorithm is selected to prevent forgery and tampering on the device. FlexNet Operations supports several digital signature algorithms. For more information, see Creating a Publisher Identity.

Devices

This topic introduces FlexNet Embedded standalone devices and typical tasks performed for them. These tasks include creating a device, assigning a device to a customer account, mapping a product entitlement to a device, claiming a device, and activating a device's product licenses.

The exercises in this topic guide you through the basic FlexNet Embedded standalone device work flows.

- Devices: Key Concepts
- Devices: Exercises
- Devices: Next Steps
- Devices: Advanced Topics

Devices: Key Concepts

Devices

A device is a hardware or software component that uses FlexNet Embedded to license its products. FlexNet Embedded devices connect to FlexNet Operations to manage their ownership, state, features, and more. Examples of devices include high-end medical equipment, routers, and microchip ID scanners.

A device is identified by a device ID and its type. Device types are

- **Standalone Device**—FlexNet Embedded device that connects to FlexNet Operations, which manages the device.
- **Server**—FlexNet Embedded server that communicates with FlexNet Operations to manage device ownership, state, and features for a collection of served devices. (When a FlexNet Embedded server is used, its served devices connect with the FlexNet Embedded server rather than connecting directly to FlexNet Operations.)
- **Served Device**—FlexNet Embedded device that is managed via a FlexNet Embedded server. In FlexNet Operations, served devices are essentially read-only entities.

Creating a Device

There are many ways to create a device. In the typical scenario, the device is claimed via the activation process in the End-User Portal. In another scenario, the producer creates a device and assigns an owner through the Producer Portal, then the customer accesses the device through their End-User Portal.

Adding Device Features

Applications running on devices use licensed product features to turn access to functionality on or off in the application or device. When a feature is created, it is configured as one of two types: counted or uncounted. This configuration indicates whether the feature is limited to a certain quantity or turns access to the functionality on or off.

An example of a counted feature is number of cell phone minutes you have, and an example of an uncounted feature is whether you have access to text messaging or not.

Pre-Installed Licenses

A device must be created before a pre-installed license can be generated for it. A pre-installed license defines the basic or default features of a device. Pre-installed license generation is a producer activity; a pre-installed license is typically loaded on the device by the producer before shipping.

On the Producer Portal, producer users can download a license response file for a pre-installed license after the pre-installed license is generated.

Additional Products

Additional products are capabilities that can be mapped to a device in addition to the basic, pre-installed product included with the device. Additional products can also be removed from a device.

Product Licenses

A product license grants additional capabilities or capacity for a device or an application. For example, a producer can create a camera with a pre-installed license for the basic product. Later, licenses for more advanced products can be added to the camera to reflect additional capabilities purchased by the customer. An application example is personal computer software with a pre-installed license for system security features. The software can also include product licenses for a system repair tool kit and junk file removal tool that the customer can purchase later.

Product licenses can be generated online (programmatically), or manually on the Producer Portal or End-User Portal. (Additional features on devices that cannot connect directly to FlexNet Operations can be activated via the manual process of offline activation.) A feature license can be generated manually with a request file (offline activation) or without one. A license response file for a feature license can be downloaded after the license is generated.

Devices: Exercises

These exercises use examples to guide you through the following FlexNet Embedded standalone devices tasks:

Exercise	Description
Creating a Device	Create standalone devices ABCVPN5050-1 and ABCVPN5050-2 for account BarryPhoto and generate VPN5050 pre-installed product license files for them.
Mapping an Additional Product Entitlement to a Device	Log in to the End-User Portal and map the 10MbpsVPN5000 product entitlement to device ABCVPN5050-1.
Claiming a Device and Mapping an Additional Product Entitlement	In the End-User Portal, claim device ABCVPN5050-2 and map the 10MbpsVPN5000 product entitlement to it.
Activating a Device's Pre-Installed and Additional Product Licenses	In the End-User Portal, automatically create standalone device ABCVPN5050-3 for customer account BarryPhoto, map the VPN5050 and 10MbpsVPN5000 products to it, and activate the licenses.

Creating a Device

In this exercise, you use the Producer Portal to create standalone devices ABCVPN5050-1 and ABCVPN5050-2 and generate VPN5050 pre-installed product license files for them.

Task ***To create standalone device ABCVPN5050-1***

1. Log in to the FlexNet Operations Producer Portal if you have not already done so.
2. Click **Devices** > **Create Device**. The **Device | New Device** page appears.
3. Enter the device's attributes:
   - **Device name**: Type **ABCVPN5050-1**
   - **Model**: Select FLX_CLIENT
   - **ID**: Select STRING and type **ABCVPN5050-1** for **Primary ID**.
   - **Identity**: Select ABCNetworks
   - **Account**: Select BarryPhoto:

a. Click the search icon next to **Account**. The **Assign Device Owner** pop-up window opens.

b. On the **Customers** tab, search for and select `BarryPhoto`, then click **Select**. The **Account** window closes. On the **Device** page, **Account** is populated with device owner details.

c. Click **Save**. The device's default view appears. Note that **Device Details** lists `BarryPhoto` as the **Account**, **Status** is `ACTIVE`, and **Pre-installed License Generated?** is No. **Model Details** is `The device model does not include any pre-installed licenses`. **Licenses** is `No licenses have been mapped`.

Task ***To add a VPN5050 pre-installed product to device ABCVPN5050-1***

1. On the device's default view, click **Edit > Edit this Device**. The **Edit Device** page appears.
2. Under **Pre-installed Product**, click **Add Pre-installed Product**. The **Add Pre-installed Product** pop-up window opens.
3. Under **Product Details**, click **By Product**. In the **Select Product** window that opens, select product `VPN5050` and click **OK** to close the **Select Product** window and populate the product name and version in the **Add Pre-installed Product** window.
4. In the **Add Pre-installed Product** window, enter the product details:
   - **License Model**: Select `Embedded Counted`
   - **Start Date**: Click the calendar icon, then click **Today** at the bottom of the calendar page that opens
   - **Expiration**: Select `Specify Duration`, type `1`, then select `Years`
5. Click **Add**. The **Edit Device** page appears with `VPN5050` listed under **Pre-installed Product**.
6. Click **Save**. The device's default view page appears. Note that this device's **Status** is ACTIVE but **Pre-Installed License Generated?** is No.

Task ***To generate a VPN5050 pre-installed product license file for device ABCVPN5050-1***

1. Click **Generate license file**. This message appears: `License file successfully generated.` Under **Device Details**, **Pre-installed License Generated?** is **Yes**.
2. On the device's default view, click **View** and select **View License File** from the menu. On the **View License File** page that appears, review the license file, which looks similar to:

```
MessageType="Buffer license"
MessageTime=(
   Timestamp=1440445832891
   TimestampUnits=Milliseconds
)
License=(
   Name=SimultaneousUsers
   Vendor=demo
   Version=1.0
   Expires=24-aug-2016
   Count=5
   HostID=(
      Type=String
      ID=ABCVPN5050-1
```

```
)
Issued=24-aug-2015
Start=23-aug-2015
Issuer="My Corporation"
)
License=(
   Name=Redundancy
   Vendor=demo
   Version=1.0
   Expires=24-aug-2016
   Uncounted
   HostID=(
      Type=String
      ID=ABCVPN5050-1 )
Issued=24-aug-2015
Start=23-aug-2015
Issuer="My Corporation"
)
License=(
   Name=Encryption_Throughput
   Vendor=demo
   Version=1.0
   Expires=24-aug-2016
   Count=5
   HostID=(
      Type=String
      ID=ABCVPN5050-1
)
Issued=24-aug-2015
Start=23-aug-2015
Issuer="My Corporation"
)
```

Task ***To create standalone device ABCVPN5050-2***

Repeat Step 2 through Step 3 of task To create standalone device ABCVPN5050-1 to create a device with these attributes:

- **ID**: Type **ABCVPN5050-2**
- **Device Model**: Select FLX_CLIENT
- **ID**: Select STRING and type **ABCVPN5050-2** for **Primary ID**.
- **Identity**: Select ABCNetworks

Task ***To add a VPN5050 pre-installed product to device ABCVPN5050-2***

Repeat Step 1 through Step 6 of task To add a VPN5050 pre-installed product to device ABCVPN5050-1 to add a VPN5050 product license file to device ABCVPN5050-2.

Task ***To generate a VPN5050 pre-installed product license for device ABCVPN5050-2***

Repeat Step 1 through Step 2 of task To generate a VPN5050 pre-installed product license file for device ABCVPN5050-1 to generate a `VPN5050` product license file for device `ABCVPN5050-2`. The license file looks similar to the device `ABCVPN5050-1` license file.

Mapping an Additional Product Entitlement to a Device

In this exercise, you log in to the End-User Portal to map an additional 10 Mbps of encryption throughput to standalone device `ABCVPN5050-1`.

Task ***To map the ABC VPN 5000 Encryption Throughput (10 Mbps) product entitlement to device ABCVPN5050-1***

1. Log in to the End-User Portal as `Lisa Barry`, the `Barry Photography Studio` end user you created in the exercise in the section Getting Started with Entitlement Management.
2. In the End-User Portal, click **Devices** > **Devices**. The **Devices** page for `Barry Photography Studio` appears.
3. In the **Devices** page list, click the `ABCVPN5050-1` link. The device's default view for `ABCVPN5050-1` appears. Review the information under **Device Details**. Under **Model Details**, note that **Product Name** is VPN5050 and that no additional licenses are currently mapped to this device.
4. Click **Action** and select **Map Entitlements** from the menu. The **Map Entitlements** page appears.
5. In the `10MbpsVPN5000, Version 1.0` **Qty to Add** field, type **1** to represent 10 Mbps of additional encryption throughput.
6. Click **Save**. This message appears on the device's default view: `Entitlements successfully mapped.` Note that the **Status** of `10MbpsVPN5000, Version 1.0` is **License not generated**.
7. Click **Action** > **Download Capability Response** to generate the license. When asked if you want to open or save the binary license file, save it as `<FlexNet_Embedded_install_dir>\bin\tools\ABCVPN5050-1.bin`, where `<FlexNet_Embedded_install_dir>` is the directory in which your FlexNet Embedded licensing toolkit is installed. The exact behavior varies slightly, depending on your browser and operating system.
8. On the device's default view, click **View** and select **View History** from the menu. On the **Device History** page that appears, review the **Time**, **Event**, and **Additional Details** of each line in the list.
9. Click **Devices** > **Devices** and click the **`ABCVPN5050-1`** link. On the device's default view, note that the **Status** of `10MbpsVPN5000, Version 1.0` is now **License generated**.
10. To use the FlexNet Embedded `printbin` tool to view the contents of the binary license file:
    a. Open a command prompt window.
    b. In the command prompt window, navigate to `<FlexNet_Embedded_install_dir>\bin\tools`, the directory in which you saved the binary license file in Step 7.
    c. At the prompt, type and enter the command
    `printbin ABCVPN5050-1.bin`
    where `ABCVPN5050-1.bin` is the name of the binary license file.
11. Review the license file, which looks similar to:

```
MessageType="Capability response"
ServerIDType=String
ServerID=BACK_OFFICE
SourceIds=BACK_OFFICE
Lifetime=86400
ResponseTime="Sep 18, 2015 10:57:19 AM"
RequestHostID=ABCVPN5050-1
RequestHostIDType=String
MachineType=Unknown
EnterpriseID=61135
License=(Name=Encryption_Throughput Vendor=demo Version=1.0
    Expires=18-sep-2016 Count=10 HostID=ABCVPN5050-1 Issued=18-sep-2015
    Start=17-sep-2015 Issuer="My Corporation")
```

Claiming a Device and Mapping an Additional Product Entitlement

In this exercise, you claim standalone device ABCVPN5050-2 on the End-User Portal and map an additional 10 Mbps of encryption throughput to it.

Task ***To claim standalone device ABCVPN5050-2 and map the ABC VPN 5000 Encryption Throughput (10 Mbps) product entitlement to it***

1. In the End-User Portal, click **Activation & Entitlements** > **List Entitlements**. The **List Entitlements** page for Barry Photography Studio appears.
2. Copy the activation ID for the 10MbpsVPN5000 product.
3. Click **Devices** > **Claim and Activate**. The **Claim and Activate** page for Barry Photography Studio appears.
4. In the **Device ID** field, type **ABCVPN5050-2**.
5. In the **Activation IDs** field, paste the activation ID you copied in Step 2 and click **Validate**. The entitlement for 10MbpsVPN5000 is listed with **Available qty**, **Product**, and **Expiration** details.
6. In the **Qty to add** field, type **1** to represent 10 Mbps of additional encryption throughput.
7. Click **Save**. The device's default view appears with this message: Entitlements successfully mapped. Under **Licenses**, note that the **Status** of 10MbpsVPN5000, Version 1.0 is **License not generated**.
8. Click **Action** > **Download Capability Response** to generate the license. When asked if you want to open or save the binary license file, save it as <FlexNet_Embedded_install_dir>\bin\tools\ABCVPN5050-2.bin. The exact behavior varies slightly, depending on your browser and operating system.
9. On the device's default view, click **View** and select **View History** from the menu. On the **Device History** page that appears, review the **Time**, **Event**, and **Additional Details** of each line in the list.
10. Click **Devices** > **Devices** and click the ABCVPN5050-2 link. On the device's default view, note that the **Status** of the 10MbpsVPN5000 product is now **License generated**.
11. In the command prompt window, type and enter the command
    printbin ABCVPN5050-2.bin
    where ABCVPN5050-2.bin is the name of the binary license file you saved in Step 8.
12. Review the license file, which looks similar to:

```
MessageType="Capability response"
ServerIDType=String
ServerID=BACK_OFFICE
SourceIds=BACK_OFFICE
Lifetime=86400
ResponseTime="Sep 18, 2015 1:11:29 PM"
RequestHostID=ABCVPN5050-2
RequestHostIDType=String
MachineType=Unknown
EnterpriseID=61135
License=(Name=Encryption_Throughput Vendor=demo Version=1.0
    Expires=18-sep-2016 Count=10 HostID=ABCVPN5050-2 Issued=18-sep-2015
    Start=17-sep-2015 Issuer="My Corporation")
```

Activating a Device's Pre-Installed and Additional Product Licenses

In this exercise, you use a capability request to automatically create standalone device `ABCVPN5050-3`, claim it for customer account `BarryPhoto`, map the VPN5050 and 10MbpsVPN5000 product entitlements to it, and activate the licenses.

Task ***To activate the pre-installed product and additional product licenses of standalone device ABCVPN5050-3***

1. In the End-User Portal, click **Activation & Entitlements** > **List Entitlements**. The **List Entitlements** page appears.
2. In the table, note that **Available quantity** and **Total quantity** for pre-installed product VPN5050 are both 5. Also note the VPN5050 **Activation ID;** you will use it in Step 4.
3. In the table, note that **Available quantity** is 8 and **Total quantity** is 10 for product 10MbpsVPN5000. Also note the 10MbpsVPN5000 **Activation ID;** you will use it in Step 4.
4. In the command prompt window, type and enter the following command to create the activation request for pre-installed product VPN5050 and additional product 10MbpsVPN5000:

   ```
   caprequestutil -id IdentityClient.bin -host ABCVPN5050-3 -type FLX_CLIENT
   -activate activation_ID_A 1 -activate activation_ID_B 1 mycapabilityrequest.bin
   ```

   where `IdentityClient.bin` contains publisher `demo` and publisher identity `ABCNetworks` you added in the Setup topic, *`activation_ID_A`* is the pre-installed product `VPN5050` activation ID, *`activation_ID_B`* is the product `10MbpsVPN5000` activation ID, and *`mycapabilityrequest.bin`* is the activation request in binary format.
5. When the command prompt returns, type and enter the following command to print the activation request for pre-installed product `VPN5050` and product `10MbpsVPN5000`:

   ```
   printbin mycapabilityrequest.bin
   ```
6. Review the activation capability request, which looks similar to:

   ```
   MessageType="Capability request"
   Vendor=demo
   MessageTime="May 7, 2016 1:43:48 PM"
   ResponseTime="Dec 31, 1969 6:00:00 PM"
   SourceIds=ABCVPN5050-3
   RequestHostIDType=String
   RequestHostID=ABCVPN5050-3
   ```

```
MachineType=Unknown
HostType=FLX_CLIENT
IsServer=false
IdentityName=ABCNetworks
DesiredRights=(ActivationID=b890-f02f-b5f2-45e8-808a-86fd-3341-7d42:1
    ActivationID=a931-4c60-1080-4a92-8e8b-1e62-eebe-8a53:1)
RequestOperation="Normal request"
```

7. In the End-User Portal, click **Devices** > **Offline Device Management**. The **Offline Device Management** page appears.
8. For **Upload type**, select **Generate license**. Click **Browse** and select the `mycapabilityrequest.bin` activation request file in the `<FlexNet_Embedded_install_dir>\bin\tools` directory, then click **Upload**.
9. Download the capability response file using the link offered by the application and save the file as `<FlexNet_Embedded_install_dir>\bin\tools\ABCVPN5050-3.bin`. The exact behavior varies slightly, depending on your browser and operating system.
10. In the command prompt window, type the command

    `printbin ABCVPN5050-3.bin`

    where `ABCVPN5050-3.bin` is the name of the capability response file you saved in Step 9.
11. Review the capability response, which looks similar to:

```
MessageType="Capability response"
ServerIDType=String
ServerID=BACK_OFFICE
SourceIds=BACK_OFFICE
Lifetime=86400
ResponseTime="May 8, 2016 9:13:43 AM"
RequestHostID=ABCVPN5050-3
RequestHostIDType=String
MachineType=Unknown
EnterpriseID=61135
License=(Name=Encryption_Throughput Vendor=demo Version=1.0
    Expires=8-may-2017 Count=10 HostID=ABCVPN5050-3 Issued=8-may-2016
    Start=7-may-2016 Issuer="My Corporation")
License=(Name=SimultaneousUsers Vendor=demo Version=1.0 Expires=8-may-2017
    Count=5 HostID=ABCVPN5050-3 Issued=8-may-2016 Start=7-may-2016
    Issuer="My Corporation")
License=(Name=Redundancy Vendor=demo Version=1.0 Expires=8-may-2017
    Uncounted HostID=ABCVPN5050-3 Issued=8-may-2016 Start=7-may-2016
    Issuer="My Corporation")
License=(Name=Encryption_Throughput Vendor=demo Version=1.0
    Expires=8-may-2017 Count=5 HostID=ABCVPN5050-3 Issued=8-may-2016
    Start=7-may-2016 Issuer="My Corporation")
```

12. In the End-User Portal, click **Activation & Entitlements > List Entitlements**. The **List Entitlements** page appears.
13. On the **List Entitlements** page, note that `VPN5050` **Available quantity** is 4 and **Total quantity** is 5, and that `10MbpsVPN5000` **Available quantity** is 7 and **Total quantity** is 10.
14. Log out of the End-User Portal or continue with License Servers.

Devices: Next Steps

This topic introduced FlexNet Embedded standalone devices, device management, and activation of a device's licenses. In the next topic, you are introduced to FlexNet Embedded license servers and license server management.

Devices: Advanced Topics

For more information about these topics, refer to Administering Device and License Server Setup.

Activations of Entitlements Across Multiple Accounts on a Single Device

Producers with the FlexNet Advanced Organization module that use FlexNet Embedded licensing technology can take greater advantage of their account hierarchies and channel partner sets during entitlement mapping operations. This capability also supports producers who want end users to be able to activate entitlements on any device.

FlexNet Operations enables accounts, other than the device owner, to map entitlements to a device. Producers can map entitlements from the device owner's sub-accounts to any device, and End-User Portal users can map entitlements from their account, or its sub-accounts, to any device visible to them.

Activate Remaining Available Copies of an Entitlement

The FlexNet Embedded client API has a "partial" option when specifying activation IDs for a capability request intended for the back office. It is now possible to request, if there are insufficient copies of the entitlement to satisfy the request, that the back office instead activate the remaining available copies. Without this option, such a request would fail with a message indicating that the number of copies requested exceeds the available copies. With the option, the request succeeds with a status message indicating that the request was only partially fulfilled.

This `partial` option can be added for each activation code requested. For example,

```
-activate activation-id [copies] [partial]
```

Note ▪ *The* `partial` *option does not take into consideration optional limits imposed by the device series.*

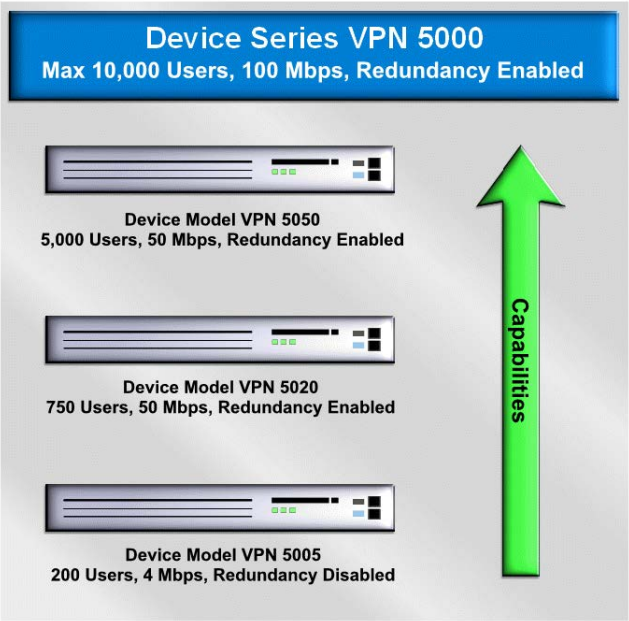
Refer to your *FlexNet Embedded API documentation* for details.

Device Series and Device Models

A device series is a collection of device models that are physically identical but can be upgraded in the field through license changes and products that are added on. The device series sets the maximum limits for device capabilities.

A device model is a basic configuration for which a producer creates a pre-installed license defining a set of capabilities within the maximum limits for the device series. The device model with that particular pre-installed license represents a purchasable configuration for the device. The capability of the model can be increased to the maximum for the series.

In the following example, producer ABC Networks, Inc. has a VPN 5000 device series that includes three device models: VPN 5005, VPN 5020, and VPN 5050. Each model represents a different basic configuration.



In the VPN 5000 device series, all device models can have up to 10,000 simultaneous users, up to 100 Mbps of throughput, and redundancy enabled or disabled.

The VPN 5050, the device model in the series with the highest basic capabilities, has a basic configuration of 5,000 simultaneous users, 50 Mbps of throughput, and redundancy enabled.

Two VPN 5000 series products that can be added on are an additional 1,000 simultaneous users and an additional 10 Mbps of throughput. All device models in the series can be upgraded by a customer to the maximum limits for devices in the VPN 5000 series.

Claiming an Unknown Device

If unknown device support is enabled for their site, a customer can claim an unknown device—a device that was not created using the Producer Portal—in one of the following ways:

- The device makes a capability request to FlexNet Operations.
- The customer uses the device ID to claim the device through the End-User Portal. The device is no longer unknown because it is associated with an account.

Mapping an Entitlement to a Device Using an Activation ID

Devices often include pre-installed products, but also permit the optional addition of new products. When the current owner of a device is entitled to additional products, the additional products can be mapped programmatically to the device using an activation ID.

Viewing Device Details and History

Use the FlexNet Operations Producer Portal to view details about a device such as device ID, status, host type, as well as details about any pre-installed or additional products. You can also view the history specific to a single device. The device history page lists all the device events including device creation, changes, and activation requests.

Associating a Device with an End User

A FlexNet Operations device can be associated with an end user or contact called the Device User. Associating a device with a Device User allows an End-User Portal administrator to communicate with someone regarding the licenses on that device. For example, if the End-User Portal administrator needs a license for a new device but there are no licenses available, the administrator can search for all existing devices using that license and request that one of those Device Users return their license so it can be used on the new device.

With the proper combination of system configuration and user permission settings, a Device User can be added, edited, or deleted via capability request, sync request, the End-User Portal, the Producer Portal, or Web Services. The same Device User can be associated with multiple devices, but a device can only be associated with one Device User.

Removing Licenses from a Device

A license for a device's added-on product can be manually removed in the Producer Portal via the device's default view.

Moving a Device

A device that has not yet been assigned to a customer account can be moved to a related account in the Producer Portal via the device's default view. For example, a parent account can move a device from one of its child accounts (a regional division, for instance) to another child account.

When a device is moved, entitlements that belong to that device are moved as well. The result of such a move is to either create new entitlements for the receiving account or to increment the count of that account's existing (and matching) entitlements by the count on the device that was moved.

Returning a Device

A device can be returned in the Producer Portal via the device's default view. Returns are irreversible actions intended for devices that will no longer receive a capability response or license file.

When customer returns a malfunctioning device to a manufacturer or reseller, the customer has the option of moving all of that device's licenses to a replacement device. Licenses that are not moved are returned to the pool of unused licenses and can be allocated to another device later.

Upgrading a Device

An upgrade is defined as moving a customer from a specified version of a product to an improved version with new or expanded capabilities. First, in the Producer Portal, create a product with additional features, configure FlexNet licensing for that product, and create an entitlement to the product for the customer account.

***Note** ▪ The customer must remove the device's previous licenses before mapping an entitlement for the new version of the product.*

Managing Hardware Returns

When FlexNet Embedded is used to license hardware, the Return Material Authorization (RMA) process is used to return a malfunctioning device to a producer or reseller and replace it with a new one. Some or all of the licenses can be moved to the replacement device. If a license is not moved, it is returned to the pool of unused licenses and can be allocated to another device.

Making a Device Obsolete

An active device can be made obsolete from its default view on the Producer Portal. When a device is made obsolete, its licenses are removed and returned to the pool, and it becomes unable to acquire new license rights. Obsolete devices cannot be re-activated. Obsolete status is permanent.

Offline Activation

Some devices use an offline activation model in which the device generates a binary license request file for an additional product license. The request file can be manually uploaded on the FlexNet Operations End-User Portal.

FlexNet Operations processes the request file to generate a license. If the license request is for an existing device, FlexNet Operations generates a regenerative license. This means that each response contains the complete state of capabilities for the device and that calling the FlexNet Embedded library to process the response overwrites the existing state. Each capability response completely replaces the previous response.

If the request is made for a new device, FlexNet Operations enters the device into the system, adds the corresponding additional product, and generates a license for it.

Vendor Dictionary

The FlexNet Embedded capability request allows a device to send producer-specific information called a vendor dictionary. A vendor dictionary is a collection of name value parameters that are defined by the producer, such as GPS coordinates, time zone, and region. The vendor dictionary provides an interface for an implementer to send custom data in addition to the FlexNet Embedded-specific data from the device to server or vice versa. This data can be used in license-enabled code and the back office server to send information back and forth for any producer-defined purposes, as needed.

Rehosting a License

Rehosting licenses is defined as the process of transferring licenses from one device to another.

Note ▪ *The customer must remove a device's licenses before they can be transferred to another device.*

Generating a Trial License

A trial license enables a customer to demonstrate a product for trial purposes. The license expires after a short period of time.

License Servers

This topic introduces FlexNet Embedded license servers and typical tasks performed for a license server. These tasks include creating a FlexNet Embedded license server and mapping an entitlement for an additional product to a license server.

The exercises in this topic guide you through the basic FlexNet Embedded license server work flows.

- License Servers: Key Concepts
- License Server: Exercises
- License Server: Advanced Topics

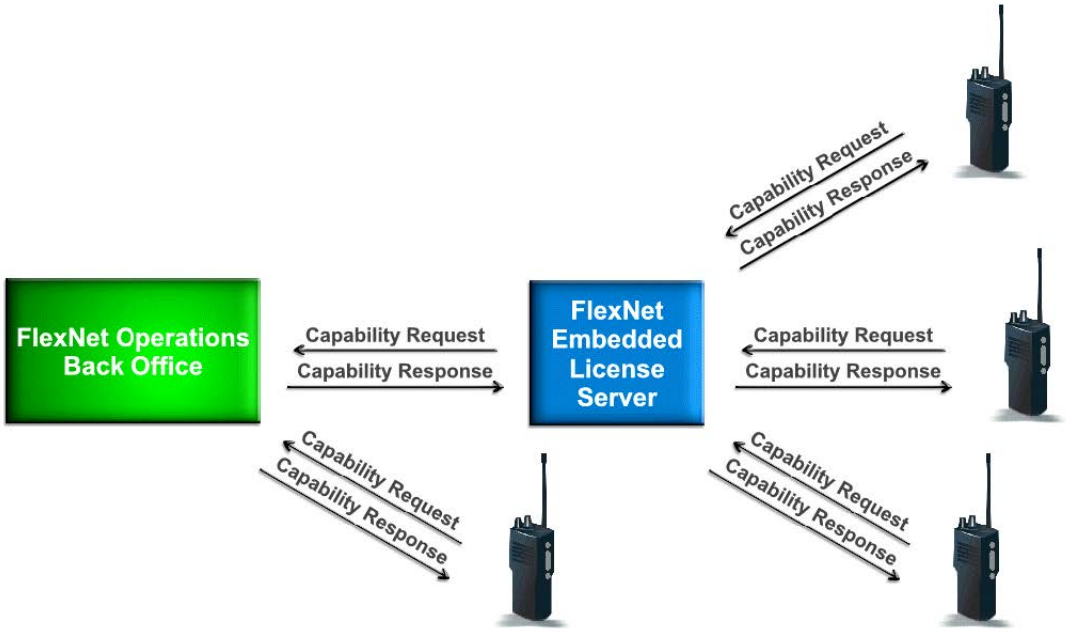
License Servers: Key Concepts

FlexNet Embedded License Servers

The FlexNet Embedded license server communicates with FlexNet Operations to manage devices and product features for a collection of served devices. If a FlexNet Embedded license server is used, served devices connect to this server rather than connecting directly to FlexNet Operations.

The FlexNet Embedded license server provides functionality for serving and monitoring a counted pool of licenses for intelligent device or software clients. The license server application administers licenses, enforces usage count, and provides served license status information in conjunction with client code that incorporates FlexNet Embedded licensing.

FlexNet Embedded license servers can be hosted in the Revenera cloud (Revenera's Cloud License Service must be purchased separately) or locally deployed in a customer's enterprise; the hosting approach depends on the account's deployment needs. The following figure shows the FlexNet Embedded license server's role in the FlexNet Embedded architecture.



Mapping Additional Product Entitlements to a License Server

Additional product entitlements are mapped to a FlexNet Embedded license server the same way they are mapped to a FlexNet Embedded standalone device. When the server activates with FlexNet Operations, its additional product entitlements can be served to local devices. Licenses for additional products can also be removed from a license server.

Viewing Served Devices

Served devices refers to FlexNet Embedded devices that are managed by a FlexNet Embedded license server. In FlexNet Operations, served devices are read-only entities.

For a FlexNet Embedded license server deployed in the customer's enterprise, served device data is only available when the server is syncing with the FlexNet Operations back office. License servers hosted in the Revenera cloud automatically sync with the back office.

License Server: Exercises

These exercises use examples to guide you through the following FlexNet Embedded license server tasks:

Exercise	Description
Creating a FlexNet Embedded License Server	In the End-User Portal, create the ABCVPN_Server license server for FlexNet Embedded devices.
Mapping Additional Product Entitlements to a License Server	In the End-User Portal, map 3 copies of product 10MbpsVPN5000 to the ABCVPN_Server license server.

Creating a FlexNet Embedded License Server

In this exercise, you use the End-User Portal to create the ABCVPN_Server local license server for FlexNet Embedded devices. The ABCVPN_Server local license server can also be created in the Producer Portal.

Task ***To create FlexNet Embedded license server ABCVPN_Server***

1. If you have not already done so, log in to the End-User Portal as Lisa Barry, the Barry Photography Studio end user you created in the exercise in the section Getting Started with Entitlement Management.
2. Click **Devices** > **Create Device.** The **Device | New Device** page appears.
3. In the **Name** field, type **ABCVPN_Server**.
4. Select the **Runs license server?** check box.
5. For **Server deployment**, select **Local**.
6. On the **ID** drop-down menu, select **ETHERNET**. In the **Primary ID** field, type **ABCVPN_Server**.
7. Click **Save**. On the **View Server** page that appears, review the server details. Under **Model Details**, note that this server does not include any pre-installed product and that no additional product entitlements are currently mapped.

Mapping Additional Product Entitlements to a License Server

In this exercise, you use the End-User Portal to map 3 copies of product 10MbpsVPN5000 to the ABCVPN_Server server.

***Note** ▪ If you just completed the Creating a FlexNet Embedded License Server exercise, you can start with Step 3 of this exercise.*

Task ***To map 3 copies of product 10MbpsVPN5000 to license server ABCVPN_Server***

1. In the End-User Portal, click **Devices** > **Devices**. The **Devices** page appears.
2. In the devices list, click the `ABCVPN_Server` link. The **View Server** page appears with the server details.
3. Click **Action** and select **Map Entitlements** from the menu. The **Map Entitlements** page appears with server details and additional products available.
4. On the `10MbpsVPN5000, Version 1.0` line of the table, type `3` in the **Qty to add** field.
5. Click **Save**. The **View Server** page appears with this message: `Entitlements successfully mapped.` Note that the **Status** of the `10MbpsVPN5000, Version 1.0` product is **License not generated**.
6. Click **Action > Download Capability Response** to generate the license. When asked if you want to open or save the binary license file, save it as `<FlexNet_Embedded_install_dir>\bin\tools\ABCVPN_Server.bin`, where `<FlexNet_Embedded_install_dir>` is the directory in which your FlexNet Embedded licensing toolkit is installed. The exact behavior varies slightly, depending on your browser and operating system.
7. Under **View Server**, click **View** and select **View History** from the menu. On the **Server History** page that appears, review the **Time**, **Event**, and **Additional Details** of each line in the list.
8. Click **Devices** > **Devices** and click the `ABCVPN_Server` link. On the **View Server** page, note that the server does not include any pre-installed product and the **Status** of the `10MbpsVPN5000` product is now **License generated**.
9. To use the FlexNet Embedded `printbin` tool to view the contents of the binary license file:
   a. Open a command prompt window.
   b. In the command prompt window, navigate to navigate to `<FlexNet_Embedded_install_dir>\bin\tools`, the directory in which you saved the license file in Step 6.
   c. At the prompt, type the command
   `printbin ABCVPN_Server.bin`
   where `ABCVPN_Server.bin` is the name of the binary license file.
10. Review the license file, which looks similar to:

```
MessageType="Capability response"
ServerIDType=String
ServerID=BACK_OFFICE
SourceIds=BACK_OFFICE
Lifetime=86400
ResponseTime="Sep 18, 2015 5:22:51 PM"
RequestHostID=ABCVPN_Server
RequestHostIDType=Ethernet
MachineType=Unknown
EnterpriseID=61135
License=(Name=Encryption_Throughput Vendor=demo Version=1.0
   Expires=18-sep-2016 Count=30 ServerHostID=ABCVPN_Server/Ethernet HostID=ANY
   BorrowInterval=”1 week(s)” RenewInterval=20 Issued=18-sep-2015
   Start=17-sep-2015 Issuer="My Corporation")
```

11. In the End-User Portal, click **Activation & Entitlements > List Entitlements**. The **List Entitlements** page appears.
12. On the **List Entitlements** page, note that `VPN5050` **Available quantity** is 4 and **Total quantity** is 5, and that `10MbpsVPN5000` **Available quantity** is 4 and **Total quantity** is 10.
13. Log out of the End-User and Producer Portals.

License Server: Advanced Topics

Activations of Entitlements Across Multiple Accounts on a Single Device

Producers with the FlexNet Advanced Organization module that use FlexNet Embedded licensing technology can take greater advantage of their account hierarchies and channel partner sets during entitlement mapping operations. This capability also supports producers who want end users to be able to activate entitlements on any device.

FlexNet Operations enables accounts, other than the device owner, to map entitlements to a device. Producers can map entitlements from the device owner's sub-accounts to any device, and End-User Portal users can map entitlements from their account, or its sub-accounts, to any device visible to them.

Activate Remaining Available Copies of an Entitlement

The FlexNet Embedded client API has a “partial” option when specifying activation IDs for a capability request intended for the back office. It is now possible to request, if there are insufficient copies of the entitlement to satisfy the request, that the back office instead activate the remaining available copies. Without this option, such a request would fail with a message indicating that the number of copies requested exceeds the available copies. With the option, the request succeeds with a status message indicating that the request was only partially fulfilled.

This `partial` option can be added for each activation code requested. For example,

```
-activate activation-id [copies] [partial]
```

Note ▪ *The* `partial` *option does not take into consideration optional limits imposed by the device series.*

Refer to your *FlexNet Embedded API documentation* for details.

Associating a Server with an End User

A FlexNet Operations server can be associated with an end user or contact called the Device User. Associating a server with a Device User allows an End-User Portal administrator to communicate with someone regarding the licenses on that server. For example, if the End-User Portal administrator needs a license for a new device but there are no licenses available, the administrator can search for all existing devices using that license and request that one of those Device Users return their license so it can be used on the new device.

With the proper combination of system configuration and user permission settings, a Device User can be added, edited, or deleted via capability request, sync request, the End-User Portal, the Producer Portal, or Web Services. The same Device User can be associated with multiple devices, but a device can only be associated with one Device User.

Mapping a Product to a License Server Using an Activation ID

License servers often include pre-installed products but also permit the optional addition of new products. When the current owner of a license server is entitled to additional products, those products can be mapped programmatically to the license server using an activation ID.

Removing Product Licenses from a License Server

Licenses for additional products that are mapped to a license server can be manually removed via the Producer Portal's **View Server** page.

***Note** ▪ The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:*

- *License servers cannot be moved to another account.*
- *You cannot remove licenses using Licenses > Remove Licenses.*
- *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

Moving a License Server

A license server can be moved from an account to a related account via the Producer Portal's **View Server** page.

***Note** ▪ Auto-provisioned license servers that have entitlements mapped for metered features cannot be moved to another account. Refer to Auto-Provisioning for more information.*

Returning a License Server

A license server can be returned via the Producer Portal's **View Server** page. Returns are irreversible actions intended for server hosts that will no longer receive a capability response or license file.

Making a License Server Obsolete

An active license server can be made obsolete from its **View Server** page on the Producer Portal. When a license server is made obsolete, its licenses are removed and returned to the pool of unused licenses, and it becomes unable to acquire new license rights. Obsolete license servers cannot be re-activated. Obsolete status is permanent.

***Note** ▪ Making an auto-provisioned license server obsolete that has entitlements mapped for metered features will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server. Refer to Auto-Provisioning for more information.*

Activating an Unclaimed FlexNet Embedded License Server

A FlexNet Embedded license server can be created in the Producer Portal, but an unclaimed license server can be created by submitting an activation request to the FlexNet Operations back office. The request must include an activation code and host information. When it receives such a request, FlexNet Operations creates the license server and maps the activation code to that license server with the requested quantity.

***Note** ▪ A site can be configured so that an activation code is not required to create an unclaimed license server.*

FlexNet Operations processes activation requests from an unclaimed license server using the default server host type FLX_SERVER, then assigns the FLX_SERVER server host type to each license server created through this process—thereby defining the server's identity.

***Note** ▪ The pre-defined server host type, FLX_SERVER, is associated, by default, with the first identity a producer creates.*

Viewing License Server Request History

You can view the history of all license server requests and filter the history by ID and date range.

Using Server Sync to Send License Transaction Data to FlexNet Operations

As transactions occur between a FlexNet Embedded server and its FlexNet Embedded devices, the license server incrementally updates the device status and activation data it stores. When syncing is enabled, the license server syncs with FlexNet Operations, providing the back office with information about how customers use served devices and what features they use. Sync data transmission to FlexNet Operations is configured by the device producer when the FlexNet Embedded license server is configured.

***Note** ▪ Sync messages can be viewed by viewing the device's history. The history of a FlexNet Embedded license server shows sync messages related to all its served devices, while the history of a served device shows only the messages specific to that served device.*

Usage

Refer to Getting Started with Usage Management for information about FlexNet usage management concepts, exercises, and advanced activities.

10

Getting Started with FlexNet Publisher Trusted Storage-Based Licensing

This section *Getting Started with FlexNet Publisher Trusted Storage-Based Licensing* introduces fundamental FlexNet Operations concepts and uses exercises to guide a Producer Portal user through basic trusted storage license activation and support. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience.

Topic	Description
Introduction	Overview of this getting started section, exercise prerequisites, summary of the FlexNet Operations license lifecycle, description of the FlexNet Publisher Licensing Toolkit, and how to configure your machine for trusted storage.
Trusted Storage License Activation	FlexNet Operations trusted storage licensing concepts and exercises that demonstrate how to generate a trusted storage license. Brief descriptions of advanced trusted storage license activation topics and cross references to documents that contain more information.
Trusted Storage License Support	FlexNet Operations trusted storage licensing concepts and exercises that demonstrate how to return a trusted storage license. Brief descriptions of advanced trusted storage license activation topics and cross references to documents that contain more information.

Introduction

This section lists exercise prerequisites, provides a summary of the FlexNet Operations license lifecycle, describes the FlexNet Publisher Licensing Toolkit, and explains how to configure your machine for trusted storage.

- Exercise Prerequisites
- The License Lifecycle: FlexNet Publisher Trusted Storage-Based Licensing

- FlexNet Publisher Licensing Toolkit
- Configuring Your Machine for Trusted Storage
- Next Steps

Exercise Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured
- FlexNet Operations seed data and demonstration database must be loaded

Important ▪ *These exercises require a FlexNet Operations database populated with demonstration data. Refer to the step-by-step instructions in the FlexNet Operations On-Premises Installation & Implementation Guide to create seed data using the* **`flexnet loaddb`** *command and to populate the sample data using the* **`flexnet demodata`** *command.*

- You must have a FlexNet Operations Producer Portal login and a role with permission to view and manage accounts and users, such as System Administrator
- You must complete the exercises in the section Getting Started with Entitlement Management
- The FlexNet Publisher Licensing Toolkit must be properly installed and configured

Important ▪ *Refer to the instructions in the FlexNet Publisher Installation Guide to download and install the licensing toolkit, and to the FlexNet Publisher document "Getting Started with Trusted Storage-Based Licensing" for using the example files provided in the licensing toolkit.*

The License Lifecycle: FlexNet Publisher Trusted Storage-Based Licensing

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 10-1: FlexNet Operations License Lifecycle

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define a customer account's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.
- **Return/Rehost** – Manage license transfers from one user or system to another.
- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

FlexNet Publisher Licensing Toolkit

Windows Platform

The exercises in this getting started section require a FlexNet Publisher Licensing Toolkit installed on a Windows platform (either the `i86_n3` or `x64_n6` toolkit). Each exercise uses sample utilities and executables included in the Windows toolkit. The same components are included in UNIX toolkits. However, to perform the exercises on a UNIX machine, you must adjust the path and file name syntax for the UNIX environment.

Activation Utilities

FlexNet Publisher Licensing activation utilities are designed so that the end user can enter required input via explicit command line arguments. The exercises in this getting started section use command line arguments to issue activation commands. These arguments represent one way of supplying input to the utilities; this method can differ from your specific requirements as a publisher.

Commands are issued in relation to the platform directory under the FlexNet Publisher Licensing Toolkit installation directory. For example, if the Windows 64-bit toolkit is installed, commands are issued from a command prompt in the `x64_n6` directory.

License Server Manager

The license server manager forwards connections from a FlexEnabled application to the correct vendor daemon, which is the part of the license server that authenticates requests and serves licenses. When an exercise requires a license server manager, `lmadmin` is used.

Note ▪ *If necessary, you can use the alternative license server manager,* `lmgrd`*, in place of* `lmadmin`*.*

The exercises use the sample vendor daemon, called `demo`, included in the licensing toolkit.

Toolkit Directories

It is assumed, for exercises in this getting started section, that FlexNet Operations is installed on a Windows machine. The table below lists the toolkit directories, with their shortcut names, referenced in the exercises.

Shortcut Name	Location
`<install_dir>`	No default. Path is defined at toolkit installation time.
`<platform_dir>`	`<install_dir>\i86_n3` (or `<install_dir>\x_64_n6`)
`<publisher>`	`<install_dir>\i86_n3\publisher` (or `<install_dir>\x64_n6\publisher`)

Become familiar with the FlexNet Publisher Licensing Toolkit directory structure for your installation before proceeding; these shortcuts are used throughout the getting started section.

Configuring Your Machine for Trusted Storage

Before starting the license activation and support exercises, configure your machine to use trusted storage. The configuration type depends on your machine's platform:

- Installing the Licensing Service (on Windows)
- Initializing the Trusted Storage Directory (on UNIX)

Normally, for a licensed product, configuration occurs as part of product installation and is performed only once on a given machine.

Installing the Licensing Service (on Windows)

On a Windows machine, configuration for trusted storage requires installing the FlexNet Publisher Licensing Service and registering the product that is using the service. This procedure uses the example executable `installanchorservice.exe`.

Task ***To install FlexNet Publisher Licensing Service***

1. On the **Start Menu** of your machine, right-click the Windows **Command Prompt** and select **Run as administrator**.
2. To install the FlexNet Publisher Licensing Service and register product `PhotoPrint-client` that is supplied by publisher `demo`, at a command prompt in the `<platform_dir>`, enter

   `installanchorservice demo PhotoPrint-client`

   The output is

   ```
   Successfully installed anchor service for publisher demo, product PhotoPrint-client
   ```

   For product `PhotoPrint-server` that is supplied by publisher `demo`, at a command prompt in the `<platform_dir>`, enter

   `installanchorservice demo PhotoPrint-server`

   The output is

   ```
   Successfully installed anchor service for publisher demo, product PhotoPrint-server
   ```

Initializing the Trusted Storage Directory (on UNIX)

On a UNIX machine, configuration for trusted storage requires initializing the trusted storage directory. Additionally, for OS X and Linux machines, configuration also requires installing the FlexNet Publisher Licensing Service. This procedure uses the example script `installfnp.sh`.

Note ▪ *On OS X platforms, your user account must have* `sudo` *privileges to perform this procedure. On all other UNIX platforms, you must have* `root` *permission to perform this procedure.*

Task ***To initialize the trusted storage directory (and install the FlexNet Publisher Licensing Service, if required)***

Perform the appropriate step at a command prompt in the `<publisher>` directory:

- On a UNIX machine, enter the command:

  `sh install_fnp.sh`

- On an OS X machine, enter the command:

  `sudo sh install_fnp.sh`

  The output is

  ```
  Configuration completed successfully.
  ```

Resetting Trusted Storage

If this is your first time through the trusted storage exercises, proceed to Starting the FlexNet License Server. Otherwise, use this procedure to remove any client-side and server-side trusted storage files from previous exercises.

Important ▪ *The utilities* `tsreset_app` *and* `tsreset_svr` *are provided for use with exercises and are not intended to be shipped to an end-user site.*

Task ***To reset trusted storage***

1. To shut down all license servers that might be running, in the `<platform_dir>`, enter

   `lmdown -all`

2. To delete any client-side trusted-storage files, at a command prompt in the `<platform_dir>`, enter

   `tsreset_app -delete all`

   The output is

   ```
   Performing reset operation, please wait...
   Trusted Storage Contents have been reset...
   ```

3. To delete any server-side trusted-storage files, at a command prompt in the `<platform_dir>`, enter

   `tsreset_svr -delete all`

   The output is

   ```
   Performing reset operation, please wait...
   Trusted Storage Contents have been reset...
   ```

Starting the FlexNet License Server

Use this procedure to import the vendor daemon `demo` and start the license server that uses it.

Task ***To start the license server and import the vendor daemon*** `demo`

1. Copy files `<platform_dir>\demo.exe` and `<platform_dir>\demo_libFNP.dll` to the `<platform_dir>\lmadmin\demo` directory.

   Note ▪ *On UNIX platforms, copy files* `<platform_dir>/demo` *and* `<platform_dir>/demo_libFNP.so` *to the* `<platform_dir>/lmadmin/demo` *directory. On AIX, copy* `demo` *and* `demo_server_libFNP_notr.so`.

2. To import the vendor daemon `demo` and use the `demo.lic` license file, at a command prompt in the `<platform_dir>\lmadmin` directory, enter

   `lmadmin -import demo\demo.lic -force`

   The output is

   ```
   Configured new vendor daemon, demo.
   ```

3. To start the license server in the background, from a command prompt in the `<platform_dir>\lmadmin` directory, enter

   ```
   lmadmin -allowRemoteStopServer yes
   ```

Next Steps

The next topic introduces trusted storage licenses and their activation, the stage of the FlexNet Operations license lifecycle that follows delivery of the product's activation IDs to the customer.

Trusted Storage License Activation

This topic introduces trusted storage licenses and their activation, the stage of the FlexNet Operations license lifecycle that follows delivery of the product's activation IDs to the customer. Activation is the process of requesting, generating, delivering, and installing license rights.

The exercises in this topic getting started section you through basic FlexNet Operations trusted storage license activation.

Note ▪ *To use the exercises in this topic, you must be familiar with the FlexNet Publisher Licensing Toolkit. For more information, refer to the FlexNet Publisher document "Getting Started with Trusted Storage-Based Licensing".*

Trusted Storage License Activation Key Concepts

After a product purchase has been registered with FlexNet Operations as an entitlement, a customer can obtain a license for the product. The license enables use of some or all of the product's features, and contains information about the computers on which the software is to run, the expiration date, and the count of the entitlement's available quantity that have been activated. Before the license can be generated, the entitlement must be validated (marked as deployed) in FlexNet Operations.

Trusted Storage License Models

Trusted storage models enable *programmatic activation*, that is, activation of license rights on a machine using a process that is completely hands-free and transparent to the user.

Trusted storage license models include these types:

- A *retail activation* license model is used in a retail scenario for activation of license rights in trusted storage on a standalone end-user machine. Unlimited instances of the licensed application can be run on that machine. You create a product that uses a retail activation model as one of the Client-Side Online Activation exercise prerequisites.
- A *floating transferable* license model allows license rights to be written to the trusted storage of a license server. The license server can then transfer these rights to another server, or allow them to float over a network from which end users check them out. These license rights cannot be activated directly on end-user machines.

- A *floating borrowable* license is first activated on a license server. It can be transferred to another license server, served as a floating license, or activated on an end-user machine for use when it is no longer connected to a license server.
- An *enterprise activation* license model is used to activate license rights on an enterprise server, from which the license rights can be transferred to another server or activated on an end-user machine. These licenses cannot float over a network. You create a product that uses an enterprise activation model as one of the Server-Side Online Activation exercise prerequisites.

License rights data in trusted storage is encrypted and authenticated to prevent tampering.

Transaction Keys

Products that use a trusted storage license model require at least one transaction key. A transaction key consists of a publisher ID, a set of transaction key seeds, binding, and anchors. Binding ensures that license rights held in trusted storage are not copied to another system, while anchors detect whether trusted storage has been tampered with, deleted, or restored.

A transaction key is linked with a product only if the product uses a trusted storage license model. The transaction key is linked with the product when the first trusted storage license model is linked with the product, and can be changed later or overridden. You must create at least one transaction key before linking a trusted storage license model with a product. Unlike license models, it is not necessary to deploy transaction keys.

You create a transaction key as one of the Client-Side Online Activation exercise prerequisites.

Generating Trusted Storage Licenses

Trusted storage is a technology, used by FlexEnabled applications to store license rights, that allows hands-free activation. Users can obtain trusted storage licenses without downloading them from a web portal; instead, license rights are stored in an encrypted file on the local host's drive.

The process of placing license rights in client trusted storage, also called activating an application, requires a utility on the customer's system that communicates with FlexNet Operations. The utility sends a request for a particular product with particular terms. FlexNet Operations processes the request to determine if the system is entitled to the software, and if so, sends a response containing the corresponding license rights. The utility processes the response, which results in the license rights being stored in trusted storage.

The two types of trusted storage are:

- *client-side* – license rights stored on an end-user system that are checked out by a licensed application
- *server-side* – counted license rights stored on a license server system that are served in a corporate network

Activation Utilities

The FlexNet Publisher Licensing Toolkit component that communicates with FlexNet Operations to activate software is called an activation utility. An activation utility that activates software on a client system is called an application activation utility. An activation utility that activates software to be served by a license server is called a server activation utility.

Composite Transaction and Single Transaction Activation Utilities

FlexNet Operations provides sample client-side and server-side activation utilities that operate from the command line, as listed in the following table. Later releases include composite transaction activation utilities, which facilitate more efficient activation operations by bundling multiple transactions into a single communication exchange between the client or server utility and FlexNet Operations. The older, single transaction activation utilities are still supported for legacy purposes.

Activation Utility Type	Composite Transaction	Legacy, Single Transaction
Application (client side)	`appcomptranutil`	`appactutil`
Server (server side)	`servercomptranutil`	`serveractutil`

Important ▪ *The sample utilities shown in the table are provided for use with the exercises in this getting started section. They are not suitable for use in a production environment.*

Using Sample Activation Utilities

The sample client-side application activation utilities, `appcomptranutil` and `appactutil`, are command-line tools for adding license rights to client-side trusted storage. These executables are located in the `<platform_dir>` of the FlexNet Publisher Licensing Toolkit, where `platform_dir` is the name of the platform on which the toolkit is installed.

To use a sample application activation utility, open a command prompt or console window and set the `<platform_dir>` to be the current directory. For example, to verify that no license rights are currently available on the client system, enter the command

```
appcomptranutil -view
```

or

```
appactutil -view
```

This command displays the current contents of client trusted storage, which should initially report that there are no fulfillment records in trusted storage.

Similar sample utilities, `servercomptranutil` and `serveractutil`, are supplied for server-side activation, and are located in the same directory as the application activation utilities.

FlexNet Operations supports three types of trusted storage license activation:

- Online Activation
- Short Code Activation (also called phone-based activation)
- Manual Activation (also called email-based activation)

Online Activation

Trusted activations are normally done programmatically as transactions between a client or server activation utility and the FlexNet Operations server. The activation utility generates a request that is submitted programmatically and the FlexNet Operations server generates a response that is used to complete the activation.

The following sections describe the client and server utilities used to perform online trusted storage license activation. For syntax and options, type the utility name in the FlexNet Publisher Licensing Toolkit `<platform_dir>` command window.

Note ▪ *The exercises in this getting started section are based on a Windows platform installation of the FlexNet Publisher Licensing Toolkit. To do the exercises on a UNIX machine, adjust the path and file name syntax for the UNIX environment.*

Client-Side Online Activation

The client-side online activation utilities are `appcomptranutil` (composite transaction) and `appactutil` (single transaction). These utilities are run, in a command window on the client, with command-line parameters that indicate the FlexNet Operations server host and port, and the activation ID.

Client-side activation requires a product linked to a retail activation license model.

Composite Transaction

For the composite transaction activation utility, `appcomptranutil`, the command to perform a retail activation looks similar to

```
appcomptranutil -t http://<hostname:port>/flexnet/services/ActivationService -a <act_ID>
```

where

- **`<hostname>`** is **`localhost`**, the name of the system on which the license server is running
- **`<port>`** is **`8888`**
- **`<act_ID>`** is the activation ID displayed by FlexNet Operations

Note ▪ *For sample commands shown in this getting started section, it is assumed that FlexNet Operations and the activation utilities are running on the same system. If not, replace `localhost:8888` with the appropriate host and port values.*

Progress messages are displayed at the command line.

Multiple transactions can be invoked in a single command with `appcomptranutil`. To perform multiple activations in a single command, append additional activations to the command with `-a <act_ID>`. For example,

```
appcomptranutil -t http://<hostname:port>/flexnet/services/ActivationService
    -a <act_ID1> -a <act_ID2> -a <act_ID3>
```

Note ▪ *To successfully perform multiple activations in a single command, all entitlements must belong to the same account, use the same license type (client or server), and be performed on the same machine.*

Legacy, Single Transaction

For the single transaction activation utility, `appactutil`, the command to perform a retail activation looks like

```
appactutil -served -comm soap -commServer http://<hostname:port>/flexnet/services/ActivationService
    -entitlementID <ent_ID>
```

where **<ent_ID>** is the entitlement ID.

Progress messages are displayed at the command line.

New license rights for the products and features you defined in FlexNet Operations are visible in client-side trusted storage when you run the command

```
appcomptranutil -view
```

or

```
appactutil -view
```

Output is similar to

```
Trust Flags: FULLY TRUSTED
Fulfillment Type: PUBLISHER ACTIVATION
Status: ENABLED
Fulfillment ID: FID__111ff222_333445555__666e
Entitlement ID: ent_ID
Product ID: NAME=Sample App;VERSION=1.0
Expiration date: 31-dec-2015
Feature line(s):
INCREMENT F1 demo 1.0 31-dec-2015 1 ISSUER="Sample Co." \
        ISSUED=1-jan-2015 START=1-jan-2015 SIGN="..."
INCREMENT F2 demo 1.0 31-dec-2015 1 ISSUER="Sample Co." \
        ISSUED=1-jan-2015 START=1-jan-2015 SIGN="..."
```

Server-Side Online Activation

Server-side activation is performed in a manner similar to client-side activation, and can be performed using a server activation utility such as `servercomptranutil` or `serveractutil`.

Server-side activation requires a product linked to one of the following license model types:

- Enterprise activation
- Floating borrowable
- Floating transferable

Composite Transaction

Server-side commands using `servercomptranutil` are similar to client-side commands using `appcomptranutil`. For a composite transaction server activation utility, a sample command is

```
servercomptranutil -t http://<hostname:port>/flexnet/services/ActivationService -a <act_ID> count=1
```

Multiple transactions can be invoked in a single command with `servercomptranutil`. To perform multiple activations in the same command, append additional activations to the command with `-a <act_ID> count=n`, where `n` is the number of products being activated. For example,

```
servercomptranutil -t http://<hostname:port>/flexnet/services/ActivationService
    -a <act_ID1> count=x -a <act_ID2> count=y -a <act_ID3> count=z
```

Note ▪ *To successfully perform multiple activations in a single command, all entitlements must belong to the same account, use the same license type (client or server), and be performed on the same machine.*

Legacy, Single Transaction

Legacy, server-side commands using `serveractutil` are similar to client-side commands using `appactutil`. For a single transaction server activation utility, a sample command is

```
serveractutil –served –comm soap –commServer http://<hostname:port>/flexnet/services/ActivationService -
    entitlementID <ent_ID> -expiration 1-jan-2018 -licensemodeltype <count>
```

where

- **<ent_ID>** is the entitlement ID
- **licensemodeltype** is one of the following:
  - **activatable** for an enterprise activation model
  - **hybrid** for a floating borrowable model
  - **concurrent** for a floating transferable model
- **<count>** is the number of products, using **licensemodeltype**, that are being activated

Trusted Storage License Activation Exercises

These exercises use examples to guide you through the following trusted storage license activation tasks:

Exercise	Description
Client-Side Online Activation	Perform a client-side online activation of a `PhotoPrint-client` product license.
Server-Side Online Activation	Perform a server-side online activation of a `PhotoPrint-server` product license.
Local Online Activation	Perform a local online activation of a `PhotoPrint-server` product license on the client.

Important ▪ *This getting started section describes operations that are performed on the server side (referring to the FlexNet license server) and on the client side (referring to the machine on which the FlexEnabled application*

is installed). The exercises use the same machine for both types of operations. However, a real enterprise environment typically has one or more dedicated license servers that are distinct from the client machines.

Client-Side Online Activation

In this exercise, you perform a client-side online activation of the `PhotoPrint-client` product license.

Prerequisites

Log in to the FlexNet Operations Producer Portal to:

- Create a transaction key called `TS-DemoTransKey`:
  a. Click **Administer > Transaction Keys**
  b. Click **Add a Transaction Key**
  c. Under **Create a Transaction Key**, enter these attributes:
     - **Name:** Type **`TS-DemoTransKey`**
     - **Description:** Type **`Demo trans key for trusted storage licensing exercises`**
     - **Publisher ID:** Select `256-demo`
     - **Transaction Key Seeds:** Type eight sets of eight hexadecimal digits each:

       `00000000 aaaaaaaa 11111111 bbbbbbbb`

       `22222222 cccccccc 33333333 dddddddd`
     - **Binding Type:** Select `Default Fingerprint`
     - **Do you want to use Anchoring?** Select `Yes`
  d. Click **Save**

If necessary, refer to the section Getting Started with Entitlement Management to:

- Deploy the Retail Activation license model (Deploying a License Technology and Model)
- Copy product `PhotoPrint` and save it as `PhotoPrint-client` (Creating a Product)
  a. Click **Products > Products**
  b. Search for and select the `PhotoPrint` check box, then click **Copy**
  c. Under **Create a Product**, in the **Product Name** field, type **`PhotoPrint-client`** and click **Save**
- Link `PhotoPrint-client` to the Retail Activation license model and select **Transaction Key** `TS-DemoTransKey` from the **Default** menu (Linking a License Model to a Product). Remove (unlink) the Nodelocked Uncounted license model and save `PhotoPrint-client`.
- Deploy the `PhotoPrint-client` product (Deploying a Product)
- Create and configure an entitlement called `ENT-PhotoPrint-client` (Creating and Configuring an Entitlement):
  - for end customer Lisa Barry of BarryPhoto

- with a product `PhotoPrint-client` line item for a quantity of 1 copy and a license that starts at the first activation date and has a duration of 1 year

- Save and deploy the `ENT-PhotoPrint-client` entitlement (Deploying an Entitlement)
- If this is not your first time through the trusted storage license exercises, perform the steps in Resetting Trusted Storage to remove any client-side and server-side trusted storage files that might exist from previous exercises.

Task ***To activate a license using*** `appcomptranutil`

1. In the FlexNet Operations Producer Portal, click **Entitlements > List Entitlements**. The **List Entitlements** page appears.
2. On the **Activatable Line Items** list, search for entitlement ID `ENT-PhotoPrint-client` and review the line item details. Note that available quantity and total quantity are 1 for product `PhotoPrint-client`. Expiration is in 1 year.
3. At a command prompt in the `<platform_dir>`, enter the following, where `<hostname:port>` is `localhost:8888` and `<act_ID>` is the FlexNet Operations `PhotoPrint-client` activation ID:

   Important ▪ *Exercises are based on the assumption that FlexNet Operations and the activation utilities are running on the same system. If not, replace `localhost:8888` in the `appcomptranutil` command with the appropriate host and port values.*

   `appcomptranutil -t http://<hostname:port>/flexnet/services/ActivationService -a <act_ID>`

   Output is similar to

   ```
   Server http://localhost:8888/flexnet/services/ActivationService, comms type SOAP
   Status: 4, Creating request
   Status: 5, Request created
   Status: 6, Context created
   Status: 7, Connected to remote server
   Status: 8, Request Sent
   Status: 9, Polling for response
   Status: 10, Waiting for response
   Status: 9, Polling for response
   Status: 11, Done
   Response processed successfully. Actions were:
      Configuration    TrustedId “13”
      Create           fulfillment “FID_d7a83787_46d6_43b1_a65b_ad85e135aa60”
   ```

4. At a command prompt in the `<platform_dir>`, to view the new license rights in client-side trusted storage, enter

   `appactutil -view`

   Output is similar to

   ```
   ---------------------------------------------------------------------
   Trust Flags: FULLY TRUSTED
   Fulfillment Type: PUBLISHER ACTIVATION
   Status: ENABLED
   Fulfillment ID: FID_d7a83787_46d6_43b1_a65b_ad85e135aa60
   ```

```
Entitlement ID: ff6a-cf25-7c72-4b15-9d49-945e-4b2f-519f
Product ID: NAME=PhotoPrint-client;VERSION=12.0
Suite ID: NONE
Expiration date: 29-Nov-2016
Feature line(s):

INCREMENT PrintToPDF demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="003F 469C FAA0 F579 \
        2035 9632 BDAB B500 67F2 72CE 68BA FF86 4FC8 4123 FF47"
INCREMENT Print demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0072 6DC3 2310 9577 \
        9B9D 781E 36BC 0900 0E73 A2B7 C4A3 99FF BCA0 F23F 1D94"
INCREMENT PrintHighQualityColor demo 12.3 29-nov-2016 1 ISSUER="My \
        Corporation" ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0080 \
        7DCA A76B 32CD 539C D4D2 F8C5 E900 8A05 0830 DEC5 8686 FB52 \
        2E64 B961"
-----------------------------------------------------------------
```

Review the license rights output, noting the information on these lines: `Trust Flags`, `Fulfillment Type`, `Status`, `Product ID`, `Expiration date`, and `Feature line(s)`.

5. In FlexNet Operations, click **Licenses > Licenses**. The **Support Licenses And Maintenance** page appears.
6. On the list, search for product `PhotoPrint-client` and review the license details. Note that count is 1 because 1 `PhotoPrint-client` license is activated. Note the fulfillment date and expiration.

Server-Side Online Activation

In this exercise, you perform a server-side online activation of the `PhotoPrint-server` product license.

Prerequisites

If necessary, refer to the section Getting Started with Entitlement Management to:

- Deploy the Enterprise Activation license model (Deploying a License Technology and Model)
- Copy product `PhotoPrint-client` and save it as `PhotoPrint-server` (Creating a Product)
  a. Click **Products > Products**
  b. Search for and select the `PhotoPrint-client` check box, then click **Copy**
  c. Under **Create a Product**, in the **Product Name** field, type **`PhotoPrint-server`** and click **Save**
- Link `PhotoPrint-server` to the Enterprise Activation license model (Linking a License Model to a Product). Remove (unlink) the Retail Activation license model and save `PhotoPrint-server`.
- Deploy the `PhotoPrint-server` product (Deploying a Product)
- Create and configure an entitlement called `ENT-PhotoPrint-server` (Creating and Configuring an Entitlement):
  - for end customer Lisa Barry of BarryPhoto
  - with a product `PhotoPrint-server` line item for a quantity of 3 copies and a license that starts at the first activation date and has a duration of 1 year
- Save and deploy the `ENT-PhotoPrint-server` entitlement (Deploying an Entitlement)

Task ***To activate a license using*** `servercomptranutil`

1. In FlexNet Operations, click **Entitlements > List Entitlements**. The **List Entitlements** page appears.
2. On the **Activatable Line Items** list, search for entitlement ID `ENT-PhotoPrint-server` and review the line item details. Note that available quantity and total quantity are 3 for product `PhotoPrint-server`. Expiration is in 1 year.
3. At a command prompt in the `<platform_dir>`, enter the following for a count of 2, where `<act_ID>` is the FlexNet Operations `PhotoPrint-server` activation ID:

   `servercomptranutil -t http://<hostname:port>/flexnet/services/ActivationService -a <act_ID> count=2`

   Output is similar to

   ```
   Server http://localhost:8888/flexnet/services/ActivationService, comms type SOAP
   Status: 4, Creating request
   Status: 5, Request created
   Status: 6, Context created
   Status: 7, Connected to remote server
   Status: 8, Request Sent
   Status: 9, Polling for response
   Status: 10, Waiting for response
   Status: 9, Polling for response
   Status: 11, Done
   Response processed successfully. Actions were:
       Configuration  TrustedId "13"
       Create         fulfillment "FID_c40614fd_1489_4e28_9bb6_c5872fadb51b"
   ```

4. At a command prompt in the `<platform_dir>`, to view the new license rights in server-side trusted storage, enter

   `serveractutil -view`

   Output is similar to

   ```
   ------------------------------------------------------------------------
   Trust Flags: FULLY TRUSTED
   Fulfillment Type: PUBLISHER ACTIVATION
   Status: ENABLED
   Fulfillment ID: FID_c40614fd_1489_4e28_9bb6_c5872fadb51b
   Entitlement ID: 4dff-ff10-c75a-432e-8dbf-8bc3-066b-ff1c
   Product ID: NAME=PhotoPrint-server;VERSION=12.0
   Suite ID: NONE
   Expiration date: 29-Nov-2016
   Concurrent: 0
   Concurrent overdraft:0
   Hybrid: 0
   Hybrid overdraft: 0
   Activatable: 2
   Activatable overdraft: 0
   Repairs: 0
   Feature line(s):

   INCREMENT PrintToPDF demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
           ISSUED=29-nov-2015 START=28-nov-2015 SIGN="003F 469C FAA0 F579 \
           2035 9632 BDAB B500 67F2 72CE 68BA FF86 4FC8 4123 FF47"
   ```

```
INCREMENT Print demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0072 6DC3 2310 9577 \
        9B9D 781E 36BC 0900 0E73 A2B7 C4A3 99FF BCA0 F23F 1D94"
INCREMENT PrintHighQualityColor demo 12.3 29-nov-2016 1 ISSUER="My \
        Corporation" ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0080 \
        7DCA A76B 32CD 539C D4D2 F8C5 E900 8A05 0830 DEC5 8686 FB52 \
        2E64 B961"
-----------------------------------------------------------------
```

Review the license rights output, noting the information on these lines: `Trust Flags`, `Fulfillment Type`, `Status`, `Product ID`, `Expiration date`, `Activatable`, and `Feature line(s)`.

5. Record the `Entitlement ID` for later use in Step 1 of the To activate a local license using `appactutil` task in the Local Online Activation exercise.
6. In FlexNet Operations, click **Licenses > Licenses**. The **Support Licenses and Maintenance** page appears.
7. On the licenses list, search for product `PhotoPrint-server` and review the license details. Note that the count is 2 because 1 `PhotoPrint-server` license is activated. Note the fulfillment date and expiration.
8. Click **Entitlements > List Entitlements**. The **List Entitlements** page appears. On the **Activatable Line Items** list, search for entitlement ID `ENT-PhotoPrint-server` and review the line item details. Note that available quantity is reduced to 1 and total quantity is 3 for product `PhotoPrint-server`. Note the expiration.

Local Online Activation

In this exercise, you activate a `PhotoPrint-server` license from the FlexNet license server's trusted storage on the client.

Task ***To activate a local license using*** `appactutil`

1. At a command prompt in the `<platform_dir>`, to activate a server-side license in client-side trusted storage, enter

   `appactutil -served -commServer <port@hostname> -entitlementID <ent_ID>`

   where

   - **`<port@hostname>`** is **`27000@localhost`**, the license server

     Note ▪ *For purposes of this exercise, the default port number 27000 is used. If 27000 is not the port assigned to the license server, specify the correct one in the command.*

   - **`<ent_ID>`** is the `Entitlement ID` you recorded in Step 5 of the Server-Side Online Activation exercise

   This command does the following:

   - Creates an activation request that contains the entitlement ID
   - Sends the activation request to the license server

Note ▪ *In your production environment, best practice is not to assign a default port for the license server. Instead, for security purposes, assign a port number outside of the range 27000 through 27009.*

- Places one fulfillment record from the license server's trusted storage into the client machine's trusted storage

Output is similar to

```
Generating activation request using:
        Entitlement ID = 4dff-ff10-c75a-432e-8dbf-8bc3-066b-ff1c
        Expiration = 29-Nov-2016
ACTIVATION REQUEST SUCCESSFULLY PROCESSED
ProductID NAME=PPrint-server;VERSION=12.0, FulfillmentID FID-1448810769
```

2. At a command prompt in the <platform_dir>, to view the new license rights in client-side trusted storage, enter

appactutil -view

Output is similar to

```
-----------------------------------------------------------------------
Trust Flags: FULLY TRUSTED
Fulfillment Type: PUBLISHER ACTIVATION
Status: ENABLED
Fulfillment ID: FID_d7a83787_46d6_43b1_a65b_ad85e135aa60
Entitlement ID: ff6a-cf25-7c72-4b15-9d49-945e-4b2f-519f
Product ID: NAME=PhotoPrint-client;VERSION=12.0
Suite ID: NONE
Expiration date: 29-Nov-2016
Feature line(s):

INCREMENT PrintToPDF demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="003F 469C FAA0 F579 \
        2035 9632 BDAB B500 67F2 72CE 68BA FF86 4FC8 4123 FF47"
INCREMENT Print demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0072 6DC3 2310 9577 \
        9B9D 781E 36BC 0900 0E73 A2B7 C4A3 99FF BCA0 F23F 1D94"
INCREMENT PrintHighQualityColor demo 12.3 29-nov-2016 1 ISSUER="My \
        Corporation" ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0080 \
        7DCA A76B 32CD 539C D4D2 F8C5 E900 8A05 0830 DEC5 8686 FB52 \
        2E64 B961"

-----------------------------------------------------------------------
Trust Flags: FULLY TRUSTED
Fulfillment Type: SERVED ACTIVATION
Status: ENABLED
Fulfillment ID: FID-1448810769
Entitlement ID: 4dff-ff10-c75a-432e-8dbf-8bc3-066b-ff1c
Product ID: NAME=PhotoPrint-server;VERSION=12.0
Suite ID: NONE
Expiration date: 29-Nov-2016
Feature line(s):

INCREMENT PrintToPDF demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="003F 469C FAA0 F579 \
```

```
        2035 9632 BDAB B500 67F2 72CE 68BA FF86 4FC8 4123 FF47"
INCREMENT Print demo 12.3 29-nov-2016 1 ISSUER="My Corporation" \
        ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0072 6DC3 2310 9577 \
        9B9D 781E 36BC 0900 0E73 A2B7 C4A3 99FF BCA0 F23F 1D94"
INCREMENT PrintHighQualityColor demo 12.3 29-nov-2016 1 ISSUER="My \
        Corporation" ISSUED=29-nov-2015 START=28-nov-2015 SIGN="0080 \
        7DCA A76B 32CD 539C D4D2 F8C5 E900 8A05 0830 DEC5 8686 FB52 \
        2E64 B961"

-----------------------------------------------------------------
```

Review the two sets of license rights output, noting the information on these lines: `Trust Flags`, `Fulfillment Type`, `Status`, `Product ID`, `Expiration date`, and `Feature line(s)`. Compare the fulfillment types of the two sets—for `PhotoPrint-client` the type is `PUBLISHER ACTIVATION` and for `PhotoPrint-server` the type is `SERVED ACTIVATION`.

Trusted Storage License Activation Next Steps

License support is the stage of the FlexNet Operations license lifecycle that follows license activation. Support includes return of licenses. The exercises in the next topic use products `PhotoPrint-client` and `PhotoPrint-server` to guide you through basic FlexNet Operations trusted storage license support tasks.

Trusted Storage License Activation Advanced Topics

Short Code Activation

Short code (keyboard) activation is intended for customers who do not have the network connection resources needed for typical activation transactions, and must activate a product manually, such as over the telephone. This is typically done for machines not connected to a network. Short code activation of a local license server is also supported.

License rights are loaded from an Activation Specification Record (ASR) file using an activation transaction that requires a specific code, called a short code because it is not the prohibitively long code used in typical activations. Using a short code ASR, a customer provides a short request code and receives a short response code, over the telephone, that can be typed into the application interface. For more information, see Short Code Activations.

Manual Activation

Manual activation is useful when there is no Internet connectivity directly on the host. The activation request is generated and written to a file by a FlexNet Publisher activation utility running on the machine where the license is to be activated, then the request is emailed to the publisher. The publisher uses FlexNet Operations to generate the response XML file. Alternatively, the customer can use the End-User Portal to submit and receive the response XML file. For more information, see Manual Activations.

Trusted Storage License Support

This topic introduces trusted storage license support, the stage of the FlexNet Operations license lifecycle that follows license activation. Trusted storage license support includes returning licenses.

The exercise in this topic guides you through basic FlexNet Operations trusted storage license support.

***Note** ▪ To use the exercise in this topic, you must be familiar with the FlexNet Publisher Licensing Toolkit. For more information, refer to the FlexNet Publisher document "Getting Started with Trusted Storage-Based Licensing".*

Trusted Storage Key Concepts

After a license is activated, support becomes an important part of the license lifecycle. Changes resulting from business decisions such as the repackaging of products or introduction of maintenance, and end user events such as purchase of a new machine affect the license lifecycle.

Many types of license change management for trusted storage-based licenses—including returns, repairs, rehosts, upgrades, upsells, and renewals—are supported by FlexNet Operations.

Returning a Trusted Storage License

FlexNet Operations supports three types of trusted storage license return:

- Online Return
- Short Code Return (also called phone-based return)
- Manual Return (also called email-based return)

***Note** ▪ The commands and exercises in this getting started section are based on a Windows platform installation of the FlexNet Publisher Licensing toolkit. To do the exercises on a UNIX machine, you must adjust the path and file name syntax for the UNIX environment.*

***Note** ▪ For sample commands shown in this getting started section, it is assumed that FlexNet Operations and the activation utilities are running on the same system. If not, replace `localhost:8888` with the appropriate host and port values.*

Online Return

If an end user's machine has Internet access, the end user can return a license using an activation utility. Unlike license file-based licenses, return of a trusted storage license is a secure operation; the user can no longer use the license after it is returned.

Composite Transaction

Online returns can be performed using the composite transaction activation utilities `appcomptranutil` and `servercomptranutil`. To perform multiple returns in the same command, append each additional return to the command with `-r <fulfill_ID>` and `reason=<reason_code>`. For example,

```
appcomptranutil -t http://localhost:8888/flexnet/services/ActivationService
    -r <fulfill_ID1> reason=0 -r <fulfill_ID2> reason=0 -r <fulfill_ID3> reason=0
```

Note ▪ *To successfully perform multiple returns in a single command, all fulfillments must belong to the same account, use the same license type (client or server), and be performed on the same machine.*

Legacy, Single Transaction

For legacy versions of FlexNet Operations, `appactutil` and `serveractutil` are still supported to perform license lifecycle operations.

Trusted Storage Exercises

This exercise uses examples to guide you through the following trusted storage license support task:

Exercise	Description
Client-Side Online Return	Perform a client-side online return of a `PhotoPrint-client` product license.

Client-Side Online Return

In this exercise, you perform a client-side online return of the `PhotoPrint-client` product license.

Task ***To return a license using appcomptranutil***

1. To view the `PhotoPrint-client` and `PhotoPrint-server` license rights in client-side trusted storage, at a command prompt in the `<platform_dir>`, enter

   `appcomptranutil -view`

   Output is similar to

   ```
   Viewing application trusted storage.

   U if untrusted
   . D if disabled
   . . fulfillmentType
   . . . Expiry   Count FulfillmentId                  ProductId

   . . 6 29-Nov-2016  1 FID_d7a83787_46d6_43b1_a65b_ad85e135aa60 NAME=PhotoPrint-client
   ;VERSION=12.0
   . . 4 29-Nov-2016  1 FID-1448810769                 NAME=PhotoPrint-server;VERSION=
   12.0

   Viewed 2 of 2 fulfillment records.
   ```

2. From its fulfillment record, record the fulfillment ID of the `PhotoPrint-client` license to be returned.

3. In the `<platform_dir>` on the client, enter this command, where `<Fulfill_ID>` is the `PhotoPrint-client` fulfillment ID:

   ```
   appcomptranutil -t http://localhost:8888/flexnet/services/ActivationService
       -r <Fulfill_ID> reason=0
   ```

Output is similar to

```
Server http://localhost:8888/flexnet/services/ActivationService, comms type SOAP
Status: 4, Creating request
Status: 5, Request created
Status: 6, Context created
Status: 7, Connected to remote server
Status: 8, Request Sent
Status: 9, Polling for response
Status: 10, Waiting for response
Status: 9, Polling for response
Status: 11, Done
Response processed successfully. Actions were:
    Delete         fulfillment "FID_d7a83787_46d6_43b1_a65b_ad85e135aa60"
```

4. Enter one of the following commands in the `<platform_dir>` and note that the `PhotoPrint-client` fulfillment was deleted from trusted storage:

   `appcomptranutil -view`

   or

   `appactutil -view`

   In FlexNet Operations, click **Entitlements > List Entitlements** and note that the `PhotoPrint-client` copy was returned to the FlexNet Operations **List Entitlements** list (**Available Quantity** is 1, **Total Quantity** is 1). Click **Licenses > Licenses** and note that the `PhotoPrint-client` fulfillment was deleted from the list on the **Support Licenses And Maintenance** page.

Trusted Storage Advanced Topics

Online Repair

A trusted storage license repair is necessary when the license becomes invalid because the machine hardware configuration changed enough to exceed the tolerance for the machine bindings, or the anchor is broken.

Most trusted repairs are done programmatically but they can also be done through the FlexNet Operations Producer Portal or the End-User Portal. The number of allowed license repairs per unit time per line item is governed by a policy on the license model or the line item.

Reason Codes

Certain FlexNet Operations activation and return requests include reason codes to identify the nature of the request. Reason codes are supported only for activation and change management requests coming from server activation utilities; reason codes are not supported for retail activation models.

The meanings of these reason codes depend, in part, on whether the request is an activation or a return.

Note that while reason codes accompany certain activation and return requests, not all requests require or include reason codes. For example, normal activation requests do not include reason codes, nor do repair requests.

Short Code Return

As with short code (keyboard) activation, if an end user's machine has no Internet access, the end user can still return a license using a short code. Fulfillment records generated using online, manual, or short code activation can all be returned using short codes. Short code returns are not supported by composite transaction utilities.

Short Code Repair

As with short code (keyboard) activation, if an end user's machine has no Internet access, the end user can still repair a license using a short code. Fulfillment records generated using online, manual, or short code activation can all be repaired using short codes. Short code repairs are not supported by composite transaction utilities.

Manual Return

As with manual activation, if an end user's machine has no Internet access, the end user can still return a license using an XML file. Fulfillment records generated using online or manual activation can all be returned manually using XML files. Fulfillments generated using short code (keyboard) activation cannot be returned using this method.

Manual Repair

As with manual activation, if the end user machine has no Internet access, the end user can still repair a license using an XML file. Fulfillment records generated using online or manual activation can all be repaired manually using XML files. Fulfillments generated using short code (keyboard) activation cannot be repaired using this method.

Manual repairs can be performed using composite transaction utilities or single transaction utilities. Manual repairs executed with composite transaction utilities can perform multiple repairs in a single command. Append each additional repair to the command with `-e <fulfillment_ID>`.

Rehosting a License

Moving a license from one machine to another is called *rehosting* a license.

Upgrading a License

Changing from one version of a product to an improved version is called *upgrading* a license. For example, a customer can upgrade a license for `Paint 4.0` software to one for `Paint 5.1`.

Upselling a License

Changing from one product to another with more capabilities is called *upselling* a license. For example, a customer who has a license for a four-function `Basic Calculator` can be upsold to the `Scientific Calculator`, which is designed for engineers and scientists.

Renewing a License

Extending an expiring license is called *renewing* a license. For example, a customer whose software license expires after one year can renew it for another year.

Reinstalling a License

Over time, an end customer may reinstall an operating system on the client machine or reinstall a FlexEnabled application. In this case, the customer usually wants to get the original license back without consuming an additional count from the entitlement. FlexNet Operations uses the Unique Machine Number (UMN) of the client machine to determine that the user is indeed reinstalling the application.

A reinstall works differently for a server activation request. Because it is common for a server to send an activation request for the same activation ID multiple times to activate a few copies each time, an additional parameter is added to the activation request to indicate that it is a reinstall. FlexNet Operations obsoletes all the existing fulfillment records for the given activation ID and UMN, and generates a new fulfillment record based on the parameters in the reinstall activation request.

For both client and server activations, when a fulfillment record is identified as a reinstall, fulfillment history on the line item is updated.

11

Getting Started with FlexNet Publisher License File-Based Licensing

This section *Getting Started with FlexNet Publisher License File-Based Licensing* presents fundamental FlexNet Operations concepts and uses exercises to lead a Producer Portal user through basic certificate license activation and support. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience.

Topic	Description
Introduction	Overview of this getting started section, exercise prerequisites, and a summary of the FlexNet Operations license lifecycle.
Certificate License Activation	FlexNet Operations certificate licensing concepts and exercises that demonstrate how to generate a certificate license and review fulfillment history after activation. Brief descriptions of advanced certificate license activation topics with references for more information.
Certificate License Support	FlexNet Operations certificate licensing support concepts and exercises that demonstrate how to return a certificate license and review fulfillment history after the license is returned. Brief descriptions of advanced certificate license support topics with references for more information.

Introduction

To view a brief, informative video that walks you through the exercises in Getting Started with FlexNet Publisher License File-Based Licensing, click **here**. We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured

- FlexNet Operations seed data and demonstration database must be loaded

Important ▪ *These exercises require a FlexNet Operations database populated with demonstration data. For more information, refer to the step-by-step instructions in the FlexNet Operations On-Premises Installation & Implementation Guide to create seed data using the* **`flexnet loaddb`** *command and to populate the sample data using the* **`flexnet demodata`** *command.*

- You must have a FlexNet Operations Producer Portal login and a System Administrator role
- You must complete the exercises in the section Getting Started with Entitlement Management.

The License Lifecycle: FlexNet Publisher License File-Based Licensing

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 11-1: FlexNet Operations License Lifecycle

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define an customer account's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.

- **Return/Rehost** – Manage license transfers from one user or system to another.
- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

Certificate License Activation

This topic introduces certificate licenses and their activation, the stage of the FlexNet Operations license lifecycle that follows delivery of the product's activation IDs to the customer. Activation is the process of requesting, generating, delivering, and installing license rights.

The exercises in this topic guide you through basic FlexNet Operations certificate license activation.

- Certificate License Activation Key Concepts
- Certificate License Activation Exercises
- Certificate License Activation Next Steps
- Certificate License Activation Advanced Topics

Certificate License Activation Key Concepts

Certificate License Models

Certificate-based license model types include combinations of nodelocked or floating and counted or uncounted:

- A *nodelocked uncounted* license model enables a product to be used on a specific computer system, with or without terminal server privileges. The end user can open unlimited instances of the product, but only on the nodelocked machine. This license model requires a host ID that uniquely identifies the nodelocked machine.
- A *nodelocked counted* license model allows a fixed number of licenses to be accessed over a network by a specified list of computer systems. The specific host IDs are provided by the customer and put in the license certificate. This model requires a license server system.
- A *floating counted* license model requires a license server system and allows a maximum number of licenses to be used at any one time on a network. This model is also called networked or concurrent licensing.
- With a *floating uncounted* license model, any number of product licenses are available for checkout from a license server system over a network.

After a product purchase has been registered with FlexNet Operations as an entitlement, a customer can obtain a license for the product. The license enables use of some or all of the product's capabilities, and contains information about the computers on which the software is to run, the expiration date, and the count of the entitlement's total quantity that has been activated. Before the license can be generated, the entitlement must be deployed in FlexNet Operations.

Generating Certificate Licenses

After a customer receives an activation ID, it can be presented to a software publisher's order entry department, which uses FlexNet Operations to generate the certificate-based license. The license is then emailed or delivered to the customer by other means.

A customer could also use the activation ID to log in to the End-User Portal, enabled by FlexNet Operations, and generate a license. Similarly, an end user who has purchased software from a reseller could either call in to the software publisher with a Web register key, or use the key to log in to the End-User Portal to generate a license.

Licenses are generated for one entitlement line item at a time. FlexNet Operations generates a fulfillment ID for each activation.

Certificate License Activation Exercises

These exercises use examples to guide you through the following certificate license activation tasks:

Exercise	Description
Generating a Certificate License	Generate a certificate license for 3 of the 10 copies of the `PhotoPrint-cert` product to which the customer is entitled.
Reviewing Fulfillment History after Activation	Review the fulfillment history of the `PhotoPrint-cert` entitlement.

Generating a Certificate License

In this exercise, you generate a certificate license for 3 of the 10 copies of the `PhotoPrint-cert` product to which the customer is entitled.

Prerequisites

Log in to the FlexNet Operations Producer Portal and use the referenced procedures in the section Getting Started with Entitlement Management to:

- Deploy the Floating Counted certificate license model (Deploying a License Technology and Model)
- Copy product `PhotoPrint` and save it as `PhotoPrint-cert` (Creating a Product):
  a. Click **Products > Products**
  b. Search for and select the `PhotoPrint` check box, then click **Copy**
  c. In the **Product Name** field, type **`PhotoPrint-cert`** and click **Save**
- Link `PhotoPrint-cert` to the Floating Counted license model (Linking a License Model to a Product)
- Deploy `PhotoPrint-cert` (Deploying a Product)
- Create and configure an entitlement called `ENT-PhotoPrint-cert` (Creating and Configuring an Entitlement):
  - for end customer Lisa Barry of BarryPhoto
  - for 10 copies of product `PhotoPrint-cert` with a license that starts at the first activation date and has a duration of 1 year
- Deploy the `ENT-PhotoPrint-cert` entitlement (Deploying an Entitlement)

Task ***To generate a certificate license from an entitlement***

1. Log in to the FlexNet Operations Producer Portal, if you have not already done so.
2. Click **Entitlements** > **List Entitlements**. The **List Entitlements** page appears.
3. In the **Activatable Line Items** table, search for and click the **Activation ID** link for the `PhotoPrint-cert` product. The **Line Item Details** window opens.
4. Review the details of the line item, noting that **Qty** and **Qty Remaining** are both 10, **Start Date Option** is Use First Activation Date, and **License Model** is Floating Counted. Click **Cancel** at the bottom to close the window.
5. In the **Activatable Line Items** table, select the `PhotoPrint-cert` line item check box and click **Activate**. The **List Entitlements** page for the line item appears.
6. To configure the host, click **Next**. Under **Generate Licenses**, click **Add New Host**. The **Create License Host** window opens.
7. On the **Server Hosts** drop-down list, select **ANY**. Click **OK** to add **ANY** to the host list and close the window.
8. Under **Generate Licenses**, select the **ANY** host check box, then click **Next**. **The List Entitlements | Configure Counts** page appears, listing the `PhotoPrint-cert` **Activation ID** and showing that **Qty** and **Unallocated Qty** are both 10.
9. Type `3` in the **Fulfill Count** field, then click **Next**. The **List Entitlements | Generate Licenses - Review** page appears.
10. Click **Verify** to verify the validity of the license, then click **Generate**. The **Generated Licenses** page appears, listing `PhotoPrint-cert` with **License Hosts** ANY and a **Count** of 3. Note the **Fulfill Date** and **Expiration**.
11. On the **Generated Licenses** page, click **Complete**. The **List Entitlements** page appears, listing `PhotoPrint-cert` with an **Available Quantity** of 7, **Total Quantity** of 10, and **Expiration** one year from the first activation date.
12. Click **Licenses** > **Licenses**. The **Support Licenses And Maintenance** page appears, listing `PhotoPrint-cert` with **License Hosts** ANY, and a **Count** of 3. Note the **Fulfill Date** and **Expiration**.
13. Click the `PhotoPrint-cert` **Fulfillment ID** link to review the information in the **Fulfillment Details** window, then click **Cancel** at the bottom to close the window.
14. On the **Support Licenses And Maintenance** page, select the check box next to the `PhotoPrint-cert` license, then click **Save to File**. When you are asked whether you want to open or save the license file, select **Open**.
15. Review the contents of the license file, which look similar to:

```
#Please Do not delete this comment line.
SERVER this_host ANY
VENDOR demo
USE_SERVER
INCREMENT PrintToPDF demo 12.3 7-jul-2016 3 ISSUER="My \
   Corporation" ISSUED=7-jul-2015 START=6-jul-2015 SIGN="0044 \
   55B7 BB28 9979 433E B0A6 66FB E600 2D54 F9A8 18CC F949 56FA \
   1E93 ADAE"
INCREMENT Print demo 12.3 7-jul-2016 3 ISSUER="My \
   Corporation" ISSUED=7-jul-2015 START=6-jul-2015 SIGN="0003 \
   5E3B 1F67 5DDE AB6C 69AA DA34 6600 4879 A4C9 C9CE ABE9 0F33 \
   2FC2 715B"
```

```
INCREMENT PrintHighQualityColor demo 12.3 7-jul-2016 3 \
   ISSUER="My Corporation" ISSUED=7-jul-2015 START=6-jul-2015 \
   SIGN="006D D640 5E71 98AD 21FB 32F4 7391 CD00 520F 044C 9578 \
   938A 1DCE FB14 5CCA"
```

Note that any host can be used, a license server is required, and note that the count is 3 in the licensing information of each of the three features in the product. Close the license file when you are done.

Reviewing Fulfillment History after Activation

In this exercise, you review the fulfillment history of the `PhotoPrint-cert` entitlement.

Task ***To review the fulfillment history of the entitlement***

1. Click **Entitlements** > **List Entitlements by Order**. The **List Entitlements by Order** page appears.
2. In the **Entitlements** list, search for the `PhotoPrint-cert` product line item (the **Entitlement ID** is `ENT-PhotoPrint-cert`) and click the `ENT-PhotoPrint-cert` entitlement ID link. The **Entitle Customers to Licenses** page appears.
3. Under **Line Items**, in the list on the **Line Items** tab, search for the `PhotoPrint-cert` line item whose history you want to review.
4. Click the **Fulfill History** link under the `PhotoPrint-cert` line item's **Activation ID**. The **Fulfillment History** window opens for the line item.
5. Review the `PhotoPrint-cert` line item's fulfillment history, noting that a count of 3 of the entitlement's **Total Quantity** of 10 are activated, then click **OK** to close the window.
6. Log out of the FlexNet Operations Producer Portal or continue with Certificate License Support.

Certificate License Activation Next Steps

License support is the stage of the FlexNet Operations license lifecycle that follows license activation. Support includes return of licenses. The exercises in the next topic use product `PhotoPrint-cert` to guide you through basic FlexNet Operations certificate license support tasks.

Certificate License Activation Advanced Topics

Batch Activation

Batch activation is the simultaneous activation of multiple entitlement line items under these conditions:

- All line items are sold to the same account.
- If the line items use FlexNet Licensing, they must all use the same license model type.
- If the line items use a custom license technology, they must all use the same license technology.

For more information, see What is Batch Activation?.

License Consolidation

License consolidation is combining multiple license certificates into a single license file for convenience. License consolidation can be done during batch activation or post-activation.

For more information, see What is License Consolidation?.

Certificate License Support

This topic introduces certificate license support, the stage of the FlexNet Operations license lifecycle that follows license activation. Certificate license support includes returning licenses.

The exercises in this topic guide you through basic FlexNet Operations certificate license support.

Certificate License Support Key Concepts

After license activation, support becomes an important part of the license lifecycle. Changes resulting from business decisions such as the repackaging of products or introduction of maintenance, and end user events such as purchase of a new machine affect the license lifecycle.

Many types of license change management for certificate licenses—including returns, repairs, rehosts, upgrades, upsells and renewals—are supported by FlexNet Operations.

Returning a Certificate License

Returning a license means moving license rights back to an entitlement. After receiving certificate license rights for a certain count, a customer can return some of that count to the software publisher for re-licensing at a later time. The product entitlement's available quantity is increased by the count returned.

Certificate License Support Exercises

These exercises use examples to guide you through the following certificate license support tasks:

Exercise	Description
Returning a Certificate License	Return 1 of the 3 copies of the `PhotoPrint-cert` product you activated.
Reviewing Fulfillment History after a Return	Review the fulfillment history of the `PhotoPrint-cert` product after you return 1 copy.

Returning a Certificate License

In this exercise, you return 1 of the 3 copies of the `PhotoPrint-cert` product you activated in Certificate License Activation.

Prerequisite

- Complete the exercises in Certificate License Activation

Task ***To return a certificate license***

1. Log in to the FlexNet Operations Producer Portal, if you have not already done so.
2. Click **Licenses** > **Licenses**. The **Support Licenses And Maintenance** page appears with a fulfillments list.
3. Search for the `PhotoPrint-cert` fulfillment and select its check box.
4. Click **Support Actions** > **Return**. The **Support Licenses And Maintenance | Return Licenses For Fulfillment** page appears for the `PhotoPrint-cert` fulfillment.
5. Under **Fulfillment Details**, type `1` in the **Return Count** field, click **Verify** to verify the validity of the license, then click **Return**. The **Generated Licenses** page appears, showing an activated **Count** of 2 for the `PhotoPrint-cert` fulfillment.
6. Select the `PhotoPrint-cert` fulfillment's check box, then click **Save to File**. When you are asked whether you want to open or save the license file, select **Open**.
7. Review the contents of the license file, which look similar to:

```
#Please Do not delete this comment line.
SERVER this_host ANY
VENDOR demo
USE_SERVER
INCREMENT PrintToPDF demo 12.3 7-jul-2016 2 ISSUER="My \
   Corporation" ISSUED=7-jul-2015 START=6-jul-2015 SIGN="0017 \
   1E37 A59A 3E07 D0B5 996F 97A2 A700 1EC6 01C8 5B6D 16A7 7A6E \
   E916 B726"
INCREMENT Print demo 12.3 7-jul-2016 2 ISSUER="My \
   Corporation" ISSUED=7-jul-2015 START=6-jul-2015 SIGN="00B4 \
   CA1F 332D 4BA9 6732 9BD7 E5F4 D900 5DF2 47B8 EC89 EB50 1134 \
   0338 411B"
INCREMENT PrintHighQualityColor demo 12.3 7-jul-2016 2 \
   ISSUER="My Corporation" ISSUED=7-jul-2015 START=6-jul-2015 \
   SIGN="003D 832D 8000 3D58 B750 9401 03BA 3A00 244C 0351 A6C0 \
   489B C36E 2DB2 DB7C"
```

   Note that the count in the licensing info for each of the three `PhotoPrint-cert` features is now 2. Close the license file when you are done.
8. On the **Generated Licenses** page, click **Complete**. The **Support Licenses and Maintenance** page appears, showing that **Count** is 2.

Reviewing Fulfillment History after a Return

In this exercise, you review the fulfillment history of `PhotoPrint-cert` after you return 1 of the 3 copies.

Task ***To review the fulfillment history after a certificate license is returned***

1. Click **Entitlements** > **List Entitlements by Order**. The **List Entitlements by Order** page appears.
2. In the **Entitlements** list, search for the `PhotoPrint-cert` product line item with the **Entitlement ID** of `ENT-PhotoPrint-cert`.
3. Click the `ENT-PhotoPrint-cert` **Entitlement ID** link. The **Entitle Customers to Licenses** page appears.
4. Scroll down to the **Line Items** tab. In the **Line Items** list, search for the `PhotoPrint-cert` line item whose fulfillment history you want to review.
5. Click the **Fulfill History** link under the `PhotoPrint-cert` line item's **Activation ID**. The **Fulfillment History** window opens for the `PhotoPrint-cert` line item.
6. Review the `PhotoPrint-cert` line item's fulfillment history, noting that 3 of 10 copies were activated, then 1 copy was returned, leaving a count of 2. Click **OK** to close the window.

Certificate License Support Advanced Topics

Repairing a License

A customer may require support for a license key. A support request for a certificate license is processed as a *repair*, and involves the change of a license parameter other than a host ID. For more information, see Repairing a License.

Rehosting a License

Moving a license from one machine to another is called *rehosting*. *Batch rehosting* is moving groups of licenses from one server to others by:

- *Redistributing* – re-allocating licenses for a group of products among various license servers to change the license count of products on different servers
- *Transferring* – moving all of an account's licenses from one host to another, usually when a host machine crashes and the licenses on it must be moved to a new machine

For more information, see Rehosting a License.

Upgrading a License

Changing a license for one version of a product to a license for an improved version of the product is called *upgrading*. For example, a customer can upgrade a license for `Paint 4.0` to one for `Paint 5.1`. For more information, see Upgrade, Upsell, or Renew a Fulfillment.

Upselling a License

Changing a license for one product to a license for another product with more capabilities is called *upselling*. For example, a customer who has a license for `AntiMalware` can be upsold to the `Total PC Protection` package, which includes `AntiSpam` and `ParentalControl` in addition to `AntiMalware`. For more information, see Upgrade, Upsell, or Renew a Fulfillment.

Renewing a License

Extending an expiring license is called *renewing* a license. For example, a customer whose software license expires after one year can renew it for another year. For more information, see Upgrade, Upsell, or Renew a Fulfillment.

Correcting a Producer Error

Regeneration of a license may be required because of a *producer error*, such as incorrect data entry. For more information, see Correcting a Publisher Error in a License. For more information, see Upgrade, Upsell, or Renew a Fulfillment.

Generating an Emergency License

An *emergency license* is a short term license generated for a customer who cannot use the unexpired license. For example, while a customer's main computer is being upgraded or repaired, the product must be used temporarily on another computer. For more information, see Generating an Emergency License.

Generating a Stop-Gap License

A *stop-gap license* is a short term license generated for a customer whose expired license renewal is being processed. For more information, see Generating a Stop Gap License.

12

Getting Started with Non-FlexNet Licensing Technologies

This section *Getting Started with Non-FlexNet Licensing Technologies* presents fundamental FlexNet Operations concepts and uses exercises to guide a Producer Portal user through basic setup, activation, and support for non-FlexNet licensing. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience.

Topic	Description
Introduction	Overview of this getting started section, an overview of the FlexNet Operations license lifecycle, non-FlexNet licensing concepts, and exercise prerequisites.
External SOAP Service Technology	Introduction to external SOAP service licensing. Exercises that demonstrate how to set up an external SOAP service license technology and license model, and activate and support external SOAP service licenses.
Custom Generator Interface Technology	Introduction to custom generator interface licensing. Exercises that demonstrate how to set up a custom generator interface license technology and license model, and activate and support custom generator interface licenses.
Manual Technology	Introduction to manual licensing. Exercises that demonstrate how to set up a manual license technology and license model, and activate and support manual licenses.
Hands-Free Technology	Introduction to hands-free licensing.
Advanced Topics	Brief descriptions of advanced non-FlexNet licensing activation and support topics with references for more information.

Introduction

This section provides an overview of the FlexNet Operations license lifecycle, non-FlexNet licensing concepts, and exercise prerequisites.

- Non-FlexNet License Technologies
- The License Lifecycle: Non-FlexNet Licensing Technologies
- Exercise Prerequisites

Non-FlexNet License Technologies

In addition to Revenera's FlexNet license technology, FlexNet Operations can be integrated with other license technologies to unify disparate licensing systems and manage fulfillments. A non-FlexNet licensing technology generally fits into one of the following categories:

- External SOAP Service Technology
- Custom Generator Interface Technology
- Manual Technology
- Hands-Free Technology
- Replacement/Regenerative Technology, covered below

Replacement/Regenerative Technology

When a replacement licensing technology is used, the most recent license file on a host overrides all earlier licenses. Each time a license is generated, the licensing system calculates the total fulfillment count for each product on the host and generates a license; the license is not generated based on the fulfillment count in a single transaction or on the fulfillment record.

FlexNet Operations stores a master copy of the host license. Whenever a new license is generated for the host, or is returned, the master copy is modified. When a user downloads a license for a fulfillment record belonging to this host, the user receives the entire host license, not the individual fulfillment count of the fulfillment record. FlexNet Operations supplies only the master copy of the host license.

License Activation

After a product purchase is registered with FlexNet Operations as an entitlement and the entitlement is deployed, a customer can obtain a license for the product. The license enables use of some or all of the product's capabilities, and contains information about the computers on which the software is to run, the expiration date, and the count of the entitlement's total quantity that has been activated.

License Support

After license activation, support becomes an important part of the license lifecycle. Changes resulting from business decisions such as the repackaging of products or introduction of maintenance, and end user events such as purchase of a new machine affect the license lifecycle. Support operations include:

- Repairing a License – Customers may require support for license keys. Requests for license support are processed as *repairs*.

- Returning a License – *Returning* a license means moving license rights back to an entitlement. After receiving licenses for copies of a product, a customer can return some of them to the software producer for re-licensing at a later time. The customer's entitlement for the product is increased by the number of copies returned.

The License Lifecycle: Non-FlexNet Licensing Technologies

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 12-1: FlexNet Operations License Lifecycle

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define a customer account's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.
- **Return/Rehost** – Manage license transfers from one user or system to another.
- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

Exercise Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured
- FlexNet Operations seed data and demonstration database must be loaded

***Important** ▪ These exercises require a FlexNet Operations database populated with demonstration data. For more information, refer to the step-by-step instructions in the FlexNet Operations On-Premises Installation & Implementation Guide to create seed data using the* **`flexnet loaddb`** *command and to populate the sample data using the* **`flexnet demodata`** *command.*

- You must have a FlexNet Operations Producer Portal login and a System Administrator role
- You must complete the exercises in the section Getting Started with Entitlement Management.

License Technology-Specific Prerequisites

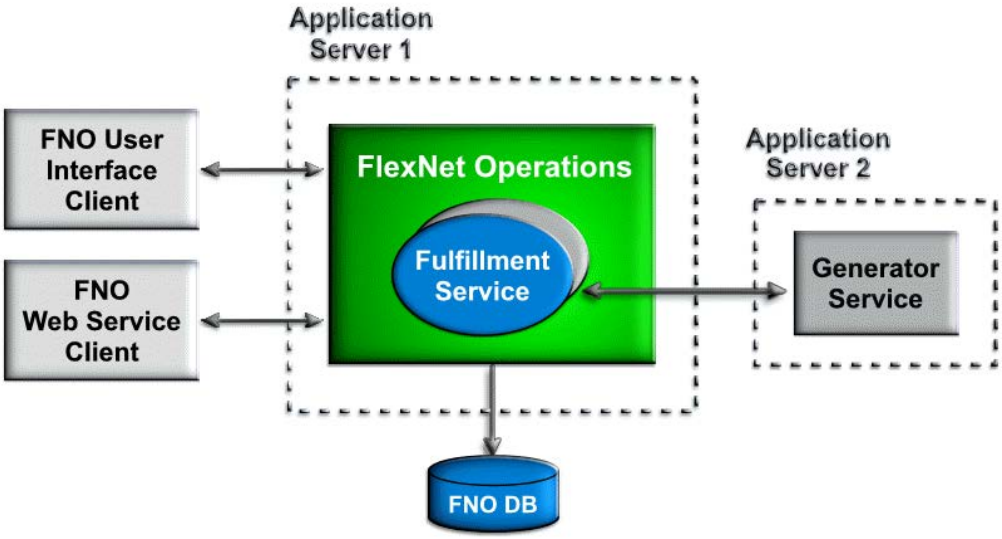
- The external SOAP service must be deployed
- If there is no manual technology license generator configured for FlexNet Operations, create a text file on your Desktop called `NonFlexManualLicenseFile.lic` that contains the line
  `This is a sample non-FlexNet, manual technology license file.`
- For the Custom Generator Interface technology, a Java callout must be compiled and deployed, as described in the *FlexNet Operations On-Premises Installation & Implementation Guide*. A sample callout class is provided in the `site/samples/customgenerator` directory.

External SOAP Service Technology

This topic introduces FlexNet Operations external SOAP service licensing and includes exercises that guide you through basic licensing setup, activation, and support.

External SOAP Service Technology Key Concepts

Licenses that use an external SOAP service license technology are generated by a service that implements the FlexNet Operations **LicenseGeneratorService** Web Services Description Language (WSDL), an XML-based interface definition language that is used for describing the functionality offered by a web service. The external service is deployed in an application server independent of FlexNet Operations, as shown in the figure below, and is accessed by FlexNet Operations at run time for operations such as product and license model validation and license generation. The URL to the external service is linked to the custom generator when the license technology is created in FlexNet Operations.



License Technology Set-Up

The exercises in this section use examples to guide you through these external SOAP service license set-up tasks:

Exercise	Description
Setting Up and Deploying the License Technology	Set up and deploy the `SOAPTech` license technology.
Setting Up and Deploying the License Model	Set up and deploy the `SOAPModel` license model of the `SOAPTech` license technology.
Creating and Deploying the Product	Create and deploy product `PhotoPrint-soap`, which uses the `SOAPTech` license technology and `SOAPModel` license model.

Setting Up and Deploying the License Technology

In this exercise, you set up and deploy the `SOAPTech` license technology, an uncounted license technology.

Task ***To set up the external SOAP service license technology***

1. Log in to the FlexNet Operations Producer Portal if you have not already done so. The **Producer Portal Home** page appears.
2. Click **Administer** > **License Technologies**. The **License Technologies** page appears.
3. Click **Add a License Technology**. The **Create A License Technology** page appears.
4. Under **Create A License Technology**, enter the license technology information.
   - **Name:** Type `SOAPTech`

- **Description**: Type `External SOAP Service technology`
- **State:** Note that this license technology is created in a **Draft** state.
- **Type?:** Select **External SOAP Service**
- **Generator Service End Point**: Type this path: `{CUSTOM_TECH_HOST}/flexnet-licgen/services/LicenseGeneratorService`
- **Authentication type for service:** Select **None**

5. Click to test the connection. Click **OK** in the message that says you have successfully connected to the service.
6. Scroll down the page and click **Add File Definition**. The **Create File Definition** window opens.
7. In the **Create File Definition** window, enter the file definition information.
   - **Name:** Type `SOAP_FILE_Definition`
   - **File Type:** Select **TEXT**.
   - **Description:** Type `Custom generator interface technology file definition`
8. Click **OK**. The window closes and the file definition is added to the **Create A License Technology** page. Click **Save** to save the new license technology.

Task ***To deploy the external SOAP service license technology***

1. Click **Administer > License Technologies**. The **License Technologies** page appears and lists **SOAPTech** in the **Draft** state.
2. Select the **SOAPTech** check box, then click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. In the **License Technologies** table, **SOAPTech** is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Technologies successfully SOAPTech`

Setting Up and Deploying the License Model

In this exercise, you set up and deploy the `SOAPModel` license model.

Task ***To set up the external SOAP service license model***

1. On the **Administer** menu, click **License Models**. The **Package Products – License Models** page appears.
2. Click **Create New License Model**. The **Package Products – License Models** page refreshes.
3. Under **Select A License Technology**, select `SOAPTech` from the **License Technology** menu, then click **Next**. The **Package Products – License Models** page refreshes.
4. Under **Create A License Model**, enter the license model information.
   - **Name:** Type `SOAPModel`

- **Description:** Type `SOAP license model`
- **State:** Note that the license model is created in a **Draft** state.
- **License Technology:** Note that this is set to `SOAPTech`.
- **Expiration:** Use the default value of **None**.

5. Click **Save** to create the `SOAPModel` license model. This message appears: `License Model successfully created.`

Task ***To deploy the external SOAP service license model***

1. On the **Administer** menu, click **License Models**. The **Package Products – License Models** page appears. Search for and select the `SOAPModel` check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. This message appears: `Deployed the following License Model(s) successfully SOAPModel`. In the **License Models** table, `SOAPModel` is shown with a **State** of **Deployed**.

Creating and Deploying the Product

In this exercise, you create a product called `PhotoPrint-soap` that uses the `SOAPTech` license technology and `SOAPModel` license model, then you deploy the product.

Task ***To create product*** `PhotoPrint-soap`

1. Click **Products > Products**. The **Package Products** page appears.
2. Click **Add New Product**. The **Package Products | Create A Product** page appears.
3. Under **Create A Product**, enter the product information:
   - **Product Name:** Type `PhotoPrint-soap`
   - **Version:** Type `12.3`
   - **State:** Note that the product is created in a **Draft** state.
   - **License Technology:** Select `SOAPTech`
4. Click **Add Features**. The **Add Features To Product** window opens.
5. In the **Add Features To Product** window, search for feature name equals `Print`. Feature `Print` is listed under **Available Features**.
6. In the **Add Features To Product** window, under **Available Features**, select `Print,12.3`.
7. Click **Add** ? to move feature `Print,12.3` to **Selected Features**, then click **Add**. The window closes and the feature is added to product `PhotoPrint-soap`.
8. Click **Save**. Note that product `PhotoPrint-soap` and its version appear in the list on the right side of the **Package Products** page. This message appears: `Product PhotoPrint-soap successfully added.`
9. Click **Next**. The **Package Products | Link License Models To Product** page appears.

10. Click **Link License Models**. The **Select License Models** window opens. Search for and select `SOAPModel` from **Available License Models**, then click **Add** ? to move it to **Selected License Models**.
11. Click **Add**. Product `PhotoPrint-soap` is linked to the `SOAPmodel` license model and the window closes.
12. On the **Package Products** page, click **Save**. Note that product `PhotoPrint-soap` is now listed under **Products Linked To License Models**. This message appears: `License models linked successfully.`

Task ***To deploy product*** `PhotoPrint-soap`

1. Click **Products** > **Products**. The **Package Products** page appears. Search for product `PhotoPrint-soap` and select its check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message. The **Package Products | Deploy Products** page appears for product `PhotoPrint-soap`.
3. Click **Deploy**. The Package Products page shows that `PhotoPrint-soap` is deployed. This message appears: `Products deployed successfully.`

License Activation

The exercises in this section use examples to guide you through these external SOAP service license activation tasks:

Exercise	Description
Entitling the Customer to the Product	Create, configure, and deploy the product `PhotoPrint-soap` entitlement.
Activating the License	Activate a product `PhotoPrint-soap` license.

Entitling the Customer to the Product

In this exercise, you create, configure, and deploy an entitlement for 3 copies of product `PhotoPrint-soap`.

Task ***To create the product*** `PhotoPrint-soap` ***entitlement***

1. Click **Entitlements** > **Create**. The **Entitle Customers to Licenses** page appears.
2. Under **Create An Entitlement**, from the **Entitlement ID** list, select **Specify** and type **`ENTL-soap`** in the box that appears next to it. Note that the entitlement is created in a **Draft** state.
3. Under **End Customer And Channel Partners**, click **Add**. The **End Customer And Channel Partners** window opens.
4. On the **Customers** tab, search for and select `BarryPhoto` as the account to receive the entitlement, then click **Save**. The **End Customer And Channel Partners** window closes, and the **Entitle Customers to Licenses** page shows `Barry Photography Studio` as the end customer.

Task ***To configure the product*** `PhotoPrint-soap` ***entitlement***

1. On the **Line Items** tab near the bottom of the page, click **New Line Item**. The **Configure Line Item** wizard opens.
2. In wizard step 1, **Select Product**, search for and select product `PhotoPrint-soap`, then click **Next**.
3. In wizard step 2, **Select Part Number & License Model**, leave the default values as they are. Click **Next**.
4. In wizard step 3, **Configure Product**, enter these line item attributes:
   - **Qty**: Type `3` for the quantity of `PhotoPrint-soap` copies in this line item
   - **Start Date**: Select **Use First Activation Date** from the drop-down list
   - **Expiration**: Select **Permanent**
   - Keep the default values for all other attributes.

   Click **Next**.
5. In wizard step 4, **Custom Attributes**, click **Next**.
6. In wizard step 5, **Order Type**, keep the default value as it is. Click **Save** to save the line item and close the **Configure Line Item** wizard.
7. On the **Line Items** tab, note that the line item for product `PhotoPrint-soap` is PERMANENT, has a total quantity of 3, and is in the **Draft** state.

Task ***To deploy the product*** `PhotoPrint-soap` ***entitlement***

1. At the bottom of the **Entitle Customers to Licenses** page, click **Save & Deploy**. The page is refreshed, the **Line Item State** of `PhotoPrint-soap` is now **Deployed**, and this message appears: `Entitlement deployed successfully.`
2. On the **Entitle Customers to Licenses** page, click **Email** to send entitlement notification email to `Barry Photography Studio`. Type your email address in the **Ship To Email** box so you receive the certificate.

   Note ▪ *To include additional recipients, type their email addresses into the* **Ship To Email** *box separated by commas.*
3. Click **Send**. The email is sent and this message appears: `Email sent to the recipients <address list>.`

Activating the License

In this exercise, you activate a license for 1 copy of product `PhotoPrint-soap`. An external SOAP service license technology is integrated with FlexNet Operations using your technology's API. After collecting fulfillment data from the user, FlexNet Operations invokes your custom generator Java class to generate the license.

Task ***To activate the external SOAP service license***

1. On the **Entitle Customers to Licenses** page, select the `PhotoPrint-soap` line item's check box and click **Activate**. The **List Entitlements** page appears.
2. In the **Activatable Line Items** table, click the **Activation ID** link for the `PhotoPrint-soap` line item. The **Line Item Details** window opens.
3. Review the details of the line item, noting that **Qty** and **Qty Remaining** are both 3, **Start Date Option** is Use First Activation Date, **Permanent** is true, and **License Model** is SOAPModel, then click **Cancel** at the bottom to close the window.
4. In the **Activatable Line Items** table, select the `PhotoPrint-soap` line item check box and click **Activate**. The **List Entitlements | Generate Licenses** page for the line item appears.
5. Click **Verify** to verify the validity of the license. This message appears: `License is Valid.`
6. Click **Generate**. The **Generated Licenses** page appears, listing `PhotoPrint-soap` with a **Count** of 1.
7. On the **Generated Licenses** page, click **Complete**. The **List Entitlements** page appears, listing the `PhotoPrint-soap` line item with an **Available Quantity** of 2, **Total Quantity** of 3, and **Expiration** of PERMANENT.
8. Click **Licenses > Licenses**. The **Support Licenses And Maintenance** page appears, listing product `PhotoPrint-soap` with a **Count** of 1.
9. Click the product `PhotoPrint-soap` **Fulfillment ID** link. The **Fulfillment Details** window opens.
10. Review the fulfillment information, then click **Cancel** at the bottom to close the window.
11. On the **Support Licenses And Maintenance** page, put a check mark in the product `PhotoPrint-soap` license's check box, then click **Save to File**. When you are asked whether you want to open or save the license file, select **Open**.
12. Review the contents of the license file, which look similar to:

```
Fulfillment
    fulfilment Id: FID_a9a12791_78e1_4eba_98e3_513f5fe335ad
    Count: 1
    OverDraft : 0
    StartDate : 08-03-2015
    ShipToEmail:
    CustomHost
    RequestType : ACTIVATION
    isVerifyRequest : false
    FULFILMENT Custom License Attribute
ActivationRecord
    Activation ID: 1233-37c1-99af-465c-976f-2909-4407-bcfe
    LineItem Attribute
    ENTITLEMENT Custom License Attribute
Entitlement
    EntitlementId : ENTL-soap
    OrderId : null
    OrderLineNumber:
    OrganizationUnit
       DisplayName : Barry Photography Studio
    OrganizationUnit Attribute
```

```
    SoldToUser
       DisplayName : Lisa Barry
       FirstName   : Lisa
       LastName    : Barry
    User Attribute
       DisplayName : John Barry
       FirstName   : John
       LastName    : Barry
    User Attribute
    Entitlement Attribute
Product
    Name    : PhotoPrint-soap
    Version : 12.3
    Quantity Per Copy : 1
    Product Attribute
       TestCustomAttribute: SOAP_TCA,
    Features
       Print : 1, version : 12.3, isDateBased : false

       Featur Overrides
          NOTICE : null
          VENDOR_STRING : null
          ISSUER : null
          SERIAL_NUMBER : null
          DUP_GROUP : null
          REUSABLE : null
License
    Model Name: SOAPModel
    MODEL Custom License Attribute
License Technolgy
    Name: SOAPTech
    License file defnition Name : SOAP_File_Def
    License file defnition Type : TEXT
    LicenseFileType : TEXT
Logged In User : YourFirstName YourLastName
    LoggedIn User Attribute
```

13. Close the license file window when you are done.

License Support

The exercises in this section use examples to guide you through these external SOAP service license support tasks:

Exercise	Description
Repairing the License	Repair the product `PhotoPrint-soap` license that you activated.
Returning the License	Return the product `PhotoPrint-soap` license.

Repairing the License

In this exercise, you repair the PhotoPrint-soap license.

Task ***To repair the external SOAP service license***

1. Click **Licenses** > **Licenses**. The **Support Licenses And Maintenance** page appears.
2. On the **Support Licenses And Maintenance** page, search for and select the check box next to the product PhotoPrint-soap fulfillment.
3. Click **Support Actions** and select **Repair** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the PhotoPrint-soap fulfillment information.
4. Click **Verify** to verify the validity of the license. This message appears: `License is valid.`
5. Click **Repair**. The **Generated Licenses** page appears with updated PhotoPrint-soap fulfillment information.
6. On the **Generated Licenses** page, click **Complete**. The **Support Licenses And Maintenance** page appears.
7. Click **Entitlements > List Entitlements by Order**, search for the ENTL-soap entitlement, then click on the ENTL-soap **Entitlement ID** link. The **Entitle Customers to Licenses** page for the entitlement appears.
8. Under **Line Items**, on the **Line Items** tab, click the **Fulfill History** link of the PhotoPrint-soap line item. The **Fulfillment History** window opens.
9. Review the fulfillment history for the PhotoPrint-soap line item. Note when it was initially activated and when it was repaired and reactivated. Click **OK** when you are done to close the **Fulfillment History** window.

Returning the License

In this exercise, you return the PhotoPrint-soap license.

Task ***To return the external SOAP service license***

1. Click **Licenses** > **Licenses**. The **Support Licenses And Maintenance** page appears.
2. On the **Support Licenses And Maintenance** page, search for and select the check box next to the product PhotoPrint-soap fulfillment.
3. Click **Support Actions** and select **Return** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the PhotoPrint-soap fulfillment information.
4. Click **Verify** to verify the validity of the license. This message appears: `License is valid.`
5. Click **Return**. The **Support Licenses And Maintenance** page is refreshed, and a message similar to this appears: `Successfully returned licenses for fulfillment FID_2d0cea6e_e9b8_441b_949b_caa858c30843`
6. Click **Entitlements > List Entitlements by Order**, search for the ENTL-soap entitlement, then click on the ENTL-soap **Entitlement ID** link. The **Entitle Customers to Licenses** page appears.
7. Under **Line Items**, on the **Line Items** tab, click the **Fulfill History** link of the PhotoPrint-soap line item. The **Fulfillment History** window opens.

8. Review the fulfillment history for the `PhotoPrint-soap` line item. Note when it was returned. Click **OK** when you are done to close the **Fulfillment History** window.

Custom Generator Interface Technology

This topic introduces FlexNet Operations custom generator interface licensing and includes exercises that guide you through basic licensing setup, activation, and support.

Key Concepts

License technologies that use a custom generator interface require the implementation of a callout that runs in the FlexNet Operations application environment. FlexNet Operations provides a Java interface and methods for this callout in its public API.

License Technology Set-Up

The exercises in this section use examples to guide you through these custom generator interface license set-up tasks:

Exercise	Description
Setting Up and Deploying the License Technology	Set up and deploy the `CustomGen` license technology.
Setting Up and Deploying the License Model	Set up and deploy the `CustomGenModel` license model of the `CustomGen` license technology.
Creating and Deploying the Product	Create and deploy product `PhotoPrint-custom`, which uses the `CustomGen` license technology and `CustomGenModel` license model.

Setting Up and Deploying the License Technology

In this exercise, you set up and deploy the `CustomGen` license technology, an uncounted license technology.

Task ***To set up the custom generator interface license technology***

1. Log in to the FlexNet Operations Producer Portal if you have not already done so. The **Producer Portal Home** page appears.
2. Click **Administer > License Technologies**. The **License Technologies** page appears.
3. Click **Add a License Technology**. The **Create A License Technology** page appears.
4. Under **Create A License Technology**, enter the required license technology information.
   - **Name:** Type `CustomGen`

- **Description**: Type `Custom Generator Interface technology`
- **State:** Note that this license technology is created in a **Draft** state.
- **Type?:** Select **Use Generator Interface**
- **Generator Service**: Type the path (in other words, the path, including any package structure, inside the `WEB-INF/classes` directory) to the Java class that generates licenses for this license technology. This class must implement the **com.flexnet.operations.publicapi.LicenseGeneratorService** interface.

Note ▪ *The class must already be deployed in FlexNet Operations (see the Implementation Guide for compiling and deploying Java callouts).*

5. Scroll down the page and click **Add File Definition**. The **Create File Definition** window opens.
6. In the **Create File Definition** window, enter the file definition information.
   - **Name:** Type `CustomGen_FILE_Definition`
   - **File Type:** Select **TEXT**.
   - **Description:** Type `Custom Generator Interface technology file definition`
7. Click **OK**. The window closes and the file definition is added to the **Create A License Technology** page. Click **Save** to save the new license technology.
8. Click **Add Host Type**. The **Create Host Type** window opens.
9. In the **Create Host Type** window, enter the host type information.
   - **Name:** Type `CustomGen_HOST_Type`
   - **Description:** Type `Custom Generator Interface technology host type`

   The default Host ID Generator Class generates a hostid based on a host type and host attribute values. Or a custom host ID generator can be specified.
10. Click **OK**. The window closes and the host type is added.
11. Near the bottom of the **Create A License Technology** page, click **Next**. The **Create Custom Attribute** page appears.
12. Under **Create A License Generator Attribute**, enter the license generator attribute information.
    - **Name:** Type `CustomGen_LGA`
    - **License Technology:** Verify that this is set to **CustomGen**.
    - **Make this a required attribute:** Leave check box unselected.
    - **Type:** Select **Number**.
13. Click **Next**. The **Create License Generator Configuration** page appears.
14. Under **Create License Generator Configuration**, enter the license generator configuration information.
    - **Name:** Type `CustomGen_GEN`
    - **Description:** Type `Custom generator configuration`

- **License Technology:** Verify that this is set to **CustomGen**.

Under **Custom Attributes**, enter the license model attribute information.

- **CustomGen_LGA:** Type **4444**

15. Click **Next**. The **Create Custom Attribute** page appears.
16. Under **Create A License Model Attribute**, enter the license model attribute information.
    - **Name:** Type `CustomGen_LMA`
    - **License Technology:** Verify that this is set to **CustomGen**.
    - **When to request this attribute value:** Verify that all boxes are checked.
    - **Make this a required attribute:** Leave check box unselected.
    - **Type:** Select **Number**.
    - **Copy to data warehouse:** Leave check box unselected.
17. Click **Complete**. The **License Technologies** page appears and lists **CustomGen** in the draft state.

Task ***To deploy the custom generator interface license technology***

1. On the **License Technologies** page, select the **CustomGen** check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. In the **License Technologies** table, **CustomGenerator** is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Technologies successfully CustomGen`
3. On the **Administer** menu, click **Custom Host Attributes**. The **Custom Host Attributes** page appears.
4. Click **Create**. The **Create Custom Host Attribute** page appears.
5. To create a custom host for the host type added during license technology creation, under **Create Custom Host Attribute**, enter the custom host attribute information.
    - **Name:** Type `UUID_CustomGen`
    - **License Technology:** Verify that this is set to **Custom Licensing**.
    - **Host Type:** Select **CustomGen_HOST_Type**
    - **Required:** Use the default value of **No**.
    - **Type:** Select **Number**.
6. Click **Save**. The **Create Custom Host Attribute** page refreshes and this message appears: `License Host Attribute UUID_CustomGen successfully added.` UUID_CustomGen is saved as a custom host attribute.

Setting Up and Deploying the License Model

In this exercise, you set up and deploy the `CustomGenModel` license model.

Task ***To set up the custom generator interface license model***

1. Click **Administer** > **License Models**. The **Package Products – License Models** page appears.
2. Click **Create New License Model**. The **Package Products – License Models** page refreshes.
3. Under **Select A License Technology**, select `CustomGen` from the **License Technology** menu, then click **Next**. The **Package Products – License Models** page refreshes.
4. Under **Create A License Model**, enter the license model information.
   - **Name:** Type `CustomGenModel`
   - **Description:** Type `Custom generator interface license model`
   - **State:** Note that the license model is created in a **Draft** state.
   - **License Technology:** Note that this is set to `CustomGen`.
   - **Expiration:** Use the default value of **None**.
5. Under **Custom Attributes**, select **Specify Value Now** from the drop-down menu next to **CustomGen_LMA**, then type `5678` in the field that appears to the right.
6. Click **Save** to create the `CustomGenModel` license model. This message appears: `License Model successfully created.`

Task ***To deploy the custom generator interface license model***

1. Click **Administer** > **License Models**. The **Package Products – License Models** page appears. Search for and select the `CustomGenModel` check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. In the **License Models** table, `CustomGenModel` is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Model(s) successfully CustomGenModel.`

Creating and Deploying the Product

In this exercise, you create a product called `PhotoPrint-custom` that uses the `CustomGen` license technology and `CustomGenModel` license model, then you deploy the product.

Task ***To create product*** `PhotoPrint-custom`

1. Click **Products > Products**. The **Package Products** page appears.
2. Click **Add New Product**. The **Package Products | Create A Product** page appears.
3. Under **Create A Product**, enter the product information:
   - **Product Name:** Type `PhotoPrint-custom`
   - **Version:** Type `12.4`

- **State:** Note that the product is created in a **Draft** state.
- **License Technology:** Select `CustomGen`
- **Host Type:** Select `CustomGen_HOST_Type`
- **License Generator:** Select **CustomGen_GEN**

4. Click **Add Features**. The **Add Features To Product** window opens.
5. In the **Add Features To Product** window, search for feature name equals `Print`. Feature `Print` is listed under **Available Features**.
6. In the **Add Features To Product** window, under **Available Features**, select `Print,12.3`.
7. Click **Add** ? to move feature `Print,12.3` to **Selected Features**, then click **Add**. The window closes and the feature is added to product `PhotoPrint-custom`.
8. Click **Save**. Note that product `PhotoPrint-custom` and its version appear in the list on the right side of the **Package Products** page. This message appears: `Product PhotoPrint-custom successfully added.`
9. Click **Next**. The **Package Products | Link License Models To Product** page appears.
10. Click **Link License Models**. The **Select License Models** window opens. Search for and select `CustomGenModel` from **Available License Models**, then click **Add** ? to move it to **Selected License Models**.
11. Click **Add**. Product `PhotoPrint-custom` is linked to the `CustomGenModel` license model and the window closes.
12. On the **Package Products** page, click **Save**. Note that product `PhotoPrint-custom` is now listed under **Products Linked To License Models**. This message appears: `License models linked successfully.`

Task ***To deploy product*** `PhotoPrint-custom`

1. Click **Products** > **Products**. The **Package Products** page appears. Search for product `PhotoPrint-custom` and select its check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message. The **Package Products** | **Deploy Products** page appears for product `PhotoPrint-custom`.
3. Click **Deploy**. The **Package Products** page shows that `PhotoPrint-custom` is deployed. This message appears: `Products deployed successfully.`

License Activation

The exercises in this section use examples to guide you through these custom generator interface license activation tasks:

Exercise	Description
Entitling the Customer to the Product	Create, configure, and deploy the product `PhotoPrint-custom` entitlement.
Activating the License	Activate a product `PhotoPrint-custom` license.

Entitling the Customer to the Product

In this exercise, you create, configure, and deploy an entitlement for 3 copies of product `PhotoPrint-custom`.

Task ***To create the*** `PhotoPrint-custom` ***entitlement***

1. Click **Entitlements** > **Create**. The **Entitle Customers To Licenses** page appears.
2. Under **Create An Entitlement**, from the **Entitlement ID** list, select **Specify** and type `ENTL-custom` in the box that appears next to it. Note that the entitlement is created in a **Draft** state.
3. Under **End Customer And Channel Partners**, click **Add**. The **End Customer And Channel Partners** window opens.
4. On the **Customers** tab, search for and select `BarryPhoto` as the account to receive the entitlement, then click **Save**. The **End Customer And Channel Partners** window closes, and the **Entitle Customers To Licenses** page shows `Barry Photography Studio` as the end customer.

Task ***To configure the*** `PhotoPrint-custom` ***entitlement***

1. On the **Line Items** tab near the bottom of the page, click **New Line Item**. The **Configure Line Item** wizard opens.
2. In wizard step 1, **Select Product**, search for and select product `PhotoPrint-custom`, then click **Next**.
3. In wizard step 2, **Select Part Number & License Model**, leave the default values as they are. Click **Next**.
4. In wizard step 3, **Configure Product**, enter these line item attributes:
   - **Qty**: Type `3` for the quantity of `PhotoPrint-custom` copies in this line item
   - **Start Date**: Select **Use First Activation Date** from the drop-down list
   - **Expiration**: Select **Permanent**
   - Keep the default values for all other attributes.

   Click **Next**.
5. In wizard step 4, **Order Type**, keep the default value as it is. Click **Save** to save the line item and close the **Configure Line Item** wizard.
6. On the **Line Items** tab, note that the line item for product `PhotoPrint-custom` is PERMANENT, has a total quantity of 3, and is in the **Draft** state.

Task ***To deploy the product*** `PhotoPrint-custom` ***entitlement***

Important ▪ *The Entitlement and Entitlement Certificate Email templates must be active for you to receive the entitlement notification email and certificate when the product entitlement is deployed.*

1. At the bottom of the **Entitle Customers To Licenses** page, click **Save & Deploy**. The page is refreshed, the **Line Item State** of `PhotoPrint-custom` is now **Deployed**, and this message appears: `Entitlement deployed successfully.`
2. On the **Entitle Customers To Licenses** page, click **Email** to send entitlement notification email to `Lisa Barry` at `Barry Photography Studio`. The **Entitle Customers To Licenses** page appears with the customer's address in the **Ship To Email** box. Type your email address in the **Ship To Email** box so you receive the certificate.

   Note ▪ *To include additional recipients, type their email addresses into the* **Ship To Email** *box separated by commas.*

   Tip ▪ *Add your email address to the recipients list and review the* `PhotoPrint-custom` *entitlement certificate you receive.*
3. Click **Send**. The email is sent and this message appears: `Email sent to the recipients <address list>.`

Activating the License

In this exercise, you activate a license for 1 copy of product `PhotoPrint-custom`.

Task ***To activate the custom generator license***

1. Click **Entitlements > List Entitlements**. The **List Entitlements** page appears.
2. In the **Entitlements** table, click the **Activation ID** link for the `PhotoPrint-custom` product. The **Line Item Details** window opens.
3. Review the details of the line item, noting that **Qty** and **Qty Remaining** are both 3, **Start Date Option** is Use First Activation Date, **Permanent** is true, and **License Model** is CustomGenModel, then click **Cancel** at the bottom to close the window.
4. In the **Entitlements** table, select the `PhotoPrint-custom` line item and click **Activate**. The **List Entitlements | Generate Licenses** page for the `PhotoPrint-custom` line item appears.
5. Click **Next**. The **List Entitlements | Generate Licenses** page now allows you to add host information.
6. Click **Add New Host**. The **Create License Host** window opens.
7. In the **Create License Host** window, for **UUID_CustomGen**, type **7777**. Click **OK** to add the new host and close the window. A host ID is generated based on the Host ID Generator Class configured for the product's host type.

8. Click **Verify** to verify the validity of the license. This message appears: `License is Valid.`
9. Click **Generate**. The **Generated Licenses** page appears, listing `PhotoPrint-custom` with a **Count** of 1.
10. On the **Generated Licenses** page, click **Complete**. The **List Entitlements** page appears, showing the `PhotoPrint-custom` line item with an **Available Quantity** of 2, **Total Quantity** of 3, and **Expiration** of PERMANENT.
11. Click **Licenses > Licenses**. The **Support Licenses And Maintenance** page appears, showing product `PhotoPrint-custom` with a **Count** of 1. The **Type** is Non-FlexNet (denoted by the NF icon).
12. Click the product `PhotoPrint-custom` **Fulfillment ID** link. The **Fulfillment Details** window opens.
13. Review the fulfillment information, then click **Cancel** at the bottom to close the window.
14. On the **Support Licenses And Maintenance** page, put a check mark in the product `PhotoPrint-custom` license's check box, then click **Save to File**. If your browser asks whether you want to open or save the license file, select **Open**.
15. Review the contents of the license file and close the window when you are done.

License Support

The exercises in this section use examples to guide you through these custom generator interface license support tasks:

Exercise	Description
Repairing the License	Repair the product `PhotoPrint-custom` license that you activated.
Returning the License	Return the product `PhotoPrint-custom` license.

Repairing the License

In this exercise, you repair the `PhotoPrint-custom` license.

Task ***To repair the custom generator interface license***

1. Click **Licenses** > **Licenses**. The **Support Licenses and Maintenance** page appears.
2. On the **Support Licenses and Maintenance** page, search for and select the check box next to the product `PhotoPrint-custom` fulfillment.
3. Click **Support Actions** and select **Repair** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the `PhotoPrint-custom` fulfillment information.
4. Click **Repair**. The **Generated Licenses** page appears with updated product `PhotoPrint-custom` fulfillment information.
5. On the **Generated Licenses** page, click **Complete**. The **Support Licenses And Maintenance** page appears.

6. Click **Entitlements** > **List Entitlements**, select the product `ENTL-custom` entitlement, then click **Fulfill History**. The **Fulfillment History** window opens.
7. Review the fulfillment history for the `PhotoPrint-custom` line item. Note that it was activated, repaired, and reactivated. Click **OK** when you are done to close the **Fulfillment History** window.

Returning the License

In this exercise, you return the `PhotoPrint-custom` license.

Task ***To return the custom license***

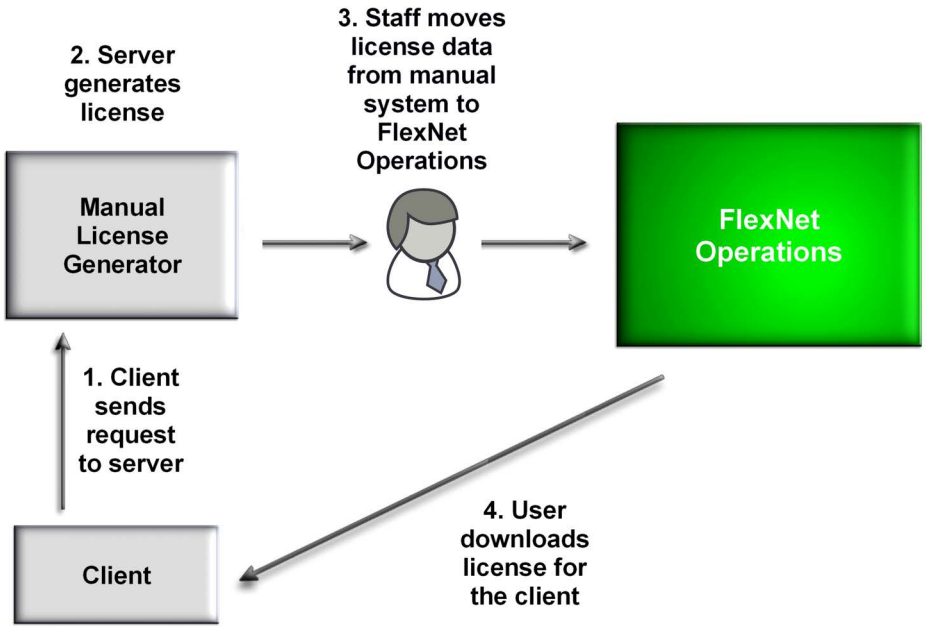
1. Click **Licenses** > **Licenses**. The **Support Licenses and Maintenance** page appears.
2. On the **Support Licenses and Maintenance** page, search for and select the check box next to the product `PhotoPrint-custom` fulfillment.
3. Click **Support Actions** and select **Return** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the `PhotoPrint-custom` fulfillment information.
4. Click **Verify** to verify the validity of the license. This message appears: `License is valid.`
5. Click **Return**. The **Support Licenses And Maintenance** page is refreshed. A message similar to this appears: `Successfully returned licenses for fulfillment FID_8fbd3105_8d5e_41b2_99a9_c867bca9ff8d`
6. Click **Entitlements** > **List Entitlements**, select the `ENTL-custom` entitlement, then click **Fulfill History**. The **Fulfillment History** window opens.
7. Review the fulfillment history for the `PhotoPrint-custom` line item. Note when it was returned. Click **OK** when you are done to close the **Fulfillment History** window.

Manual Technology

This topic introduces FlexNet Operations manual licensing and includes exercises that guide you through basic licensing setup, activation, and support.

Manual Technology Key Concepts

Licenses that use manual technology are manually generated by a customer support representative using a third-party system. Because this license generator is not integrated into FlexNet Operations, when a user generates a license, the generated fulfillment is placed on hold and an email is sent to the administrator. The administrator logs in to the third-party system and generates the license, then returns to FlexNet Operations to set the license on the on-hold fulfillment record. The user can then download the license. FlexNet Operations tracks fulfillment and other data.



License Technology Set-Up

The exercises in this section use examples to guide you through these manual license set-up tasks:

Exercise	Description
Setting Up and Deploying the License Technology	Set up and deploy the `ManualTech` license technology.
Setting Up and Deploying the License Model	Set up and deploy the `ManualModel` license model of the `ManualTech` license technology.
Creating and Deploying the Product	Create and deploy product `PhotoPrint-manual`, which uses the `ManualTech` license technology and `ManualModel` license model.

Setting Up and Deploying the License Technology

In this exercise, you set up and deploy the `ManualTech` license technology, an uncounted license technology.

Task ***To set up a manual license technology***

1. Click **Administer > License Technologies**. The **License Technologies** page appears.
2. Click **Add a License Technology**. The **Create A License Technology** page appears.
3. Under **Create A License Technology**, enter the license technology information.
   - **Name:** Type `ManualTech`

- **Description**: Type `Manual technology`
- **State:** Note that this license technology is created in a **Draft** state.
- **Type?:** Select **Manual**

4. Scroll down the page and click **Add File Definition**. The **Create File Definition** window opens.
5. In the **Create File Definition** window, enter the file definition information.
   - **Name:** Type `Manual_FILE_Definition`
   - **File Type:** Select **TEXT**.
   - **Description:** Type `Manual technology file definition`
6. Click **OK**. The window closes and the file definition is added to the **Create A License Technology** page. Click **Save** to save the new license technology.

Task ***To deploy the manual license technology***

1. Click **Administer > License Technologies**. The **License Technologies** page appears and lists **ManualTech** in the **Draft** state.
2. Select the **ManualTech** check box, then click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. In the **License Technologies** table, **ManualTech** is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Technologies successfully ManualTech`

Setting Up and Deploying the License Model

In this exercise, you set up and deploy the `ManualModel` license model.

Task ***To set up the manual license model***

1. Click **Administer** > **License Models**. The **Package Products – License Models** page appears.
2. Click **Create New License Model**. The **Package Products – License Models** page refreshes.
3. Under **Select A License Technology**, select `ManualTech` from the **License Technology** menu, then click **Next**. The **Package Products – License Models** page refreshes.
4. Under **Create A License Model**, enter the license model information.
   - **Name:** Type `ManualModel`
   - **Description:** Type `Manual license model`
   - **State:** Note that the license model is created in a **Draft** state.
   - **License Technology:** Note that this is set to `ManualTech`.
   - **Expiration:** Use the default value of **None**.

5. Click **Save** to create the `ManualModel` license model. This message appears: `License Model successfully created.`

Task ***To deploy the manual license model***

1. Click **Administer** > **License Models**. The **Package Products – License Models** page appears. Search for and select the `ManualModel` check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message that appears. In the **License Models** table, `ManualModel` is shown with a **State** of **Deployed**.

Creating and Deploying the Product

In this exercise, you create a product called `PhotoPrint-manual` that uses the `ManualTech` license technology and `ManualModel` license model, then you deploy the product.

Task ***To create product*** `PhotoPrint-manual`

1. Click **Products > Products**. The **Package Products** page appears.
2. Click **Add New Product**. The **Package Products | Create A Product** page appears.
3. Under **Create A Product**, enter the product information:
   - **Product Name:** Type **`PhotoPrint-manual`**
   - **Version:** Type **`12.3`**
   - **State:** Note that the product is created in a **Draft** state.
   - **License Technology:** Select `ManualTech`
4. Click **Add Features**. The **Add Features To Product** window opens.
5. In the **Add Features To Product** window, search for feature name equals `Print`. Feature `Print` is listed under **Available Features**.
6. In the **Add Features To Product** window, under **Available Features**, select `Print,12.3`.
7. Click **Add** ? to move feature `Print,12.3` to **Selected Features**, then click **Add**. The window closes and the feature is added to product `PhotoPrint-manual`.
8. Click **Save**. Note that product `PhotoPrint-manual` and its version appear in the list on the right side of the **Package Products** page. This message appears: `Product PhotoPrint-manual successfully added.`
9. Click **Next**. The **Package Products | Link License Models To Product** page appears.
10. Click **Link License Models**. The **Select License Models** window opens. Search for and select `ManualModel` from **Available License Models**, then click **Add** ? to move it to **Selected License Models**.
11. Click **Add**. Product `PhotoPrint-manual` is linked to the `ManualModel` license model and the window closes.
12. On the **Package Products** page, click **Save**. Note that product `PhotoPrint-manual` is now listed under **Products Linked To License Models**. This message appears: `License models linked successfully.`

Task ***To deploy product*** `PhotoPrint-manual`

1. Click **Products** > **Products**. The **Package Products** page appears. Search for product `PhotoPrint-manual` and select its check box.
2. Click **Change State** ? and select **Deploy** from the drop-down menu. Click **OK** in the verification message. The **Package Products | Deploy Products** page appears for product `PhotoPrint-manual`.
3. Click **Deploy**. The **Package Products** page shows that `PhotoPrint-manual` is deployed. This message appears: `Products deployed successfully.`

License Activation

The exercises in this section use examples to guide you through these manual license activation tasks:

Exercise	Description
Entitling the Customer to the Product	Create, configure, and deploy the product `PhotoPrint-manual` entitlement.
Activating the License	Activate a product `PhotoPrint-manual` license.

Entitling the Customer to the Product

In this exercise, you create, configure, and deploy an entitlement for 3 copies of product `PhotoPrint-manual`.

Task ***To entitle the customer to product*** `PhotoPrint-manual`

1. Click **Entitlements** > **Create**. The **Entitle Customers to Licenses** page appears.
2. Under **Create An Entitlement**, from the **Entitlement ID** list, select **Specify** and type **`ENTL-manual`** in the box that appears next to it. Note that the entitlement is created in a **Draft** state.
3. Under **End Customer And Channel Partners**, click **Add**. The **End Customer And Channel Partners** window opens.
4. On the **Customers** tab, search for and select `BarryPhoto` as the account to receive the entitlement, then click **Save**. The **End Customer And Channel Partners** window closes, and the **Entitle Customers to Licenses** page shows `Barry Photography Studio` as the end customer.

Task ***To configure the product*** `PhotoPrint-manual` ***entitlement***

1. On the **Line Items** tab near the bottom of the page, click **New Line Item**. The **Configure Line Item** wizard opens.
2. In wizard step 1, **Select Product**, search for and select product `PhotoPrint-manual`, then click **Next**.

3. In wizard step 2, **Select Part Number & License Model**, leave the default values as they are. Click **Next**.
4. In wizard step 3, **Configure Product**, enter these line item attributes:
   - **Qty**: Type `3` for the quantity of `PhotoPrint-manual` copies in this line item
   - **Start Date**: Select **Use First Activation Date** from the drop-down list
   - **Expiration**: Select **Permanent**
   - Keep the default values for all other attributes.

   Click **Next**.
5. In wizard step 4, **Custom Attributes**, click **Next**.
6. In wizard step 5, **Order Type**, keep the default value as it is. Click **Save** to save the line item and close the **Configure Line Item** wizard.
7. On the **Line Items** tab, note that the line item for product `PhotoPrint-manual` is PERMANENT, has a total quantity of 3, and is in the **Draft** state.

Task ***To deploy the product*** `PhotoPrint-manual` ***entitlement***

1. At the bottom of the **Entitle Customers to Licenses** page, click **Save & Deploy**. The page is refreshed, the **Line Item State** of `PhotoPrint-manual` is now **Deployed**, and this message appears: `Entitlement deployed successfully.`
2. On the **Entitle Customers to Licenses** page, click **Email** to send entitlement notification email to `Barry Photography Studio`. Type your email address in the **Ship To Email** box so you receive the certificate.

   Note ▪ *To include additional recipients, type their email addresses into the* **Ship To Email** *box separated by commas.*
3. Click **Send**. The email is sent and this message appears: `Email sent to the recipients <address list>.`

Activating the License

In this exercise, you activate a license for 1 copy of product `PhotoPrint-manual`. Your manual technology generates the license, while FlexNet Operations tracks fulfillment and other data. Because there is no programmatic link between them, your customer service staff must transfer license data from the manual technology to FlexNet Operations.

The manual technology licensing work flow is:

- **On-hold Fulfillment** – The end user initiates the fulfillment. FlexNet Operations collects the relevant information, then creates an on-hold fulfillment record.
- **Email Notification** – FlexNet Operations sends email to notify customer service to begin the licensing process using your manual technology, with information collected in FlexNet Operations.
- **License Generation** – Your customer service staff generates the license using your manual technology.

- **Manual Update** – Your customer service staff manually updates the fulfillment record in FlexNet Operations and sets the license, which activates the fulfillment record and allows the user to download the license.

Task ***To activate the manual license***

1. On the **Entitle Customers to Licenses** page, click **Activate**. The **List Entitlements** page appears.
2. In the **Activatable Line Items** table, click the **Activation ID** link for the `PhotoPrint-manual` product. The **Line Item Details** window opens.
3. Review the details of the line item, noting that **Qty** and **Qty Remaining** are both 3, **Start Date Option** is Use First Activation Date, **Permanent** is true, and **License Model** is ManualModel, then click **Cancel** at the bottom to close the window.
4. In the **Activatable Line Items** table, select the `PhotoPrint-manual` line item check box and click **Activate**. The **List Entitlements | Generate Licenses** page for the `PhotoPrint-manual` line item appears.
5. Click **Verify** to verify the validity of the license. This message appears: `License is Valid.`
6. Click **Generate**. The **Generated Licenses** page appears, listing `PhotoPrint-manual` with a **Count** of 1. This message appears:

   ```
   License text has not been set for some of the fulfillments generated. The administrator has been notified. You will receive an email when the license is ready to download.
   ```

7. On the **Generated Licenses** page, click **Complete**. The **List Entitlements** page appears, listing the `PhotoPrint-manual` line item with an **Available Quantity** of 2, **Total Quantity** of 3, and **Expiration** of `PERMANENT`.
8. Click **Licenses > Licenses**. The **Support Licenses And Maintenance** page appears, listing product `PhotoPrint-manual` with a **Count** of 1. The **Type** is ON HOLD (denoted by the N icon).
9. Click the product `PhotoPrint-manual` **Fulfillment ID** link. The **Fulfillment Details** window opens.
10. Review the fulfillment information, then click **Cancel** at the bottom to close the window.
11. On the **Support Licenses And Maintenance** page, put a check mark in the product `PhotoPrint-manual` license's check box, then click **Set License**. The **Set License For Fulfillment** window opens.
12. In the **Set License For Fulfillment** window, browse to and select the appropriate **License File** for your scenario:

    - The actual license file generated by your manual license generator, or
    - the `NonFlexManualLicenseFile.lic` sample if no manual technology license generator is configured.

    Click **OK**. The **Set License For Fulfillment** window closes. On the **Support Licenses And Maintenance** page, **Type** changes from ON HOLD to Non-Flexnet (denoted by the NF icon).
13. On the **Support Licenses And Maintenance** page, put a check mark in the product `PhotoPrint-manual` license's check box, then click **Save to File**. When you are asked whether you want to open or save the license file, select **Open**.
14. Review the contents of the license file and close the window when you are done.

License Support

The exercises in this section use examples to guide you through these manual license support tasks:

Exercise	Description
Repairing the License	Repair the product PhotoPrint-manual license that you activated.
Returning the License	Return the product PhotoPrint-manual license.

Repairing the License

In this exercise, you repair the PhotoPrint-manual license.

Task ***To repair the manual license***

1. Click **Licenses** > **Licenses**. The **Support Licenses and Maintenance** page appears.
2. On the **Support Licenses and Maintenance** page, search for and select the check box next to the product PhotoPrint-manual fulfillment.
3. Click **Support Actions** and select **Repair** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the PhotoPrint-manual fulfillment information.
4. Click **Verify** to verify the validity of the license. This message appears: `License is valid.`
5. Click **Repair**. The **Generated Licenses** page appears with updated PhotoPrint-manual fulfillment information. **Type** is ON-HOLD (denoted by the N icon). This message appears: `License text has not been set for some of the fulfillments generated. The administrator has been notified. You will receive an email when the license is ready to download.`
6. On the **Generated Licenses** page, click **Complete**. The **Support Licenses And Maintenance** page appears.
7. Search for and select the check box next to the on-hold product PhotoPrint-manual fulfillment, then click **Set License**. The **Set License For Fulfillment** window opens.
8. Browse to the PhotoPrint-manual license file, then click **OK**. The **Set License For Fulfillment** window closes. The **Support Licenses And Maintenance** page is refreshed and the PhotoPrint-manual fulfillment is no longer on hold.
9. Click **Entitlements > List Entitlements by Order**, search for the product ENTL-manual entitlement, then click on the ENTL-manual link. The **Entitle Customers to Licenses** page appears.
10. Under **Line Items**, on the **Line Items** tab, click the **Fulfill History** link of the PhotoPrint-manual line item. The **Fulfillment History** window opens.
11. Review the fulfillment history for the PhotoPrint-manual line item. Note that it was repaired, generated and put on hold, and reactivated. Click **OK** when you are done to close the **Fulfillment History** window.

Returning the License

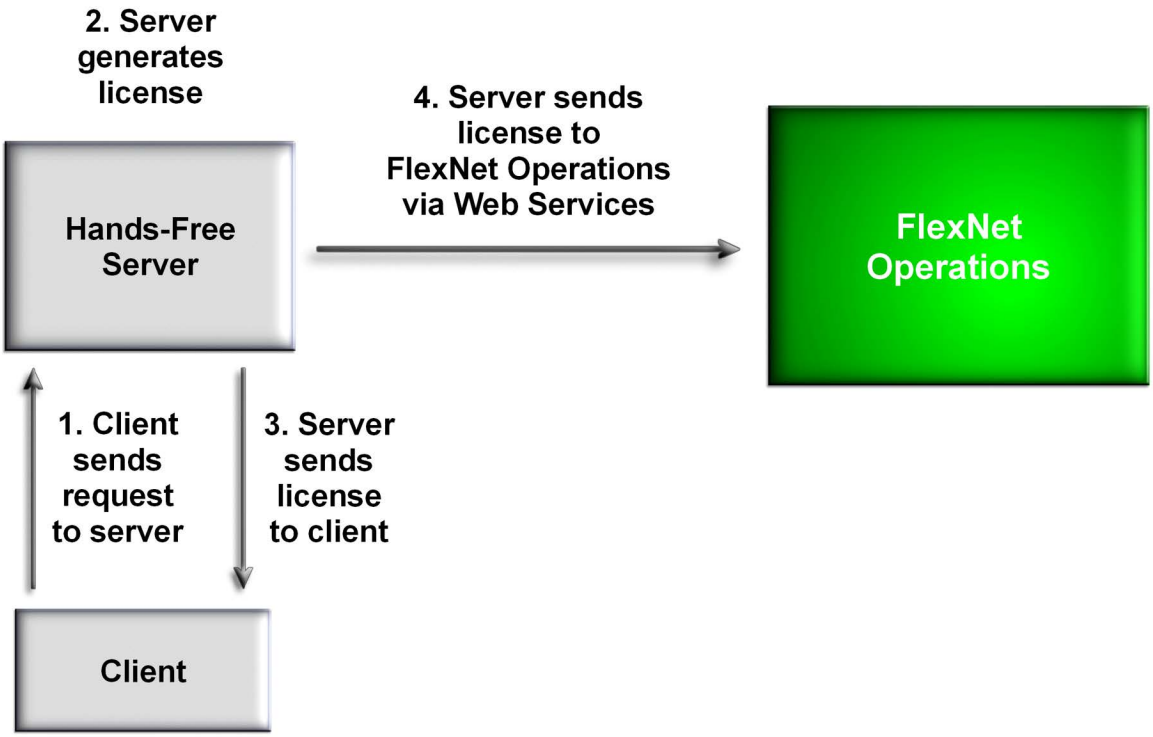
In this exercise, you return the `PhotoPrint-manual` license.

Task ***To return the manual license***

1. Click **Licenses** > **Licenses**. The **Support Licenses and Maintenance** page appears.
2. On the **Support Licenses and Maintenance** page, search for and select the check box next to the product `PhotoPrint-manual` fulfillment.
3. Click **Support Actions** and select **Return** from the drop-down menu. The **Support Licenses And Maintenance** page refreshes with the `PhotoPrint-manual` fulfillment information.
4. Click **Verify** to verify the validity of the license. This message appears: `License is valid.`
5. Click **Return**. The **Support Licenses And Maintenance** page is refreshed. A message similar to this appears: `Successfully returned licenses for fulfillment FID_8fbd3105_8d5e_41b2_99a9_c867bca9ff8d`
6. Click **Entitlements > List Entitlements by Order**, search for the `ENTL-handsfree` entitlement, then click on the `ENTL-handsfree` link. The **Entitle Customers to Licenses** page appears.
7. Under **Line Items**, on the **Line Items** tab, click the **Fulfill History** link of the `PhotoPrint-manual` line item. The **Fulfillment History** window opens.
8. Review the fulfillment history for the `PhotoPrint-manual` line item. Note when it was returned. Click **OK** when you are done to close the **Fulfillment History** window.

Hands-Free Technology

Licenses that use hands-free technology are generated programmatically between a client and the FlexNet Operations server using a third-party system. A license request, usually in XML format, is submitted to the license server, which processes the request and sends a response to the client. The server generates the license and stores the license information in FlexNet Operations, where it is tracked.



Advanced Topics

Brief descriptions of more advanced activation and support topics for producers who use FlexNet Operations with a non-FlexNet license technology are provided below. For more information about these advanced topics, refer to the *FlexNet Operations On-Premises Installation & Implementation Guide*, the *FlexNet Operations Web Services Integration Guide* or the *FlexNet Operations SOAP Web Services Guide*.

License Activation

File Definitions

If the license technology uses multiple license files, multiple license file types can be defined for a fulfillment record. A license file type can be text or binary.

Generator Validator

Implement the license model validator and product validator using a Java callout.

License Consolidator

Implement the custom license consolidator using a Java callout..

File Name Generator

Implement the custom file name generator using a Java callout.

Custom HostID String

Implement the custom HostID string using a Java callout.

License Support

Rehosting a License

Moving a license from one machine to another is called *rehosting*. *Batch rehosting* is moving groups of licenses from one server to others by:

- *Redistributing* – re-allocating licenses for a group of products among various license servers to change the license count of products on different servers
- *Transferring* – moving all of an account's licenses from one host to another, usually when a host machine crashes and the licenses on it must be moved to a new machine

Upgrading a License

Changing a license for one version of a product to a license for an improved version of the product is called *upgrading*. For example, a customer can upgrade a license for `Paint 4.0` to one for `Paint 5.1`.

Upselling a License

Changing a license for one product to a license for another product with more capabilities is called *upselling*. For example, a customer who has a license for `AntiMalware` can be upsold to the `Total PC Protection` package, which includes `AntiSpam` and `ParentalControl` in addition to `AntiMalware`.

Renewing a License

Extending an expiring license is called *renewing* a license. For example, a customer whose software license expires after one year can renew it for another year.

Correcting a Producer Error

Regeneration of a license may be required because of a *producer error*, such as incorrect data entry.

Generating an Emergency License

An *emergency license* is a short term license generated for a customer who cannot use the unexpired license. For example, while a customer's main computer is being upgraded or repaired, the product must be used temporarily on another computer.

Generating a Stop-Gap License

A *stop-gap license* is a short term license generated for a customer whose expired license renewal is being processed.

13

Getting Started with Cloud Licensing Service

The purpose of this section *Getting Started with Cloud Licensing Service* is to provide an overview on the use of FlexNet Operations and FlexNet Cloud Licensing Service (a feature of FlexNet Operations). For FlexNet Operations users who use FlexNet Embedded licensing, the FlexNet Cloud Licensing Service allows the rapid deployment of cloud-hosted license servers.

This getting started section primarily describes concepts and tasks related to FlexNet Operations with FlexNet Cloud Licensing Service. For information about implementing a FlexNet Embedded client that communicates with license servers, see the appropriate FlexNet Embedded documentation. For example, the *FlexNet Embedded Client C SDK User Guide* or the *FlexNet Embedded Client C XT SDK User Guide*.

This getting started section is organized into the following sections.

Topic	Content
FlexNet Cloud Licensing Service Concepts	Provides general information about FlexNet Embedded license server terminology and tasks.
FlexNet Cloud Licensing Service Exercises	Provides a walkthrough of creating a cloud-hosted license server in FlexNet Operations.

To view a brief, informative video that walks you through the exercises in *Getting Started with Cloud Licensing Service*, click **here**. We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

FlexNet Cloud Licensing Service Concepts

This section describes general concepts involved in working with FlexNet Operations, FlexNet Embedded, and FlexNet Cloud Licensing Service. The following are some of the concepts and terminology used throughout this documentation.

FlexNet Embedded Licensing

FlexNet Embedded license technology is intended for use by software publishers and intelligent device manufacturers.

Licensing software on each client (such as a device or a workstation) controls the feature set expressed. If the device has network connectivity, it can connect directly to FlexNet Operations and receive the license for its feature set. A device can also be activated off line or using a FlexNet Embedded license server. This getting started section focuses on a licensing model in which one or more clients interact with a cloud-hosted FlexNet Embedded license server.

FlexNet Embedded license technology also enables the use of perpetual, subscription, and demonstration license models in traditional software applications.

Embedded licenses are of two types:

- An *uncounted* license model allows a customer to deploy an unlimited number of licenses.
- A *counted* license model restricts deployment to a limited number of licenses. The count is specified during the entitlement process.

License Servers

Your served clients send capability requests to a FlexNet Embedded license server. In this getting started section, the license server is a license server instance hosted in the FlexNet Cloud Licensing Service that holds license rights for use by its served clients.

Auto-Provisioning

License servers can be created manually or, when the license model permits auto-provisioning, automatically generated by FlexNet Operations.

When auto-provisioning is permitted, FlexNet Operations generates a new license server when an entitlement using such a license model and owned by an end customer account, is deployed. Also, line items included in the entitlement are automatically mapped to the license server.

When auto-provisioning is not permitted, producers can create the license server manually. In this scenario, the producer uses the Create License Server page to create a license server for the end customer and then manually maps the entitlement line items to that server.

The exercises in this getting started section make use of auto-provisioning in the license model to streamline license server creation and entitlement mapping.

Limitations

The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:

- License servers cannot be moved to another account.
- You cannot remove licenses using Licenses > Remove Licenses.

- License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.

Features

A *feature* represents a licensable capability defined in a software application, and is the basic building block for a product. A feature could represent any of the following:

- a product consisting of one or more components
- a specific version of a product
- a part of a product
- one or more pieces of data (restricted through the access routines)

An example of a feature would be the Add function in a calculator, or the Print function in a word processing program.

You define the feature or features that make up your products in FlexNet Operations. Licensing code checks for the availability of certain features to determine a product's functionality.

During execution, your licensing code uses FlexNet Embedded functions that attempt to *acquire* a license. The FlexNet Embedded libraries validate such conditions as the feature not having expired. If the license acquisition succeeds, your code would then enable the corresponding capability.

Capability Requests and Responses

When your licensing code communicates with FlexNet Operations, the communications involve *capability requests* and *capability responses*. A capability request is generated by the client (requesting features that it will acquire). The request data contains some combination of a host identifier, one or more desired features, and other optional data to pass to FlexNet Operations.

The license server instance then processes the request, reading the various identifiers, desired features, and custom data. If FlexNet Operations determines that the client requires a response, it generates a capability response. The response data contains current license rights available for the client. The capability response is then conveyed back to the client, which processes the response, after which the features in the response can be queried for the sake of detecting if a quota has been exceeded or for feature clipping.

Your licensing code specifies one or more *desired features*, which represent features desired in the capability request.

Your code also specifies an *operation* in the capability request, which indicates whether a response is expected. The "request" operation is used in feature-clipping scenarios, where a response is needed.

Publishers and Publisher Identities

Before you use a FlexNet Embedded license technology, you must set up a publisher and identity on the FlexNet Operations Producer Portal. A publisher identity is binary data that contains a publisher or producer name and encryption data. A publisher is necessary to identify who the license belongs to and who can validate the license. An identity is used to secure communication between the back office and device.

Revenera supplies you with a unique publisher name and a series of five publisher keys. You use this name and these keys to set up a publisher. The keys cannot be regenerated or duplicated.

The publisher can define any number of identities, each providing a different level of security for different classes of devices or licenses. For example, a line of high-end devices may require higher security than a line of low-end devices. When an identity is created, a digital signature algorithm is selected to prevent forgery and tampering on the device.

FlexNet Cloud Licensing Service Exercises

This section describes how to get started with FlexNet Operations and FlexNet Cloud Licensing Service. You will learn about setting up a license server in FlexNet Operations and connecting your clients to their license server instance in FlexNet Cloud Licensing Service.

The section is divided into the following subsections.

Section	Description
Prerequisites	Prerequisites for included exercises.
Preparing FlexNet Operations	Exercises to create a license server in FlexNet Operations. This section includes creating your license models, features, products, and so forth.
Obtaining the License Server URL	Instructions for determining the URL for the license server instance with which your served clients communicate for license rights.
Running a Served Client Example	Brief discussion of how to confirm that counts can be successfully mapped from the license server to its FlexNet Embedded clients.

Prerequisites

The following items are prerequisites for developing and deploying licensing code with the FlexNet Operations Producer Portal and your FlexNet Embedded toolkit.

FlexNet Embedded Client Implementation

It is assumed that you have downloaded your FlexNet Embedded platform for implementing an application to obtain license rights from a license server. You should already have implemented FlexNet Embedded C SDK or FlexNet Embedded XT code for a connected application running in a customer environment. See the corresponding FlexNet Embedded documentation for information about building the example code and implementing a served client.

To complete the exercises in this getting started section, users also must have received publisher keys from Revenera.

Note ▪ *The creation of a publisher and an identity are covered in the section Getting Started with FlexNet Embedded Licensing.*

FlexNet Operations Instance

It is also assumed that you have access to FlexNet Operations via the Producer Portal and the End-User Portal. Producers must have already activated their producer account and user account activated on the Producer Portal in which FlexNet Embedded and FlexNet Cloud Licensing Service features are enabled.

Preparing FlexNet Operations

To prepare FlexNet Operations to create a license server, you must create and associate several entities using the Producer Portal. Many of these steps are common to any use of FlexNet Operations with FlexNet Embedded.

This preparation includes the following exercises.

Exercise	Description
Creating License Models	Shows how to create and deploy license models to use with the example products we plan to deliver through the license server.
Creating Features	Explains how to create the example feature, scientific-operations, as well as a baseline feature with which served clients can be registered.
Creating Products	Explains how to create the products necessary to create the entitlement line items to be delivered through the license server.
Creating an Account and a User	Shows how to create a customer account and user to which the new product will be entitled.
Entitling the Account	Describes how to create an entitlement, configure its line items with the new products, and entitle the customer account to those line items.
Viewing the Auto-Provisioned License Server	Explains how to find the license server that was created when the entitlement was deployed.

After you verify that the new license server was created, the FlexNet Operations preparations are complete. Continue with Obtaining the License Server URL and Running a Served Client Example.

If you have not previously used FlexNet Operations, see the section *Getting Started with FlexNet Embedded Licensing* for more information.

Creating License Models

In this exercise, you create license models to use with the products to be created in later exercises. Two license models will be created: one for use with the counted product to be mapped to the license server and the other to serve as a baseline product to manage client registration. You then deploy both these license models before proceeding to create features.

Creating a Counted License Model

For the product that will contain the counted feature, create a license model called **`Example Embedded Counted`**. Example Embedded Counted will be a copy of the Embedded Counted license model with auto-provisioning, but with additional license model policies set to Not Used.

Specify the following settings for the copied Embedded Counted license model:

Attribute	Value
Name	Example Embedded Counted
Auto Provision	Yes
Issuer	Not Used
Serial Number	Not Used
Vendor String	Not Used
Notice	Not Used

For any attributes not listed, above, keep the settings copied from the Embedded Counted license model

Task ***To create the Example Embedded Counted license model***

1. In the Producer Portal, click **Administer** > **License Models**. The Producer Portal opens the License Models page.
2. On the License Models page, locate the built-in Embedded Counted license model, select its checkbox, and then click **Copy**. This button opens the Create a License Model page with attribute settings that match Embedded Counted.
3. Specify license model name and expiration setting. For this exercise, use the values specified in the table above: **`Example Embedded Counted`** and **None**.
4. Set the license model attribute values described in the table above, and click **Save**.

The Producer Portal creates the license model with the settings you specified.

Creating an Uncounted License Model for Client Registration

For connected software client security, the client registration process requires an additional uncounted license model. For this purpose, create a second license model, called **`Example Baseline LM`**. Example Baseline LM will be a copy of the Embedded Uncounted license model with additional license model policies set to Not Used.

For the second part of this exercise, repeat the license model creation process but specify the following settings to the copied Embedded Uncounted license model:

Attribute	Value
Name	Example Baseline LM
Issuer	Not Used
Serial Number	Not Used
Vendor String	Not Used
Notice	Not Used

For any attributes not listed, above, keep the settings copied from the Embedded Uncounted license model

Task ***To create the Example Baseline LM license model***

1. In the Producer Portal, click **Administer** > **License Models**. The Producer Portal opens the License Models page.
2. On the License Models page, locate the built-in Embedded Uncounted license model, select its checkbox, and then click **Copy**. This button opens the Create a License Model page with attribute settings that match Embedded Uncounted.
3. Specify license model name and expiration setting. For this exercise, use the values specified in the table above: `Example Baseline LM` and **None**.
4. Set the license model policy values described in the table above, and click **Save**.

The Producer Portal creates the license model with the settings you specified.

Deploying the License Models

The new license models must be deployed before they can be linked to products or used in entitlement line items.

Task ***To deploy the Example Embedded Counted and Example Baseline LM license models***

1. In the Producer Portal, click **Administer** > **License Models**. The Producer Portal opens the License Models page.
2. On the License Models page, locate the license models: Example Embedded Counted and Example Baseline LM. If it do not immediately appear in the License Models list, try searching License Models for `Example`.
3. Select the checkboxes for both license models, and then click **Change State** > **Deploy**.
4. Click **OK** to confirm the state-change operation.

The Producer Portal deploys the license model and refreshes the License Models page to show the new Deployed state.

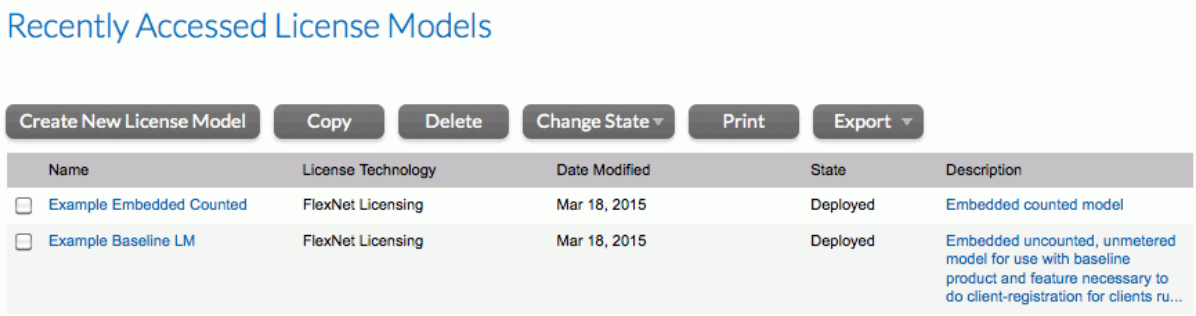


Figure 13-1: Example Embedded Counted and Example Baseline LM license models deployed

Creating Features

In the Producer Portal, use the commands under the **Products** menu to add a feature called **`scientific-operations`**, version **`1.0`**. and a feature called **`baseline-client-reg`**, version **`1.0`**. When defining the features, use the following settings:

Attribute	Value
Feature Name	scientific-operations
Feature Version	1.0
Description	Example feature for cloud-hosted license server exercises.

Leave all other attribute settings on their default values.

Creating an Counted Feature to Map to the License Server

Use the instructions, below, to create the scientific-operations feature.

Task ***To create the scientific-operations feature***

1. In the Producer Portal, click **Products** > **Features**. The Producer Portal opens the Feature page.
2. On the Feature page, click **Add New Feature**. This button opens the Create a Feature page.
3. On the Create a Feature page, set the feature attributes using the values in the table above.
4. Click **Save**.

The Producer Portal creates the scientific-operations feature and remains on the Create a Feature page.

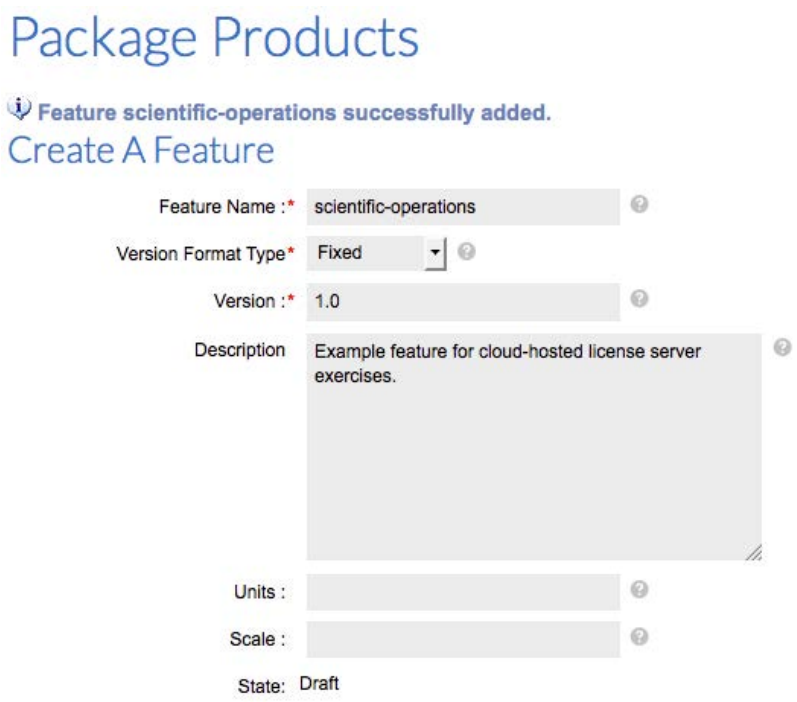


Figure 13-2: The Create a Feature page for the scientific-operations feature.

Creating an Uncounted Feature for Client Registration

For security, the client registration process requires an additional uncounted feature. For this purpose, create a second feature called **`baseline-client-reg`**.

Repeat the feature creation process for the baseline feature. Use the settings shown in the table below.

Attribute	Value
Feature Name	baseline-client-reg
Feature Version	1.0
Description	Example feature to do client-registration for products to be run on served clients.

Leave all other attribute settings on their default values.

Creating Products

Use commands under the **Products** menu to create two products: Example Calculator for the counted features and Example Baseline for the baseline-client-reg feature

Creating the Example Calculator Product

The Example Calculator product includes the counted feature you defined in the previous exercise: scientific-operations. Use the following settings when creating Example Calculator:

Attribute	Value
Product Name	Example Calculator
Description	An example counted product used with the exercises in the section Getting Started with Cloud Licensing Service
Version	1.0
Licensing Technology	FlexNet Licensing
Can Be Used on a Device	Yes
Feature	scientific-operations
Feature Quantity	1
License Model	Example Embedded Counted

Task ***To create Example Calculator***

1. In the Producer Portal, click **Products** > **Products**. The Producer Portal opens the Products page.
2. On the Products page, click **Add New Product**. This button opens the Create a Product page.
3. On the Create a Product page, set **Product Name**, **Version**, **License Technology**, and **Can Be Used on a Device** as shown in the table above.
4. Click **Add Features**. The Producer Portal opens the Add Features to Product page in a pop-up window.
    a. Locate the feature, **scientific-operations, 1.0**., and click **Add**. This selects the feature and moves it to the Selected Features list.
    b. Click **Add**. The Producer Portal closes the Add Features to Product window.
5. On the Create a Product page, set the **Quantity** for the scientific-operations feature to **1**, and click **Next**. (For a counted feature, this is the feature count per copy of the product ordered.) The Producer Portal opens the Link License Models to Product page.
6. Click **Link License Models** to open the Select License Models page in a pop-up window.
    a. Locate the license model, **Example Embedded Counted**, and click **Add**. This selects the license model and moves it to the Selected License Models list.
    b. Click **Add**. The Producer Portal closes the Select License Models window.
7. Click **Save**.

The Producer Portal saves Example Calculator and remains on the Map Product to Product Line page.

Creating the Example Baseline Product

Next, repeat the steps, creating a product for the uncounted baseline-client-reg feature and uncounted license model used in client registration. Use the following settings for the Example Baseline product.

Attribute	Value
Product Name	Example Baseline
Description	A product to contain the uncounted, baseline feature to be used for client registration on served clients.
Version	1.0
Licensing Technology	FlexNet Licensing
Can Be Used on a Device	Yes
Feature	baseline-client-reg,1.0
Feature Quantity	1
License Model	Example Baseline LM

Important ▪ *Before these new products can be used in an entitlement, you must deploy them. (Deploying a product changes its state, and the state of its features, from draft to deployed.) Select the checkboxes for the Example Calculator and Example Baseline products, click* ***Change State*** *>* ***Deploy****, and follow the on screen instructions to confirm the change.*

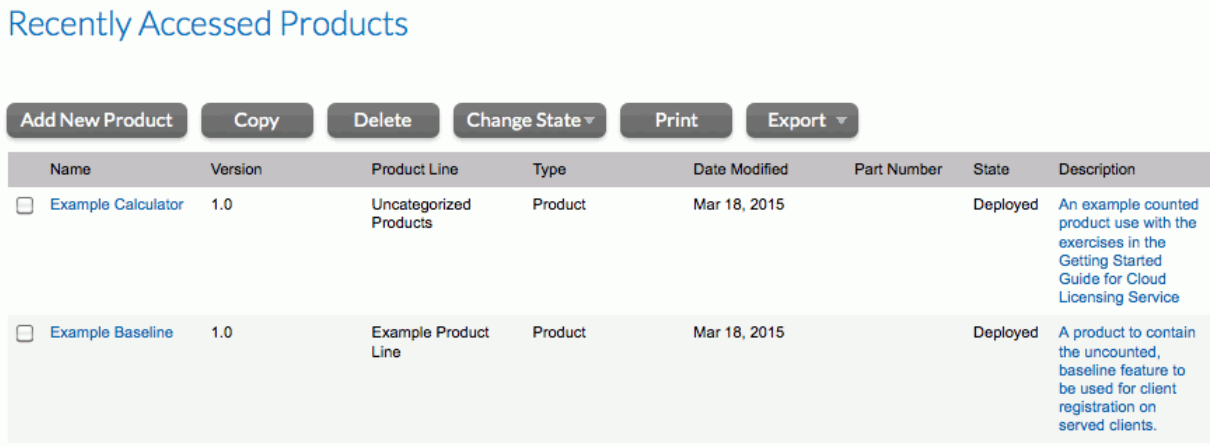


Figure 13-3: Example Baseline and Example Calculator products deployed

Creating an Account and a User

In the FlexNet Operations Producer Portal, use the commands under the **Users & Accounts** menu to create an account that represents a customer enterprise. For this example, create an account called `Demo Customer Org`.

Note ▪ *The creation of this customer account and end user is also part of other FlexNet Operations getting started sections. If the account and user already exist in the Producer Portal, you can skip this exercise.*

If you already have a test end user in a customer account you can entitle to these products, you can opt use that user instead of creating the user described here. Otherwise, follow the instructions, below, to create the customer account (Demo Customer Org), the end user account (Demo Customer) and entitle it to the Example Calculator and Example Baseline products.

Task ***To create the customer account and end user***

1. In the Producer Portal, click **Users & Accounts** > **Create Account**. The Producer Portal opens the Create an Account page.
2. On the Create an Account page, type the following values for the Account Name and Display Name attributes.

Attribute	Value
Account Name	`DemoCustOrg`
Display Name	`Demo Customer Org`

   Keep the default values for all other attributes.
3. Click **Create a User**. The Producer Portal saves the Demo Customer Org account and opens the Create a User page to add a new user to it.
4. On the Create a User page, type the following values for the new user's Contact Details:

Attribute	Value
First Name	`Demo`
Last Name	`Customer`
Email Address	An email address you control. This email account is where FlexNet Operations will send the initial login credentials and entitlements.

   Keep the default values for all other User Details and Contact Details attributes.
5. In Accounts, select the check box for **Portal User Role**. This gives Demo Customer the standard permissions for portal users.
6. Click **Save**.

The Producer Portal creates Demo Customer as a new user and sends a welcome message to the email address you provided. Use the credentials in that email to log in to the End User Portal and verify the Demo Customer account is functional.

Entitling the Account

Use the commands in the **Entitlements** menu to create an entitlement to the Example Calculator and Example Baseline products for Demo Customer Org.

In this exercise, you will create a new entitlement, add Demo Customer Org as the end customer, configure a line item for the uncounted product for client-registration, Example Baseline, and configure another line item for the counted product, Example Calculator.

Task ***To create the entitlement ENTL-SCI-OPS***

1. In the Producer Portal, click **Entitlements** > **Create**. The Producer Portal opens the Create an Entitlement page.
2. For **Entitlement ID**, select **Specify** and type `ENTL-SCI-OPS`.
3. For End Customer and Channel Partners, click **Add**. The Producer Portal opens the End Customer and Channel Partners page in a pop-up window.
   a. Click the **DemoCustOrg** option to select the Demo Customer Org as the customer account to receive the entitlement.
   b. Click **Next**. The Producer Portal shows the End Customer and Channel Partners: Contacts page in the pop-up window.
   c. Click the **Demo Customer** option to select Demo Customer as the end user who will receive the entitlement message.
   d. Click **Save**.

   The Producer Portal closes the pop-up window and shows Demo Customer Org and Demo Customer as the end customer.
4. Click **New Line Item** to begin configuring a line item for the Example Baseline product. The Producer Portal opens the Configure Line Item page in a pop-up window.

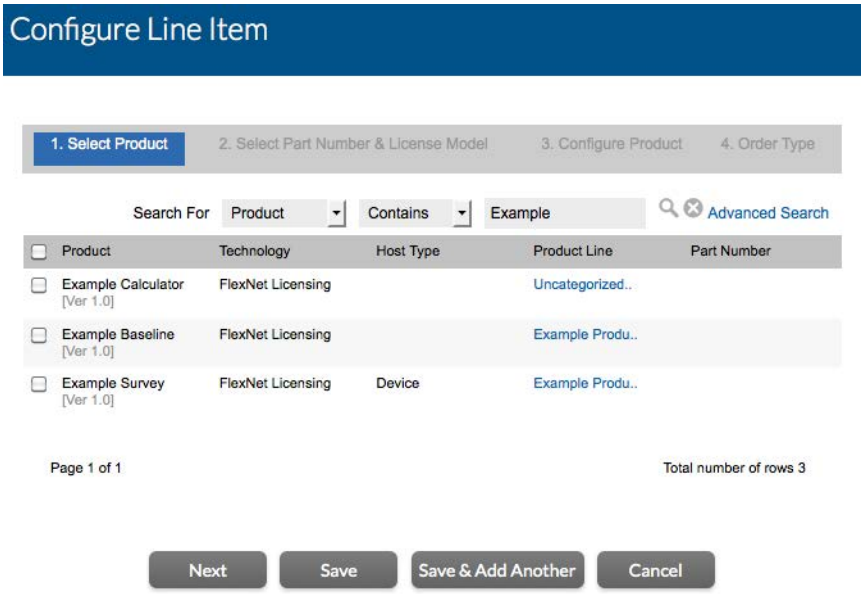


Figure 13-4: Starting the line item configuration process for the Example Baseline product.

a. Locate and select the **Example Baseline** product, and then click **Next**.

b. Select the license model, **Example Baseline LM**, and click **Next**.

c. Specify the following settings for product configuration:

- **Qty**: `1`
- **Start Date**: **Use First Activation Date**
- **Expiration**: `01/01/2020`

d. Click **Next**.

e. Click **Save**.

5. Click **New Line Item** to begin configuring a line item for the Example Calculator product. The Producer Portal opens the Configure Line Item page in a pop-up window.

a. Locate and select the **Example Calculator** product, and then click **Next**.

b. Select the license model, **Example Embedded Counted**, and click **Next**.

c. Specify the following settings for product configuration:

- **Qty**: `30`
- **Start Date**: **Use First Activation Date**
- **Expiration**: `01/01/2020`

d. Click **Next**.

e. Click **Save**.

6. Click **Save & Deploy**.

The Producer Portal saves ENTL-SCI-OPS with line items for Example Baseline and Example Calculator.

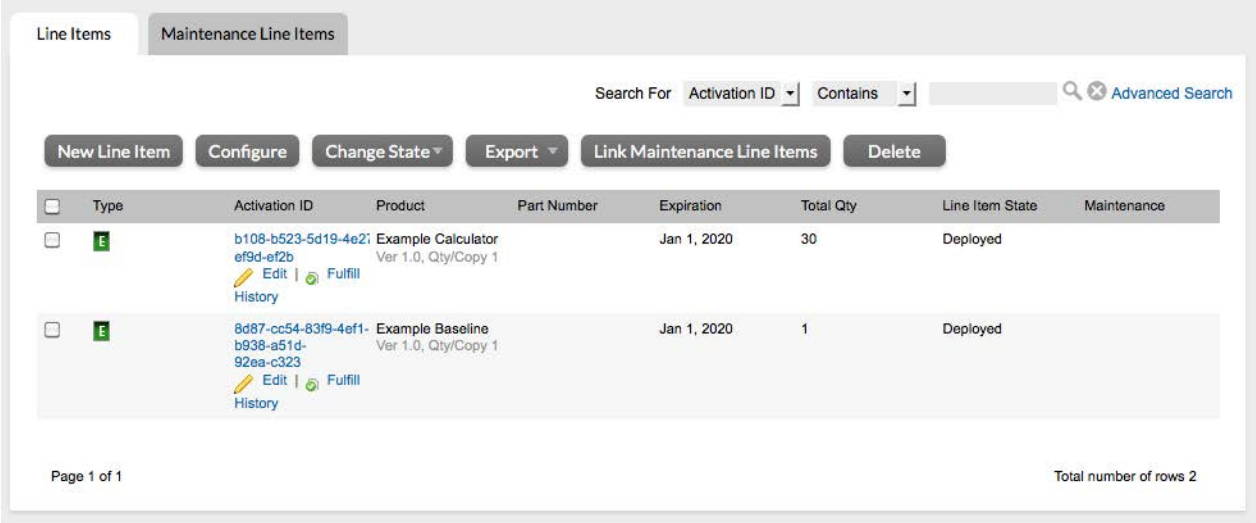


Figure 13-5: The entitlement line items for Example Calculator and Example Baseline in ENTL-SCI-OPS

FlexNet Operations also generates the license server and maps the Example Calculator line item to the new server.

Tip ▪ *Make a note of the resulting activation ID for Example Baseline. (Yours will be different than the activation ID depicted in the figure above.) When you run a connected client, you will use the activation ID as the rights ID during the client registration process.*

Viewing the Auto-Provisioned License Server

Once you deploy the entitlement, ENTL-SCI-OPS, FlexNet Operations automatically generates the license server from which served clients in the end customer account acquire their license rights. In this exercise, you will locate the auto-provisioned license server in the Producer Portal.

Task ***To view the auto-provisioned license server***

1. In the Producer Portal, click **Devices** > **Devices**. The Producer Portal opens the Devices page.
2. On the Devices page, locate the new license server by its account name.
   a. In the search controls, select **Account name** from the drop-down list.
   b. Type `DemoCustOrg` in the search field and then click **Search**.
3. On the Devices search results page, click the **Name** of DemoCustOrg's license server. The Producer Portal opens the View Server page.

Notice that the View Server page shows a number of important attributes of the license server. In particular, make a note of the license server ID. The license server ID, in this case 3VH8MNZESMSP, is also the instance ID value for the server URL. This instance ID value is used in the endpoint URL where the served clients connect to make capability requests. (See Obtaining the License Server URL.)

Notice also, that the license Server's View Server page also shows the product licenses that are served by it. In this case, the license server includes the Example Calculator line item from the ENTL-SCI-OPS entitlement. (The Example Baseline line item is not served by the license server. Instead, it is present in the entitlement to support the registration of its served clients.)

***Tip** ▪ When auto-provisioning is used, you can also find a customer account's default license server instance on customer account's Create an Account page. There, click the license server ID link, labeled **Cloud Licensing Service instance (Auto Provisioned)**, to open the View Server page.*

Obtaining the License Server URL

The URL for the license server identifies the location where your FlexNet Embedded client communicates with its cloud-hosted license server. For a connected software client using the FlexNet Embedded C SDK or FlexNet Embedded XT, the URL is:

```
http://<serverhost>:<serverport>/gls/instances/<CLS instance ID>/request
```

In the URL, above, <serverhost> is the hostname for your FlexNet Operations instance and <serverport> is the HTTP port. <CLS instance ID> is the license server ID of the license server with the license rights to the Example Calculator product. The <CLS instance ID> value based on the license server created in the exercises in this section would be `3VH8MNZESMSP`.

Running a Served Client Example

At this point, you can put the pieces together and run a served client from your FlexNet Embedded client toolkit.

Use FlexNet Embedded C SDK or FlexNet Embedded XT to implement a served client that is configured with the correct endpoint URL for the license server.

In these implementations, you first send a capability request that specifies the Example Baseline activation ID as a rights ID, to claim the client, and then send a capability request containing the desired feature, scientific-operations, to request counts from the license server.

See your FlexNet Embedded user guide for other served client and license server implementation details and examples.

14

Getting Started with Entitlement Management

This section *Getting Started with Entitlement Management* presents fundamental FlexNet Operations concepts and uses exercises to guide you through creation of a product entitlement, including the supporting tasks. Topics and exercises are presented in the order that a Producer Portal user would perform them when setting up a new customer account, customer user, and product, and then creating an entitlement.

The intended audience for *Getting Started with Entitlement Management* is the first-time Producer Portal user, or one without FlexNet Operations training or experience. This getting started section is organized into the following topics.

Topic	Content
Introduction	Overview of this getting started section, exercise prerequisites, and a summary of the FlexNet Operations license lifecycle.
Account and User Creation	Customer account, customer user, and producer account concepts with exercises that demonstrate how to create each of them. Brief descriptions of advanced account topics with references for more information.
Product Creation	Product packaging concepts with exercises that demonstrate how to create, link a license model to, and deploy a product. Brief descriptions of advanced product packaging topics with references for more information.
Entitlement Creation	Entitlement concepts with exercises that demonstrate how to create, configure, and deploy an entitlement, and how to review it on the End-User Portal. Brief descriptions of advanced entitlement topics with references for more information.

To view a brief, informative video that walks you through the exercises in *Getting Started with Entitlement Management*, click **here**. We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

Introduction

This section lists exercise prerequisites, and provides a summary of the FlexNet Operations license lifecycle.

- Exercise Prerequisites
- The License Lifecycle: Entitlement Management

Exercise Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured
- FlexNet Operations seed data and demonstration database must be loaded

Important ▪ *These exercises require a FlexNet Operations database populated with demonstration data. Refer to the step-by-step instructions in the FlexNet Operations On-Premises Installation & Implementation Guide to create seed data using the* **`flexnet loaddb`** *command and to populate the sample data using the* **`flexnet demodata`** *command.*

- FlexNet Operations email templates must be set up
- You must have a FlexNet Operations Producer Portal login and a role with permission to view and manage accounts and users, such as System Administrator

The License Lifecycle: Entitlement Management

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

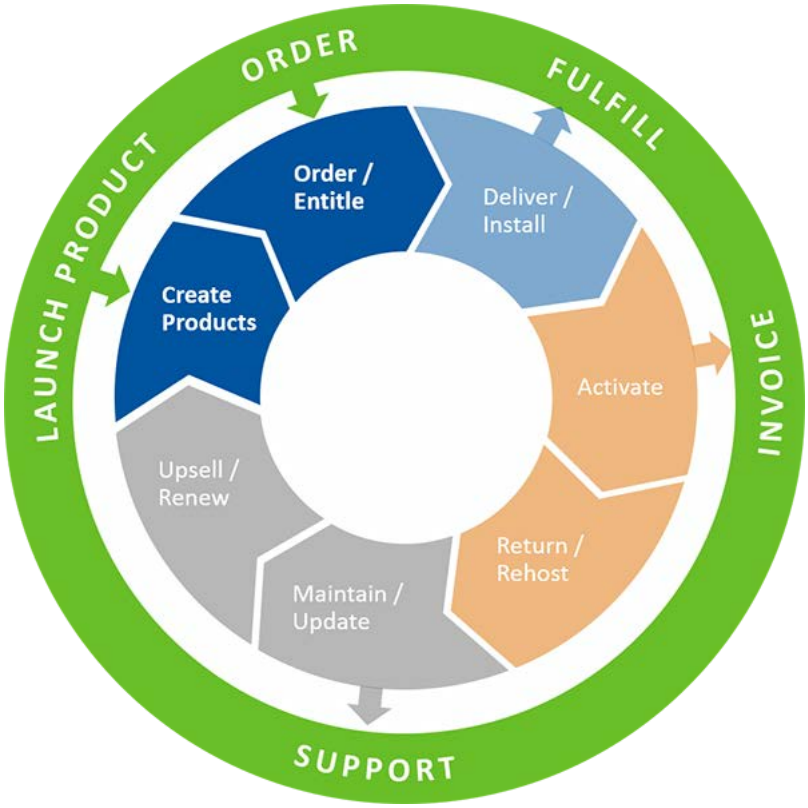


Figure 14-1: FlexNet Operations License Lifecycle

Product creation and entitlement, the first two stages of the license lifecycle, are covered in this getting started section.

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define a customer's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.
- **Return/Rehost** – Manage license transfers from one user or system to another.
- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

Account and User Creation

This topic introduces fundamental FlexNet Operations account and user concepts, and guides you through customer account and customer user setup tasks in preparation for entitlement creation.

- Account and User Creation Key Concepts
- Account and User Creation Exercise Scenario
- Account and User Creation Exercises

- Account and User Creation Next Steps
- Account and User Creation Advanced Topics

Account and User Creation Key Concepts

Accounts

To be associated with an entitlement, a company must be entered as one of the FlexNet Operations account types. Account and User Creation Key Concepts touches only on the account types relevant to this section's entitlement creation exercises:

- **Producer** – software producer or intelligent device manufacturer
- **Customer** – end user of the software or device

User Roles

A FlexNet Operations user must belong to one of the FlexNet Operations account types, and a user name and password are required to log in. Revenera creates the initial user account for a producer's FlexNet Operations System Administrator, then the System Administrator creates any additional users required for the producer's account and for the producer's customers (end users).

The activities a user can perform are based on the permissions that user has. However, permissions are not assigned to users directly. Instead, permissions are grouped into roles and FlexNet Operations users are assigned one or more roles. Account and User Creation Key Concepts touches only on the user roles relevant to this section's entitlement creation exercises; these roles, and others, are provided as seed data:

- **System Administrator** – a producer FlexNet Operations administrator who has the ability to create new roles for producer personnel and end users by assigning specific permissions
- **Portal Administrative User** – a customer user who has End-User Portal administrative privileges
- **Portal User** – an End-User Portal customer user

Account and User Creation Exercise Scenario

GraphicsPrint is a producer offering specialized printing services for its customers, who can pre-purchase these services. GraphicsPrint's **LargeFormat** product line includes the **PhotoPrint**, **SignPrint**, and **CADPrint** products.

In Account and User Creation Exercises, you set up GraphicsPrint's customer account **Barry Photography Studio** and customer end-user **Lisa Barry**.

In Product Creation Exercises, you set up GraphicsPrint's **LargeFormat** product line and the **PhotoPrint** product, which includes FlexNet Operations demonstration data features **PrintToPDF**, **Print**, and **PrintHighQualityColor**.

In Product Creation Exercises, you entitle customer account **Barry Photography Studio** to use the **PhotoPrint** product.

Account and User Creation Exercises

The following exercises use examples to guide you through the customer account and end user setup tasks:

Exercise	Description
Creating a Customer Account	Create customer account `Barry Photography Studio`.
Creating a Customer End User	Create customer end user `Lisa Barry`.

Creating a Producer User

One of the first tasks you perform as a Producer Portal administrator is creating producer users and assigning them roles. The procedure for creating a producer user is similar to the one below for creating a customer user. For more information on creating different types of users, refer to Creating a User.

Note ▪ *In these exercises, FlexNet Operations default producer My Organization (MYORG) represents GraphicsPrint.*

Creating a Customer Account

In this exercise, you create customer account `Barry Photography Studio`.

Task ***To create a customer account***

1. Log in to the FlexNet Operations Producer Portal.
2. Click **Accounts & Users** > **Create Account**. The **Create An Account** page appears. Note that **Account Type** is CUSTOMER.
3. On the **Create An Account** page, enter the customer account attributes:
   - **Account Name**: Type `BarryPhoto`
   - **Display Name**: Type `Barry Photography Studio`
   - Keep the default values for all other attributes.
4. Click **Save**. The `Barry Photography Studio` account is saved and this message appears: `Account BarryPhoto has been successfully added.`

Creating a Customer End User

In this exercise, you create end user `Lisa Barry`.

Task ***To create a customer end user***

1. On the same **Create An Account** page, click **Create a User**. The **Create A User** page appears.
2. Under **Contact Details**, enter the new customer user's attributes:
   - **First Name**: Type `Lisa`
   - **Last Name**: Type `Barry`
   - **Email Address**: Type an email address you control. This is the customer's End-User Portal login user name.

     Note ▪ *This is also the email account to which FlexNet Operations sends the customer's initial credentials and entitlements.*
   - Keep the default values for all other user and contact attributes.
3. Under **Accounts**, select the check box for **Portal Admin User Role**. This gives `Lisa Barry` administrative Portal User permissions.
4. Click **Save**. New user `Lisa Barry` is created and this message appears: `User Lisa Barry successfully added.` A welcome email is sent to the email address you provided.
5. Record the credentials you receive in the welcome email, then use them to log in to the FlexNet Operations End-User Portal and verify that the `Lisa Barry` account is functional.

   Note ▪ *The first time the customer logs in to the FlexNet Operations End-User Portal, he/she is asked to change the temporary password and select security questions.*
6. Log out of the FlexNet Operations End-User Portal.
7. Log out of the FlexNet Operations Producer Portal or continue with Product Creation.

Account and User Creation Next Steps

Product creation, the first stage of the FlexNet Operations license lifecycle, includes packaging features, linking a license model or models, and deploying the product. The exercises in Product Creation guide you through FlexNet Operations product creation.

Account and User Creation Advanced Topics

For more information about these advanced account topics and others, refer to the sections Managing Accounts, Managing Users, and Getting Started with Advanced Organization Management.

Account Types

FlexNet Operations categorizes accounts into four types: `Producer`, `Customer`, `Partner`, and `Self Registered`.

Partners and Distribution Tiers

Accounts can represent the relationship between a producer and its distribution chain.

Sub-Accounts

Accounts can have sub-accounts, which can be used to reflect the hierarchical nature of corporate structures. Accounts and sub-accounts are defined in a parent-child relationship.

Product Lines

When the product lines feature is enabled, FlexNet Operations filters what customer users see based on the product lines linked to the users' accounts. Only entitlements that include products in product lines to which the user account is linked are visible.

Working with User Roles and Permissions

You can administer user access roles and permissions.

Product Creation

This topic introduces fundamental FlexNet Operations product concepts, and guides you through product setup tasks in preparation for entitlement creation. Product creation, the first stage of the FlexNet Operations license lifecycle, includes packaging features, linking a license model or models, and deploying a product.

- Product Creation Key Concepts
- Product Creation Exercises
- Product Creation Next Steps
- Product Creation Advanced Topics

Product Creation Key Concepts

Products, Product Suites, and Product Lines

Products are packages of entities, called features and feature bundles, that can be sold by a producer. A *feature* is a software functionality or set of functionalities. Feature definitions created in the FlexNet Operations Producer Portal correspond to product features defined in the product's code. Features can be grouped into *feature bundles* for modular control over how the features are packaged in different products. Typically, a feature bundle consists of features grouped by similarity, complexity level, or other defined criteria (grouping features into a feature bundle is optional).

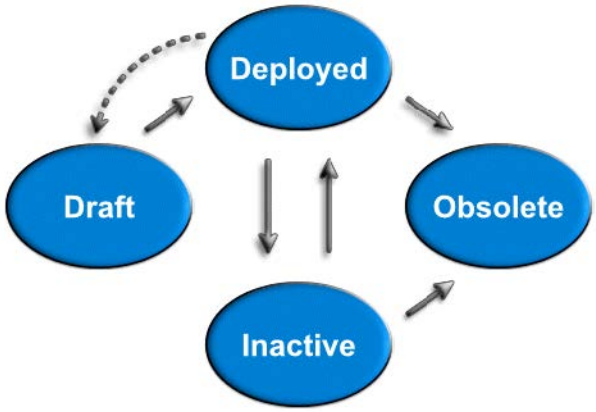
A *product suite* is a set of products grouped together for promotional purposes or because the products are functionally complementary (grouping products into a product suite is optional).

Products can be assigned to *product lines*, which define user access rights to product information. Product lines can also be used to group products for searching and reporting purposes.

Important ▪ *Product lines are required for FlexNet Embedded licensing and electronic software delivery; otherwise, they are optional. For more information, refer to the sections Getting Started with FlexNet Embedded Licensing and Getting Started with Electronic Software Delivery.*

Entity States

The *state* of an entity, such as a product or its component features or feature bundles, determines how that entity can be referenced in different stages of its configuration. Allowed state transitions are shown in the figure, and the states are described below it.



- **Draft** – The default state when an entity is created. In this state, the entity can be edited, but it is not available for production use.
- **Deployed** – The entity is available for production use. If an entity is deployed accidentally and no other entities refer to it, it can be moved back to draft state.
- **Inactive** – The entity has been withdrawn from use. No new references can be made to it, but existing references remain unchanged.
- **Obsolete** – The entity exists only for reporting purposes. While there is existing data that refers to it, no new references can be made. An obsolete entity can be deleted if there are no references to it.

Changing an entity from one state to another affects the states of related entities. For example, when a product is deployed, its component features and feature bundles are also deployed. However, when a product is made inactive or obsolete, its features and feature bundles are unaffected because a feature or feature bundle can be associated with several different products. A deployed entity may be modifiable, depending on configuration.

Product Creation Exercises

These exercises use examples to guide you through the following product creation tasks:

Exercise	Description
Deploying a License Technology and Model	Deploy the FlexNet Licensing technology and Nodelocked Uncounted license model.

Exercise	Description
Creating a Product Line	Create product line `LargeFormat`.
Creating a Product	Create product `PhotoPrint`.
Linking a License Model to a Product	Link the Nodelocked Uncounted license model to product `PhotoPrint`.
Mapping a Product to a Product Line	Map product `PhotoPrint` to product line `LargeFormat`.
Deploying a Product	Review the attributes of product `PhotoPrint` and deploy it.

Deploying a License Technology and Model

A license model defines characteristics that determine how, when, where, and by whom a Flex-enabled application can be used. In this exercise, you deploy the FlexNet Licensing technology and its Nodelocked Uncounted license model.

Important ▪ *Licensing is not covered in this getting started section. These tasks are included because product* `PhotoPrint` *must be linked to a license model to be deployed. For more information, see Administering License Technologies, or these getting started sections:*

- *Getting Started with FlexNet Embedded Licensing*
- *Getting Started with FlexNet Publisher License File-Based Licensing*
- *Getting Started with FlexNet Publisher Trusted Storage-Based Licensing*
- *Getting Started with Non-FlexNet Licensing Technologies*

Task ***To deploy the license technology***

1. Log in to the FlexNet Operations Producer Portal if you logged out after completing the Account and User Creation exercises.
2. Click **Administer** > **License Technologies**. The **License Technologies** page appears, listing **FlexNet Licensing** with a state of draft.
3. Select the **FlexNet Licensing** check box, then click **Change State ▼** and select **Deploy** from the drop-down menu. Click **OK** in the verification message. In the **License Technologies** table, **FlexNet Licensing** is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Technologies successfully: FlexNet Licensing.`

Task ***To deploy the license model***

1. Click **Administer** > **License Models**. The **Package Products - License Models** page appears.
2. Select **Nodelocked Uncounted**.

3. Click **Change State** ▼ and select **Deploy** from the menu.
4. Click **OK** in the verification message. In the **License Models** table, **Nodelocked Uncounted** is shown with a **State** of **Deployed**. This message appears: `Deployed the following License Model(s) successfully: Nodelocked Uncounted.`

Creating a Product Line

In this exercise, you create product line `LargeFormat`, which includes the product `PhotoPrint` that you create in the next exercise.

Important ▪ *Product lines are required for FlexNet Embedded licensing and electronic software delivery; otherwise, they are optional. For more information, refer to the sections Getting Started with FlexNet Embedded Licensing and Getting Started with Electronic Software Delivery.*

Task ***To create product line*** `LargeFormat`

1. Click **Products** > **Product Lines**. The **Package Products | Product Lines** page appears.
2. Click **Add Product Line**. Under **Create Product Line**, enter the product line attributes:
   - **Name:** Type `LargeFormat`
   - **Description:** Type `Includes products PhotoPrint, SignPrint, and CADPrint.`
3. Click **Save**. This message appears: `Product Line added successfully.`
4. Click **Products** > **Product Lines**. The **Package Products | Product Lines** page appears. Note that `LargeFormat` is listed in the **Product Lines** table with its description.

Creating a Product

In this exercise, you create product `PhotoPrint` from FlexNet Operations demonstration data features `PrintToPDF`, `Print`, and `PrintHighQualityColor`.

Task ***To create product*** `PhotoPrint`

1. Click **Products** > **Products**. The **Package Products** page appears.
2. Click **Add New Product**. Under **Create A Product**, enter the product attributes:
   - **Product Name:** Type **`PhotoPrint`**
   - **Description:** Type **`Sends to PDF file, prints normal quality, or prints high quality.`**
   - **Version:** Type **`12.0`**
   - Keep the default values for all other attributes.
3. Click **Add Features**. The **Add Features To Product** window opens.

4. In the **Add Features To Product** window, search for feature names that contain the string `Print`. Features `Print`, `PrintHighQualityColor`, `PrintToFiery`, `PrintToPDF`, and `PrintToPlotter` are listed under **Available Features**.
5. In the **Add Features To Product** window, under **Available Features**, select `Print`, `PrintHighQualityColor`, and `PrintToPDF`.

Note ▪ *Press CTRL+click to select non-contiguous items. Press SHIFT+click to select a range of items.*

6. Click **Add** ▶ to move features `Print`, `PrintHighQualityColor`, and `PrintToPDF` to **Selected Features**, then click **Add**. The window closes and the features are added to product `PhotoPrint`.
7. The features are listed in the **Feature or Feature Bundle Name** table with their **Name**, **Version**, **State**, and **Quantity**. In the **Quantity** column, keep the default values of **1** to specify that there is one copy each of features `Print`, `PrintHighQualityColor`, and `PrintToPDF` in product `PhotoPrint`.
8. Click **Save**. Note that product `PhotoPrint` and its version appear in the list on the right side of the page. This message appears: `Product PhotoPrint successfully added.`

Linking a License Model to a Product

In this exercise, you link the Nodelocked Uncounted license model to product `PhotoPrint`.

Task ***To link the license model to product*** `PhotoPrint`

1. Click **Products** > **Products**. The **Package Products** page appears.
2. Search for product `PhotoPrint`, then click its link in the product table. The **Package Products | Create A Product** page appears with product `PhotoPrint` information.
3. Click **Next**. The **Package Products | Link License Models To Product** page for `PhotoPrint` appears.
4. Click **Link License Models**. The **Select License Models** window opens.
5. Search for and select **Nodelocked Uncounted** from **Available License Models**, then click **Add** ▶ to move it to **Selected License Models**.
6. Click **Add**. The **Select License Models** window closes.
7. On the **Package Products** page, click **Save**. Product `PhotoPrint` is linked to the Nodelocked Uncounted license model. This message appears: `License models linked successfully.`Note that product `PhotoPrint` appears with its description in the list on the right side of the page.

Mapping a Product to a Product Line

In this exercise, you map product `PhotoPrint` to product line `LargeFormat` that you created in the previous exercise.

Task ***To map product*** `PhotoPrint` ***to product line*** `LargeFormat`

1. Click **Products** > **Products**. The **Package Products** page appears.
2. Search for product `PhotoPrint`, which is listed as an uncategorized product because it is not mapped to a product line. Click the `PhotoPrint` link in the product table. The **Package Products | Create A Product** page appears with product `PhotoPrint` information.
3. Click **Next** four times to advance to the **Package Products | Map Product To Product Line** page for `PhotoPrint`.
4. Under **Map Product To Product Line**, do either of the following to specify the product line `LargeFormat`:
   - In the **Product Line** field, type **`LargeFormat`**.
   - Click the search icon next to the **Product Line** box. The **Select Product Line For Product** window opens. Search for and select product line `LargeFormat`, then click **OK**. The **Select Product Line For Product** window closes.
5. On the **Package Products** page, click **Save** to map product `PhotoPrint` to product line `LargeFormat`. This message appears: `PhotoPrint is successfully mapped to product line LargeFormat.`

Deploying a Product

In this exercise, you review the attributes of product `PhotoPrint`, then you deploy it.

Task ***To review the attributes of product*** `PhotoPrint`

1. Click **Products** > **Products**. The **Package Products** page appears.
2. Search for product `PhotoPrint` and note that it is in the **Draft** state.
3. Click the `PhotoPrint` link. The **Package Products | Create A Product** page appears. Under **Create A Product**, review these attributes:
   - **Product Name:** PhotoPrint
   - **Description:** Sends to PDF file, prints normal quality, or prints high quality.
   - **Version:** 12.0
   - **State:** Draft
4. Scroll down to the **Feature or Feature Bundle Name** table and note that `PhotoPrint` contains one copy each of features `PrintToPDF`, `Print`, and `PrintHighQualityColor` in the **Draft** state and no feature bundles.
5. Click **Back** to return to the **Package Products** page.

Task ***To deploy product*** `PhotoPrint`

1. On the **Package Products** page, select the product `PhotoPrint` check box.
2. Click **Change State** ▼ and select **Deploy** from the drop-down menu. Click **OK** in the verification message. The **Package Products** page appears, with the feature and feature bundle deployment information, for product `PhotoPrint`.
3. Click **Deploy**. The **Package Products** page shows that `PhotoPrint` and its features are successfully deployed. This message appears: `Products deployed successfully.`
4. Log out of the FlexNet Operations Producer Portal or continue with Entitlement Creation.

Product Creation Next Steps

Entitlement is the stage of the FlexNet Operations license lifecycle that follows product creation. The entitlement process includes creation, configuration, and deployment of the entitlement. The exercises in Entitlement Creation use product `PhotoPrint` to guide you through FlexNet Operations entitlement creation and deployment.

Product Creation Advanced Topics

Free Product Trials

Product trials enable self-service user registration for, and provisioning of a product for customer evaluation.

The producer creates the trial registration page, the custom content of which can include survey questions. When a prospective customer signs up for a free product trial, FlexNet Operations creates an account for that customer, creates an entitlement for a trial product, and sends a welcome email to the customer. The customer logs in to end-user portal using the credentials sent in the email, downloads and activates the product, and runs the trial for the time period specified by the product's license model.

The producer can easily access information about product trial customers, product evaluations, and responses to survey questions.

Maintenance Products

A *maintenance* product represents a customer's right to obtain technical support, upgrades, updates, or new platforms for a particular licensed product or product suite for a specified duration.

Product Part Numbers

After a product is linked to a license model or models, it can be mapped to one or more *part numbers* that link it to an accounting application. Part numbers are referenced by customers in their orders and can be tracked by an enterprise resource planning (ERP) or customer relationship management (CRM) system.

Product Relationships

In addition to being grouped into suites, software products can also be related in these ways:

- **Demo** – A demonstration, or limited functionality version of a product.

- **Upgrade** – A newer version of a product.
- **Upsell** – A product with a wider range, capability, or more advanced features than another product.
- **Maintenance** – An unlicensed product that represents additional rights that a customer can purchase. For example, maintenance may give the customer the right to technical support, upgrades, updates, or new platforms for the duration of the maintenance period.

Product relationships enable follow-up sales operations such as upgrades, upsells, and renewals.

Entitlement Creation

This topic introduces entitlements, the stage of the FlexNet Operations license lifecycle that follows product creation. The entitlement process includes creation, configuration, and deployment of an entitlement.

The exercises in this topic use `Lisa Barry` of `Barry Photography Studio`, the customer you created in the Account and User Creation exercises, and `PhotoPrint`, the product you deployed in the Product Creation exercises, to guide you through FlexNet Operations entitlement creation.

- Entitlement Creation Key Concepts
- Entitlement Creation Exercises
- Entitlement Creation Next Steps
- Entitlement Creation Advanced Topics

Entitlement Creation Key Concepts

Entitlements

An entitlement represents a product, with its associated license model(s), that a customer has purchased. The following figure depicts the relationships that you set up in the exercises of this getting started section.

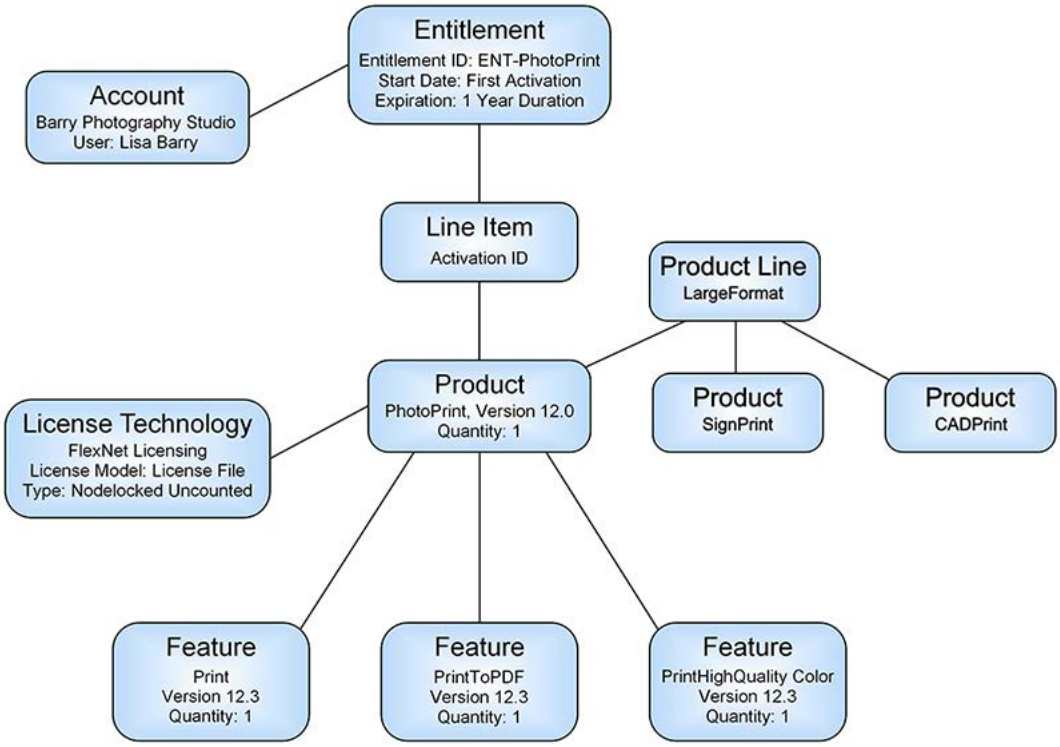


Figure 14-2: Entitlement Creation Relationships

The entitlement indicates how many copies of the product the customer has the right to use or access, along with any maintenance, and the duration for which the customer can use or access the product. The customer must activate the entitlement to generate licenses in formats like license files, trusted storage, or others.

An entitlement is created for many reasons, including after order shipment. Each entitlement is associated with an entitlement ID. Entitlement IDs are generated when an order is entered in FlexNet Operations; an entitlement ID is associated with every entitlement for that order. Each line item of an entitlement is an activatable unit and is uniquely identified by an activation ID. The details of a line item specify the product and its options, the quantity, and the duration of the license rights. An entitlement can have one or more line items.

Entitlements can be created in a number of ways, but the two most common are manually, by an authorized user using the FlexNet Operations Producer Portal, and by importing them from an external enterprise resource planning (ERP) or customer relationship management (CRM) system that is integrated with FlexNet Operations (importing entitlements, an advanced topic, is not covered in this getting started section).

Entitlement and Line Item Attributes

The **List Entitlements by Order** page of the Producer Portal (click **Entitlements** > **List Entitlements by Order**) lists entitlements and their line items with the following attributes:

- **Entitlement ID** – Unique identifier of the entitlement
- **Account** – End customer and/or channel partner account(s) that the entitlement was sold to
- **State** – Entitlement's state: `Draft`, `Deployed`, `Inactive`, `Test`, or `Obsolete` (refer to Entitlement States)
- **Bulk** – Is this a bulk entitlement? `No` = Regular and `Yes` = Bulk (refer to Entitlement Styles)
- **# Line Items** – Number of activatable items in the entitlement

- **Activation ID** – Unique identifier of the activatable item
- **Product** – Product(s) defined for the line item, including version number(s)
- **Maintenance** – Maintenance line item that is related to a product

Clicking an **Entitlement ID** link displays the **Entitle Customers to Licenses | Create An Entitlement** page, which provides more information about the entitlement and its line items. The table on the **Line Items** tab lists the entitlement's line items with the following attributes:

- **Type** – License model type of an activatable line item:
  - FlexNet Embedded E
  - FlexNet Publisher license file-based (also called certificate) C
  - FlexNet Publisher trusted storage-based T
  - Custom, non-FlexNet NF
- **Activation ID** – Unique identifier of the activatable item
- **Product** – Product(s) defined for the line item, including version number(s)
- **Part Number** – Unique number assigned by the producer to identify a specific product. Part numbers can be added in FlexNet Operations or imported from a file. Part numbers are optional.
- **Expiration** – Specifies when the line item expires.
- **Total Quantity** – Count of a product in the line item
- **Line Item State** – Line item's state: `Draft`, `Deployed`, `Inactive`, `Test`, or `Obsolete` (refer to Line Item States)
- **Maintenance** – Maintenance line item that is related to a product

Entitlement States

Entitlements have states that determine their ability to be edited and to be used in various license lifecycle activities. Changes to these states are tracked by FlexNet Operations. These states are:

- **Draft –** Draft entitlements can be created only from deployed products and suites. An entitlement is created in a draft state so it can be modified or deleted.
- **Deployed –** Deployed entitlements can be activated, upsold, and so on, but not edited or deleted (this can be changed with configuration). However, some fields in a deployed entitlement can be modified.
- **Inactive –** When an entitlement is made inactive, all of its line items are made inactive and cannot be activated, upgraded, upsold, or renewed. Existing activations against an inactive line item cannot be returned, repaired, or rehosted.
- **Test –** Test entitlements can be created from draft products, and enable testing of draft products and license models before they are deployed. All entitlement actions can be performed on test entitlements, but test entitlements cannot be moved to any other state. When a test entitlement is deleted, existing activations against it are also deleted.
- **Obsolete –** An entitlement can be made obsolete if it is no longer required or if it was created and deployed in error. While there is existing data that refers to an obsolete entitlement, no new references to it can be made. An obsolete line item cannot be activated. Existing activations of an obsolete line item cannot be rehosted.

Note ▪ *An entitlement that has been activated on a device can have its state changed to Inactive or Obsolete only if the configuration option* ***Allow used entitlement/line item state change to Inactive or Obsolete*** *is selected.*

When this configuration option is selected, an entitlement or line item that has been activated on a device can still be used until the license expires, even if the entitlement or line item has been deactivated or made obsolete.

For more information, see General Options in Configuring System Settings.

Entitlement Styles

The two styles of FlexNet Operations entitlement are *regular* and *bulk.* A regular entitlement is used when the licensee is known, and is created for a direct or drop ship order. It represents a customer's right to use or access a product. A bulk entitlement is used when the licensee is not immediately known and the entitlement must flow through channels. It represents a large number of individual entitlements, for one or more products, that will move through a channel flow or will be claimed by a licensee/end customer (bulk entitlements, an advanced topic, is not covered in this getting started section).

Line Item States

Like entitlements, line items also have states:

- **Draft –** A line item is created and can be edited in the draft state.
- **Deployed –** A line item must be deployed to be activated. Deploying a draft line item allows it to be activated, upgraded, upsold, or renewed.
- **Inactive –** Existing activations against an inactive line item cannot be returned, repaired, or rehosted. Inactive line items can be changed back to a deployed state as necessary.
- **Test –** Test line items can be defined for draft products and license models, and enable testing to ensure that products and license models are defined correctly.
- **Obsolete –** A line item can be made obsolete if it is no longer required or if it was created and deployed in error. An obsolete line item cannot be activated. Activations of an obsolete line item cannot be rehosted. The obsolete state is permanent; when a line item is made obsolete, it cannot be changed back to a deployed state.

Note ▪ *An entitlement that has been activated on a device can have its state changed to Inactive or Obsolete only if the configuration option* ***Allow used entitlement/line item state change to Inactive or Obsolete*** *is selected.*

When this configuration option is selected, an entitlement or line item that has been activated on a device can still be used until the license expires, even if the entitlement or line item has been deactivated or made obsolete.

For more information, see General Options in Configuring System Settings.

Entitlement Creation Exercises

These exercises use examples to guide you through the following entitlement tasks:

Exercise	Description
Creating and Configuring an Entitlement	Create and configure an entitlement for product `PhotoPrint`.
Deploying an Entitlement	Deploy the product `PhotoPrint` entitlement.
Reviewing an Entitlement on the End-User Portal	Log in to the FlexNet Operations End-User Portal, as customer `Lisa Barry`, to review the `PhotoPrint` entitlement.

Creating and Configuring an Entitlement

In this exercise, you create and configure an entitlement for the product `PhotoPrint` that you deployed in the Product Creation topic.

Prerequisite

- Complete the Account and User Creation and Product Creation exercises

Task ***To create an entitlement for*** `PhotoPrint`

1. Log in to the FlexNet Operations Producer Portal if you logged out after completing the Product Creation exercises.
2. Click **Entitlements** > **Create**. The **Entitle Customers to Licenses** page appears.
3. Under **Create An Entitlement**, enter the entitlement attributes:
   - **Entitlement ID**: Select **Specify** from the drop-down list and type **`ENT-PhotoPrint`** in the box to the right.
   - Keep the default values for all other attributes.

   Note that the entitlement is created in the **Draft** state.

Task ***To entitle the customer user to product*** `PhotoPrint`

1. Under **End Customer And Channel Partners** for entitlement `ENT-PhotoPrint`, click **Add**. The **End Customer And Channel Partners** window opens.
2. On the **Customers** tab, search for and select `BarryPhoto` as the account to receive the entitlement, then click **Next**.
3. Under **Contacts**, select `Lisa Barry` as the end user to receive the entitlement email message.
4. Click **Save**. The **End Customer And Channel Partners** window closes, and the **Entitle Customers to Licenses** page shows `Barry Photography Studio` as the end customer and `Lisa Barry` as the contact.

Task ***To configure the*** `PhotoPrint` ***line item***

1. On the **Line Items** tab near the bottom of the page, click **New Line Item**. The **Configure Line Item** wizard opens.
2. In wizard step 1, **Select Product**, search for and select product `PhotoPrint`, then click **Next**.
3. In wizard step 2, **Select Part Number & License Model**, leave the default values as they are. Click **Next**.
4. In wizard step 3, **Configure Product**, enter these line item attributes:
   - **Qty**: Type `1` for the quantity of `PhotoPrint` copies in this line item
   - **Start Date**: Select **Use First Activation Date** from the drop-down list
   - **Expiration**: Select **Specify Duration** from the drop-down list, enter `1`, then select **Years** from the drop-down list
   - Keep the default values for all other attributes.

   Click **Next**.
5. For the remaining wizard steps, keep the default value. Click **Next**.
6. In the last wizard step, click **Save** to save the line item and close the **Configure Line Item** wizard.
7. On the **Line Items** tab, click on the **Activation ID** and change it to **`ACT01-PhotoPrint`**. Note that the `PhotoPrint` line item expires after 1 year, has a total quantity of 1 copy, and is in the **Draft** state.

Deploying an Entitlement

In this exercise, you deploy the product `PhotoPrint` entitlement that you created and configured for customer `Barry Photography Studio` in the previous exercise.

Task ***To deploy the product*** `PhotoPrint` ***entitlement***

1. On the **Line Items** tab, select the `PhotoPrint` line item.
2. At the bottom of the **Entitle Customers to Licenses** page, click **Save & Deploy**. The **Line Item State** of `PhotoPrint` is changed to `Deployed` and this message appears: `Entitlement deployed successfully.`
3. On the **Entitle Customers to Licenses** page, click **Email** to send entitlement notification email to `Lisa Barry` at `Barry Photography Studio`. The **Entitle Customers to Licenses** page appears with the customer's address in the **Ship To Email** box.

   Note ▪ *To include additional recipients, type their email addresses into the* **Ship To Email** *box separated by commas.*

   Tip ▪ *Add your email address to the recipients list and review the* `PhotoPrint` *entitlement certificate you receive.*

Click **Send**. This message appears: `Email sent to the recipients <address list>.`

4. Log out of the FlexNet Operations Producer Portal.

Reviewing an Entitlement on the End-User Portal

In this exercise, you log in to the FlexNet Operations End-User Portal as customer `Lisa Barry` and review the `PhotoPrint` entitlement.

Task ***To review the product*** `PhotoPrint` ***entitlement on the End-User Portal***

1. Use the `Lisa Barry` credentials you recorded in the Creating a Customer End User procedure to log in to the FlexNet Operations End-User Portal. Note the `PhotoPrint` entitlement listed under **Recent Entitlements** on the home page.
2. Click the `PhotoPrint` activation ID. In the **Entitlement Details** window that opens, scroll down and review the **ID Info**, **Product Info**, and **Activation Info**. When you are done, click **Cancel** to close the window.
3. Log out of the FlexNet Operations End-User Portal.

Entitlement Creation Next Steps

Refer to these getting started sections for concepts and exercises that guide you through electronic software delivery, usage management, and cloud licensing service tasks:

- Getting Started with Electronic Software Delivery *(requires the Software Delivery module)*
- Getting Started with Usage Management
- Getting Started with Cloud Licensing Service

Refer to this getting started section for concepts and exercises that guide you through advanced account management tasks:

- Getting Started with Advanced Organization Management

Refer to these getting started sections for concepts and exercises that guide you through licensing activation and support tasks:

- Getting Started with FlexNet Embedded Licensing
- Getting Started with FlexNet Publisher License File-Based Licensing
- Getting Started with FlexNet Publisher Trusted Storage-Based Licensing
- Getting Started with Non-FlexNet Licensing Technologies

Entitlement Creation Advanced Topics

Bulk Entitlements

Bulk entitlements are used for channel sales or redistributors who order large quantities of a product, each copy of which is expected to be resold to a different retail end user.

Importing Entitlements

Entities, including entitlements, can be imported to and exported from a FlexNet Operations database into other Operations databases. This enables data migration between different FlexNet Operations installations.

Test Entitlements

Test entitlements allow testing of draft products and license models before they are deployed. All entitlement actions can be performed on test entitlements, but test entitlements cannot be moved to any other state.

Maintenance Entitlements

Maintenance is an unlicensed product that represents additional rights that a customer can purchase with a product. For example, maintenance can give the customer the right to technical support, upgrades, updates, or new platforms for the product for the duration of the maintenance period. A maintenance product cannot exist in an entitlement by itself; it must be associated with a product line item.

Merging Entitlements

Entitlements can be reassigned to another account when two accounts merge into one. When an entitlement is merged, everything in the entitlement remains the same except the *Account* value, which is changed to reflect the new account.

Transferring Entitlements

License rights in a single entitlement can be transferred from one account to another. All of the entitlement's line items are transferred. Line items can also be transferred individually.

Splitting Entitlements

Producer and partner users can split entitlements on the End-User Portal, if this functionality is enabled.

Bulk Operations

All of the following operations can be performed as non-bulk operations also.

Product Upgrades

An upgrade allows a customer to replace an older version of a product with a newer version, such as moving from Calculator version 4.5 to Calculator version 5.0.

Product Upsells

An upsell allows a customer to replace a product with another that has more features, such as moving from Paint Standard Edition to Paint Professional Edition.

Product Renewals

A renewal allows a customer to extend a licensed product's existing entitlement to a date farther in the future.

15

Getting Started with Electronic Software Delivery

The section *Getting Started with Electronic Software Delivery* presents fundamental electronic software delivery concepts and uses exercises to lead a Producer Portal user through basic download management tasks. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience.

Version ▪ *Electronic software delivery features are only available for producers who purchase the Software Delivery module.*

Table 15-1 ▪ Electronic Software Delivery Topics

Section	Description
Introduction	Overview of this getting started section and a summary of FlexNet Operations electronic software delivery features.
About Electronic Software Delivery	A discussion of basic FlexNet Operations electronic software delivery concepts. This section introduces download packages, download files, license agreements, and producers.
Electronic Software Delivery Setup for Distributing Files	A series of electronic software delivery setup exercises that demonstrate how to deliver your software electronically via the End-User Portal. The end of this section also provides brief descriptions of more advanced topics and explains where to find more information about them.

To view a brief, informative video that walks you through the exercises in *Getting Started with Electronic Software Delivery*, click **here**. We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

Introduction

This section includes a summary of prerequisites and FlexNet Operations electronic software delivery features.

- Prerequisites
- The License Lifecycle: Electronic Software Delivery
- The Electronic Software Delivery Module

Prerequisites

Before you begin the exercises in this getting started section:

- The FlexNet Operations demonstration database and seed data must be loaded.
- You must have a FlexNet Operations Producer Portal login.
- The Producer Portal must be configured to Show Product Lines functionality.

Additionally, the exercises in this getting started section make use of the product, features, and entitlements created in the early exercises of the section Getting Started with Entitlement Management. Any product will suffice, as a sample to which download packages can be linked, but the exercises here use the product created in Getting Started with Entitlement Management.

The License Lifecycle: Electronic Software Delivery

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 15-1: FlexNet Operations License Lifecycle

- **Create Products**—Create product definitions that are used to generate licenses.
- **Order/Entitle**—Define an account's rights to obtain licenses for your products.
- **Deliver/Install**—Deliver the application software to the customer and install that software.
- **Activate**—Deliver licenses to the customer.
- **Return/Rehost**—Manage license transfers from one user or system to another.
- **Maintain/Update**—Deliver software updates to the customer.
- **Upsell/Renew**—Renew customer licenses, or sell the customer additional product functionality.

The Electronic Software Delivery Module

The Electronic Software Delivery module adds electronic software delivery support to FlexNet Operations. Producers who use FlexNet Operations with the Electronic Software Delivery module define their downloads as part of the product packaging process. The downloads they define are available to entitled end users in the End-User Portal.

Downloads are specified as download packages. A download package describes a group of files and relates that group with a product, a producer, and, optionally, a license agreement (sometimes called an end-user license agreement or EULA, for short).

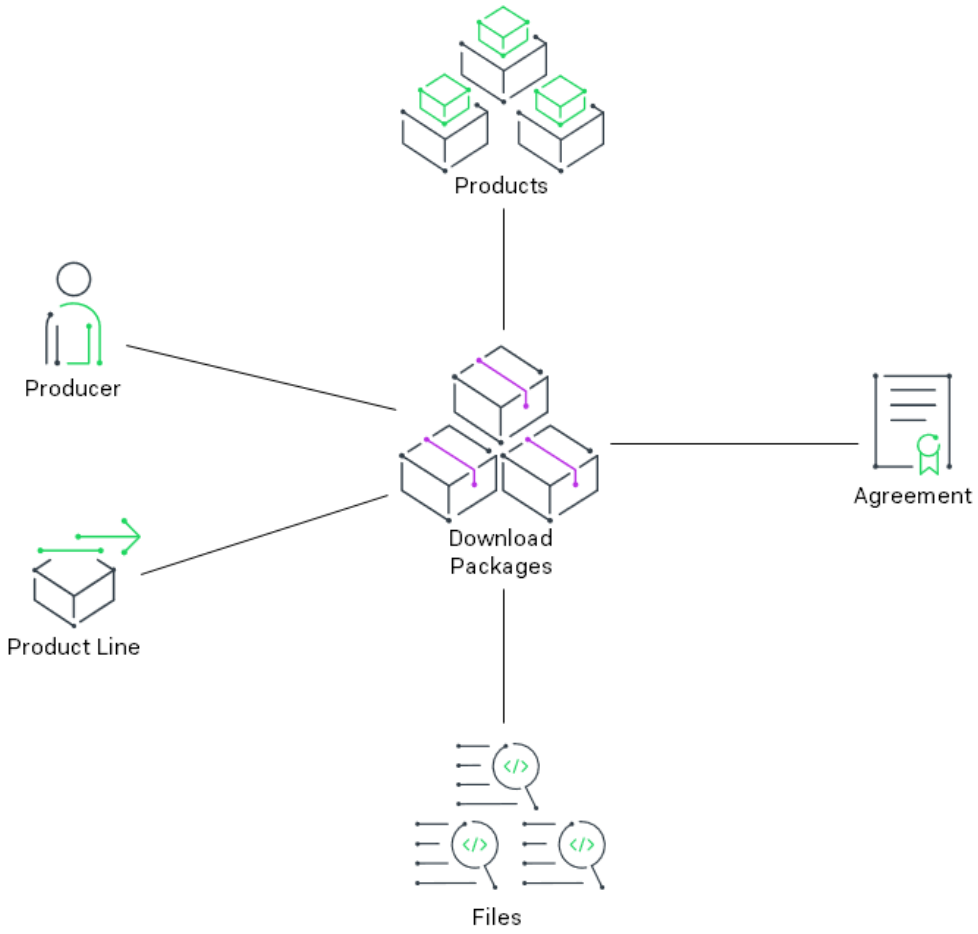


Figure 15-2: Download Packages Associations

A product can have many download packages, and download packages can be associated with one or more products. Download packages collect files into groups that might comprise a software release, a component, or any other grouping that fits your account's needs.

For producers who use FlexNet Operations with the Electronic Software Delivery module, the Producer Portal includes features for managing download packages, files, agreements, and producers. The Products menu includes links for creating and managing these items. Also, product lines, which are otherwise optional, are required for producers who use the Electronic Software Delivery module.

About Electronic Software Delivery

This section introduces electronic software delivery concepts. Electronic software delivery setup is part of product packaging, the first stage of the FlexNet Operations license lifecycle.

Table 15-2 ▪ Electronic Software Delivery Concepts

Topic	Description
Download Packages	Discusses what download packages are and how they are used in FlexNet Operations.
Download Files	Covers the basics of download files and file images.
License Agreements	Describes how license agreements are connected with electronic software delivery.
Producers and Product Lines	Discusses the use of producers as a mechanism for grouping product lines and download packages in the End-User Portal.

Download Packages

Download packages are groups of files that can be related to one or more products and tied to a producer and a product line. Optionally, a download package can be associated with a license agreement as well.

It is through a download package's relationship to products that FlexNet Operations determines which download packages an end user is entitled to. End-User Portal users see downloads for the products to which they have entitlements.

On the End-User Portal, download packages are grouped by producer and product line so that entitled users can navigate hierarchically through the producer, product line, product, and version to find the downloads they require. And when optional license agreements are associated with a download package, the End-User Portal shows the agreement before allowing end users to download files.

Download Files

On the Producer Portal, you can add and manage the files you want to make available for your customers to download from the End-User Portal. You can add a file by creating a file definition for it and then uploading its file image.

When you create a file definition in the Producer Portal, you specify a file description and file ID. Then, you upload the file image from your local system into FlexNet Operations. Without the file image upload, the file definition in FlexNet Operations has no payload when a customer tries to download it from the End-User Portal.

The creation of a download file follows the sequence below:

1. Create the file definition—Create a placeholder for the file image in FlexNet Operations and give the file, at minimum, a file ID. Other file details are optional at this point.
2. Upload the file image—Copy the actual file into FlexNet Operations. This file is what gets delivered to End-User Portal users when they download the file.

3. Associate the file with one or more download packages—Download packages collect one or more files and tie them to a product. Without any association to a download package, the file will never appear for download on the End-User Portal.

Once a file has been added and associated with a download package, it is available for End-User Portal users to download from any product to which the download package is associated and to which the End-User Portal user is entitled.

License Agreements

In FlexNet Operations, producers can add agreements that can be tied to one or more download packages.

A click-through or end-user license agreement (EULA) commonly contains content supplied by your legal department. The license agreement is an optional attribute of a download package.

In the Producer Portal, producers add agreements by providing an agreement name and the content for the agreement text. (The agreement content can be plain text or HTML.) Then, the agreement can be linked to a download package on the Edit Download Package page.

When an agreement is connected to a download package, the End-User Portal prompts users to agree to the terms of that agreement before proceeding with the download.

Producers and Product Lines

When an end user is entitled to downloads from more than one producer, the End-User Portal groups download packages by producer and then product line. For this reason, both Producer and Product Line are required attributes for download packages. Each download package can have only one producer and only one product line.

Producers

Although FlexNet Operations documentation frequently refers to Producer Portal users—typically software publishers or intelligent device manufacturers—as “producers,” this term also refers to the logical entities that Producer Portal users must define as part of their electronic software delivery setup.

Many software publishers and intelligent device manufacturers only use a single producer. In this case, the Producer attribute typically reflects the name of the user’s account. Others define multiple producers and use the Producer attribute to distinguish between different product groups or families or simply as an additional layer of navigation before end users choose a product line. When you click List Producers in the Products menu, the Producer Portal displays a list of all the producers your account has created.

Product Lines

Product lines allow you to group, classify, and describe products and to control how download packages are presented in the End-User Portal. Product lines can also be used to define end-user access rights to product information. In the End-User Portal, users can only see the product lines to which their user accounts are linked.

Display of Downloads in the End-User Portal

In the End-User Portal, the producer is the highest level of grouping for products lines, download packages, and files. Users who are entitled to products of more than one producer see a list of producers when they look for downloads. For example, users who click List Downloads from the Downloads menu in the End-User Portal must first choose from a list of producers and then from a list of product lines to show a list of download packages for that product line. If an end user is entitled to downloads from only one producer, the End-User Portal skips the producer list and shows product lines directly.

Tip ▪ *For more information about other tasks and topics related to the Electronic Software Delivery module, see Advanced Topics at the end of this document.*

Electronic Software Delivery Setup for Distributing Files

This section walks through the process of creating download packages and files for the product created in the early exercises of the section Getting Started with Entitlement Management.

Topic	Description
Before You Begin	This section prepares a customer user to acquire downloads in the End-User Portal and reviews the customer account, customer user, product, product line, and entitlements created in the exercises in the section Getting Started with Entitlement Management.
Creating a Producer	Adds a producer to use when creating a download package.
Creating Download Packages	Adds download packages for the products in the LargeFormat product line.
Associating Download Packages with a Product	Links the new download packages to their respective products.
Creating Download Files	Creates files and uploads file images for the files that will be the deliverables in the download packages.
Associating Download Files with Download Packages	Links the new files with the download packages to tie products to their deliverables.
Viewing and Downloading Files from the End-User Portal	Uses an end user account entitled to the PhotoPrint product to view and download the files for PhotoPrint Installer Package and PhotoPrint Documentation Package.
Advanced Topics	Briefly introduces advanced electronic software delivery topics and explains where to get additional information on them.

Before You Begin

The exercises in this section make use of the entities created as part of the exercises in Getting Started with Entitlement Management. This section lists the customer account, customer user, product, product line, and entitlements created in Getting Started with Entitlement Management. For Producer Portal users who have not yet created their own products and customer users, these items are necessary for the rest of the exercises in this section.

Entity Type	Entities
Customer Account	Barry Photography Studio
Customer User	Lisa Barry
Product	PhotoPrint This product includes the following features: • Print • PrintHighQualityColor • PrintToPDF As indicated in the section Getting Started with Entitlement Management, the features, above, are among those pre-defined in your environment's demo data.
Product Line	LargeFormat
Entitlement	ENT-PhotoPrint

If these entities, such as the entitlement, ENT-PhotoPrint, do not yet exist in your FlexNet Operations instance, follow the exercises in the section Getting Started with Entitlement Management to create the necessary entities.

Important ▪ *If the customer user, Lisa Barry, already exists but is not associated with an email address you control, you must create another customer user in the Barry Photography Studio account with the Portal User role. Choose an email address you control for this new customer user so that you can use it to log in to the End-User Portal and see the downloads.*

Later in this section, we create download packages and files to be the deliverables for the PhotoPrint product.

Creating a Producer

In this exercise, you add the producer, ABC Networks, Inc. Producer is a required attribute for the download packages that are created later in this section.

Prerequisites

- Review of the key concepts in the previous section, About Electronic Software Delivery
- FlexNet Operations login

Note ▪ *If the producer, ABC Networks, Inc. already exists in your FlexNet Operations instance, you can skip this exercise.*

Task ***To add the ABC Networks, Inc. producer***

1. Log in to the Producer Portal.
2. Click **Products** > **Create Producer**. The Producer Portal opens the Create Producer page.
3. In the **Producer ID** box, type `ABCNetworks`.
4. In the **Producer Name** box, type `ABC Networks, Inc`. This value is what the End-User Portal shows to your end users when they choose among multiple producers.

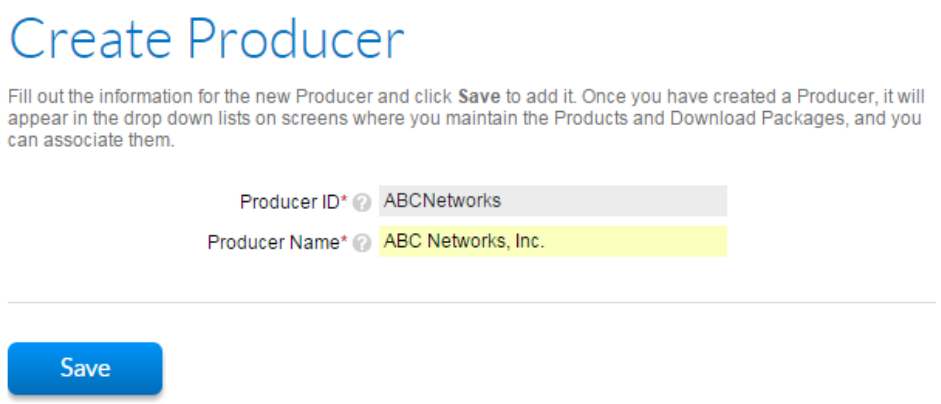


Figure 15-3: The Create Producer page for ABC Networks, Inc.

5. Click **Save**.

The Producer Portal saves the new producer and shows the List Producers page.

Creating Download Packages

In this exercise, you add two download packages for the PhotoPrint product:

- PhotoPrintInstaller
- PhotoPrintDocumentation

Task ***To create the PhotoPrintInstaller download package***

1. In the Producer Portal, click **Products** > **Create Download Package**. The Producer Portal opens the Create Download Package page.
2. On the Create Download Package page, set values for the following attributes in Download Package Details.

Attribute	Value
Download Package ID	`PhotoPrintInstaller`
Download Package Name	`PhotoPrint Installer Package`
Extended Description	`Includes the installer and release notes for PhotoPrint.`
Effective Date	Keep the current date default value.
Expiration Date	Set for one year from current date.
Download Package Producer	`ABC Networks, Inc.`
Product Line	`LargeFormat`
Restrict to US/CANADA (NLR)	`Yes`

   Keep the default values for all other attributes.

3. For End-User Download Instructions, type the following:

   ```
   Review system requirements in the release notes (included) prior to running the installer.
   ```

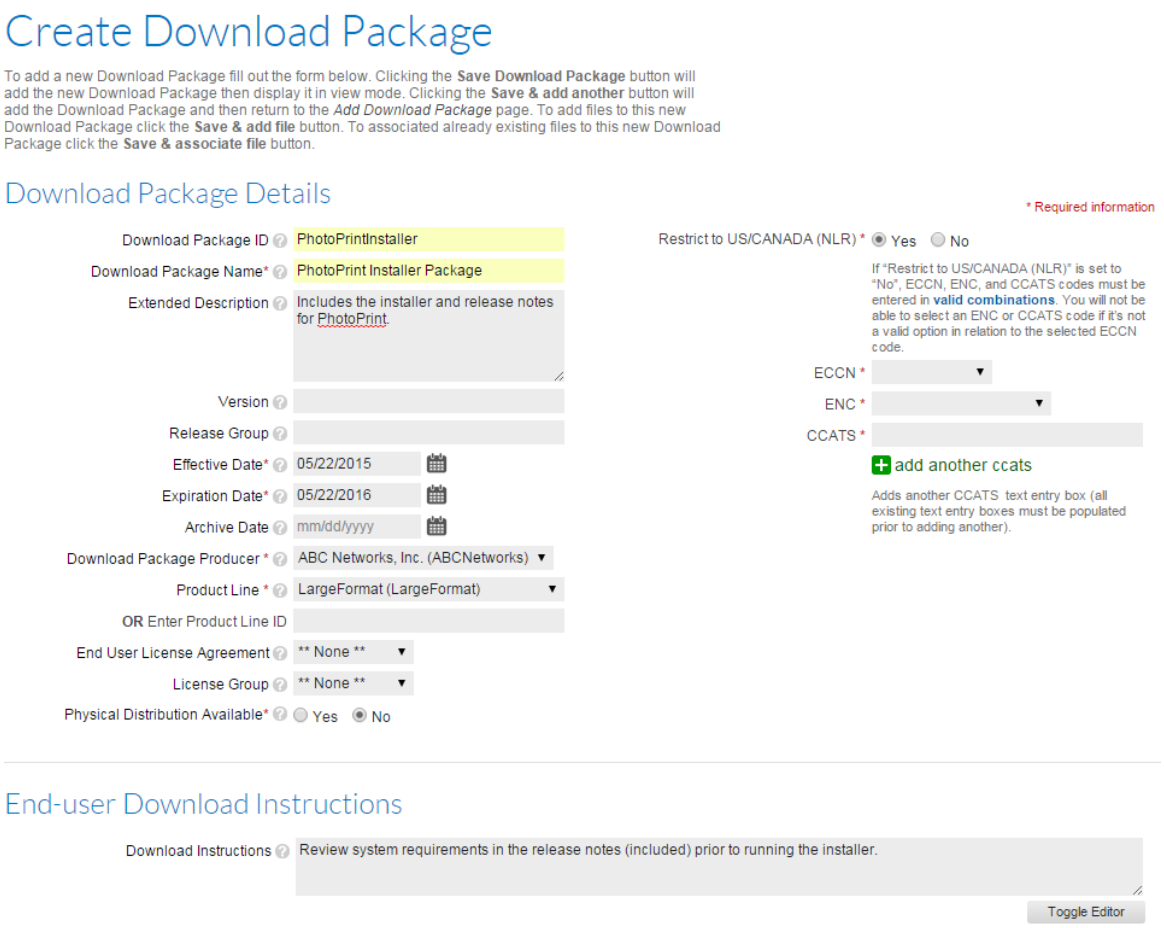


Figure 15-4: The Create Download Package page for PhotoPrint Installer Package.

4. Click **Save**.

The Producer Portal adds the PhotoPrintInstaller download package and shows its View Download Package page.

Repeat these steps to create the PhotoPrintDocumentation download package using the values in shown below.

- Download Package Details:

Attribute	Value
Download Package ID	`PhotoPrintDocumentation`
Download Package Name	`PhotoPrint Documentation Package`
Extended Description	`Includes release notes and user guide for PhotoPrint.`
Effective Date	Keep the current date default value.
Expiration Date	Set for one year from current date.

Attribute	Value
Download Package Producer	`ABC Networks, Inc.`
Product Line	`LargeFormat`
Restrict to US/CANADA (NLR)	`Yes`

- End-User Download Instructions:

  `PhotoPrint documentation includes PDF files for release notes and the PhotoPrint User Guide.`

The Producer Portal adds the PhotoPrintDocumentation download package and shows its View Download Package page.

Associating Download Packages with a Product

In this exercise, you associate the PhotoPrintInstaller and PhotoPrintDocumentation download packages with the PhotoPrint product.

Task ***To associate the PhotoPrintInstaller download package to the PhotoPrint product***

1. In the Producer Portal, click **Products** > **Search Download Packages**. The Producer Portal opens the Search Download Packages page.
2. On the Search Download Packages page, type a value for **Download Package ID**: `PhotoPrintInstaller`.
3. Click **Search**. The Producer Portal opens the Search Results: Download Packages page and shows the PhotoPrintInstaller download package in the search results.
4. Click **PhotoPrintInstaller**. The Producer Portal opens the View Download Package page for PhotoPrintInstaller.
5. On the View Download Package page, click **Associate** > **Associate to Product**. The Producer Portal opens the Associate this Download Package to Products page.
6. In Search Products, for **Product ID** type `Photo*` and click **Search**. The Producer Portal shows a list of products with matching product IDs.

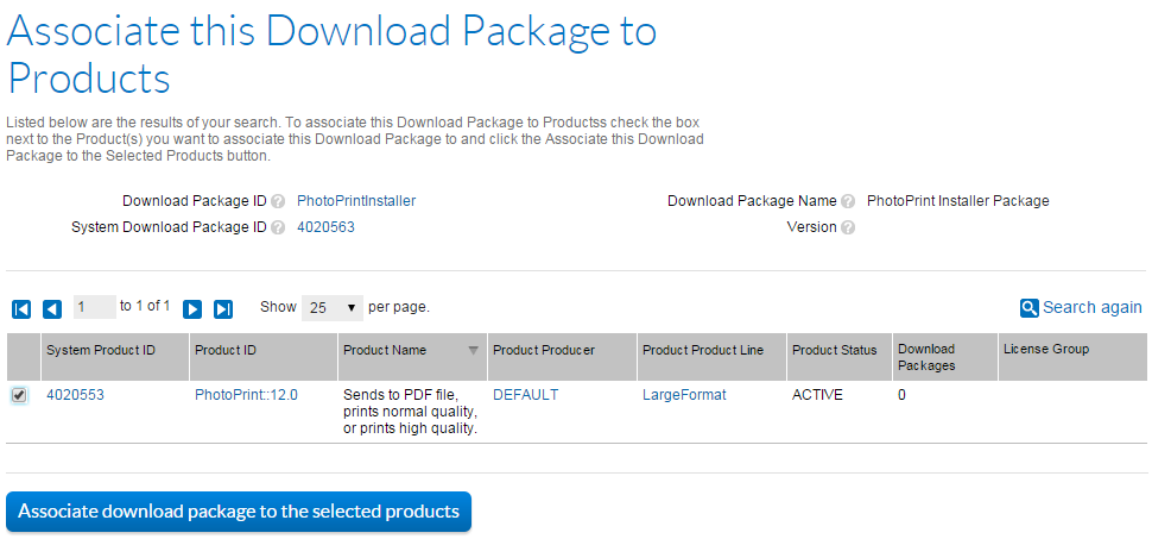


Figure 15-5: In Search Products, use Photo* to find the PhotoPrint product.

7. Click the checkbox for **PhotoPrint::12.0** and then click **Associate Download Package to Selected Products**.

Important ▪ *Notice that the product ID for PhotoPrint is a combination of the product name and product version:* ***PhotoPrint::12.0****. This is how FlexNet Operations identifies the product, internally. One ramification of the product ID syntax is that a search for the product by its product name,* `PhotoPrint`*, does not match the product ID. For best results, use an asterisk as a wildcard character to be sure your product search captures the product you are looking for. For example,* `Photo*` *or* `PhotoPrint*` *successfully finds PhotoPrint.*

The Producer Portal saves the product-download package association and shows the Where Download Package Used page for PhotoPrintInstaller.

Repeat the steps above to associate the PhotoPrintDocumentation download package with the PhotoPrint product as well.

Creating Download Files

In this exercise, you create five download files as the deliverables for the PhotoPrint product.

- PhotoPrintInstaller
- PhotoPrintUserGuide
- PhotoPrintReleaseNotes

For each file, the exercises add a file definition and upload its file image. For these exercises it does not matter what files images you upload for the files. The file images used in these exercises are simple text files with different file names.

Task ***To create the PhotoPrintInstaller file***

1. In the Producer Portal, click **Products** > **Create File**. The Producer Portal opens the Create File page.
2. On the Create File page, type values for the following attributes.

Attribute	Value
File ID	`PhotoPrintInstaller`
File Description	`PhotoPrint Installer`
Extended Description	`Installs PhotoPrint.`
Content Detail	`Review the release notes prior to running the installer. See the PhotoPrint User Guide for more information.`

Keep the default values for all other attributes.

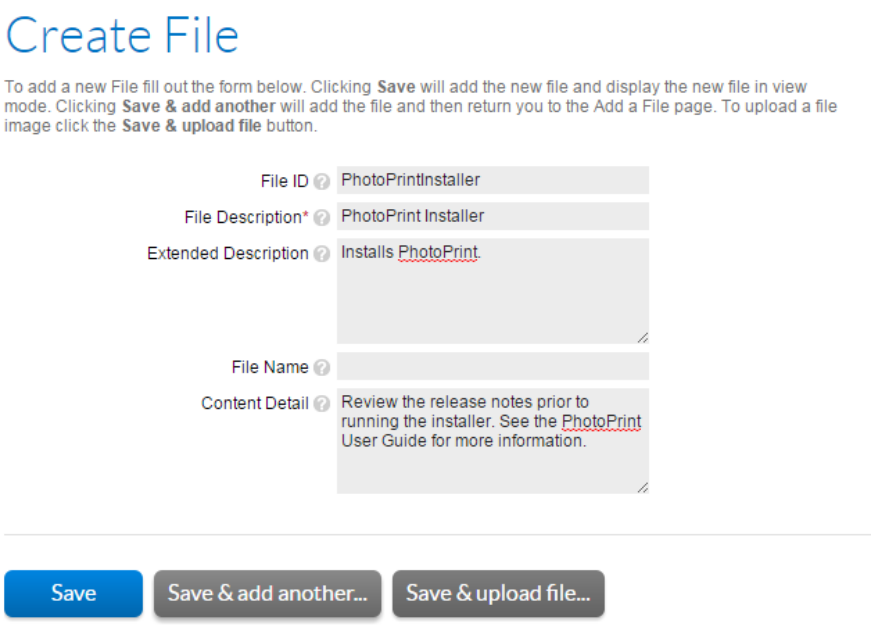


Figure 15-6: The Create File page for PhotoPrintInstaller.

3. Click **Save & Upload File**. The Producer Portal opens the Upload File page.

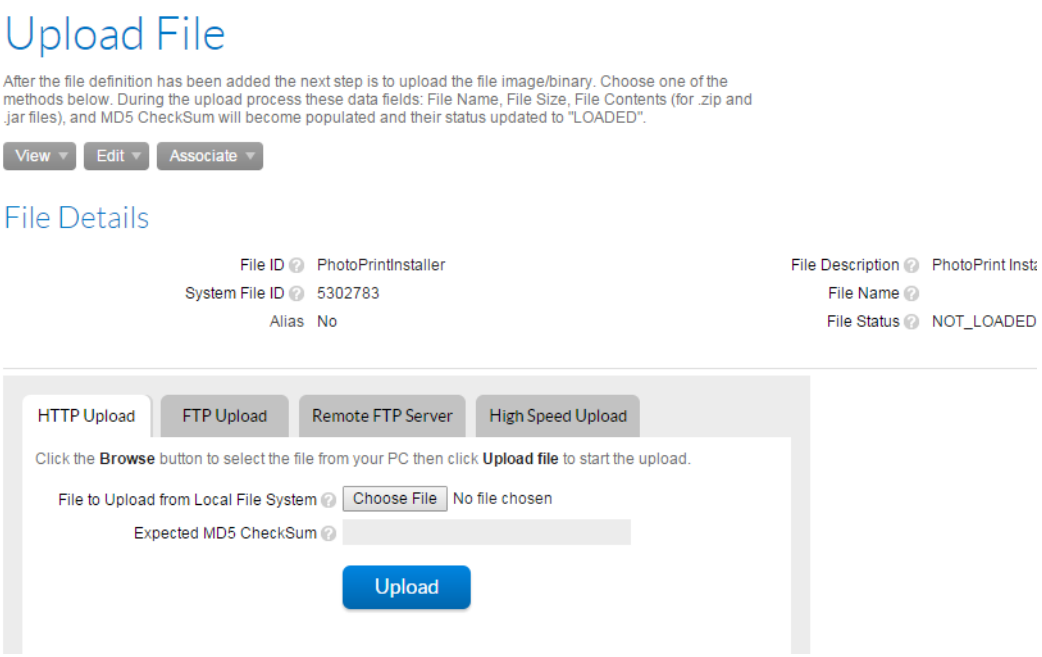


Figure 15-7: The Upload File page for PhotoPrintInstaller.

4. Click **Choose File** and select a file to upload. (Button names may vary for different web browsers and operating systems.)
5. Click **Upload**.

The Producer Portal uploads the file image, saves the file, and shows its View File page.

Repeat these steps, above, to create file definitions and upload file images for PhotoPrintUserGuide and PhotoPrintReleaseNotes. Use the values below for the file definitions. Use any small file as the file image. (For these exercises we used text files renamed to reflect their prospective file contents.)

- PhotoPrintUserGuide:

Attribute	Value
File ID	`PhotoPrintUserGuide`
File Description	`PhotoPrint User Guide`
Extended Description	`Includes a PDF of the PhotoPrint user Guide`

- PhotoPrintReleaseNotes:

Attribute	Value
File ID	`PhotoPrintReleaseNotes`
File Description	`PhotoPrint Release Notes`
Extended Description	`Includes a PDF of the PhotoPrint Release Notes`

Next, you will associate these files to their download packages and review the customer experience in the End-User Portal.

Associating Download Files with Download Packages

In this exercise, you associate the download files with their download packages, as shown in the table below.

Download Package	Download Files
PhotoPrintInstaller	PhotoPrintInstaller PhotoPrintReleaseNotes
PhotoPrintDocumentation	PhotoPrintUserGuide PhotoPrintReleaseNotes

These associations complete the connection between the download files and the product to which the customer user, Lisa Barry, is entitled.

Task ***To associate the PhotoPrintInstaller download package with its download files***

1. In the Producer Portal, click **Products** > **Search Download Packages**. The Producer Portal opens the Search Download Packages page.
2. On the Search Download Packages page, type a value for **Download Package ID**: `PhotoPrintInstaller`.
3. Click **Search**. The Producer Portal opens the Search Results: Download Packages page and shows the PhotoPrintInstaller download package in the search results.
4. Click **PhotoPrintInstaller**. The Producer Portal opens the View Download Package page for PhotoPrintInstaller.
5. On the View Download Package page, click **Associate** > **Associate Files**. The Producer Portal opens the Associate Files to this Download Package page.
6. Enter the following in **File IDs**: `PhotoPrintInstaller, PhotoPrintReleaseNotes`.

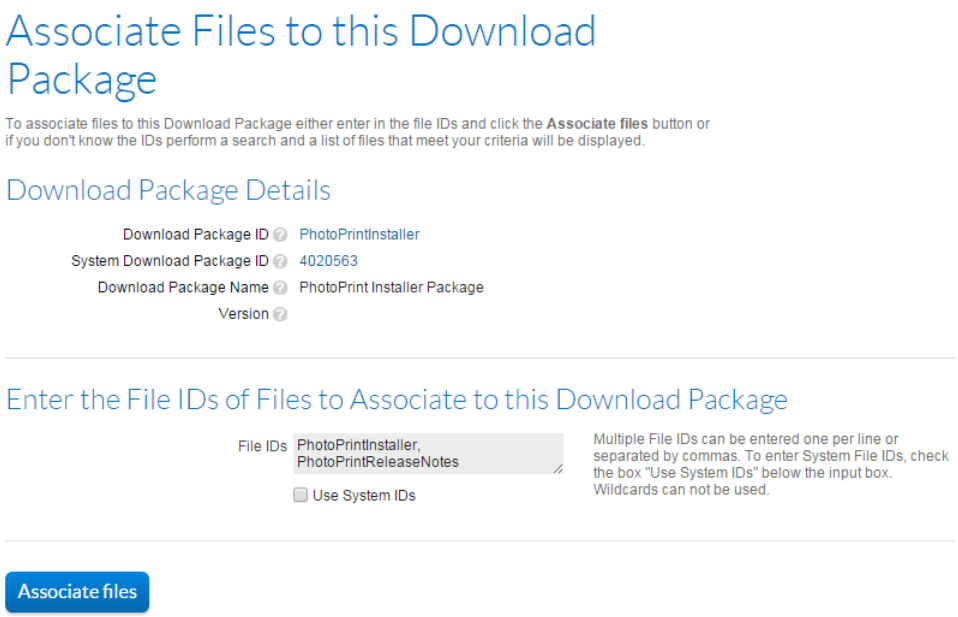


Figure 15-8: The Associate Files to this Download Package page with file IDs for the PhotoPrint Installer Package.

7. Click **Associate Files**.

The Producer Portal makes the file associations with the PhotoPrintInstaller download package and shows its View Download Package page. Notice that the View Download Package page now shows the two associated files: PhotoPrintInstaller and PhotoPrintReleaseNotes.

Repeat the steps, above, to make similar associations between the PhotoPrintDocumentation download package and the PhotoPrintUserGuide and PhotoPrintReleaseNotes files.

When both download packages are associated with their download files, you are ready to review the End-User Portal experience.

Viewing and Downloading Files from the End-User Portal

In this exercise, you log in to the End-User Portal and navigate through to view your downloads. Use the customer account, Barry Photography Studio (created as part of the exercise sets in the section Getting Started with Entitlement Management). That account is now entitled to the PhotoPrint product and its downloads.

Task ***Logging in to the End-User Portal***

1. In a web browser, navigate to the End-User Portal.

   `https://<hostname>/flexnet/operationsportal/`

2. On the End-User Portal Login page, type values for the Username and Password fields.

   - **Username**—The email address you used when you created the user Lisa Barry.

- **Password**—The password you setup for the Lisa Barry user account. If you have not logged in to the End-User Portal, previously, you must use the temporary password included in the welcome message to Lisa Barry and first create a new password and security question/response before you can log in.

3. Click **Log In**.

The End-User Portal opens to the Home page. Notice that Barry Photography Studio has an entitlement to PhotoPrint and downloads available for LargeFormat—the product line to which PhotoPrint belongs.

Note ▪ *These instructions assume you control the Lisa Barry user account as described in Before You Begin and that PhotoPrint is the only product to which that account is entitled. When an end user is entitled to product lines from multiple producers, the Downloads panel first lists producers, like ABC Networks, Inc., instead of product lines.*

Task ***Navigating the End-User Portal and downloading files***

1. In the End-User Portal, use the Downloads menu to list the downloads available to you. Click **Downloads** > **List Downloads**. The End-User Portal opens the Downloads page. This page shows a link for the product line, LargeFormat.

   Note ▪ *If the demonstration account, Lisa Barry, has been entitled to products from other producers, the End-User Portal first shows a list of producers on the Product List page. Click a producer name to show entitled product lines. In this case, click* ***ABC Networks, Inc.***

2. Click **LargeFormat**. The End-User Portal shows the Download Packages page for the LargeFormat product line: PhotoPrint Installer Package and PhotoPrint Documentation Package.

3. Click **PhotoPrint Installer Package**. The End-User Portal shows the Downloads page for the PhotoPrint Installer Package download package. To view file details, click **+** by the file name.

   Notice that the Download Instructions value you specified on the Producer Portal appears right under the download package name: “Review system requirements in the release notes (included) prior to running the installer.” Also, notice that the Extended Description value appears in the expanded file details: “Includes a PDF of the PhotoPrint Release Notes.”

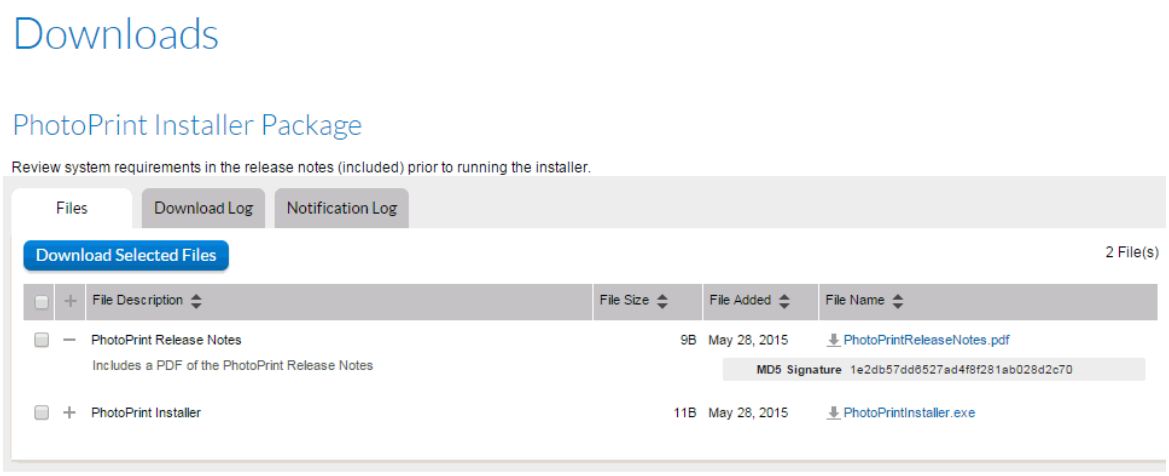


Figure 15-9: The Downloads page for PhotoPrint Installer Package showing file details for PhotoPrint Release Notes.

4. Click your browser's Back button to return to the Download Packages page for LargeFormat.
5. Click **PhotoPrint Documentation Package**. The End-User Portal shows the download files for PhotoPrint Documentation Package.

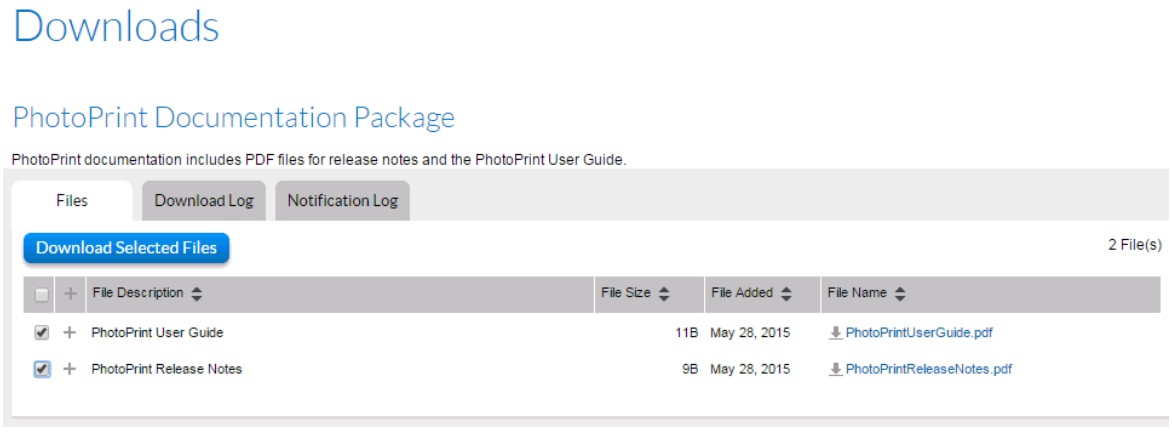


Figure 15-10: The Downloads page for PhotoPrint Documentation Package.

6. To download files, select the files you want to download and click **Download Selected Files**. The End-User Portal opens the Download Manager in a pop-up window.

Important ▪ *To complete your download, the Download Manager must be installed on your system. If it is not installed, follow the instructions in the Download Manager window to download and run the installer, then accept the license agreement.*

Tip ▪ *You can also download individual files by clicking on the file name link for the file you want to download.*

7. Click **Browse** to select a target directory for the download files.

Figure 15-11: The Download Manager page for selecting a target directory.

8. Click **OK**. The Download Manager starts the file download process.

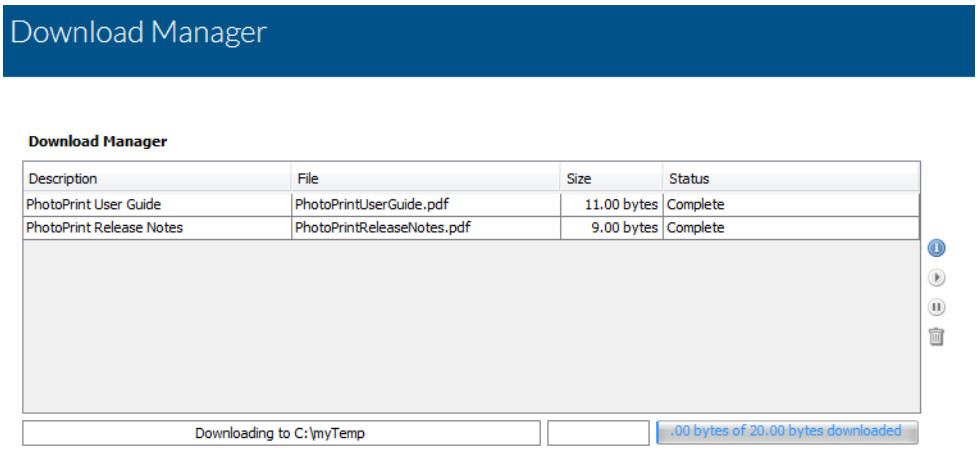


Figure 15-12: The Download Manager page showing download progress.

The End-User Portal downloads the selected files to the target directory you selected.

This concludes the getting-started exercises for FlexNet Operations users with the Electronic Software Delivery module. For information about more advanced download management options and activities—such as those listed in Advanced Topics (below)—see the appropriate sections in this user guide.

Advanced Topics

Restricting Access to Files and Download Packages

Access to individual download packages or files can be controlled by customer account. Using the Producer Portal, producers can create allowed lists or non-allowed lists of the accounts permitted to see a download package or a file in the End-User Portal. For more information, see Restricting a Download Package and Restricting a File in the Packaging Products section.

Visibility of Download Packages for Maintenance Customers

Visibility of download packages is dependent on the Maintenance Line Item expiration date. If there is no maintenance plan, the visibility is based on the expiration date of the line item. If there is a maintenance plan, the visibility is based on the expiration of the maintenance line item. The following table illustrates what is visible based on the maintenance plan in effect. The assumed current date is 1 July 2016.

Customer Name	Line Item Expiration	Maintenance Line Item Expiration	Visibility of Base Download Package	Visibility of Maintenance Download Package
Acme	Perpetual	NA	Yes	Yes
Blandit	January 2018	January 2018	Yes until January 2018	Yes until January 2018
Convallis	Perpetual	Expired	Yes, if the effective date of the base download package was before the maintenance expiration date	Yes, if the effective date of the maintenance download package was before the maintenance expiration date
Dapibus	November 2017	April 2016 February 2017 January 2018	Yes until January 2018	Yes until January 2018
Euismod	May 2019	January 2018	Yes until May 2019	Yes until May 2019

Sending Email Notifications for Files and Download Packages

In the Producer Portal, producers can send email messages to end-users entitled to a file or a download package. Instructions for sending email notifications are in the sections Managing Download Packages and Managing Download Files.

Order Media Requests and Physical Distribution

For producers who want their end users to be able to request download files on physical media, the End-User Portal includes an Order Media control. Configuring the End-User Portal to handle these request requires some configuration in the Producer Portal. For more information, see About Physical Distribution and Order Media Requests in the section Packaging Products.

Making File Aliases

Aliasing a file creates a duplicate of an existing file that points to the same file image but can be managed separately. File aliases allow you to avoid uploading multiple copies of the same file image. See About Aliases in the section Packaging Products for more information about file aliases.

Export Compliance

Producers must specify export compliance settings that define how download delivery is controlled internationally. Export compliance settings are part of a download package. To learn more about export compliance settings, see About Export Compliance in the section Packaging Products.

Enabling Channel Partners to Download Files

A producer can enable a channel partner to download files, on behalf of end users, for product demonstration and support purposes.

After the product is deployed and associated with a download package, the producer creates the channel partner user, creates an entitlement line item for the product for the channel partner user's account, and assigns an end customer user account to the entitlement.

Important ▪ *This option is limited to entitlements with end customer and channel partner user accounts. It does not work for entitlements with only channel partner users.*

The channel partner user logs in to the FlexNet Operations End-User Portal with the line item's activation ID, navigates to the **List Entitlements** page, and locates the entitlement in the table. From there, the file can be downloaded using the standard download procedure.

16

Getting Started with Usage Management

The purpose of this getting started section is to provide an overview on the use of the FlexNet Operations and FlexNet Usage Management (a feature of FlexNet Operations). These components, when used with FlexNet licensing products, help application producers maximize software revenues and eliminate revenue leakage through new support of increasingly popular usage-based trust but verify, pay-for-use, and pay-for-overage models. Revenera's market-leading compliance management solution provides application producers the flexibility to implement any software licensing model across the entire spectrum—from strict enforcement to usage-based, trust but verify.

This getting started section primarily describes concepts and tasks related to FlexNet Operations with FlexNet Usage Management. For information about implementing an application that performs usage capture, see the appropriate FlexNet licensing documentation. For example, if you are implementing a connected software client that will run in a customer environment, see your FlexNet client documentation: The *FlexNet Embedded Client C SDK User Guide* or the *FlexNet Embedded Client C XT SDK User Guide*.

It is expected that you will use this section *Getting Started with Usage Management* in conjunction with the usage-capture instructions in your FlexNet licensing user guide.

This getting started section is organized into the following subsections.

Table 16-1 ▪ Getting Started With Usage Management

Topic	Content
FlexNet Usage Management Concepts	Provides general information about usage-capture and usage-management terminology and tasks.
FlexNet Usage Management Exercises	Provides an introductory walkthrough of preparing FlexNet Operations to work with the FlexNet licensing usage-capture in order to perform usage management.
Advanced FlexNet Usage Management Activities	Provides additional information about usage-capture and usage-management terminology and tasks.

To view a brief, informative video that walks you through the exercises in the section *Getting Started with Usage Management*, click the link, below:

https://www.youtube.com/watch?v=YduQeOevrJM

We recommend that you read this getting started section in full, to gain an understanding of the concepts it covers, before you view the video.

FlexNet Usage Management Concepts

This section describes general concepts involved in working with FlexNet Usage Management. The following are some of the concepts and terminology used throughout this documentation.

- Usage Management
- Metered Licensing
- Products
- Features
- Capability Requests and Responses
- License Servers
- Usage Dashboard

Usage Management

FlexNet Usage Management allows producers to flexibly track, view, and report on feature usage in the usage-capture clients. FlexNet Operations' usage management features support compliance management licensing models.

In the FlexNet Operations Producer Portal, you define the metered license model, features, products, and entitlements to model the usage events your clients are capturing. The exercises in this getting started section walk through the setup in the Producer Portal necessary to connect with the "survey" feature included in the FlexNet Embedded licensing code samples.

As usage capture data is collected in your license servers and uploaded to FlexNet Operations, you can also use the Producer Portal to view graphs and gauges of your customers' usage.

Connecting to the back office, producers can also pull usage data in CSV format via reconcilation summary requests.

Metered Licensing

Metered licensing refers to usage-based licensing. In FlexNet Operations, metered licensing starts with the creation of a metered license model and related choices about the reusability, undo interval, and overdraft settings for products that use it. For more information about these settings, see the exercise, Creating License Models.

With a metered license model created, you can define features to match the usage data your usage capture clients are sending and create a product that delivers those features under the rules defined by your metered license model.

Products

Products are packages of features that can be sold by a producer. Products that will support usage management must use a metered license model. Also, producers specify a *usage model* for the product. The usage model defines the length of the reporting period and frequency at which usage data is reset. See Creating Products.

Important ▪ *Products using the same feature must be configured with the same usage model per account. For an account, the usage model that is specified for a product containing a specific feature will be the usage model that is used for subsequent entitlements or products containing that specific feature. For example:*

- *Product A (feature f1) and product B (features f1 and f2)*
- *Account C is first entitled to product A (feature f1) with usage model Monthly Statements (No Reset)*
- *Account C is then entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly)*
- *Account C will use usage model Monthly Statements (No Reset) for both products A and B because they both contain feature f1 which was included in the first entitlement.*

If Account C was first entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly), this usage model would be used for both products/entitlements for the account.

Features

The smallest unit for which usage can be captured is a *feature*. You define the feature or features that make up your products in FlexNet Operations, and your usage-capture code sends information about these features. In addition, feature-clipping code checks for the availability of certain features to determine a product's functionality.

During execution, your capped-usage or feature-clipping code uses FlexNet licensing functions that attempt to *acquire* a license. The FlexNet licensing libraries validate such conditions as the feature not having expired. If the license acquisition succeeds, your code would then enable the corresponding capability.

For features intended to support usage management, you will also specify units and scale settings. Together, these settings allow you capture usage data in fine detail but report on usage counts with more manageable or meaningful numbers. *Units* define the label to be shown when usage data is reported. *Scale* is the factor by which the raw usage counts are divided. For example, if your usage-capture client tracks the time for which a feature is used in seconds but you want usage reports to show usage in minutes, you might set Units to "Minutes" and Scale to "60." For more about features, see the exercise, Creating Features.

Capability Requests and Responses

When your usage-capture code communicates with FlexNet Operations, the communications involve *capability requests* and *capability responses*. A capability request is generated by the client (either a client reporting usage or requesting features that it will acquire). The request data contains some combination of a host identifier, one or more desired features, and other optional data to pass to FlexNet Operations.

The license server instance then processes the request, reading the various identifiers, desired features, and custom data. If FlexNet Operations determines that the client requires a response, it generates a capability response. The response data contains current license rights available for the client. The capability response is then conveyed back to the client, which processes the response, after which the features in the response can be queried for the sake of detecting if a quota has been exceeded or for feature clipping (programmatically restricting access to features based on the capability response).

Your usage-capture code specifies one or more *desired features*, which represent features whose usage is being reported or features desired for the sake of feature clipping, in the capability request.

Your code also specifies an *operation* in the capability request, which indicates whether it is simply reporting feature usage, or whether a response is expected. The “report” operation is used in uncapped-usage scenarios, when no response is needed; and the “request” operation is used in capped-usage and feature-clipping scenarios, where a response is needed. The request operation can also be used in untrusted environments to report uncapped usage to force a confirmation response from the server, ensuring that the usage has been reported. (There is also an “undo” operation, which enables recent information to be undone, in case of error or canceled usage.)

License Servers

Your usage-capture clients send usage data to a *license server*. The license server can be a local license server or, as in the case in this getting started section, a license server instance in the FlexNet Cloud Licensing Service. In both cases, the license server captures the metered usage data that your usage-capture clients send.

- Local License Servers
- Cloud Licensing Service Instances
- Auto-Provisioning

Local License Servers

Usage-capture clients can send usage data to license servers that you deploy into your customers’ enterprises. (The deployment of local license servers is not covered in this getting started section.) Consult your FlexNet licensing documentation for more information about deploying local license servers.

Cloud Licensing Service Instances

For producers who use FlexNet Cloud Licensing Service in addition to FlexNet Operations, license servers can be created in the FlexNet Cloud Licensing Service. These license server instances can be manually created or dynamically generated (using the Auto Provision feature of FlexNet Operations). The chief benefits of using cloud licensing service instances rather than deploying local license servers is the speed with which license servers can be deployed and the ease with which licenses can be mapped to the license server instance.

Auto-Provisioning

When the license model permits auto-provisioning, cloud licensing service instances can be automatically generated by FlexNet Operations.

When auto-provisioning is permitted, FlexNet Operations generates a new license server when an entitlement using such a license model and owned by an end customer account, is deployed. Also, line items included in the entitlement are automatically mapped to the license server instance.

When auto-provisioning is not permitted, producers can create the license server instance manually. In this scenario, the producer uses the Create License Server page to create a license server for the end customer and then manually maps the entitlement line items to that server.

The exercises in this getting started section make use of auto-provisioning in the license model to streamline license server creation and entitlement mapping.

Limitations

The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:

- License servers cannot be moved to another account.
- You cannot remove licenses using Licenses > Remove Licenses.
- License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.

Usage Dashboard

FlexNet Operations enables you to view enterprise customers' current usage data in the Producer Portal. Similarly, your enterprise customers can view their current usage data in Usage Management in the enterprise portal you set up.

The following types of graphs are supported with respect to usage capture. Usage data can also be downloaded as a text file in CSV format. After selecting what usage data to display—as described in Viewing Usage Information—and selecting the desired usage period, you can select the type of graph in which to display the usage data.

Figure 16-1: Buttons for selecting the graph type

These buttons in FlexNet Operations correspond to usage gauges, tables, timelines, and comparisons, as described in the following sections.

- Usage Gauges
- Usage Tables
- Usage Timelines

Usage Gauges

This type of graph shows usage data as a graphical gauge representing the percentage of usage compared to the overall entitled amount. The green region of the gauge indicates usage of none to 75 percent of the available count; the yellow region indicates 75 percent to 100 percent of the available count; and the red region indicates over 100 percent (overage) of the entitled amount.

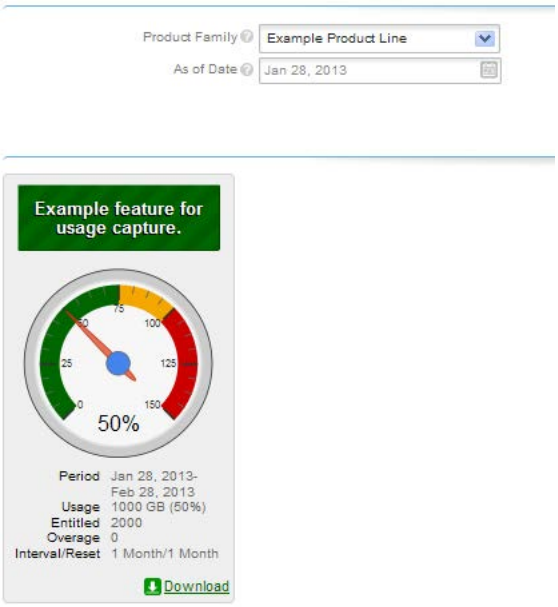


Figure 16-2: Usage gauge

Details of the usage information are displayed beneath the gauge.

Usage Tables

Usage information can also be displayed in a textual table.

Meter	Unit	Actual Use	Entitled	Overage (since statement)	Overage (since reset)	%	Interval/Reset	Period
End2EndUHRP_MC-ReCH Download	copies	111	150	0	0	74	3 Month/12 Month	Feb 11, 2015-May 11, 2015
End2EndUHRP_MUC-NonRe Download	gb	101	100	0	1	101	3 Month/Never	Feb 11, 2015-May 11, 2015

Figure 16-3: Usage table

Usage Timelines

Usage information can also be displayed in an interactive Flash-based timeline. Commands in the upper left corner enable zooming in to different time periods, and you can click and drag the graph left and right to control the dates for which data are being displayed.

Figure 16-4: Interactive usage timeline

A similar interactive option is the **Compare Meters** graph, which simultaneously displays multiple features' usage information over the same period of time.

The following section describes setting up FlexNet Operations with FlexNet Usage Management to handle usage capture.

FlexNet Usage Management Exercises

This section describes how to get started with FlexNet Usage Management. You will learn about setting up FlexNet Operations to support usage-based licensing and connecting your usage clients to a license server instance hosted in the FlexNet Cloud Licensing Service.

The section is divided into the following subsections.

Section	Description
Prerequisites	Prerequisites for included exercises.
Preparing FlexNet Operations	Exercises to set up FlexNet Operations with FlexNet Usage Management for usage capture. This section includes creating license models, features, products, and entitlements.
Obtaining the License Server URL	Instructions for determining the license server URL to which your usage-capture clients send their usage data.

Section	Description
Running a Usage-Capture Client Example	Brief discussion of running a usage-capture client.
Viewing Usage Information	Instructions for viewing usage graphs and gauges on the Producer Portal.
Usage Management Next Steps	Identifies other, more advanced usage capture activities covered, briefly, in the following section.

Prerequisites

The following items are prerequisites for developing and deploying usage-capture code with FlexNet Usage Management.

FlexNet Licensing Usage-Capture Client Implementation

It is assumed that you have downloaded your FlexNet licensing platform for implementing an application to perform usage capture. Refer to the corresponding licensing client documentation for information about building the example code and implementing a usage-capture client.

To complete the exercises in this getting started section, users also must have received publisher keys from Revenera.

Note ▪ *The creation of a publisher and an identity are covered in the section Getting Started with FlexNet Embedded Licensing.*

FlexNet Operations Instance

It is also assumed that you have access to FlexNet Operations via the Producer Portal and the End-User Portal. Producers must have already have their producer account activated and a user account on the Producer Portal in which FlexNet Embedded, FlexNet Usage Management, and FlexNet Cloud Licensing Service features are enabled.

Preparing FlexNet Operations

To prepare FlexNet Operations to receive usage data, you must create and associate several entities using the Producer Portal. Some of these steps are common to any use of FlexNet Operations with FlexNet Licensing, and some steps are specific to FlexNet Usage Management.

This preparation includes the following exercises.

Exercise	Description
Creating License Models	Shows how to create two license models: one for metered products and one for unmetered products.

Exercise	Description
Creating Features	Explains how to create the metered feature, survey, for which metered usage is tracked and an unmetered feature, baseline-client-reg, that is necessary to register usage-capture clients running outside of trusted environments.
Creating a Product Line	Covers the creation of a product line necessary for usage reporting.
Creating Products	Explains how to create two separate products: one for the metered feature and one for the unmetered feature.
Creating an Account and User	Shows how to create a customer account and user to which the new products will be entitled.
Entitling the Account	Describes how to create an entitlement, configure its line items with the new products, and entitle the customer account to those line items.
Viewing the Auto-Provisioned License Server	Explains how to find the Cloud Licensing Service license server that was created when the entitlement was deployed.

After you verify that the new license server was created, the FlexNet Operations preparations are complete. Continue with Obtaining the License Server URL, Running a Usage-Capture Client Example, and Viewing Usage Information.

If you have not previously used FlexNet Operations, see Getting Started with FlexNet Embedded Licensing for more information.

Creating License Models

In this exercise, you create two license models: one is a usage-based (metered) license model to be used with metered products and the other is an unmetered license model to use with the unmetered product and facilitate client registration.

Note ▪ *The unmetered product is used to register usage-capture clients operating in untrusted environments.*

Creating a Metered License Model to Track Usage

Usage-based license models are FlexNet Embedded license models that use metered licensing—typically following a metered-capped (limits to usage counts) and metered-uncapped (tracking and reporting but no limits).

To indicate that usage data should be tracked for a feature (capability), you must create a metered license model with appropriate settings. For the example basic uncapped usage client, you will define a metered-uncapped license model.

When working with usage capture, the important settings are **Metered**, **Reusable**, **Undo Interval**, and **Overdraft**, and **Auto Provision**.

- Defining a license model as Metered indicates that it is intended for use with usage capture and usage management.
- Reusable and Undo Interval attributes work together to determine whether usage counts can only increase or are permitted to decrease as well. Reusable allows the decrease of feature checkouts, generally. Undo Interval optionally expresses a window in which checkouts can be canceled even if Reusable is set to No.
- The Overdraft setting defines the policy for usage over the entitled license count: overdraft can be Not Used (no overdraft allowed), Unlimited (uncapped usage, as with this example), or defined as a fixed value or percentage of the total entitlement.
- Set Auto Provision to Yes to support license server auto-provisioning. Auto-provisioning allows FlexNet Operations to automatically create new license servers when new entitlements require it and, when a default license server is present, automatically maps new rights to the default license server.

For the first part of this exercise, you specify the following settings for the metered license model attributes:

Attribute	Value
Name	Example Metered License Model
Expiration	None
Is this an Embedded License Model?	Yes
Is this a Counted Model?	Yes
Is this a Metered Model?	Yes
Reusable	Yes
Undo Interval	Not Used
Overdraft	Unlimited
Auto Provision	Yes
Issuer	Not Used
Serial Number	Not Used
Vendor String	Not Used
Notice	Not Used

Task ***To create a usage-based license model***

1. In the Producer Portal, click **Administer** > **License Models**. The Producer Portal opens the License Models page.
2. On the License Models page, click **Create New License Model**. This button opens the Select a License Technology page.
3. Select **FlexNet Licensing** and click **Next**. The Producer Portal opens the Create a License Model page.
4. Specify license model name and expiration setting. For this exercise, use the values specified in the table above: `Example Metered License Model` and **None**.
5. Click **Next**. The Producer Portal begins rendering interactive settings for license model policies.
6. Set the license model policy values described in the table above, and click **Save**.

The Producer Portal creates the license model with the settings you specified.

Creating an Unmetered License Model for Client Registration

If you are implementing a connected software client, the client registration process requires an additional unmetered license model. For this purpose, create a second license model, called `Example Baseline LM`, with **Metered** set to **No** and **Counted** set to **No.**

For the second part of this exercise, repeat the license model creation process but specify the following settings for the unmetered license model attributes:

Attribute	Value
Name	Example Baseline LM
Expiration	None
Is this an Embedded License Model?	Yes
Is this a Counted Model?	No
Is this a Metered Model?	No
Issuer	Not Used
Serial Number	Not Used
Vendor String	Not Used
Notice	Not Used

Retain the defaults for all other attributes.

Deploying the License Models

Before these new license models can be used in an entitlement, you must deploy them. (Deploying a license model changes its state from draft to deployed.)

Task ***To deploy Example Metered License Model and Example Baseline LM***

1. In the Producer Portal, click **Administer** > **License Models**. The Producer Portal opens the License Models page.
2. On the License Models page, locate the Example Metered License Model and Example Baseline LM license models. If they do not immediately appear in the License Models list, try searching License Models for `Example`.
3. Click the checkboxes for Example Metered License Model and Example Baseline LM, and then click **Change State** > **Deploy**.
4. Click **OK** to confirm the state-change operation.

The Producer Portal deploys the license models and refreshes the License Models page to show the new Deployed state.

Creating Features

In FlexNet Operations, usage data is tracked by *feature*. In this exercise you will create two features.

The FlexNet Embedded C SDK and FlexNet Embedded XT usage-capture examples track usage for a feature called `survey`. You will create that feature as our metered feature in this exercise. In addition, you will create another feature, called `baseline-client-reg`, to facilitate client registration.

- For instruction on creating the survey feature, see Creating a Metered Feature.
- For instruction on creating the baseline-client-reg feature, see Creating an Uncounted, Unmetered Feature for Client Registration.

For each feature, we will create a separate product and then combine those products in an entitlement to deliver to a user in a customer account.

Creating a Metered Feature

In the Producer Portal, use the commands under the **Products** menu to add a feature called `survey`, version `1.0`. When defining the feature, use the following settings:

Attribute	Value
Feature Name	survey
Feature Version	1.0
Description	Example feature for usage capture.
Units	Measurements
Scale	1

Attribute	Value
Counted	Do Not Override
Reusable	Do Not Override

Leave all other attribute settings on their default values.

Task ***To create the survey feature***

1. In the Producer Portal, click **Products** > **Features**. The Producer Portal opens the Feature page.
2. On the Feature page, click **Add New Feature**. This button opens the Create a Feature page.
3. On the Create a Feature page, set the feature attributes using the values in the table above.
4. Click **Save**.

The Producer Portal creates the survey feature and remains on the Create a Feature page.

In practice, a feature count of 1 should represent the smallest possible difference in values you intend to capture. If this choice would cause large numbers in usage reports, you can use the **Scale** setting to define a factor by which the values in the reports will be divided before they are displayed. For example, a realistic choice for file sizes is to have feature usage counted in bytes, set the scale to one billion, and set **Units** to `GB`.

Creating an Uncounted, Unmetered Feature for Client Registration

The client registration process requires an additional unmetered, uncounted feature. For this purpose, create a second feature called `baseline-client-reg`.

Repeat the feature creation process for the baseline feature. Use the settings shown in the table below.

Attribute	Value
Feature Name	baseline-client-reg
Feature Version	1.0
Description	Example unmetered feature to do client-registration for entitlements that deliver metered products.

Leave all other attribute settings on their default values.

Creating a Product Line

In the Producer Portal, use the commands under the **Products** menu to create a product line. No particular settings are required for usage capture. The following instructions create a product line called Example Product Line.

Task ***To create the Example Product Line***

1. In the Producer Portal, click **Products** > **Product Lines**. The Producer Portal opens the Product Lines page.
2. On the Product Lines page, click **Add Product Line**. This button opens the Create Product Line page.
3. On the Create Product Line page, type the name of the product line: **`Example Product Line`**.
4. Click **Save**.

The Producer Portal saves Example Product Line. The product line is used as an attribute in the search criteria on the Usage Search page, when you want to view usage graphs or gauges for a particular product line.

Creating Products

Use commands under the **Products** menu to create two products:

- Example Survey for the metered feature for which you intend to capture usage (survey)
- Example Baseline for the client registration feature (baseline-client-reg)

Creating the Example Survey Product

Follow the steps, below, to create the Example Survey product.

Attribute	Value
Product Name	Example Survey
Version	1.0
Licensing Technology	FlexNet Licensing
Can Be Used on a Device	Yes
Usage Models	Monthly Statements (Reset Monthly)
Feature	Survey,1.0
Feature Quantity	1
License Model	Example Metered License Model
Product Line	Example Product Line

Task ***To create Example Survey***

1. In the Producer Portal, click **Products** > **Products**. The Producer Portal opens the Products page.
2. On the Products page, click **Add New Product**. This button opens the Create a Product page.

3. On the Create a Product page, set the **Product Name**, **Version**, **License Technology**, **Can Be Used on a Device**, and **Usage Model** as shown in the table above.

Note ▪ *A usage model must be set for reconciliation to take place and to be able to view usage gauges and graphs. Also, be aware that usage models labeled as monthly statements refer to a rolling 30-day window and not a calendar month.*

Important ▪ *Products using the same feature must be configured with the same usage model per account. For an account, the usage model that is specified for a product containing a specific feature will be the usage model that is used for subsequent entitlements or products containing that specific feature.*

Example:

- *Product A (feature f1) and product B (features f1 and f2)*
- *Account C is first entitled to product A (feature f1) with usage model Monthly Statements (No Reset)*
- *Account C is then entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly)*
- *Account C will use usage model Monthly Statements (No Reset) for both products A and B because they both contain feature f1 which was included in the first entitlement.*

If Account C was first entitled to product B (features f1 and f2) with usage model Monthly Statements (Reset Monthly), this usage model would be used for both products/entitlements for the account.

4. Click **Add Features**. The Producer Portal opens the Add Features to Product page in a pop-up window.

   a. Locate the feature, **survey, 1.0**., and click **Add**. This selects the feature and moves it to the Selected Features list.

   b. Click **Add**. The Producer Portal closes the Add Features to Product window.

5. On the Create a Product page, set the **Quantity** for the survey feature to `1`, and click **Next**. (For a counted feature, this is the feature count per copy of the product ordered.) The Producer Portal opens the Link License Models to Product page.

6. Click **Link License Models** to open the Select License Models page in a pop-up window.

   a. Locate the license model, **Example Metered License Model**, and click **Add**. This selects the license model and moves it to the Selected License Models list.

   b. Click **Add**. The Producer Portal closes the Select License Models window.

7. Click **Next** until you see the Map Product to Product Line page. (Depending on your Producer Portal configuration, you will pass a few pages—such as Map Part Numbers to Products and Relate to Different Products—without making any changes.)

8. On the Map Product to Product Line page, do either of the following to specify the product line **Example Product Line**:

   - In the **Product Line** field, type `Example Product Line`.
   - Click the search icon next to the **Product Line** box. The Producer Portal opens the Select Product Line for Product page in a pop-up window. Search for and select product line **Example Product Line**, then click **OK**. The Producer Portal closes the Select Product Line for Product window.

9. Click **Save**.

The Producer Portal saves Example Survey and remains on the Map Product to Product Line page.

Creating the Example Baseline Product

Next, repeat the steps, creating a product for the uncounted baseline-client-reg feature and unmetered license model used in client registration. Use the following settings for the Example Baseline product.

Attribute	Value
Product Name	Example Baseline
Version	1.0
Licensing Technology	FlexNet Licensing
Can Be Used on a Device	Yes
Usage Models	None
Feature	baseline-client-reg,1.0
Feature Quantity	1
License Model	Example Baseline LM
Product Line	Example Product Line

Important ▪ *Before these new products can be used in an entitlement, you must deploy them. (Deploying a product changes its state, and the state of its features, from draft to deployed.) Click the checkboxes for the Example Survey and Example Baseline products, click* ***Change State*** *>* ***Deploy****, and follow the on screen instructions to confirm the change.*

Creating an Account and User

In the FlexNet Operations Producer Portal, use the commands under the **Users & Accounts** menu to create an account that represents a customer enterprise. For this example, create an account called `Demo Customer Org`.

Note ▪ *The customer account and end user created in these exercises are the same as those created in the exercises in the section Getting Started with Electronic Software Delivery. If the account and user already exist, you can skip the steps that create them, below.*

If you already have a test end user in a customer account you can entitle to these products, you can opt use that user instead of creating the user described here.

Follow the instructions, below, to create the customer account (Demo Customer Org), the end user account (Demo Customer) and entitle it to the survey product.

Task ***To create the customer account and end user***

1. In the Producer Portal, click **Users & Accounts** > **Create Account**. The Producer Portal opens the Create an Account page.
2. On the Create an Account page, type the following values for the Account Name and Display Name attributes.

Attribute	Value
Account Name	`DemoCustOrg`
Display Name	`Demo Customer Org`

   Keep the default values for all other attributes.
3. Click **Create a User**. The Producer Portal saves the Demo Customer Org account and opens the Create a User page to add a new user to it.
4. On the Create a User page, type the following values for the new user's Contact Details:

Attribute	Value
First Name	`Demo`
Last Name	`Customer`
Email Address	An email address you control. This email account is where FlexNet Operations will send the initial login credentials and entitlements.

   Keep the default values for all other User Details and Contact Details attributes.
5. In Accounts, select the check box for **Portal User Role**. This gives Demo Customer the standard permissions for portal users.
6. Click **Save**.

The Producer Portal creates Demo Customer as a new user and sends a welcome message to the email address you provided. Use the credentials in that email to log in to the End User Portal and verify the Demo Customer account is functional.

Entitling the Account

Use the commands in the **Entitlements** menu to create an entitlement to the survey and baseline products for Demo Customer Org.

In this exercise, you will create a new entitlement, add Demo Customer Org as the end customer, configure a line item for the uncounted, unmetered product for client registration, Example Baseline, and configure another line item for the metered product, Example Survey.

Task ***To create the entitlement ENTL-SURVEY001***

1. In the Producer Portal, click **Entitlements** > **Create**. The Producer Portal opens the Create an Entitlement page.
2. For **Entitlement ID**, select **Specify** and type `ENTL-SURVEY001`.
3. For End Customer and Channel Partners, click **Add**. The Producer Portal opens the End Customer and Channel Partners page in a pop-up window.
   a. Click the radio button for **DemoCustOrg** to select the Demo Customer Org as the customer account to receive the entitlement.
   b. Click **Next**. The Producer Portal shows the End Customer and Channel Partners: Contacts page in the pop-up window.
   c. Click the radio button for **Demo Customer** to select Demo Customer as the end user who will receive the entitlement message.
   d. Click **Save**.

   The Producer Portal closes the pop-up window and shows Demo Customer Org and Demo Customer as the end customer.
4. Click **New Line Item** to begin configuring a line item for the Example Baseline product. The Producer Portal opens the Configure Line Item page in a pop-up window.

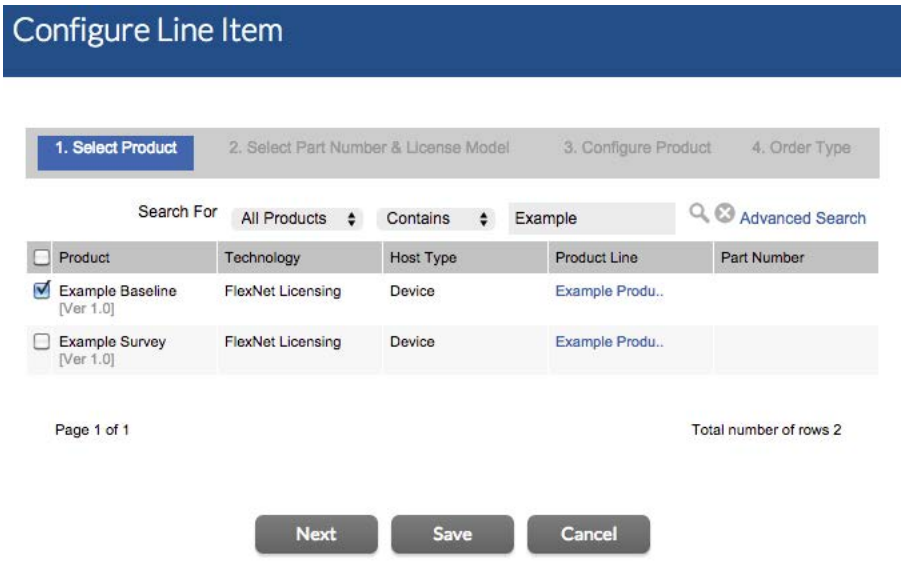


Figure 16-5: Starting the line item configuration process for the Example Baseline product.

   a. Locate and select the **Example Baseline** product, and then click **Next**.
   b. Select the license model, **Example Baseline LM**, and click **Next**.
   c. Specify the following settings for product configuration:
      - **Qty**: 1

- **Start Date**: `01/01/2016`
- **Expiration**: `01/01/2020`

d. Click **Next**.

e. Click **Save**.

5. Click **New Line Item** to begin configuring a line item for the Example Survey product. The Producer Portal opens the Configure Line Item page in a pop-up window.

   a. Locate and select the **Example Survey** product, and then click **Next**.

   b. Select the license model, **Example Metered License Model**, and click **Next**.

   c. Specify the following settings for product configuration:

   - **Qty**: `2000`
   - **Start Date**: `01/01/2016`
   - **Expiration**: `01/01/2020`

   d. Click **Next**.

   e. Click **Save**.

6. Click **Save & Deploy**.

The Producer Portal saves ENTL-SURVEY001 with line items for Example Baseline and Example Survey.

Important ▪ *Notice, in the instructions above, that the entitlement line item for the Example Survey product stipulates dates for* **Start Date** *and* **Expiration** *settings. To track usage for a product, you must specify a date for the Start Date value when you create the entitlement. Start Date cannot be Specify at First Activation, Specify at Each Activation, Use First Activation Date, or Use Each Activation Date. Similarly, Expiration cannot be set to Specify Duration. Its value must be either Permanent or a specified date.*

At this point, if you log in to the End-User Portal, as Demo Customer, you can see the survey entitlement listed on the End-User Portal's home page.

FlexNet Operations also generates the license server instance in the FlexNet Cloud Licensing Service and maps the Example Survey line item to the new server.

Tip ▪ *Make a note of the activation ID for Example Baseline. When you run a usage capture client, you will use the activation ID as the rights ID during the client registration process.*

Viewing the Auto-Provisioned License Server

Once you deploy the entitlement, ENTL-SURVEY001, FlexNet Operations automatically generates the license server instance from which served clients in the end customer account acquire their license rights. In this exercise, you will locate the auto-provisioned license server in the Producer Portal.

Task ***To view the auto-provisioned license server***

1. In the Producer Portal, click **Devices** > **Search License Servers**. The Producer Portal opens the Search License Servers page.
2. On the Search License Servers page, locate the new license server by its account name. For Account Name, type `DemoCustOrg` and then click **Search**. The Producer Portal opens the Search Server Results page.
3. On the Search Server Results page, click the license server ID for DemoCustOrg's license server. The Producer Portal opens the View Server page.

Notice that the View Server page shows a number of important attributes of the license server. In particular, make a note of the license server ID. The license server ID, in this case 3VH8MNZESMSP, is used in the endpoint URL for that license server, where the served clients connect to make capability requests. (See Obtaining the License Server URL.)

Notice also, that the license server's View Server page also shows the product licenses that are served by it. In this case, the license server includes the Example Survey line item from the ENTL-SURVEY001 entitlement. (The Example Baseline line item is not served by the license server. Instead, it is present in the entitlement to support the registration of the license server's served clients.)

Tip ▪ *When auto-provisioning is used, you can also find a customer account's default license server instance on customer account's Create an Account page. There, click the license server ID link, labeled* ***Cloud Licensing Service instance (Auto Provisioned)****, to open the View Server page.*

Obtaining the License Server URL

The URL for the license server instance hosted in the FlexNet Cloud Licensing Service is the location where your FlexNet licensing client sends its usage capture data.

Tip ▪ *This getting started section uses the FlexNet Operations User Acceptance Testing (UAT) site for demonstration purposes. Any URLs mentioned will need to be adjusted when used in Production.*

For a connected software client using FlexNet licensing, such as the FlexNet Embedded C SDK or FlexNet Embedded XT, the URL is:

```
http://<serverhost>:<serverport>/gls/instances/<CLS instance ID>/request
```

In the URL, above, <serverhost> is the hostname for your FlexNet Operations instance and <serverport> is the HTTP port. <CLS instance ID> is the license server ID of the license server to which capture data is sent. For example, the <CLS instance ID> value based on the auto-provisioned license server instance created in the exercises in this section would be `3VH8MNZESMSP`. For more information about the site ID, see FlexNet Operations Environments.

Running a Usage-Capture Client Example

At this point, you can put the pieces together and run the usage-capture client example from the appropriate client toolkit.

If you are using FlexNet Embedded C SDK or FlexNet Embedded XT to implement a connected software application or device, the example is called *usage capture client*. In these implementations, you will use the example to first send a capability request that specifies the activation ID as a rights ID, to register the client, and then send capability requests containing desired features that describe the usage being captured.

See your licensing user guide for implementation and usage details for the examples.

Viewing Usage Information

You can view usage information in the Producer Portal. Recall that your product must have a usage model set for usage information to be shown in the usage graphs and gauges, as described in Creating Products.

Under the **Usage** menu, select **Usage Search**. In the **Usage Search** screen, enter the name of your metered feature—**survey**—in the **Meter Name** field and then click **Search**. Click the desired account from the list of results to see usage reports for that account. For these exercises, choose the customer account you created earlier: **DemoCustOrg**.

The captured usage information is then rendered on the **Usage Search** page. By default, the usage information is displayed as a gauge showing the percentage of the usage count compared to the entitled count. The label for the gauge shows the text you entered for the feature description, if any. The value you entered for Units on the Create a Feature page—in this case, Measurements—appears as the label for the usage count. In practice, this might be Downloads or Gigabytes or whatever usage you are tracking.

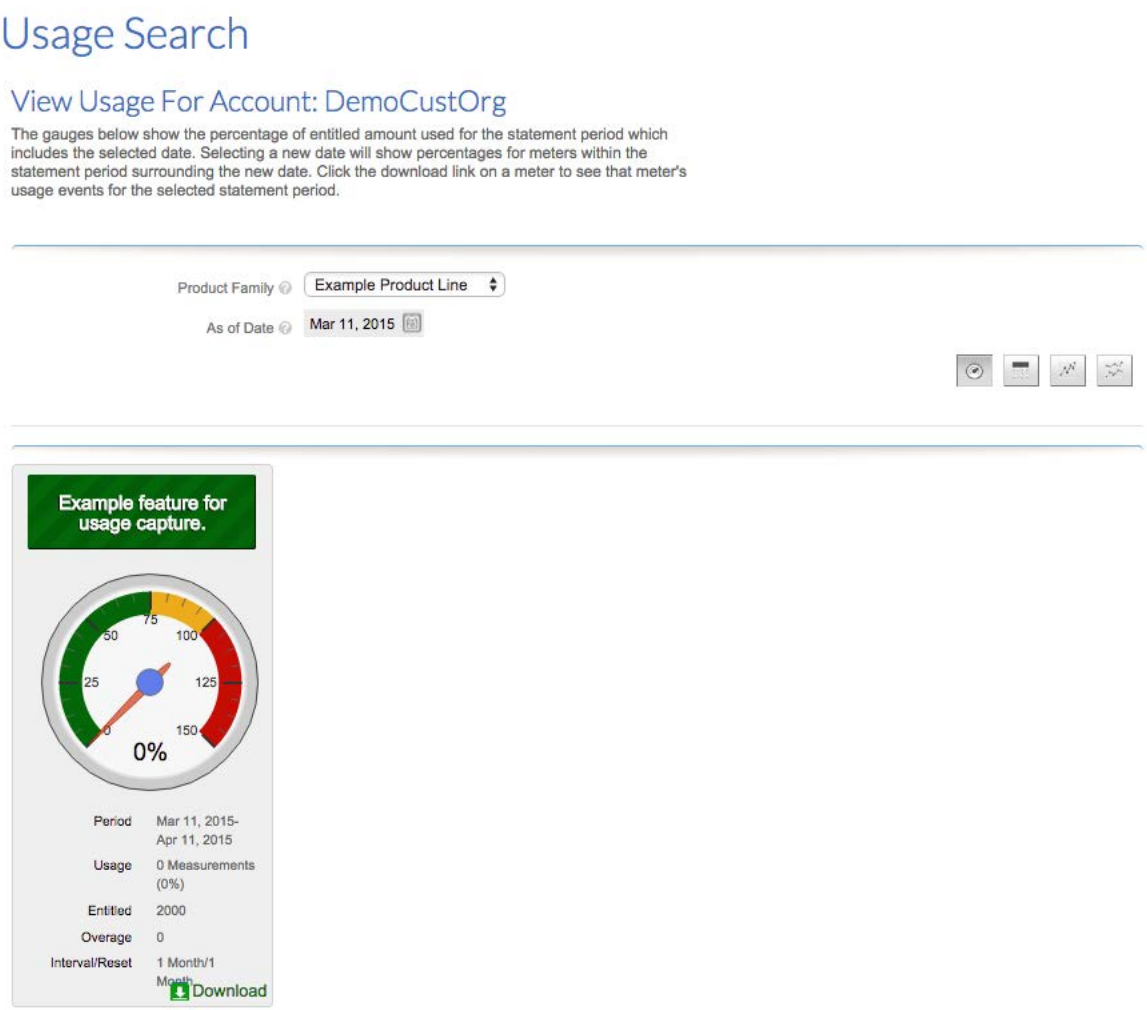


Figure 16-6: Example usage gauge for the survey feature

In the **View Usage** page, you can view the captured usage information as different types of graphs, or download the usage information for analysis. With the graph buttons, you can display usage information as a gauge, a textual table of usage information, a graphical timeline, or a graphical timeline comparing multiple metrics.

Note ▪ *Unless you have a client that is already reporting usage data, expect the usage reports to show 0 usage.*

Similarly, a user in the enterprise customer account can view current usage information by logging in to the End-User Portal and viewing usage reports.

Usage Management Next Steps

This section demonstrates a simple scenario for verifying that your toolkit is working properly. See the following section for further information about more advanced FlexNet Usage Management tasks, like manually created license servers, uploading usage history data, and downloading reconciliation summaries.

Advanced FlexNet Usage Management Activities

The following are some more advanced activities for producers who use FlexNet Operations with FlexNet Usage Management.

Topic	Description
Manually Creating a License Server	Shows how to manually create a new license server instance in the FlexNet Cloud Licensing Service and then map the entitlement line item for the metered product to it.
Uploading Historical Usage	Very briefly discusses the option to directly upload usage data for testing or demonstrations.
Reconciliation Summaries	Explains how to programmatically pull usage and overage data from the FlexNet Operations back office.
Obtaining Raw Usage Data	Provides an overview on how to use the Usage Data Extract job on the Producer Portal and the data extract RESTful services to retrieve raw usage data from FlexNet Operations.
Usage Data via SOAP	Introduces the getUsage web service as a method of retrieving real-time, reconciled usage data for an account.

Manually Creating a License Server

An enterprise customer's usage data is sent to a license server. In some cases, such as for a large enterprise customer, it may be desirable to provide multiple license servers hosted in the Cloud Licensing Service. This exercise shows how to use the Producer Portal to manually create a single license server deployed via FlexNet Cloud Licensing Service, to receive usage data for the Example Survey product.

Note ▪ *The exercises in the previous section, FlexNet Usage Management Exercises, show the license server created automatically with auto-provisioning. With auto-provisioning off, a producer must manually create the license server instance and then map any entitlements to it.*

From the **Devices** menu, click **Create License Server**. Use the following settings to create a server.

Attribute	Value
Deployment	Cloud Licensing Service
Identity	fne-demo
Site Name	Demo Customer Org's Hosted Server 1

Attribute	Value
Owner ID	Demo Customer Org

Retain the default settings for all other attributes.

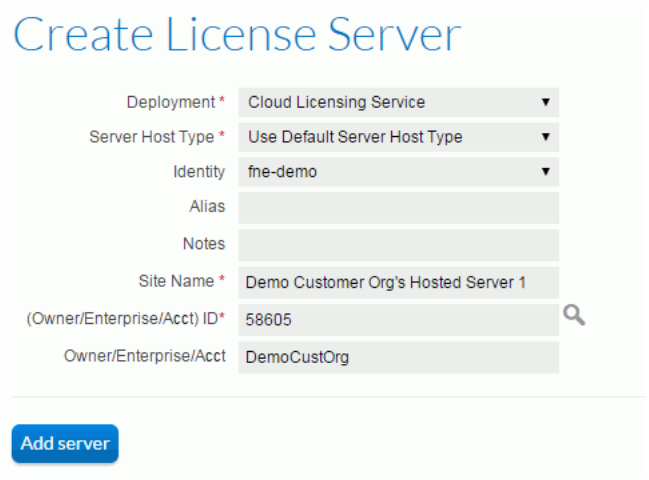


Figure 16-7: Creating a license server instance to be hosted in the FlexNet Cloud Licensing Service

The **View Server** page displays the server's license server ID. The license server ID, in this case RD1KPTL6NJ21, is also the instance ID value for the server. This instance ID value is used in the URL where usage information is sent for this enterprise customer.

While still in the **View Server** page, click **Action** and then click **Map Entitlements**. Use the Map Entitlements page to associate a quantity of line items to the server. From the list of entitlements, type quantities in the Qty to Add column. Type **1000** for Example Survey and click **Save**.

Note ▪ *The metered Example Survey product is the one that is used on this license server. The unmetered Example Baseline is for registering devices that report usage data.*

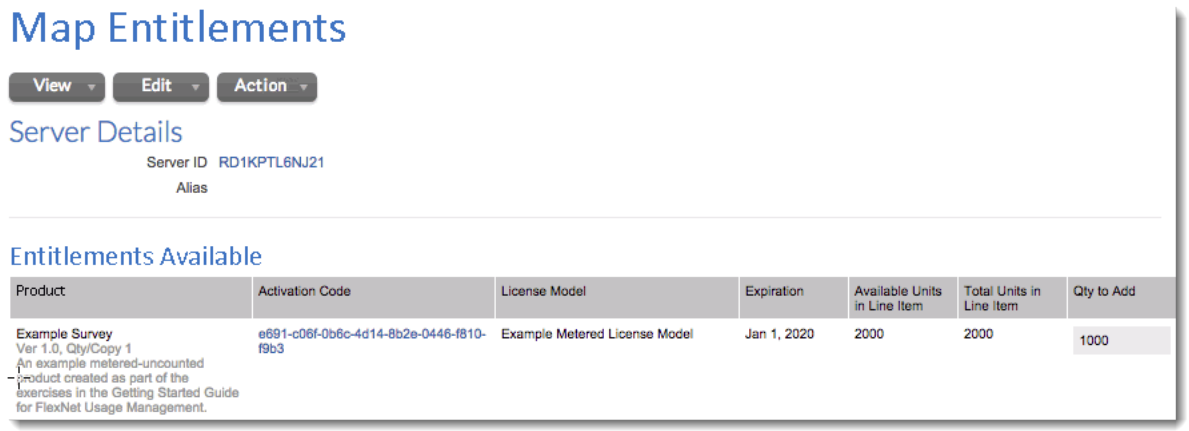


Figure 16-8: Mapping a product to a license server

After the product is mapped, usage-capture code can send capability requests to this license server instance.

Uploading Historical Usage

When testing or demonstrating FlexNet Operations usage reporting functionality, it may be useful to quickly upload some test usage data rather than waiting for your usage-capture clients to report actual usage data. This operation is supported via the Upload Historical Usage command in the FlexNet Operations Producer Portal. For more information, consult the section Managing Usage.

Reconciliation Summaries

In addition to viewing gauges in the Producer Portal, FlexNet Usage Management provides a way to download simple usage reports that can be uploaded to a billing system. A *reconciliation summary* is a file containing records of usage and overage data for a given account ID, product name, and feature name, for the desired billing period.

While logged in to the Producer Portal, you can download a reconciliation summary file by opening this URL, where <siteID> is your account's site ID and *yyyy-mm-dd* is the billing period end date (for information about the site ID, see FlexNet Operations Environments):

```
https://<siteID>-fno.flexnetoperations.com/flexnet/service/ReconSummary?StmtCloseDate=yyyy-mm-dd
```

For a UAT environment, include `-uat` in the URL:

```
https://<siteID>-fno-uat.flexnetoperations.com/flexnet/service/ReconSummary?StmtCloseDate=yyyy-mm-dd
```

If you are not logged in, the URL must include username and password values in the query string.

Instead of using a browser, you can automate download of the reconciliation summary data with a utility such as cURL, using a command similar to the following:

```
curl --url 'https://<siteID>-fno.flexnetoperations.com/flexnet/service/ReconSummary?
    username=user@domain.com&password=pwd&StmtCloseDate=yyyy-mm-dd'
```

The reconciliation summary file is a comma-separated text file (CSV file) containing the summary usage data for the specified billing period. The file contains a header row followed by records of usage data.

```
enterpriseName, accountID, productName, productID, featureName, friendlyName, startDate,
  endDate, usageUnitName, usageFromStatement,  entitled, overageFromReset, overageFromStatement
"DEMO1","DEMO1","Storage","55555","Connections","Number of Connections",2014-07-01,
  2014-08-01,,0,5000,0,0
"DEMO1","DEMO1","Storage","55555","Storage","Storage (GB)",2014-07-01,2014-08-01,,0,2000,0,0
```

You can then transform the data into the required format before uploading it to your billing system for processing.

Obtaining Raw Usage Data

Producers who schedule the Usage Data Extract job can download raw usage data from the results of that job via a RESTful service. The Usage Data Extract job generates an extract of all usage events from the end time of the last successful run to the current time.

See the Administering Alerts section for instructions on how to schedule the Usage Data Extract job.

See the Data Extract RESTful Services section of the *FlexNet Operations Web Services Integration Guide* for instructions on how to query the results of the Usage Data Extract job.

Usage Data via SOAP

FlexNet Operations includes a getUsage web service. getUsage is a SOAP-based web service that retrieves real-time, reconciled usage data for an account. It allows producers to programmatically gather the same data used in the Producer Portal to render usage in the usage gauges, tables, and timelines.

getUsage returns the end-user's product line, meter, unit of measure, actual usage, entitled quantity, overage since statement, overage since reset, percentage, interval/reset, and time period.

For more information, see the *FlexNet Operations SOAP Web Services Guide*.

17

Getting Started with FlexNet Customer Growth

The section *Getting Started with FlexNet Customer Growth* presents customer health visualization and entitlement renewal concepts and includes instructions for viewing customer health information as well as exercises for performing basic renewal tasks.

The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience, but one who has previously completed the exercises in the section Getting Started with Entitlement Management.

Section	Description
Introduction	Overview of this getting started section as well as a brief discussion of the licensing lifecycle, a summary of the features available with the FlexNet Customer Growth module, and a list of prerequisites for the exercises in this getting started section. • The License Lifecycle: FlexNet Customer Growth • The FlexNet Customer Growth Module • Exercise Prerequisites
FlexNet Customer Growth Concepts	A discussion of basic FlexNet Operations customer health and renewal management concepts. This section describes the customer health and renewal features and their components and controls.
Visualizing Customer Health	Instructions for navigating to and working with the Customer Growth dashboard and related account health pages in the Producer Portal to see the account health, renewal health, and consumption scores for your customers.

Section	Description
Notifying End Users about Expiring Entitlements	A series of exercises that demonstrate how to create renewals for expiring entitlements, how to activate email templates used to send renewal-related messages, how to set up the Expiring Entitlements job in the Producer Portal, and how to see Renewal Reminder email messages and view expiring entitlements in the End-User Portal, and how to send an intent-to-renew message from the End-User Portal.
Notifying End Users About Expired Entitlements	A series of exercises that demonstrate how to set up the Expired Entitlements job and how to see the results of that job in the Producer Portal, End-User Portal, and Renewal Reminder messages.

Introduction

This section provides a brief discussion of the licensing lifecycle, a summary of the features available with the FlexNet Customer Growth module, and a list of prerequisites for the exercises in this getting started section.

- The License Lifecycle: FlexNet Customer Growth
- The FlexNet Customer Growth Module
- Exercise Prerequisites

The License Lifecycle: FlexNet Customer Growth

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 17-1: FlexNet Operations License Lifecycle

- **Create Products**—Create product definitions that are used to generate licenses.
- **Order/Entitle**—Define an account's rights to obtain licenses for your products.
- **Deliver/Install**—Deliver the application software to the customer and install that software.
- **Activate**—Deliver licenses to the customer.
- **Return/Rehost**—Manage license transfers from one user or system to another.
- **Maintain/Update**—Deliver software updates to the customer.
- **Upsell/Renew**—Renew customer licenses, or sell the customer additional product functionality.

This getting started section focuses on FlexNet Customer Growth features in the Upsell/Renew phase.

The FlexNet Customer Growth Module

The intent of the FlexNet Customer Growth module is to improve the end-customer nurturing process and reduce churn through visual account health indicators and automated renewal alerts.

The FlexNet Customer Growth module provides a dashboard, donut charts, and pages to highlight the health of your accounts and adds more robust support for the renewals process to FlexNet Operations. Producers who use FlexNet Operations with the FlexNet Customer Growth module can configure FlexNet Operations to automatically identify expiring entitlements and send renewal reminder messages to those accounts with licenses that are nearing their expiration date. In addition, the End-User Portal gains a new Expiring Entitlements page. This page lists an end user's entitlements by their expiration date and gives special emphasis to those entitlements that

have expired or that are nearing their expiration date. On the Expiring Entitlements page, end users can select entitlements they want to renew and click a Request button to send a message to the producer about their intent to renew.

The Exercise Prerequisites section, below, identifies what producers need in order to complete the exercises in this getting started section.

To read more about FlexNet Customer Growth features and concepts, see FlexNet Customer Growth Concepts. (See Visualizing Customer Health for instructions on the use of these pages and features.)

To walk through exercises that illustrate the process of setting up FlexNet Operations to automatically alert end users about expiring or expired entitlements, see Notifying End Users about Expiring Entitlements or Notifying End Users about Expiring Entitlements.

Exercise Prerequisites

Two areas of this getting started section provide exercises basic renewal tasks. The exercises show how to create renewal entitlements, set up the Expiring Entitlements and Expired Entitlements jobs, customize the Renewal Reminder email template, view Expiring Entitlements in the End-User Portal, view a Renewal Reminder message, and send an intent-to-renew message from the End-User Portal.

Before you begin the exercises in this getting started section, verify that you meet the following prerequisites:

- The FlexNet Operations demonstration database and seed data must be loaded.
- You must have a FlexNet Operations Producer Portal login.
- End-User Portal users must have the View Expiring Entitlements permission to see the Expiring Entitlements page or to elect to receive renewal reminders.

Additionally, the exercises in this getting started section make use of the account, user, product, features, and entitlement created in the early exercises of the section Getting Started with Entitlement Management. Any product will suffice, as a sample to which expiring entitlements and renewals can be linked, but the exercises here use the product created in that getting started section.

FlexNet Customer Growth Concepts

This section introduces FlexNet Customer Growth concepts.

Section	Description
The Customer Growth Dashboard	Explains how to read the Account Health, Renewal Health, and Consumption charts and also covers the Account KPIs list on the dashboard page and the Watchlist functionality.
Account Health Pages	Describes the main Accounts Health page as well as the Account Health detail pages for a particular account.

Section	Description
Renewals	Briefly discusses how renewals fit in the license lifecycle, describes renewal jobs, renewal reminder email messages, and the End-User Portal's Expiring Entitlements page. This section also provides more detailed examples of how FlexNet Operations handles the display of and messaging for expiring entitlements.
Next Steps	Briefly discusses how to proceed in this getting started section according to your own needs and interests.

The Customer Growth Dashboard

The Customer Growth Dashboard shows charts for the three customer health scores above a list of accounts that shows the Key Performance Indicators (KPIs) for each account. By default, the charts and the account list include all of your accounts. If you select one or more accounts for more regular observation and add them to your watchlist, you can use the Watchlist toggle switch to include only the watched accounts in the charts and the list.

The following sections have more detail about the charts, the KPI scores, and account list, and the watchlist.

Section	Description
About the Dashboard Charts	Describes how the dashboard charts are composed, what they show, and how the interactive elements of the chart function. This section also explains how account health-related system configuration settings affect how the charts are rendered.
Key Performance Indicator (KPI) Scores	Discusses the KPI scores in more detail. For each chart—Account Health, Renewal Health, and Consumption—this section describes how the scores are calculated and how they are rendered on the Account Health pages.
About the Dashboard Account List	Describes how the accounts are listed on the Customer Growth Dashboard page and what the trend lines represent.
Watched and Unwatched Accounts	Explains what the watchlist is, how you can add or remove accounts from the watchlist, and how the Watchlist toggle alters the content of the account health charts and lists.
Alerts	Explains what triggers an alert and what type of alerts are generated.

About the Dashboard Charts

Visible from both the FlexNet Operations Home page and the Customer Growth Dashboard page, the Customer Growth Dashboard provides an at-a-glance view of overall health scores. This information is an aggregation of all the producer's accounts, by default. It shows the number of healthy, warning and at risk items for account health, renewal health, and consumption, each in its own donut chart.

For each chart, the overall score for all your accounts is represented by the number in the center. The arrows indicate trends, whether the scores are ascending or descending. Hover over the colored chart segments to find the number of accounts in that category. Click on a segment to be taken to the Accounts Health page with filters set for the score type and condition to match the segment you clicked.

Customer Growth Charts

The donut charts on the Customer Growth Dashboard page primarily show the Account Health, Renewal Health, and Consumption scores for your accounts—either all your accounts or all your watched accounts, depending on your Watchlist setting. (See Watched and Unwatched Accounts for information about using the Watchlist.)

- **Account Health**—The Account Health score is a weighted combination of the other account metrics (Renewal Health and Consumption).
- **Renewal Health**—The Renewal Health score provides an overall rating for your accounts based mainly on how close the accounts' entitlements are to their expiration dates. The chart also indicates the number of entitlements in each category (healthy, warning, and at risk) with the overall score of those accounts in the center.
- **Consumption**—The Consumption score represents the ratio of products, features, or licenses used to the total number products, features, or licenses to which the accounts are entitled. Higher scores are better and indicate healthy consumption rates. Lower scores indicate that your accounts are further away from consuming the quantities to which they are entitled.

When the Producer Portal renders the chart segments, it applies the health threshold values in the system configuration settings.

System Configuration Settings for Customer Health Scores

The following system configuration settings play a role in determining whether an account's condition is considered healthy, warning, or at risk.

Table 17-1 ▪ Customer Health-related System Configuration Settings

Name	Possible Values	Description
Consumption Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for service consumption levels. Consumption is considered unhealthy if below the low threshold and very healthy if at or above the high threshold.
Renewal Health Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for a customer's renewal health. A low renewal health score is indicative of a risky renewal. A renewal health at or above the high mark translates to a high probability of the renewal.
Account Health Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for an account's overall health. The account is considered unhealthy if below the low threshold and very healthy if at or above the high threshold.

Tip ▪ *Producers can set the threshold values in their system configuration settings. In the Producer Portal, click* ***System*** *>* ***Configure*** *>* ***FlexNet Operations*** *>* ***Health****.*

Key Performance Indicator (KPI) Scores

The scores shown on the customer health pages indicate the fitness of your customer accounts by helping you visualize the accounts that are healthy, at risk, or in between. The Customer Growth Dashboard shows three scores:

- The Consumption score shows the ratio of products, features, or licenses used to the total number of products, features, or licenses entitled expressed on a 100-point scale.
- The Renewal Health score provides a weighted score to highlight accounts with entitlements that are approaching their expiration date.
- The Account Health score is simply a combination of Consumption and Renewal Health scores: `(Renewal Score+Consumption Score)/2`.

These scores appear in the dashboard charts, the dashboard's account list, the Accounts Health page, and the account details pages.

Consumables Counted Towards the Consumption Score

The items that count towards consumption depend on the type of licensing used. When FlexNet Operations calculates the Consumption score, it counts the following items:

- FlexNet Publisher—fulfillments generated from entitlements
- FlexNet Embedded (Standalone device)—licenses mapped from entitlements

- FlexNet Embedded (Local or Cloud license server)—features checked out by served devices
- Third part license technology—fulfillments generated from entitlements

This number is based on the number of consumed versus total available consumable features or licenses for that product to which the account is entitled. The number is then assigned a status of **healthy**, **warning** or **at risk** depending on the system configuration setting for the consumption threshold.

In the Producer Portal, click **System** > **Configure** > **FlexNet Operations** > **Health** to set **Consumption Threshold** values.

Renewal Health Calculation

The formula for calculating the Renewal Score is based on two factors:

1. How far the products are from their expiration dates (for subscription or maintenance lines).
2. The Consumption value which is a score of consumed quantities of what an account has purchased.

For the first factor, there are three weighted renewal periods, based on how close the entitlements are to their expiration dates: Renewal Look Ahead, Expiring Window, and Renewal Critical. These renewal periods are labels for how close an entitlement is to its expiration date.

Table 17-2 ▪ Weights and Thresholds for Each Renewal Period

Renewal Period	Weight	Default Threshold
Renewal Look Ahead	.25	200 days
Expiring Window	.50	90 days
Renewal Critical	.90	30 days

The renewal period *weights* are fixed and not configurable; however, producers can configure the renewal period *threshold* values in their system configuration settings. In the Producer Portal, click **System** > **Configure** > **FlexNet Operations** > **Renewals**.

The complete formula for the renewal score is

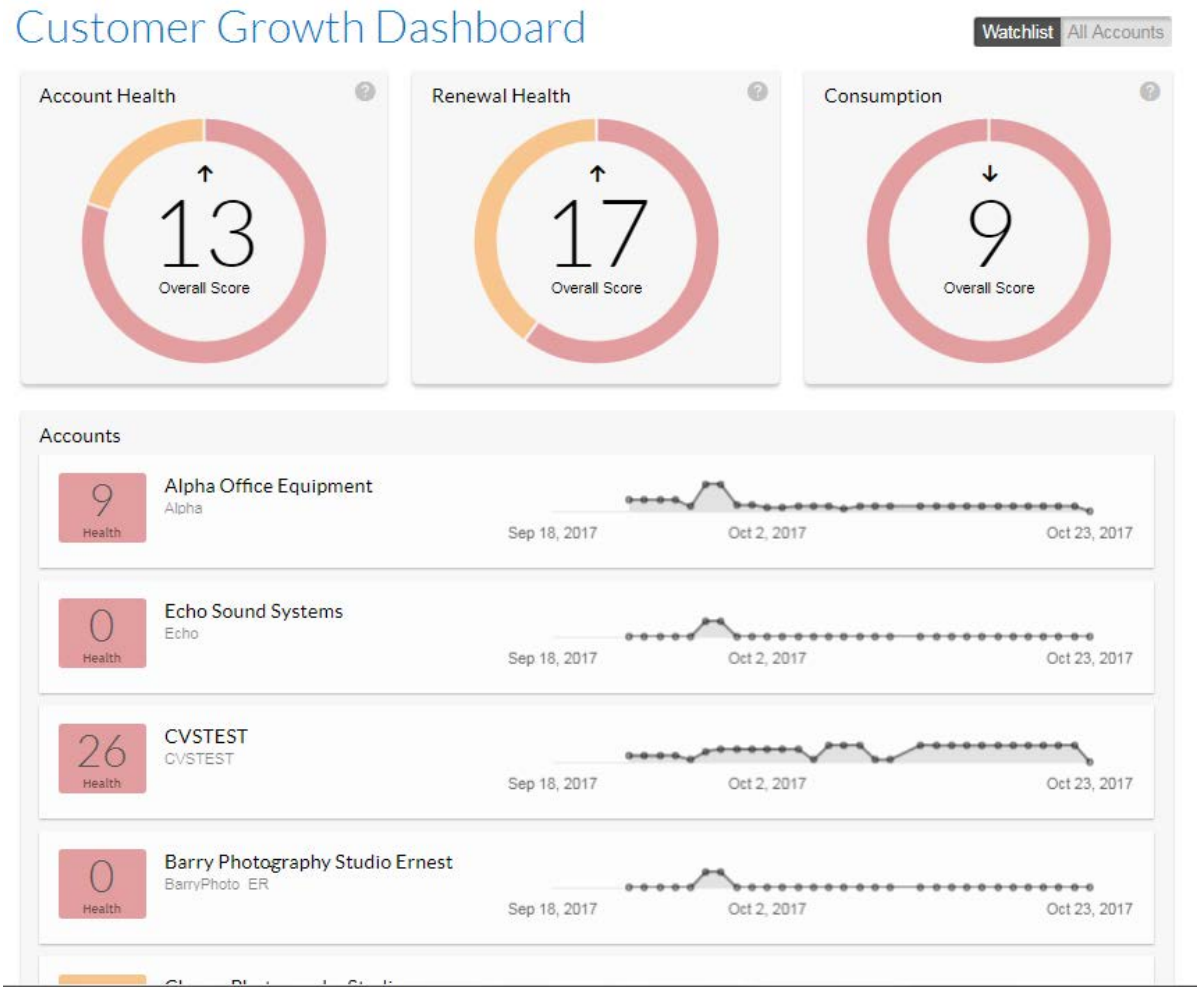
```
(1-((Renewal Look Ahead*.25)+(Expiring Window*.50)+(Renewal Critical*.90)+Consumption Score))/2
```

where the value for each renewal period is either 0 or 1.

Using the renewal period values, only one renewal period (Renewal Look Ahead, Expiring Window, and Renewal Critical) is factored in to the score at a time. Once a product enters a specific renewal period, that renewal period gets a value of 1 and all other renewal periods get a value of zero.

About the Dashboard Account List

The Customer Growth Dashboard page also lists your accounts below the charts. The account list displays the overall health score, the account name, and a 30-day trend for each account shown.



The Accounts list shows up to 20 accounts. Clicking **Show More** adds 20 more accounts to the list for each click until you reach the end of the list.

Tip ▪ *The Accounts list on the Customer Growth Dashboard page shows either all accounts or watched accounts. When showing all accounts, the Accounts list shows any watched accounts at the top of the list.*

Watched and Unwatched Accounts

The Producer Portal includes a Watchlist to which you can add or remove the accounts you want to follow most closely on the Customer Growth pages. Initially, the Watchlist is empty, but you can manage your Watchlist on the Accounts Health page by clicking the Watch/Unwatch icon. Then, on the Customer Growth Dashboard, you can switch between All Accounts and Watchlist, depending on whether you want to see metrics for all accounts or focus in on only the watched accounts.

The accounts in your Watchlist and the setting of the Watchlist toggle on the Customer Growth Dashboard determine which accounts are included in the Customer Growth charts and related pages. The Watchlist toggle affects which account are included in the Customer Growth charts, scores, and account lists. This setting has an impact on the following Producer Portal pages:

- **Customer Growth Dashboard**—Charts, scores, and accounts include just the watched accounts or all accounts. Also, if you have one or more watched accounts, these accounts appear at the top of the list when the Watchlist toggle is set to All Accounts.
- **Accounts Health**—Lists only watched accounts or all accounts.
- **Producer Portal Home**—Charts and scores include just the watched accounts or all accounts.

See Watching and Unwatching Accounts to see how to add or remove accounts from your Watchlist.

Alerts

The Customer Growth Dashboard page also displays a list of alerts, the accounts, and type of alerts. Alerts are only displayed if the watched accounts are selected by clicking the **Watchlist** button. An alert is generated when either a renewal or consumption score crosses a threshold: Healthy, Warning, or At Risk—in either direction.

The alert shows:

- How long ago the alert was triggered
- The score when the alert was triggered
- The type of change, i.e. from Warning to At Risk

Clicking on an alert notice takes you to the Alerts tab for that account and filters the results based the type of alert selected (i.e. Renewal Health or Consumption).

Account Health Pages

In the Producer Portal, you can get lists of your accounts that show the scores for each account. These pages can be searched and filtered in various ways so that you can better track the health of your accounts. You can also see details about a particular account including its specific KPIs, its product consumption, and its renewal health.

Section	Description
Accounts Health Page	Discusses the Accounts Health page and its functionality.
Account Detail Pages	Describes the account detail pages and what information is included on each tab.

Accounts Health Page

The Accounts Health page lists your accounts, and you can filter, sort, and search that list in many different ways. The Accounts Health page is also the best place to watch or unwatch multiple accounts.

- You can sort the list by the account name, the account ID, or by their Consumption, Renewal Health, or Account Health scores.
- You can filter the list by watched/unwatched setting, the score type, and the status condition.
- You can search the list for a particular account by its account name or its account ID.
- On the Accounts Health page, you can also click an account name to see the account details page for that account.

The Accounts Health page shows the following information for each account listed:

Column	Description
Account Name	The account name.
Account ID	Unique identifier of the account.
Products	The number of products to which the account is entitled.
Consumption	Total of all consumed products or licenses or features versus the quantity to which the account is entitled.
Renewal Health	The Renewal Health score is a weighted calculation of days until expiration and the consumption value.
Account Health	The Account Health score is a weighted combination of the other account metrics.
Watchlist	Select the icon to add or remove an account from the Watchlist. - Unwatched - Watched

See the section Visualizing Customer Health for information about filtering and searching account list or viewing details about a particular account.

Account Detail Pages

The account detail pages in the Producer Portal show more detailed information about the health of a particular account. These pages are titled, Account <AccountName>. You get to them by clicking on an account name on the dashboard or on the Accounts Health page.

Tip ▪ *You can click Watch on an account's detail page to add it to your Watchlist.*

The in-depth information on the account detail page is divided into three tabs:

- **Overview**—shows a summary of health scores for the current account. This tab is the default tab for the account details page.

- **Products**—shows product, feature, and license consumption for the current account.
- **Renewals**—shows the renewal health of each product for which the account is licensed.

Overview Tab

The **Overview** tab is displayed by default. It displays the **Account KPIs** (Key Performance Indicators)—the account health, renewal health, and consumption scores—related to that account. Other tabs include Products and Renewals.

There is also a health meter line graph showing the trends for that health metric. Hover over the points on the graph to see the date and its related health score for that metric.

Products Tab

The **Products** tab to see the list of products for the current account. Products are listed by their consumption scores, and show the current consumed quantity and total available quantity along with the product name and description. Producers can click on the consumed quantity number of any product to see feature consumption details for that product in the current account.

The list contains the following information:

Column	Description
Score	The calculated health score. See Key Performance Indicator (KPI) Scores for details on how this score is derived.
Consumed quantity	The total number of licenses or features that have been consumed. If feature consumption exists, the Producer Portal renders this number as a link.
Total quantity	The sum of all possible features or licenses plus all possible quantities not mapped to a server.
Product name	The name of the product.
Description	A description of the product.

On the Products tab, you can filter the list and view feature-usage details for a particular product. See Working with the Products Tab on the Account Details Page for instructions.

Renewals Tab

The **Renewals** tab to see the renewal health of each product for which the account has licenses.

The list contains the following information:

Column	Description
Score	A calculated value based the number of days until the product expires and the consumption value. See Key Performance Indicator (KPI) Scores for details on how this score is derived.
Days remaining	The number of days before the license expires.
Expiration	The date the license expires.
Product name	The name of the product.
Type	The type of product. Options include • Subscription • Maintenance
Activation ID	The activation ID of the product. Click the **Activation ID** to see the entitlement details.

On the Renewals tab, you can filter the list and view details for a particular entitlement. See Working with the Renewals Tab on the Account Details Page for instructions.

Renewals

Producers that issue subscription licenses or perpetual licenses with expiring maintenance typically create additional line items for their existing customers to extend the duration of the customer's license. When these renewal line items are created, a producer specifies the relationship between the initial subscription or maintenance. Customers can then activate the renewal line item when their existing line item is due to expire.

The FlexNet Customer Growth module brings greater visibility to expiring entitlements and renewals. With this module, the End-User Portal includes a new Expiring Entitlements page on which the customer's entitlements are listed by their expiration date with special emphasis on those that are expired or soon to expire. In addition, the FlexNet Customer Growth module helps producers automate messaging about expiring entitlements to their customers who subscribe to receive renewal reminders.

Separate jobs automate messaging for expiring entitlements and expired entitlements, and producers can customize the content and frequency of the automated messaging.

The following sections cover renewal concepts in greater detail.

Section	Description
Renewal Jobs	Describes the Expiring Entitlements job and the Expired Entitlements job, how they operate, and how they are configured.

Section	Description
Renewal Reminder Email Messages	Describes the renewal notifications FlexNet Operations sends for expiring and expired entitlements and how end users can subscribe to these notifications.
Expiring Entitlements Page	Describes the End-User Portal's Expiring Entitlements page and what features end users can employ there.
More About the Expiring Lines Shown on the Expiring Entitlements Page	Provides a more detailed example to explain how the End-User Portal displays expiring entitlements on the Expiring Entitlements page.
More About How Expiring Lines Are Selected for the Renewal Reminder Email Message	Provides an example to illustrate how FlexNet Operations selects entitlements to include in its renewal reminder email messages.

Renewal Jobs

The automation of renewal messaging hinges on two jobs you administer through the Producer Portal's Configure Alerts/Jobs page: the Expiring Entitlements job and the Expired Entitlements job.

Producers can schedule these jobs and subscribe to their alerts in the Producer Portal.

Expiring Entitlements Job

The Expiring Entitlements job finds entitlements that are nearing their expiration date and generates email messages to end user accounts with expiring entitlements.

When the Expiring Entitlements job finds entitlements that are soon to expire for an account, FlexNet Operations generates an email message about that account's expiring entitlements and attempts to send the message to the account's users. End users who elect to receive renewal notifications will get an email message when their account's entitlements are nearing their expiration date.

For producers, a number of system configuration settings determine when email messages are triggered, which entitlements are included in the Renewal Reminder message, whether or not an email is to be sent, and how frequently an account may receive such email messages. Producers can also customize the email template FlexNet Operations uses when it sends these renewal notifications.

Expired Entitlements Job

This job controls how often FlexNet Operations checks for entitlements that have recently expired. When it finds entitlements that have expired since the last time the job was run, it generates email messages to end user accounts with expired entitlements.

When the Expired Entitlements job finds entitlements that are expired for an account, FlexNet Operations generates an email message about that account's expired entitlements and attempts to send the message to the account's users. End users who elect to receive renewal notifications will get an email message when their account's entitlements have expired.

For producers, system configuration settings help determine how frequently an account may receive such email messages as well as which expired entitlements appear in the End-User Portal's Expiring Entitlements page. Producers can also customize the email template FlexNet Operations uses when it sends these renewal notifications.

Job Configuration

The operation of these jobs is configurable with both the standard job scheduling controls and with the renewal-specific configuration settings.

Job scheduling controls are the same as those shared by other FlexNet Operations jobs, like the User Deactivated job, the Product/Version Upgrade job, and the numerous data-extract jobs. These controls allow you to set the status of the job (active or inactive), specify the frequency with which the job runs, and limit the subscription to the alerts spawned by the job to specific Producer Portal user roles.

System configuration settings for FlexNet Customer Growth behavior appear on the FlexNet Operations system configuration page (**System** > **Configure** > **FlexNet Operations**). These include settings that govern the time ranges the Expiring Entitlements and Expired Entitlements jobs use to determine which entitlements qualify for renewal reminders or expired entitlement messages. System configuration settings also specify email addresses to receive renewal request messages from end users and to receive notifications when there are no end users who have opted to receive expiring entitlements messages.

- In determining when to send an Renewal Reminder email message, FlexNet Operations uses the system configuration settings **Renewal Look Ahead** (default: 200 days), **Expiring Window** (default: 90 days), and **Expiring Email Frequency** (default: 30 days).
- In determining when to send an Expired Entitlements email message, FlexNet Operations uses the system configuration setting, **Expired Email Frequency** (default: 30 days).

For details about these system configuration settings, see the Renewals settings in Configuring System Settings.

Renewal Reminder Email Messages

FlexNet Customer Growth introduces three new email templates.

- **Renewal Reminder**—Used to send Renewal Reminder email messages generated as a result of the Expiring Entitlement job.
- **Renewal Reminder for Expired Entitlements**—Used to send expired entitlement email messages generated as a result of the Expired Entitlements job.
- **Renewal Intent for End Customer**—Used to send intent-to-renew email messages generated when a customer clicks the Request button on the Expiring Entitlements page in the End-User Portal. FlexNet Operations sends copies of the intent-to-renew message to the end user who clicked the Request button and also to the producer at the address specified for the system configuration setting, **Request Renewal Notification Email**.

Tip ▪ *For both the renewal reminder messages, end users must meet the following conditions to receive messages:*

- *An end user must have the View Expiring Entitlements permission.*
- *An end user's account must have **Expiring Entitlements Email** marked in his or her user profile.*

Expiring Entitlements Page

The End User Portal includes an Expiring Entitlements page (**Activations & Entitlements** > **Expiring Entitlements**). This page shows the expiring and expired entitlements for the accounts to which the current user belongs and gives special emphasis to those that are soon to expire. (Expired entitlements are not shown by default. End users can use on-page filters in the End-User Portal to include expired entitlements in the list.)

***Tip** ▪ Lines that expire more than 200 days from the current date are not shown on the Expiring Entitlements page. Similarly, when expired entitlements are included, those lines that expired more than 200 days ago are not shown. This limit is configurable on the Producer Portal by changing the value for **Renewal Look Ahead** (**System** > **Configure** > **FlexNet Operations** > **Renewals**).*

Highlight Colors on the Expiring Entitlements Page

The entitlement lines and maintenance lines closest to their expiration date are highlighted on the Expiring Entitlements page.

Producers determine which lines get special emphasis by specifying values for the system configuration settings, **Renewal Critical** (default: 30 days) and **Expiring Window** (default: 90 days). By default, expired lines and lines that expire in the next 30 days are highlighted in red, those that expire between 31 and 90 days are highlighted in yellow, and those that expire further out than 90 days are not highlighted.

End Users Can Send a Renew Request to Producers from the Expiring Entitlements Page

On the End-User Portal's Expiring Entitlements page, end users can click a **Request** button to send an email message to the producer about their intent to renew selected entitlements. The intent-to-renew message is generated by the End-User Portal using the default variation of the email template, **Renewal Intent for End Customer**. The End-User Portal sends a copy of this message to the end user who clicked the Request button and to the producer at the address specified in the system configuration setting, **Request Renewal Notification Email** (**System** > **Configure** > **FlexNet Operations** > **Renewals**).

***Important** ▪ The intent-to-renew email message is for communication purposes only; FlexNet Operations does not automatically renew the selected entitlements.*

More About the Expiring Lines Shown on the Expiring Entitlements Page

FlexNet Operations determines what to show in this page according to the lines' expiration dates, the current date, and the system configuration settings, **Renewal Critical**, **Expiring Window**, and **Renewal Look Ahead**. The graphic below illustrates how three entitlement lines with different expiration dates are shown on the Expiring Entitlements page.

***Note** ▪ The start date and expiration dates shown below are the same as those for the lines used in the exercises in the next section, Notifying End Users about Expiring Entitlements. See Preparing Entitlement Line Items for Renewal Exercises for more information on these entitlement lines.*

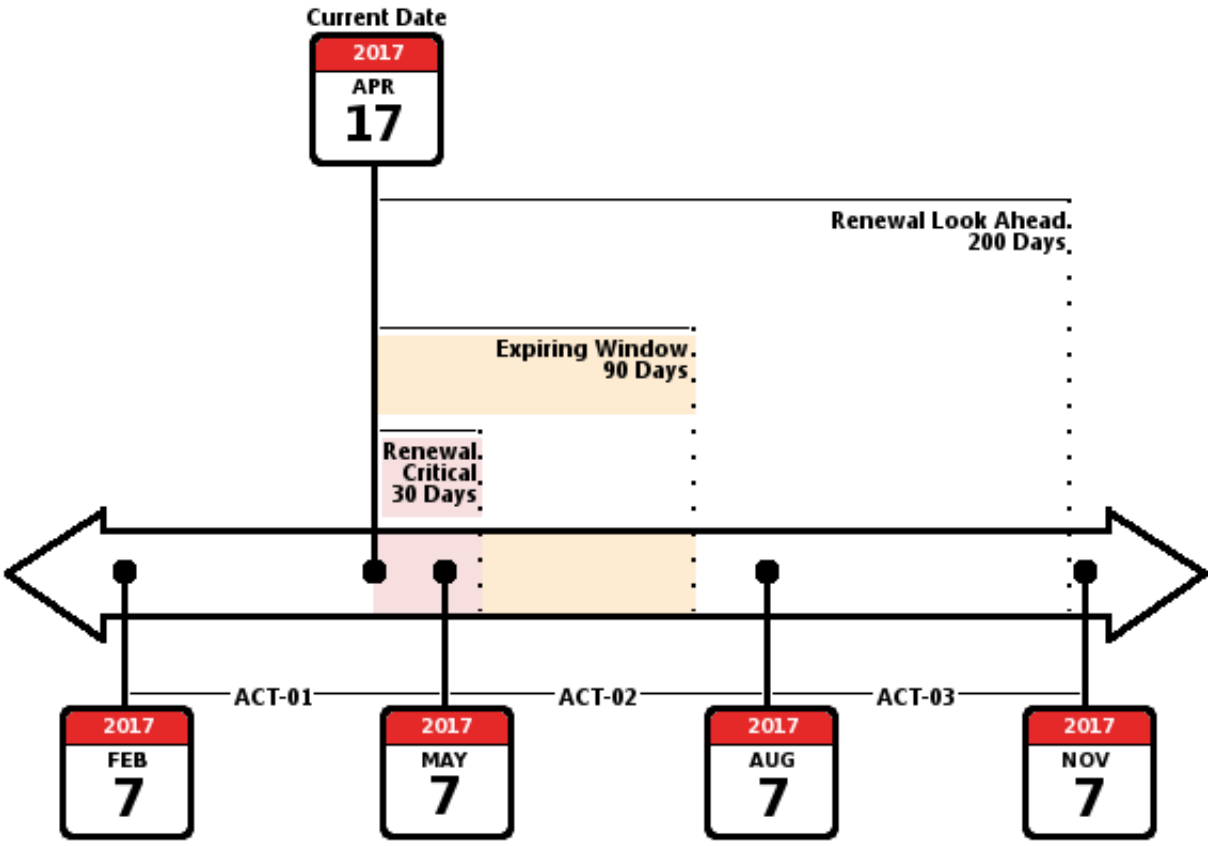


Figure 17-2: Entitlement lines shown on the Expiring Entitlements page include ACT-01 and ACT-02. ACT-03 expires outside the Renewal Look Ahead range (default: 200 days).

The Expiring Entitlements page lists all the entitlement and maintenance lines to which the end user is entitled and that are due to expire within the Renewal Look Ahead range (default: 200 days from the current date). This page also highlights lines with different background colors if their expiration dates fall within the Renewal Critical (default: 30 days) or the Expiring Window (default: 90 days).

- ACT-01 expires on 7 May 2017, which occurs within the Renewal Critical range (default: 30 days). Therefore, it appears on the Expiring Entitlements page and is highlighted in red to indicate it is 30 days or fewer until its expiration date.
- ACT-02 expires on 7 August 2017, which occurs outside the Renewal Critical range and outside of the Expiration Window range (default: 90 days). Therefore, it appears on the Expiring Entitlements page but is not highlighted. (If its expiration date fell within 30-90 days from the current date, it would have a yellow highlight to indicate its expiration date fell within the Expiring Window.)
- ACT-03 expires on 7 November 2017. Because its expiration date happens outside the Renewal Look Ahead range (default: 200 days), it is not shown on the Expiring Entitlements page. (There are 204 days between 17 April 2017 and 7 November 2017. If its expiration date fell within the Renewal Look Ahead range, this line would be included on the Expiring Entitlements page.)

More About How Expiring Lines Are Selected for the Renewal Reminder Email Message

FlexNet Operations determines what to include in the renewal reminder about expiring entitlements based on the lines' expiration dates, the date the Expiring Entitlements job runs, and the system configuration settings, **Expiring Window**, and **Renewal Look Ahead**. The graphic below illustrates how three entitlement lines with different expiration dates are shown on the Expiring Entitlements page.

Note ▪ *The start date and expiration dates shown below are the same as those for the lines used in the exercises in the next section, Notifying End Users about Expiring Entitlements. See Preparing Entitlement Line Items for Renewal Exercises for more information on these entitlement lines.*

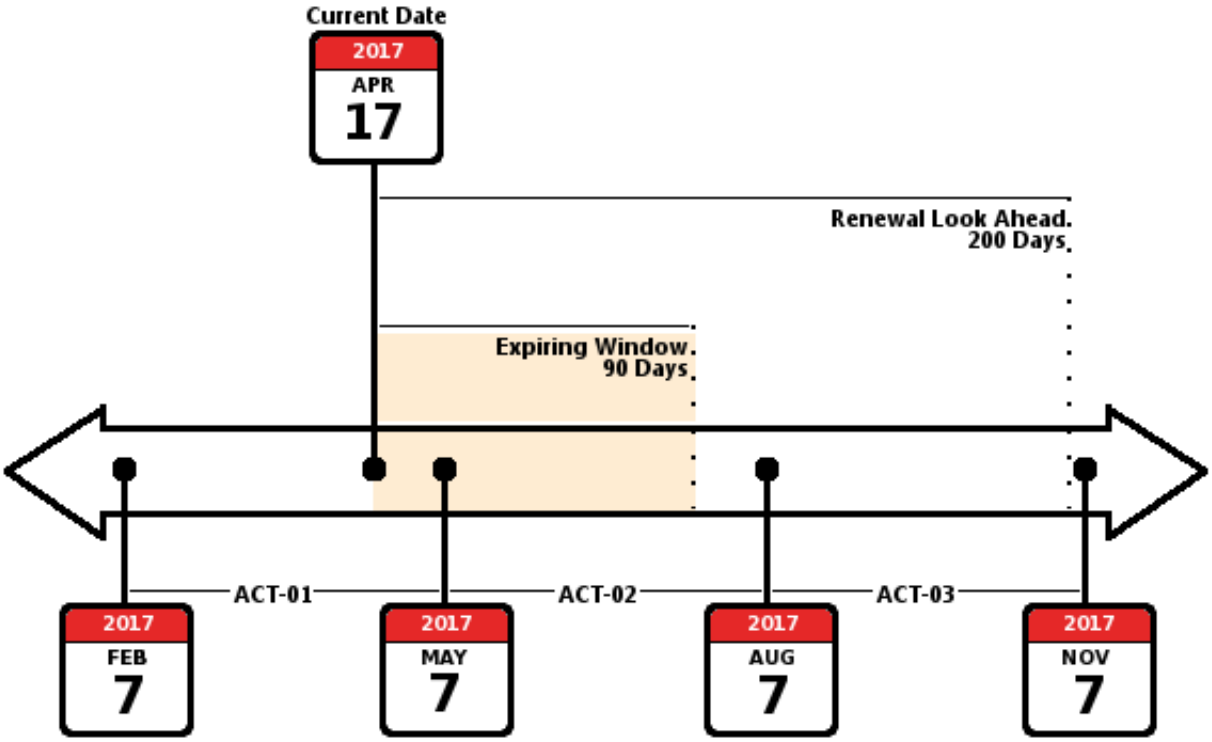


Figure 17-3: When a renewal reminder is generated for expiring entitlements, that email message includes entitlement lines and maintenance lines that expire within the Expiring Window (default: 90 days) as well as any that are due to expire within the Renewal Look Ahead range (default: 200 days).

The renewal reminder message lists all the entitlement and maintenance lines to which the end user is entitled and that are due to expire within the Renewal Look Ahead range (default: 200 days from the current date). Given the expiring entitlement lines ACT-01, ACT-02, and ACT-03, a renewal reminder generated on 17 April 2017 would include ACT-01 and ACT-02:

- ACT-01 expires on 7 May 2017, which occurs within the Expiring Window (default: 90 days), and causes the Expiring Entitlements job to begin the generation of the renewal reminder message. It is included in the renewal reminder email message.

- ACT-02 expires on 7 August 2017, which occurs outside the Expiring Window but within the Renewal Look Ahead range (default: 200 days). Therefore, it does not expire soon enough to cause the FlexNet Operations to generate a renewal reminder email message but it is included in the list of expiring entitlement lines.
- ACT-03 expires on 7 November 2017. Because its expiration date happens outside the Renewal Look Ahead range, it is excluded from the renewal reminder email message. (There are 204 days between 17 April 2017 and 7 November 2017. If its expiration date fell within the Renewal Look Ahead range, this line would be included in the renewal reminder.)

Additional information about the processing of the Expiring Entitlements job appears in the section More About the Expiring Entitlements Job. Likewise, you can find information about the Expired Entitlements job in More About the Expired Entitlements Job.

Next Steps

The next section, Visualizing Customer Health, provides instructions for navigating to the Customer Growth Dashboard and Accounts Health pages, filtering and otherwise manipulating page content, and viewing the account details for a particular account.

The renewal exercises in this getting started section walk through the processes of setting up renewals and seeing the results of the renewal jobs in the End-User Portal and in email messaging.

- Notifying End Users about Expiring Entitlements
- Notifying End Users about Expiring Entitlements

To learn more about handling the dashboard and account health pages, continue reading the next section. To get started with the renewal exercises, skip ahead to Notifying End Users about Expiring Entitlements.

Visualizing Customer Health

This section provides brief instructions for viewing the Customer Growth pages on the Producer Portal and managing the content there.

Section	Description
Viewing the Customer Growth Dashboard	Describes how to see the Customer Growth Dashboard.
Toggling Between All Accounts and the Watchlist	Explains how to set the Watchlist Toggle to show all accounts or only watched accounts.
Viewing the Accounts Health Page	Describes how to see the Accounts Health page.
Filtering the Accounts Health List	Explains how to filter the account list on the Accounts Health page.
Searching the Accounts Health List	Explains how to search the account list on the Accounts Health page.
Watching and Unwatching Accounts	Explains how to add or remove accounts from the Watchlist.

Section	Description
Viewing Account Details	Shows how to view the account details page for an account listed on the Accounts Health page.
Working with the Products Tab on the Account Details Page	Discusses how to filter the products list and see feature-consumption details for a particular product on the Products tab.
Working with the Renewals Tab on the Account Details Page	Discusses how to filter the entitlements list and view details for a particular entitlement on the Renewals tab.
Next Steps	Briefly discusses how to proceed in this getting started section according to your own needs and interests.

Viewing the Customer Growth Dashboard

You can view the dashboard using the Producer Portal menus.

Task ***To view the Customer Growth Dashboard***

- In the Producer Portal, click **Accounts & Users** > **Dashboard**.

The Producer Portal shows the Customer Growth Dashboard for all accounts or for watched accounts, depending your current Watchlist Toggle setting.

For more information about the dashboard page features, see The Customer Growth Dashboard.

Toggling Between All Accounts and the Watchlist

You can use the Watchlist Toggle to configure the Producer Portal to show either all accounts or only watched accounts. This control affects the content of the dashboard page, the Accounts Health page, and the health charts on the Producer Portal home page.

Task ***To show all accounts***

- On the Customer Growth Dashboard, click **All Accounts**.

The Customer Growth components include data for all accounts.

Task ***To show Watchlist accounts***

- On the Customer Growth Dashboard, click **Watchlist**.

The Customer Growth components include data only for watched accounts.

To learn more about the Watchilst feature, see Watched and Unwatched Accounts.

Viewing the Accounts Health Page

You can view the Accounts Health page using the Producer Portal menus.

Task ***To view Accounts Health page***

- In the Producer Portal, click **Accounts & Users** > **Accounts**.

See Accounts Health Page for more information about the content of this page.

See Filtering the Accounts Health List and Searching the Accounts Health List for instructions on how to work with the lists on these tabs.

See Watching and Unwatching Accounts for instructions on how to add or remove accounts from your Watchlist.

Filtering the Accounts Health List

By default, the account list defaults to display all account types (watched and unwatched) by their account health score and shows accounts with any health condition (At Risk, Warning, or Healthy). To quickly reduce the number of accounts listed on the Accounts Health page, filter it by type, score and health condition.

Task ***To filter the accounts list***

1. On the **Accounts Health** page, hover the cursor over the filter icon to display the filter selection list.
2. To change the default filter setting, do one of the following:
   - **Type**: Check **Watched Accounts** to only view accounts on the Watchlist.
   - **Score**: Uncheck the **Account Health** and check either **Renewal Health** or **Consumption**.

     Note ▪ *At least one of the scores must be selected: Account Health, Renewal Health or Consumption. Only one score can be checked at a time.*
   - **Condition**: Uncheck one or more of the conditions.

     Note ▪ *If all the conditions are unchecked, the Producer Portal behaves as if all conditions are checked. (Accounts with all health conditions are shown.)*
3. Click **Apply**.

The Producer Portal shows the account list with the new filter settings applied. Notice that he number in the red bubble indicates how many filters are active.

Searching the Accounts Health List

You can search the account list on the Accounts Health page.

Task ***To search the accounts list***

1. On the Accounts Health page, choose what to search for. Use the menu to search by **Account name** or **Account ID**.
2. Enter your search criteria.
3. Click **Search**.

The Accounts Health list shows accounts that match your search criteria.

Watching and Unwatching Accounts

You can add or remove accounts from the Watchlist using the controls on the Accounts Health page.

Task ***To add an account to your Watchlist***

- On the Accounts Health page, click the Watch icon for that account.

The Producer Portal adds the account to your Watchlist.

Task ***To remove an account from your Watchlist***

- On the Accounts Health page, click the Unwatch icon for that account.

The Producer Portal removes the account from your Watchlist.

To learn more about the Watchlist feature, see Watched and Unwatched Accounts.

Viewing Account Details

You can view details about a particular account from the Accounts Health page.

Task ***To view account details***

- On the **Accounts Health** page, click the account name of the account for which you want to view.

See Account Detail Pages for more information about the content of this page and its Overview, Products, and Renewals tabs.

See Working with the Products Tab on the Account Details Page and Working with the Renewals Tab on the Account Details Page for instructions on how to work with the lists on these tabs and get more information about the renewal conditions of entitlements or feature consumption for the current account's products.

Tip ▪ *You can add or remove an account from the Watchlist by clicking the **Watch** or **Unwatch** button on the account details page.*

Tip ▪ *Click the* ***Back to List*** *link to go to the* ***Accounts Health*** *page.*

Working with the Products Tab on the Account Details Page

On the account details page's Products tab, you can filter and search the product list. You can also view feature consumption for a product listed on the Products tab and filter the results in that feature list.

See instructions for these activities in the sections below:

- Filtering the Product List
- Searching the Products List
- Viewing Feature Consumption
- Filtering the Feature Consumption List

Filtering the Product List

Follow the steps, below, to change the filter settings for the product list.

By default the **Products** tab filter values are set to display the product health score with all conditions: **At risk**, **Warning**, or **Healthy**.

Task ***To filter the products list***

1. On the **Products** tab, hover the cursor over the filter icon to display the filter selection list.
2. To change the default filter setting, uncheck one or more of the conditions.
3. Click **Apply**.

Notice that the number in the red bubble indicates how many filters are active. If all the condition boxes are cleared, the Producer Portal warns that at least one condition must be checked.

You can also sort the products list by score (default), consumed quantity, or total quantity.

Searching the Products List

You can search the list of products on the Products tab of account details pages.

Task ***To search the products list***

1. On the account details page, choose what to search for. Use the menu to search by **Product Name** or **Description**.
2. Enter your search criteria.
3. Click **Search**.

The shows products that match your search criteria.

Viewing Feature Consumption

Follow the steps, below, to see feature consumption details for a product.

Task ***To view Feature Consumption***

- Click the **Consumed quantity** value for a product in the product list to see its **Feature Consumption** details.

The **Feature Consumption** window displays the consumption of features attached to the current product, if there are any. Any feature with an embedded license model, and mapped to a license server, is included in the consumption numbers.

Filtering the Feature Consumption List

Follow the steps, below, to filter settings for the feature list. By default the **Feature Consumption** window filter is set to display the feature health score for products with all condition values: **At risk**, **Warning**, and **Healthy**.

Task ***To filter the feature list***

1. In the **Feature Consumption** window, hover the cursor over the filter icon to display the filter selection list.
2. Check the checkboxes for the status, types, and conditions you want to show.
3. Click **Apply**.

Notice that, for the filter, the number in the red bubble indicates how many filters are active. If all the condition boxes are unchecked, the Producer Portal warns that at least one condition must be checked.

You can also search a filtered feature list. Use the menu to target your search to for a feature by **Name** or **Description**.

Working with the Renewals Tab on the Account Details Page

You can filter and search the entitlements list on the Renewals tab. You can also view details about the entitlements listed on this tab.

See instructions for these activities in the sections below:

- Filtering the Renewal Health List
- Searching the Renewal Health List
- Viewing Entitlement Details

Filtering the Renewal Health List

Follow the instructions below to filter the renewals list. By default the filter for this page includes all types, status values, and conditions except **Expired**. Therefore, the renewals list includes products in all conditions, **At risk**, **Warning**, and **Healthy**; with types, **Subscription** and **Maintenance**; and with a status of **Expiring**.

Task ***To filter the renewals list***

1. On the **Renewals** tab, hover the cursor over the filter icon to display the filter selection list.
2. Check the checkboxes for the status values, types, and conditions you want to show.
3. Click **Apply**.

Notice that, for the filter, the number in the red bubble indicates how many filters are active. If all the status boxes are unchecked, the Producer Portal warns that at least one status must be checked. If all the types are unchecked, the filter behaves as if all types are checked.

You can also sort the entitlements list by score (default), days remaining, expiration date, or product name.

Searching the Renewal Health List

You can search the list of entitlements on the Renewals tab of account details pages.

Task ***To search the entitlements list***

1. On the account details page, choose what to search for. Use the menu to search by **Product name** or **Activation ID**.
2. Enter your search criteria.
3. Click **Search**.

The shows entitlements that match your search criteria.

Viewing Entitlement Details

Follow the instructions below to view entitlement details for an entitlement on the Renewals tab.

Task ***To view Entitlement details***

- Click on the **Activation ID** to open the **Entitlement Details** window.

The **Entitlement Details** window displays the information for a particular entitlement including ID information (Entitlement ID, state, sold-to, description and activation ID), the name and description of the products with which the entitlement is associated, and the activation information.

Next Steps

The next two sections provide exercises for working with expiring entitlements and expired entitlements—from setting up the necessary entitlements and configuring FlexNet Operations to viewing entitlements in the End-User Portal and receiving notifications.

For expiring entitlements notifications, see Notifying End Users about Expiring Entitlements.

For expired entitlements notifications, see Notifying End Users about Expiring Entitlements.

Notifying End Users about Expiring Entitlements

This section walks through the process of configuring FlexNet Operations to send renewal reminders to end users who have expiring entitlements. In these exercises, you use the account, user, product, and entitlement created in the early exercises of the section Getting Started with Entitlement Management, and add expiring and renewal line items to see how the job operates.

Remember to check the prerequisites in the Introduction before starting these exercises. See Exercise Prerequisites.

Topic	Description
Preparing Entitlement Line Items for Renewal Exercises	Creates three line items on ENT-PhototPrint to illustrate how the FlexNet Customer Growth module enhances the handling of and communication about expiring entitlements.
Activating the Renewal Email Templates	For notifications about expiring entitlements, producers must have the following email templates in active status: **Renewal Reminder** and **Renewal Intent for End Customer**. This exercise walks you through that process.
Setting Up the Job	This exercise activates and schedules the Expiring Entitlements job.
Viewing the Expiring Entitlements Page and Receiving Renewal Notifications	To understand what is sent to the end user, this exercise uses an end-user account to see the entitlements approaching their expiration dates on the Expiring Entitlements page, see the emailed renewal notification for those entitlements, and send a request to renew selected entitlements to the producer.
Next Steps	Discusses the possibilities of moving on to the exercises for notifying users about expired entitlements or reading more about viewing sent emails in the Producer Portal, customizing email templates, and configuring jobs schedules and subscriptions.

Preparing Entitlement Line Items for Renewal Exercises

As you start the exercises in this section, take a moment to review the product, entitlement, and other entities you created in the section Getting Started with Entitlement Management. Then, for the exercises in this section, create three line items on ENT-PhototPrint.

Starting Account, User, Product, Product Line, and Entitlement

Remember that these exercises start with the expectation that you have already completed the exercises in the section Getting Started with Entitlement Management, and have continuing access to the system on which those entities were defined. In those exercises, you create the following entities:

Entity Type	Entities
Customer Account	Barry Photography Studio
Customer User	Lisa Barry
Product	PhotoPrint This product includes the following features: • Print • PrintHighQualityColor • PrintToPDF As indicated in the section Getting Started with Entitlement Management, the features, above, are among those pre-defined in your environment's demo data.
Product Line	LargeFormat
Entitlement	ENT-PhotoPrint

If these entities, such as the entitlement, ENT-PhotoPrint, do not yet exist in your FlexNet Operations instance, be sure you have loaded the demo data; then follow the exercises in the section Getting Started with Entitlement Management to create the necessary entities.

Tip ▪ *Take a moment to verify that the user profile for Lisa Barry has the checkbox for* ***Expiring Entitlements Email*** *checked. To verify this in the End-User Portal, log in and click the user name,* ***Lisa Barry****, at the top right of the page, and then click* ***Profile****. (If the user profile page does not show the* ***Expiring Entitlements Email*** *checkbox, then Lisa Barry may still need to be granted the* ***View Expiring Entitlements*** *permission.)*

Important ▪ *If the customer user, Lisa Barry, already exists but is not associated with an email address you control, you must create another customer user in the Barry Photography Studio account with the Portal User role. Use an email address you control for this new user so that you will be able to use that user account to log in to the End-User Portal and see the downloads.*

Create the New Line Items

To illustrate FlexNet Customer Growth module feature, you must create three line items: one that is nearly expired, one that expires within the Renewal Look Ahead window, and one that expires on a date that falls outside the Renewal Look Ahead time frame. (See Renewal Jobs for more information about the system configuration settings and how they affect the Expiring Entitlements job.)

Task ***To create the new line items***

1. In the Producer Portal, find ENT-PhotoPrint.
   a. Click **Entitlements** > **List Entitlements by Order**.
   b. On the List Entitlements by Order page, search for **`ENT-PhotoPrint`**.
2. On the Entitle Customers to Licenses page for ENT-PhotoPrint, create three new line items:
   - ACT-PhotoPrint-01
   - ACT-PhotoPrint-02
   - ACT-PhotoPrint-03

   Use the following settings for these line items:

ACT-PhotoPrint-01

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Expiration date minus three months
Expiration Date	Current date plus twenty days
Activation ID	`ACT-PhotoPrint-01`

ACT-PhotoPrint-02

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Current date plus twenty days
Expiration Date	Start date plus three months
Activation ID	`ACT-PhotoPrint-02`

ACT-PhotoPrint-03

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Current date plus three months and twenty days
Expiration Date	Start date plus three months
Activation ID	`ACT-PhotoPrint-03`

For example, if the current date is 17 April 2017, you have the following line items in ENT-PhotoPrint:

- ACT-PhotoPrint-01—starts on 7 February 2017; ends on 7 May 2017.
- ACT-PhotoPrint-02—starts on 7 May 2017; ends on 7 August 2017.
- ACT-PhotoPrint-03—starts on 7 August 2017; ends on 7 November 2017.

3. Click **Save & Deploy** to update ENT-PhotoPrint with the new line items.

With these entitlement lines in place, we can activate the renewal-related email templates and setup the Expiring Entitlements job to see how the FlexNet Customer Growth module operates to highlight expiring entitlements and automate the communication about renewal opportunities to your end users.

Activating the Renewal Email Templates

In this exercise, you activate the Renewal Reminder and Renewal Intent for End Customer email templates.

- The Renewal Reminder template is used by FlexNet Operations to send email messages to end users about their expiring entitlements. (A separate email template is used for expired entitlements as identified by the Expired Entitlements job.) The default version of this template lists all the account's entitlements that are due to expire within the Renewal Look Ahead window.
- The Renewal Intent for End Customers template is used by FlexNet Operations to send intent-to-renew email messages when an end user selects an expiring entitlement and clicks the Request button on the End-User Portal's Expiring Entitlements page.

If these templates are not already in an active status, follow the instructions below to activate them.

Task ***To activate the Renewal Reminder email template***

1. In the Producer Portal, click **Administer** > **Templates**.
2. On the Templates page, find the **Renewal Reminder** template and click its **Template ID**.
3. On the View Email Template page, click **Edit** > **Edit Active Content**.

4. Click **Validate Template**.
5. Click **Save Active**.

This activates the Renewal Reminder template. Repeat these steps for the Renewal Intent for End Customer template.

When both email templates are active, you are ready to setup the Expiring Entitlements job.

Setting Up the Job

The Expiring Entitlements job drives the notification process for the renewal reminders about expiring entitlements. In this exercise, you activate and schedule the Expiring Entitlements job.

Task ***To set up the Expiring Entitlements job***

1. In the Producer Portal, click **Administer** > **Configure Alerts/Jobs**. This link opens the Configure Alerts/Jobs page.
2. On the Configure Alerts/Jobs page, click the **Configure** button for the Expiring Entitlements job. This button opens the Configure Alert/Job Schedule for the Expiring Entitlements job.
3. Set **Status** to **Active** and keep the default schedule (30 days).
4. Click **Save**.

The Producer Portal saves your job configurations and returns to the Configure Alerts/Jobs page.

The Expiring Entitlements job is now active and set to run once every 30 days.

Using the default job schedule and the default system configuration settings for renewal settings, FlexNet Operations checks for expiring entitlements once every 30 days and sends renewal reminders to subscribed users in accounts with one or more entitlements that expire in the next 90 days (Expiring Window). And, when assembling the renewal reminder email, FlexNet Operations includes a list of all entitlements for that account that are due to expire within the next 200 days (Renewal Look Ahead).

With the renewal email templates active, the Expiring Entitlements job can send renewal reminders to end users and to send intent-to-renew email messages from the End-User Portal's Expiring Entitlements page.

Viewing the Expiring Entitlements Page and Receiving Renewal Notifications

With the Expiring Entitlements job activated, you can log in to the End-User Portal as Lisa Barry and review the contents of the Expiring Entitlements page. In addition, FlexNet Operations has sent Lisa Barry a renewal reminder about those entitlements due to expire in the next 200 days. After logging in to the End-User Portal as Lisa Barry, you can also send a renewal request message from her right from the Expiring Entitlements page.

- Viewing the Expiring Entitlements Page
- Viewing the Renewal Notification
- Sending a Renewal Request from the End-User Portal

***Tip** ▪ Remember that Lisa Barry is the end user account for these exercises. If you are using a different end user for these exercises, log in as that user.*

Viewing the Expiring Entitlements Page

The End-User Portal's Expiring Entitlements page shows two of the three line items you created at the start of these exercises.

In order to see the Expiring Entitlements page, the end user account must have the View Expiring Entitlements permission. Otherwise, there is no link to the Expiring Entitlements page in the End-User Portal.

Task ***To view the Expiring Entitlements page***

1. Log in to the End-User Portal using the credentials for Lisa Barry.
2. In the End-User Portal, click **Activation & Entitlements** > **Expiring Entitlements**.

Notice that the Expiring Entitlements page shows the line items ACT-PhotoPrint-01 and ACT-PhotoPrint-02. ACT-PhotoPrint-03 does not appear because its expiration date is outside the Renewal Look Ahead window—greater than 200 days in this case.

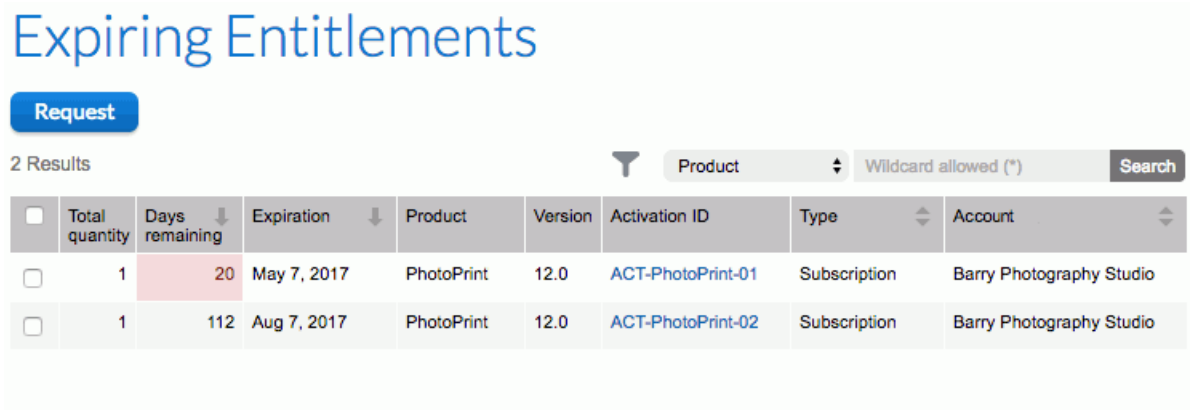


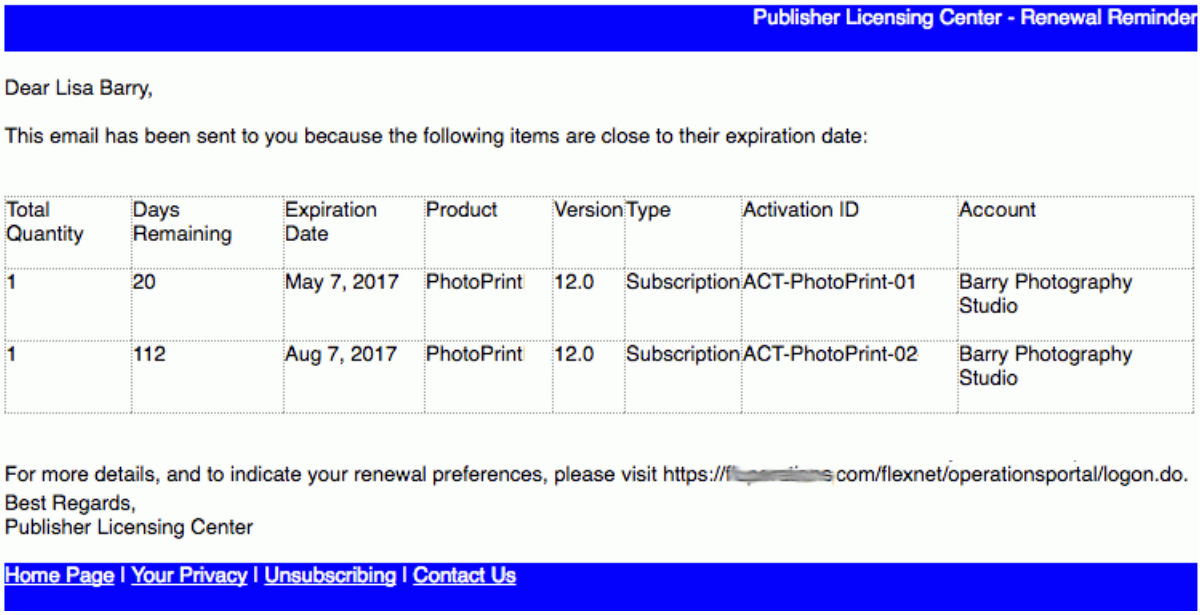
Figure 17-4: The Expiring Entitlements page shows the line items that meet requirements expressed in the Renewal settings in the FlexNet Operations system configurations.

Viewing the Renewal Notification

When the Expiring Entitlements job runs, it finds ACT-PhotoPrint-01 within the Expiring Window. It then looks for any line items in Barry Photography Studio that are expiring within the Renewal Look Ahead window (200 days from the current date) and finds ACT-PhotoPrint-02. It includes both line items in the renewal reminder message and sends it to the end user, Lisa Barry, because she has opted in to receive expiring entitlements email messages.

Task ***To view the renewal notification email message***

Log in to the email account you set up for Lisa Barry, and open the Renewal Reminder message.



Publisher Licensing Center - Renewal Reminder

Dear Lisa Barry,

This email has been sent to you because the following items are close to their expiration date:

Total Quantity	Days Remaining	Expiration Date	Product	Version	Type	Activation ID	Account
1	20	May 7, 2017	PhotoPrint	12.0	Subscription	ACT-PhotoPrint-01	Barry Photography Studio
1	112	Aug 7, 2017	PhotoPrint	12.0	Subscription	ACT-PhotoPrint-02	Barry Photography Studio

For more details, and to indicate your renewal preferences, please visit https://f[redacted]com/flexnet/operationsportal/logon.do.
Best Regards,
Publisher Licensing Center

Home Page | Your Privacy | Unsubscribing | Contact Us

Figure 17-5: A sample renewal reminder email message showing the two line items that are included by the Expiring Entitlement job (ACT-PhotoPrint-01 and ACT-PhotoPrint-02). ACT-PhotoPrint-03 is not included because its expiration date is further away than 200 days.

In order to receive renewal reminder email messages, the end user must have the Expiring Entitlements Email checkbox checked on his or her user profile. And to see that checkbox, the end user must have the View Expiring Entitlements permission.

Tip ▪ *Another way to verify that FlexNet Operations has sent an renewal reminder is to check the Sent Messages page in the Producer Portal. To do so, click* ***Administer*** > ***Sent Emails****.*

Sending a Renewal Request from the End-User Portal

When you have a valid email address specified in the Producer Portal system configuration setting, Request Renewal Notification Email, the Expiring Entitlements page in the End-User Portal includes a Request button. End users can click the Request button to send an email message to that address when they see entitlements on the Expiring Entitlements page they want to renew.

Task ***To set a Request Renewal Notification Email address***

1. In the Producer Portal, open the system configuration page for FlexNet Operations and show the Renewals group.
   a. Click **System** > **Configure** > **FlexNet Operations**.
   b. Expand the **Renewals** settings on the FlexNet Operations system configuration page.
2. In the Renewals settings find **Request Renewal Notification Email** and enter an email address for an email account at which you can receive messages.
3. Click **Save Configs**.

If you log in, again, to the End-User Portal as Lisa Barry and refresh the End-User Portal's Expiring Entitlements page, the Request button appears above the list of entitlements.

Task ***To send a renewal request from the Expiring Entitlements page***

1. In the End-User Portal, click **Activation & Entitlements** > **Expired Entitlements**. This link opens or re-opens the Expiring Entitlements page that now shows the **Request** button.
2. Click the checkbox to select ACT-PhotoPrint-01.
3. Click **Request**.

The End-User Portal sends an email message to the address you specified for Request Renewal Notification Email using the Renewal Request for End Customer email template.

For end users, it reports the result of this process in a message on the Expiring Entitlements page. For producers, a message is sent to the Request Renewal Notification Email address. (Check your email account to see the resulting email message or check the Sent Messages page in the Producer Portal.)

Next Steps

While the Expiring Entitlements job sends email messages about line items and maintenance lines that are approaching their expiration date, the Expired Entitlements job sends email messages about line items and maintenance lines that have already expired. To walk through the process of setting up the Expired Entitlements job to send messages about those entitlements, see Notifying End Users about Expiring Entitlements.

Consider also reading Managing Email Templates to learn about how to customize email templates. For instance, you may want to apply your account's branding to the Renewal Reminder email template or alter the message content in the Renewal Intent for End Customer email template.

Producer administrators may also be interested in customizing the job schedule for FlexNet Operations background jobs and subscribing to the alerts that are generated when such jobs run. For more information, see Administering Alerts .

Notifying End Users About Expired Entitlements

This section walks through the process of configuring FlexNet Operations to send renewal reminders to end users who have expired entitlements. In these exercises, you use the account, user, product, and entitlement created in the early exercises of the section Getting Started with Entitlement Management, and add expired line items to see how the job operates.

Remember to check the prerequisites in the Introduction before starting these exercises. See Exercise Prerequisites.

Topic	Description
Preparing Entitlement Line Items for Renewal Exercises	Creates three line items on ENT-PhototPrint, including one that has recently expired. These line items are essential to illustrate how the FlexNet Customer Growth module enhances the handling of and communication about expired entitlements.
Activating the Renewal Email Templates	For notifications about expired entitlements, producers must have the following email templates in active status: **Renewal Reminder for Expired Entitlements** and **Renewal Intent for End Customer**. This exercise walks you through that process.
Setting Up the Job	This exercise activates and schedules the Expired Entitlements job.
Viewing the Expiring Entitlements Page and Receiving Renewal Notifications	To understand what is sent to the end user, this exercise uses an end-user account to see entitlements that have passed their expiration dates on the Expiring Entitlements page, see the emailed renewal reminder about those entitlements, and send a request to renew selected entitlements to the producer.
Next Steps	Discusses additional concepts related to sending expired entitlement messages—such as viewing sent emails in the Producer Portal, customizing email templates, and configuring jobs schedules and subscriptions—and where to find more information about them.

Preparing Entitlement Line Items for Renewal Exercises

If you have not already done so in the previous section, take a moment to review the product, entitlement, and other entities you created in the section Getting Started with Entitlement Management. Then, create three line items used in these exercises on the entitlement, ENT-PhototPrint.

Starting Account, User, Product, Product Line, and Entitlement

Remember that these exercises start with the expectation that you have already completed the exercises in the section Getting Started with Entitlement Management, and have continuing access to the system on which those entities were defined. In those exercises, you create the following entities:

Entity Type	Entities
Customer Account	Barry Photography Studio
Customer User	Lisa Barry

Entity Type	Entities
Product	PhotoPrint This product includes the following features: ● Print ● PrintHighQualityColor ● PrintToPDF As indicated in the section Getting Started with Entitlement Management, the features, above, are among those pre-defined in your environment's demo data.
Product Line	LargeFormat
Entitlement	ENT-PhotoPrint

If these entities, such as the entitlement, ENT-PhotoPrint, do not yet exist in your FlexNet Operations instance, be sure you have loaded the demo data; then follow the exercises in the section Getting Started with Entitlement Management to create the necessary entities.

Tip ▪ *Take a moment to verify that the user profile for Lisa Barry has the checkbox for* ***Expiring Entitlements Email*** *checked. To verify this in the End-User Portal, log in and click the user name,* ***Lisa Barry****, at the top right of the page, and then click* ***Profile****. (If the user profile page does not show the* ***Expiring Entitlements Email*** *checkbox, then Lisa Barry may still need to be granted the* ***View Expiring Entitlements*** *permission.)*

Important ▪ *If the customer user, Lisa Barry, already exists but is not associated with an email address you control, you must create another customer user in the Barry Photography Studio account with the Portal User role. Use an email address you control for this new user so that you will be able to use that user account to log in to the End-User Portal and see the downloads.*

Create the New Line Items

To illustrate FlexNet Customer Growth module feature, you must create a line item that is just past its expiration date plus a second line item that expired sometime within the Expiring Window. A third line item expires well outside the default Expiring Window and, as a result, is not included in the renewal reminder. (See Renewal Jobs for more information about the system configuration settings and how they affect the Expired Entitlements job.)

Task ***To create the new line items***

1. In the Producer Portal, find ENT-PhotoPrint.
   a. Click **Entitlements** > **List Entitlements by Order**.
   b. On the List Entitlements by Order page, search for **`ENT-PhotoPrint`**.
2. On the Entitle Customers to Licenses page for ENT-PhotoPrint, create three new line items:

- ACT-PhotoPrint-11
- ACT-PhotoPrint-12
- ACT-PhotoPrint-13

Use the following settings for these line items:

ACT-PhotoPrint-11

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Current date minus three months
Expiration Date	Yesterday's date
Activation ID	`ACT-PhotoPrint-11`

ACT-PhotoPrint-12

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Current date minus six months
Expiration Date	Current date minus three months
Activation ID	`ACT-PhotoPrint-12`

ACT-PhotoPrint-13

Attribute	Value
Product	`PhotoPrint`
License Model	`Nodelocked Uncounted`
Qty	`1`
Start Date	Current date minus nine months

Attribute	Value
Expiration Date	Current date minus six months
Activation ID	`ACT-PhotoPrint-13`

For example, if the current date is 20 April 2017, you have the following line items in ENT-PhotoPrint:

- ACT-PhotoPrint-11—started on 20 January 2017; ended on 19 April 2017.
- ACT-PhotoPrint-12—started on 20 October 2016; ended on 20 January 2017.
- ACT-PhotoPrint-13—started on 20 July 2016; ended on 20 October 2016.

3. Click **Save & Deploy** to update ENT-PhotoPrint with the new line items.

With these entitlement lines in place, we can activate the renewal-related email templates and setup the Expired Entitlements job to see how the FlexNet Customer Growth module operates to highlight expired entitlements and automate the communication about renewal opportunities to your end users.

Activating the Renewal Email Templates

In this exercise, you activate the Renewal Reminder for Expired Entitlements email template and Renewal Intent for End Customer email template.

- The Renewal Reminder for Expired Entitlements template is used by FlexNet Operations to send email messages to end users about their expired entitlements. (This is a separate email template from the one used for expiring entitlements identified by the Expiring Entitlements job.) The default version of this template lists all the account's entitlements that have expired within the days specified for the system configuration setting, Expiring Window.
- The Renewal Intent for End Customer template is used by FlexNet Operations to send intent-to-renew email messages when an end user selects an entitlement and clicks the Request button on the End-User Portal's Expiring Entitlements page.

If these templates are not already in an active status, follow the instructions below to activate them.

Task ***To activate the Renewal Reminder for Expired Entitlements email template***

1. In the Producer Portal, click **Administer** > **Templates**.
2. On the Templates page, find the **Renewal Reminder for Expired Entitlements** template and click its **Template ID**.
3. On the View Email Template page, click **Edit** > **Edit Active Content**.
4. Click **Validate Template**.
5. Click **Save Active**.

This activates the template. Repeat these steps for the Renewal Intent for End Customer template, if necessary.

When both email templates are active, you are ready to setup the Expired Entitlements job.

Setting Up the Job

The Expired Entitlements job drives the notification process for renewal reminders for expired entitlements. In this exercise, you activate and schedule the Expired Entitlements job.

Task ***To set up the Expired Entitlements job***

1. In the Producer Portal, click **Administer** > **Configure Alerts/Jobs**. This link opens the Configure Alerts/Jobs page.
2. On the Configure Alerts/Jobs page, click the **Configure** button for the Expired Entitlements job. This button opens the Configure Alert/Job Schedule for the Expired Entitlements job.
3. Set **Status** to **Active** and keep the default schedule (30 days).
4. Click **Save**.

The Producer Portal saves your job configurations and returns to the Configure Alerts/Jobs page.

The Expired Entitlements job is now active and set to run once every 30 days.

Using the default job schedule and the default system configuration settings for renewal settings, FlexNet Operations checks for expired entitlements once every 30 days and sends renewal reminders to subscribed users in accounts with one or more entitlements that have expired since the last time an email message was sent for expired entitlements. And, when assembling the expired entitlements email, FlexNet Operations includes a list of all entitlements for that account that have expired.

With the renewal email templates active, the Expired Entitlements job can send renewal reminders to end users and end users can send intent-to-renew email messages from the End-User Portal's Expiring Entitlements page.

Viewing the Expiring Entitlements Page and Receiving Renewal Notifications

With the Expired Entitlements job activated, you can log in to the End-User Portal as Lisa Barry and review the contents of the Expiring Entitlements page. In addition, FlexNet Operations has sent Lisa Barry a renewal reminder about those entitlements that expired in the last 90 days. After logging in to the End-User Portal as Lisa Barry, you can also send a renewal request message from her right from the Expiring Entitlements page.

- Viewing the Expiring Entitlements Page
- Viewing the Renewal Notification
- Sending a Renewal Request from the End-User Portal

Tip ▪ *Remember that Lisa Barry is the end user account for these exercises. If you are using a different end user for these exercises, log in as that user.*

Viewing the Expiring Entitlements Page

The End-User Portal's Expiring Entitlements page shows two of the three line items you created at the start of this section's exercises.

In order to see the Expiring Entitlements page, the end user account must have the View Expiring Entitlements permission. Otherwise, there is no link to the Expiring Entitlements page in the End-User Portal.

Task ***To view the Expiring Entitlements page***

1. Log in to the End-User Portal using the credentials for Lisa Barry.
2. In the End-User Portal, click **Activation & Entitlements** > **Expiring Entitlements**.

Notice that the Expiring Entitlements page shows the expired line items ACT-PhotoPrint-11, ACT-PhotoPrint-12, and ACT-PhotoPrint-13. (Line items that expired more than 200 days ago do not appear because that span exceeds the default Renewal Look Ahead setting of 200 days.)

Tip ▪ *The default filter settings on the Expiring Entitlements page prevents the page from showing expired entitlements. If you do not see expired entitlements on the page, use the on-page filter controls to include expired entitlements. (Mark the* ***Expired*** *checkbox in the filter to include expired entitlements.)*

Viewing the Renewal Notification

When the Expired Entitlements job runs, it finds ACT-PhotoPrint-11, ACT-PhotoPrint-12, and ACT-PhotoPrint-13 have expired. It includes all three line items in the renewal reminder message and sends it to the end user, Lisa Barry, because she has opted in to receive expired entitlements email messages.

Task ***To view the renewal notification email message***

- Log in to the email account you set up for Lisa Barry, and open the Renewal Reminder message.

In order to receive renewal reminder email messages, the end user must have the Expiring Entitlements Email checkbox checked on his or her user profile. And to see that checkbox, the end user must have the View Expiring Entitlements permission.

Tip ▪ *Another way to verify that FlexNet Operations has sent an renewal reminder is to check the Sent Messages page in the Producer Portal. To do so, click* ***Administer*** > ***Sent Emails****.*

Sending a Renewal Request from the End-User Portal

When you have a valid email address specified in the Producer Portal system configuration setting, Request Renewal Notification Email, the Expiring Entitlements page in the End-User Portal includes a Request button. End users can click the Request button to send an email message to that address when they see entitlements on the Expiring Entitlements page they want to renew. (If you have already completed the exercises in the previous section, then the Request Renewal Notification Email address is likely already set.)

Task ***To set a Request Renewal Notification Email address***

1. In the Producer Portal, open the system configuration page for FlexNet Operations and show the Renewals group.
   a. Click **System** > **Configure** > **FlexNet Operations**.
   b. Expand the **Renewals** settings on the FlexNet Operations system configuration page.
2. In the Renewals settings find **Request Renewal Notification Email** and enter an email address for an email account at which you can receive messages.
3. Click **Save Configs**.

If you log in, again, to the End-User Portal as Lisa Barry and refresh the End-User Portal's Expiring Entitlements page, the Request button appears above the list of entitlements.

Task ***To send a renewal request from the Expiring Entitlements page***

1. In the End-User Portal, click **Activation & Entitlements** > **Expired Entitlements**. This link opens or re-opens the Expiring Entitlements page that now shows the **Request** button.
2. Click the checkbox to select ACT-PhotoPrint-11.
3. Click **Request**.

The End-User Portal sends an email message to the address you specified for Request Renewal Notification Email using the Renewal Request for End Customer email template.

For end users, it reports the result of this process in a message on the Expiring Entitlements page. For producers, a message is sent to the Request Renewal Notification Email address. (Check your email account to see the resulting email message or check the Sent Messages page in the Producer Portal.)

Next Steps

Assuming you have already completed the exercises for sending messages about expiring entitlements, the exercises in this section for sending messages about expired entitlements complete the available activities in this getting started section.

Consider reading Managing Email Templates to learn about how to customize email templates. For instance, you may want to apply your account's branding to the Renewal Reminder for Expired Entitlements email template or alter the message content in the Renewal Intent for End Customer email template.

Producer administrators may also be interested in customizing the job schedule for FlexNet Operations background jobs and subscribing to the alerts that are generated when such jobs run. For more information, see Administering Alerts.

18

Getting Started with Advanced Organization Management

This section *Getting Started with Advanced Organization Management* presents fundamental FlexNet Operations concepts and uses exercises to lead a Producer Portal user through basic account, user and partner creation and management. The intended audience for this getting started section is the first-time Producer Portal user, or one without FlexNet Operations training or experience.

Topic	Description
Introduction	List of prerequisites, introduction to FlexNet Operations license lifecycle, and description of how to perform searches in the FlexNet Operations Producer Portal user interface.
Managing Accounts	FlexNet Operations account and account management concepts and exercises that demonstrate how to browse, create, edit, and delete accounts. Brief descriptions of advanced account management topics with references for more information.
Managing Users	FlexNet Operations user and user management concepts and exercises that demonstrate how to browse, create, edit, deactivate/reactivate, and delete users. Brief descriptions of advanced user management topics with references for more information.
Managing Channel Partners	FlexNet Operations partner tier management concepts and exercises that demonstrate how to create tiers and channel partners. Brief descriptions of advanced partner management topics with references for more information.

Introduction

This section includes a list of prerequisites, an introduction to the FlexNet Operations license lifecycle, and a description of how to perform searches in the FlexNet Operations Producer Portal user interface.

Prerequisites

Before you begin the exercises in this getting started section:

- FlexNet Operations must be properly installed and configured
- The FlexNet Operations demonstration database and seed data must be loaded
- You must have a FlexNet Operations Producer Portal login and System Administrator role

The License Lifecycle: Advanced Organization Management

The FlexNet Operations license lifecycle is a repeating process of producer and customer activities, as depicted in the figure and described below.

Figure 18-1: Software License Lifecycle Stages

- **Create Products** – Create product definitions that are used to generate licenses.
- **Order/Entitle** – Define an account's rights to obtain licenses for your products.
- **Deliver/Install** – Deliver the application software to the customer and install that software.
- **Activate** – Deliver licenses to the customer.
- **Return/Rehost** – Manage license transfers from one user or system to another.

- **Maintain/Update** – Deliver software and license updates to the customer.
- **Upsell/Renew** – Renew customer licenses, or sell the customer additional product functionality.

Performing Searches in the FlexNet Operations Producer Portal User Interface

Performing Searches

The Producer Portal includes powerful search functionality on most pages. You can use the search functionality to filter lists of entitlements, fulfillments, devices, machines, accounts, and so forth by a wide variety of criteria. Refer to the following subsections for instructions:

- Performing Simple Searches
- Performing Advanced Searches

***Tip** ▪ The search results from most pages can be exported as comma-separated value (CSV) files. You can export all the entities in the search results or only selected entities. For more information about exporting to CSV, see Importing and Exporting Entities.*

Performing Simple Searches

You can perform simple searches on any page that has search controls. The search controls appear near the top of the page.

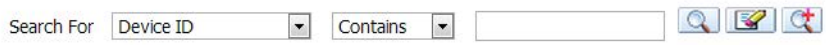


Figure 18-2: The search controls for the Manage Entitlements page

Table 18-1 ▪ Simple Search Controls

Control	Description
Search For	A drop-down menu that contains short list of the most common elements to search for on the current page. For example, on the Support Licenses page, the Search For menu includes Activation ID, Product, Part Number, Sold To Account Name, Sold To Account ID, Host ID, Fulfillment ID, and Trusted Client Platform Type. If the element you want to search on does not appear in the Search For menu, it may be available as part of an advanced search.

Table 18-1 ▪ Simple Search Controls

Control	Description
Search Operator	A drop-down menu that contains a short list of possible search operators. These operators specify how the Producer Portal conducts the search. Operators include Contains (default), Equals, Starts With, and Ends With. • **Contains** matches any entity for which the search value appears in the Search For element. The search value can occur anywhere in the element that is searched. • **Equals** matches only entities for which the search value exactly matches the entirety of the Search For element. Partial matches are not included. • **Starts With** matches any entity for which the search value occurs at the start of the Search For element. • **Ends With** matches any entity for which the search value occurs at the end of the Search For element.
Search Value	A text field where you can enter the value you want to find in the Search For element. (Wild card characters are not necessary nor permitted. Spaces can be used.)
Search Button	The first button in the search controls, the Search button has a magnifying glass icon. Click the Search button to search the entities on the current page for elements that match the contents of the Search Value field.
Clear Search Button	The Clear Search button is the second button in the search controls. It has an icon that shows an pencil eraser being used on a document. The Clear Search button immediately clears the search criteria—both for simple searches and advanced searches. When you click Clear Search, the current page reloads with no search criteria applied.
Advanced Search Button	The Advanced Search button is the third button in the search controls. It has an icon that shows a magnifying glass with a plus sign on it. When you click the Advanced Search button, the portal opens the Advanced Search page in a new window.

Task ***To perform a simple search***

1. In the **Search For** menu, choose an element to search. The elements available depend on the Producer Portal page you are currently using.
2. In the **Search Operator** menu, choose a search operator. Default: **Contains**.
3. In the **Search Value** field, type the characters you want to search for.
4. Click **Search**.

The Producer Portal searches the entities that correspond to the current page for instances where the search value occurs in the search element according to the method specified by the search operator. It then reloads the current page showing only those entities that matched the search criteria.

Task ***To clear a search***

- Click the **Clear Search** button.

The Producer Portal clears the search criteria and reloads the current page showing all entities (no search criteria applied) for that page.

Performing Advanced Searches

While the simple search controls provide quick access to the most commonly searched elements on a given Producer Portal page, the advanced search controls offer a wider selection of elements to search on and the ability to search multiple elements for multiple values. When you click the Advanced Search button, the Producer Portal opens the Advanced Search page in a new window.

The Advanced Search page lists every element that can be searched for in the context of the main entity of the page on which you clicked the Advanced Search button. An advanced search from the Manage Accounts page allows you to search on Name, Display Name, Description, City, State/Province, Zip, Country, and Region. All elements meaningful to searches of accounts. An advanced search from the Support Licenses page, in contrast, shows a wide array of elements—from common elements like Entitlement ID and Activation ID, to date elements like Start Date and Expiration date, to detailed elements like individual Custom Attributes and Custom Host Attributes. You can search for multiple elements using various search operators. Search results reflect all the entities that match all the search criteria.

Task ***To perform an advanced search***

1. Click **Advanced Search**. This button opens the Advanced Search page in a new window.
   Searchable elements depend on the context of the page on which you initiated the advanced search. An advanced search from the Package Products page shows different searchable elements than an advanced search from the Entitle Customers page.
2. For the elements you want to search, set the search operator and type a search value.
   Operators vary by the element type. For textual elements, the typical search operators are the same as the simple search operators: Contains, Equals, Starts With, and Ends With. For date elements, the common search operators are Before, After, and On.

   Tip ▪ *You can also search on producer-defined custom attributes. To use multiple attributes, select an attribute, a search operator and search value, then click* ***Add Custom Attribute****. Continue adding attributes as needed. Click the* ***X*** *after a custom attribute or custom host attribute to remove only that attribute from the search criteria.*
3. Click **Search**.

The Producer Portal closes the Advanced Search page and reloads the current Producer Portal page to show only entities that match all the search criteria in the advanced search. When looking at the search results, you can clear the search criteria in the same way you clear a simple search: Click the Clear Search button.

You can also clear the search criteria in the Advanced Search page. Clearing the search criteria in the Advanced Search page only clears the fields on that page. It does not clear the current query, if one has been applied.

Task ***To clear advanced search criteria***

- On the Advanced Search page, click **Clear**.

Searchable Entities and Elements

The following entities and elements are searchable in the Producer Portal:

Features	Feature bundles
Products	Suites
Maintenances	License models
Transaction keys	Entitlements
Activatable items	Fulfillments
Accounts	Custom attributes
Part numbers	Product lines
ASRs	Devices
Custom host attributes	Machines

Managing Accounts

This topic introduces accounts and account management. Account management includes creating, editing, and deleting an account.

The exercises in this topic guide you through basic FlexNet Operations account management tasks.

Accounts Key Concepts

FlexNet Operations provides a set of flexible tools that enable you to define account relationships that reflect your customer and distribution partner relationships.

- Provide producers and their customers the ability to define and manage their account hierarchies.
  - Provide a true representation of “who owns what” within a large corporation.
  - Be able to share/redistribute entitlements throughout the customer account.
- Even if a large enterprise account buys via different sources and via multiple accounts, the total number of entitlements they own can be easily tracked.

Note ▪ *Not all users have access to the account pages.*

About Accounts

An account is an entity in FlexNet Operations. Accounts can represent the structure of a customer enterprise, the internal structure of a software producer or device manufacturer and, optionally, the relationships between the producer and its distribution chain. To be associated with an entitlement, a company must be entered as an account in FlexNet Operations.

Accounts can have sub-accounts, which can be used to reflect the hierarchical nature of corporate structures. Accounts and sub-accounts are defined in a parent-child relationship. For example, you could create account `Eclipse SunShades` and set up `Eclipse NA` and `Eclipse EMEA` as sub-accounts.

An account hierarchy can have multiple levels to flexibly accommodate different account models. For example, a single account can have multiple sub-accounts that would share a sibling relationship. Sub-accounts can themselves have sub-accounts. In addition, accounts can have multiple parents. It is recommended that the total number of associated sub-accounts for any given account does not exceed 1000.

Account Types

A FlexNet Operations account is one of four types: Producer, Customer, Partner, or Self Registered. On the **Manage Accounts** page, each of these types has a tab as described below.

- **Producers** – Software producers or intelligent device manufacturers. Producers can create multiple sub-accounts for their producer account.
- **Customers** – End users of your software or device. This category includes **PORTAL_ORG_UNIT**—the default account that maps to users who choose to self-register through the End-User Portal. A customer account can have sub-accounts.
- **Partners** – Distribution partners like wholesalers, distributors, resellers, and retailers. Producers can map their distribution tiers by defining their distribution partners as partner accounts. A partner account can have sub-accounts. Refer to Managing Channel Partners for more information about channel partners and tiers.
- **Self Registered** – Users who self-register by logging in to the FlexNet Operations End-User Portal with an entitlement ID or activation ID and set up their own user account. Optionally, users can select to be associated with an existing Self-Registered account by providing the account ID upon self-registration, instead of creating a new account.

Default Accounts

The following accounts are available in FlexNet Operations by default:

- **My Organization (MYORG)** – The producer account. Only the account display name (**My Organization**) is editable on the **Edit Account** page. This account cannot be deleted.
- **Information Not Available (UNKNOWN_ORG_UNIT)** – The account set as **Sold To** for any web register keys when account information is not provided and as the end customer or channel partner for entitlements and devices that have not been assigned an owner account.

  UNKNOWN_ORG_UNIT is a temporary holding account used by FlexNet Operations, internally, when no owner account is assigned. When UNKNOWN_ORG_UNIT is the owner of an entitlement or a device, the Producer Portal shows **Information Not Available** for End Customer or Channel Partner.

  This account cannot be updated or deleted.
- **Organization for Portal Accounts (PORTAL_ORG_UNIT)** – The account that maps to users who choose to self-register through the End-User Portal. Users who log in to the portal with an entitlement ID or activation ID can

subsequently choose to self-register, set up a user account, or be associated with an existing Self-Registered account.

This account cannot be updated or deleted.

Account Hierarchies

The Advanced Organization Management module enables users to create multi-level account hierarchies for producers, customers and partners within FlexNet Operations to manage entitlements.

The following is an example of an account hierarchy created using the Advanced Organization Management module. It includes several branches and levels of a customer account.

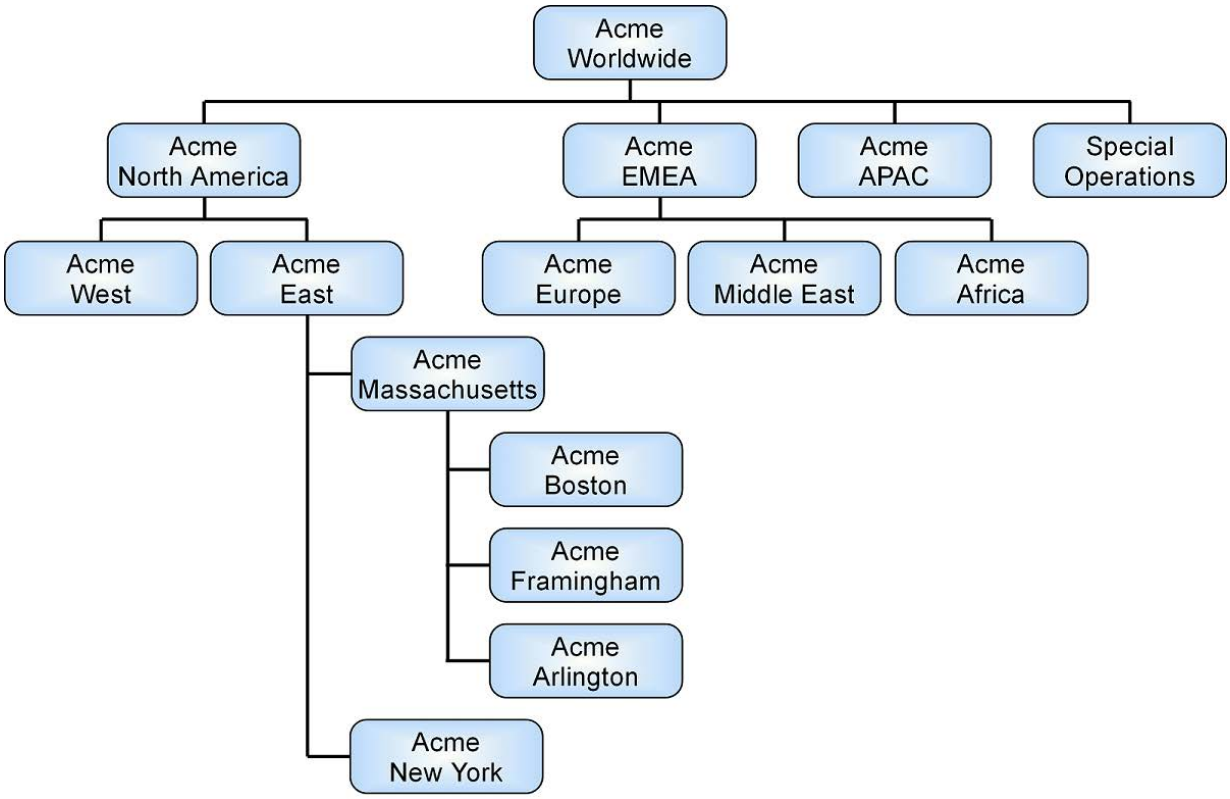


Figure 18-3: Example Account Hierarchy

Management Tasks

Management tasks include the following activities:

- Browsing Accounts and Sub-Accounts
- Creating, Editing, or Deleting an Account

Browsing Accounts and Sub-Accounts

Accounts and sub-accounts are displayed, one type at a time, on tabs labeled **Producers**, **Customers**, **Partners**, and **Self Registered** on the **Manage Accounts** page. If you are assigned a role with the **View Accounts** or **View and Manage Accounts** permission, you can browse accounts in the Producer Portal. You can also view an account's hierarchy—the parent account and any sub-accounts associated with it. To view any sub-accounts of an account, click the **+** icon to expand the tree view in the Manage Accounts list.

The **Manage Accounts** page provides the following information:

- **Account**: Unique identifier of the account
- **Display Name**: User-friendly name of the account
- **Created By**, **Created On**: User name of the creator and date of creation
- **Description**, **City**, **State**, **Country**: If included in the account settings, these columns are also populated in the accounts list.

Creating, Editing, or Deleting an Account

To be associated with an entitlement, a company must be entered as an account in FlexNet Operations.

If you are assigned a role with the **View and Manage Accounts** permission, you can add, edit, or delete accounts and sub-accounts.

After you have created an account, you can create sub-accounts for it. It is recommended that the total number of associated sub-accounts for any given account does not exceed 1000.

You can edit an account or sub-account to change its name; to add, edit, or delete users; or to delete its sub-accounts.

To delete an account or sub-account from FlexNet Operations, use the **Delete Account** or the **Delete Subtree** button on the **Manage Accounts** page:

- **Delete Account**—removes the selected accounts. If the account has sub-accounts, those sub-accounts no longer have a parent account. The sub-accounts are retained but become top-level accounts. (For example, any sub-accounts of a deleted customer account become customer accounts.) Any sub-accounts that were also parents of sub-accounts retain the hierarchy of sub-accounts beneath them.
- **Delete Subtree**—removes the selected account and all of the sub-accounts in its hierarchy.

Account Management Exercises

These exercises use examples to guide you through the following account management tasks:

Exercise	Description
Browsing Accounts	Browse the **Producers**, **Customers**, **Partners**, and **Self Registered** account types.
Creating a Customer Account and User	Create customer account `Eclipse SunShades` and customer user `Laurie Larson`, and add existing user `Lisa Barry`.

Exercise	Description
Creating a Customer Sub-Account	Create sub-accounts `Eclipse NA` and `Eclipse EMEA` for customer account `Eclipse SunShades`.
Creating a Producer Sub-Account	Create producer sub-account `Beta Software`.
Editing an Account	Edit the display name for account `Eclipse SunShades` and remove user `Lisa Barry`.
Deleting an Account	Delete the sub-account `Eclipse NA` of customer account `Eclipse SunShades`.

Browsing Accounts

In this exercise, you browse accounts to become familiar with the **Producers**, **Customers**, **Partners**, and **Self Registered** tabs on the **Manage Accounts** page of the FlexNet Operations Producer Portal.

Task ***To browse existing accounts***

1. Log in to the FlexNet Operations Producer Portal if you have not already done so. The **Producer Portal Home** page appears.
2. Click **Users & Accounts** > **All Accounts**. The **Manage Accounts** page appears with the **Customers** tab selected.
3. Click the **Account** link for any of the customers listed on the tab. The **Create An Account** page appears with details such as the customer's account type, name, description, and address. Click **Cancel** to return to the **Manage Accounts** page.

   Note ▪ *When there are several pages of accounts to browse, you can use the search feature to locate a specific account. However, Search and Advanced Search are applied only on the currently selected account tab.*
4. Repeat Step 3 for the **Producers**, **Partners**, and **Self Registered** account tabs.

Creating a Customer Account and User

In this exercise, you create customer account `Eclipse SunShades` and customer user `Laurie Larson`, and you add existing user `Lisa Barry`.

Task ***To create customer account Eclipse SunShades and add customer users***

1. Click **Users & Accounts** > **Create Account**. The **Create An Account** page appears. Note that the **Account Type** is set to **CUSTOMER**.
2. Enter the account information:

- **Account Name**: Type `Eclipse_SunShades`
- **Display Name**: Type `Eclipse SunShades`
- Add additional description and address information as desired.

3. To create a user for this customer account, click **Create a User**. The **Create A User** page appears.
4. Under **User Details**, enter the FlexNet Operations user information:
   a. **End-User Portal Access?**: Select **Yes**
      - **Yes** allows the user to log in to FlexNet Operations. **Time Zone**, **Status**, and **Shared Login** attributes are shown when this is selected.
      - **No** maintains the user as a contact only. **Time Zone**, **Status**, and **Shared Login** are hidden when this is selected.

   b. **User Name:** Specify a login name for the user.

   c. **Time Zone**: Select a time zone from the drop-down list

   d. **Status**: Leave the status set to **Active**. The records of an inactive user remain on file, but the user no longer has access to FlexNet Operations.

   Note ▪ *Multiple unsuccessful login attempts automatically set the user's status to Inactive. The user can be reactivated by an administrator after confirming the user's legitimacy.*

   e. **Shared Login**: Select **No**
      - **Yes** means this account is shared by a group of users.
      - **No** means this account has only one user.

5. Under **Contact Details**, enter the contact information:
   - **First Name**: Type `Laurie`
   - **Last Name**: Type `Larson`
   - **Email Address**: Type `llarson@eclipsesunshades.com`
6. Under **Accounts**, select **Portal User Role**, then click **Save**. This message appears: `User Laurie Larson successfully added.` Click **Cancel** to return to the **Create An Account** page.
7. To link an existing user to this customer account, click **Link Existing Users**. The **Select User** window opens.
8. In the **Select User** window, select **Display Name** `Lisa Barry` and **Portal User Role**, then click **OK** to close the window. This message appears: `Users have been linked to the account Eclipse_SunShades successfully.`
9. Click **Users & Accounts** > **All Accounts** to verify that `Eclipse_SunShades` appears on the **Customers** list of the **Manage Accounts** page.

Creating a Customer Sub-Account

In this exercise, you create sub-accounts `Eclipse NA` and `Eclipse EMEA` for customer account `Eclipse SunShades`.

Task ***To create customer sub-accounts Eclipse NA and Eclipse EMEA***

1. Click **Users & Accounts** > **All Accounts**. The **Manage Accounts** page appears with the **Customers** tab open.
2. Select the `Eclipse_SunShades` check box and click **Create a Sub Account**. The **Create An Account** page appears with **Parent Account** set to `Eclipse_SunShades` and **Account Type** set to CUSTOMER.
3. Enter the account information:
   - **Account Name**: Type **`Eclipse_NA`**
   - **Display Name**: Type **`Eclipse NA`**
   - **Country**: Select **United States**

   Click **Save**. This message appears: `Account Eclipse_NA has been successfully added.`
4. Repeat Step 1 through Step 3 to create another sub-account:
   - **Account Name**: Type **`Eclipse_EMEA`**
   - **Display Name**: Type **`Eclipse EMEA`**
   - **Country**: Select **Netherlands**

   Click **Save**. This message appears: `Account Eclipse_EMEA has been successfully added.`
5. Click **Users & Accounts** > **All Accounts** and search for `Eclipse_SunShades`.
6. Click the `Eclipse_SunShades` account's **+** icon to expand the tree and verify that sub-accounts `Eclipse_NA` and `Eclipse_EMEA` appear on the **Customers** list. Note the information that appears in the **Created By**, **Created On**, and **Country** columns for `Eclipse_SunShades` and its sub-accounts.

Creating a Producer Sub-Account

In this exercise, you create producer sub-account Beta Software.

Task ***To create a producer sub-account***

1. Click **Users & Accounts** > **All Accounts**. The **Manage Accounts** page appears.
2. Select the **Producers** tab and select the check box next to **MYORG** then click **Create a Sub Account.** The **Create An Account** page appears.
3. Enter the account information:
   - **Account ID**: Type **`Beta_Software`**
   - **Display Name**: Type **`Beta Software`**
4. Click **Save**. This message appears: `Account Beta_Software has been successfully added.`

Editing an Account

In this exercise, you edit the display name for account `Eclipse SunShades` and remove user `Lisa Barry`.

Task ***To edit the Eclipse SunShades account***

1. Click **Users & Accounts** > **All Accounts**. The **Manage Accounts** page appears with the **Customers** tab selected.
2. In the **Manage Accounts** list, click `Eclipse_SunShades`, the account you want to edit. The **Create An Account** page appears.
3. Change the **Display Name** from `Eclipse SunShades` to `Eclipse SunShades, Inc.` then click **Save**. This message appears: `Account Eclipse_SunShades has been successfully edited.`
4. On the user list, select the `Lisa Barry` check box. Click **Remove Users** then click **OK** in the confirmation message. User `Lisa Barry` is removed from the `Eclipse SunShades, Inc.` account and this message appears: `Removed Users Lisa Barry for the account successfully.`

Deleting an Account

In this exercise, you delete the `Eclipse NA` sub-account of customer account `Eclipse SunShades, Inc.`

Task ***To delete the Eclipse NA sub-account***

1. Click **Users & Accounts** > **All Accounts**. The **Manage Accounts** page appears with the **Customers** tab selected.
2. In the **Manage Accounts** list, click the `Eclipse_SunShades` account's **+** icon to expand the tree then select the `Eclipse_NA` account's check box.
3. Click **Delete Account** and click **OK** in the confirmation message. The `Eclipse_NA` account is deleted and this message appears: `Account(s) Eclipse_NA have been deleted successfully.`

Task ***To delete an account and all its sub-accounts***

1. Click **Users & Accounts** > **All Accounts**. The Producer Portal opens the **Manage Accounts** page.
2. Click the tab for the Account Type (**Producers**, **Customers**, **Partners**, or **Self Registered**) of the accounts you want to delete.
3. In the **Manage Accounts** list, select the parent account to delete.
4. Click **Delete Subtree**.

   Note ▪ *If the Delete Subtree option is not selected, only the parent account is deleted. The sub-accounts are promoted to root accounts.*

5. Click **OK** to confirm deletion.

The Producer Portal deletes the selected account along with its account hierarchy and refreshes the **Manage Accounts** page.

Note ▪ *Not all accounts are eligible for deletion. If an account owns entitlements it cannot be deleted.*

Account Management Next Steps

In this topic, you performed basic FlexNet Operations account management tasks such as browsing accounts, creating a customer account and sub-accounts, and editing and deleting an account. In the next topic, you perform basic user management tasks.

Account Management Advanced Topics

For more information about this advanced account management topic, refer to Managing Accounts.

Activations of Entitlements Across Multiple Accounts on a Single Device

Producers with the FlexNet Advanced Organization Management module who use FlexNet Embedded licensing technology can take greater advantage of their account hierarchies and channel partner sets during entitlement mapping operations. This capability also supports producers who want end users to be able to activate entitlements on any device.

FlexNet Operations enables accounts, other than the device owner, to map entitlements to a device. Producers can map entitlements from the device owner's sub-accounts to any device, and End-User Portal users can map entitlements from their account, or its sub-accounts, to any device visible to them.

Managing Users

This topic introduces users and user management. User management includes creating, editing, deactivating/reactivating, and deleting users, and assigning/removing user roles.

The exercises in this topic guide you through basic FlexNet Operations user management tasks.

Users Key Concepts

FlexNet Operations provides a set of flexible tools that enable you to define and manage users and their roles.

Note ▪ *Not all users have access to the user and role pages.*

About Users

A FlexNet Operations user is an individual or group account that appears on the **Manage Users** page and has all or some of its user information stored in the FlexNet Operations database.

To log in to FlexNet Operations, a user must provide a user name and password. Revenera creates the initial user account for a producer's FlexNet Operations system administrator, then the system administrator (or other users) creates any additional users required for the producer's account and for the producer's customers (end users).

Beyond the ability to simply log in, the activities a user can perform are based on the permissions that user has been granted. However, permissions are not assigned to users directly. Instead, permissions are grouped into roles and FlexNet Operations users are assigned one or more roles. FlexNet Operations users belong to either a producer account or a customer account. Users who self-register through the End-User Portal belong to the account for Portal Accounts. If a self-registered user supplies a company name while registering, a new account will be created corresponding to the new company name and the user assigned to it. Optionally, users can select to be associated with an existing Self-Registered account by providing the account ID upon self-registration, instead of creating a new account.

To log in to FlexNet Operations, a user must provide a user name and password. Users can get access to FlexNet Operations by being either:

1. A FlexNet Operations user, meaning that all or some information for that user, whatever its source, is stored in the FlexNet Operations database. FlexNet Operations users appear under one of the tabs in the **Manage Users** page of FlexNet Operations and are members of the Home account or one of the Customer accounts. A FlexNet Operations user can be in the FlexNet domain or a directory service domain and can be added through the Producer Portal or Web services. Users who can log into FlexNet Operations by virtue of being a member of a domain or directory service that has been assigned a role will not appear in the **Manage Users** page. To be visible they must also be added individually as a user.
2. A user in a configured directory service who is not a FlexNet Operations user. Any user in a configured directory service domain can log in to FlexNet Operations. However, to perform a task in FlexNet Operations, a non-FlexNet domain user must belong to a group that has been granted a role that can perform the task. These users appear in the Users page of FlexNet Operations and are indicated by the non-FlexNet domain name in the domain column.

FlexNet Operations users entered manually into the application are users in the FlexNet domain. Authentication information for a user in the FlexNet domain is stored in the FlexNet Operations database. FlexNet Operations users imported from a directory service are users in that directory service domain. Authentication information for a user in a directory service domain is maintained in the directory service.

Users can be members of FlexNet groups. Groups cannot be entered manually through FlexNet Operations, but can only be imported from a directory service. Membership in a group is managed entirely in the directory service.

Some user names are designed to be used as shared logins, such as proxy users rather than users who log in directly. For example, when a customer logs in to the End-User Portal with an activation ID, a shared login called `portaluser` logs in on behalf of the customer. A shared login is also useful for setting up group user accounts. For example, Revenera recommends creating a user who submits web service requests as a shared login.

Shared logins are indicated on the **Manage Users** page with an icon showing several people. Shared logins do not appear in the **Logged-In Users** page, their last login date is not recorded, nor are they deactivated automatically after a number of unsuccessful logins. The profile of a shared login cannot be edited. Both shared and non-shared users can log in to FlexNet Operations from multiple browsers simultaneously.

Users and Accounts

Each FlexNet Operations user must be linked to at least one account—either a Producer account to log in to the Producer Portal, or a Customer or Partner account to log in to the End-User Portal. A user can belong to multiple accounts, but all of the accounts must be of the same type and must not be in the same vertical hierarchy as shown in the following diagram:

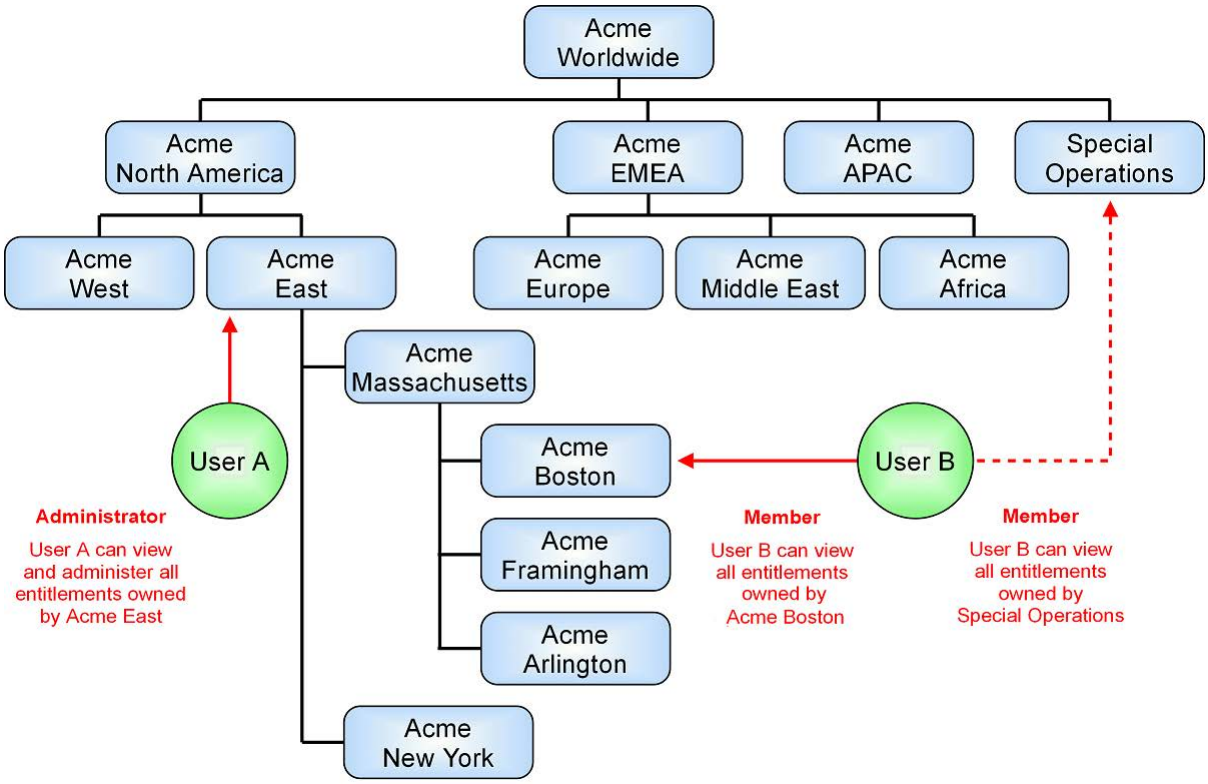


Figure 18-4: Example User Assignments in a Multi Layered Account

User B can not be assigned to Acme Massachusetts, Acme East or Acme North America because they are all in the same vertical hierarchy. However, User B can be assigned to Special Operations because it is not a sub-account of Acme North America.

What a user can see and do in the End-User portal is dependent on the permissions granted them and their location in the hierarchy.

In the above scenario, User A can see all the entitlements associated with the Acme Massachusetts account and its sub-accounts as well as Acme New York because User A has been assigned the Portal Administrative User role which, by default, comes with all the permissions to see and manage entitlements in sub-accounts. User B can only see the entitlements in the Acme Boston and Special Operations accounts because, by default, the Portal User role does not have permission to see any entitlements beyond their own account(s).

A user who self-registers through the End-User Portal provides a company name, a new account is created to correspond to the new company name, and the user is assigned to it. Optionally, users can select to be associated with an existing Self-Registered account by providing the account ID upon self-registration, instead of creating a new account.

A user belongs to one of four types. On the **Manage Users** page, each of these types has a tab as described below.

- Customer Users – End users of a producer's software or device
- Producer Users – Software producer or intelligent device manufacturer users
- Partner Users – Distribution partner users like wholesalers, distributors, resellers, and retailers
- Self-Registered Users – Users who self-register by logging in to the End-User Portal with an entitlement ID or activation ID and set up their own user account

Default Users

By default, the following users are provided with FlexNet Operations:

Table 18-2 ▪ FlexNet Operations Users

User Name	Description
admin	Non-shared login with the System Administrator role. This user cannot be deactivated.
portaluser	Shared login for End-User Portal users who log in with an entitlement ID or activation ID. This user is assigned the Portal User role.
trustedstorageuser	Shared login that does not appear in any of the user management pages. It is displayed in the fulfillment history as the user who performs trusted transactions.
legacyuser	Shared login that does not appear in any of the user management pages. It is displayed in the fulfillment history as the user who imported legacy fulfillments from another system.

Your User Profile and Password

Each FlexNet Operations account has a user profile that includes details about the user's name, email address, password, phone number, and postal address.

You can view your own user profile from the **User** menu—the name of the current user next to the **System** menu at the top right corner of the **Producer Portal** page—by selecting **My Profile**. If you are not a shared user, you can edit your user profile. A shared user can only view the profile.

Whenever you enter your user name and a system-generated FlexNet password to log in to FlexNet Operations, you are directed to the **Change Password** page to change your system-assigned password to one that you choose. You can also change your password or select a secret question and answer at a later time by editing your user profile.

Note ▪ *To change your password from the **My Profile** page, enter the old password then enter and confirm the new password. No email message is sent to remind you of your new password. The next time you log in, enter your new password.*

If you forget your password and have selected a secret question and answer, you can have a system-generated password emailed to you. If you did not select a secret question and answer, you must contact the FlexNet Operations administrator to request a new system-generated password.

Browsing Users

If you are assigned a role with **View Users** permission, you can browse users in the Producer Portal. Click on a user to view details of the user's account.

***Note** ▪ To locate a difficult to find user, use the search feature on the **Manage Users** page.*

Creating, Editing, or Deleting a User

Information for a FlexNet Operations user can be typed manually into FlexNet Operations. Or, if access to a directory service is configured, user data can also be imported from an LDAP directory service.

FlexNet Operations users entered manually into the application are users in the FlexNet domain. If no domain is shown, the user is in the FlexNet domain. Authentication information for a user in the FlexNet domain is stored in the FlexNet Operations database. FlexNet Operations users imported from a directory service are users in that directory service domain. Authentication information for a user in a directory service domain is stored in the directory service.

If you are assigned a role with the **View and Manage Users** permission, you can view, add, and edit all types of users. If you are assigned a role with the **View and Manage Customer Users** permission or **View and Manage Partner Users** permission, you can view all types of users but you can add and edit only customer users or partner users, respectively. The **Create a User** page displays the creation and last login dates for non-shared users.

When you create a new user account, an email containing a system-generated password and login instructions is sent to the user's email address. The user logs in for the first time with the system-generated password and is immediately prompted to change the password.

You can edit a user to change the user's details, contact information, or account.

You can delete a user from FlexNet Operations if the user has no dependencies (such as, for example, line items, entitlements, or alert subscriptions). This permanently removes that user from the database. If you want to keep the user in the database but want to restrict access, consider deactivating the user instead.

You cannot permanently delete a user from the database who has dependencies. However, you can perform a force delete. The force delete ensures that the user record and its dependencies are retained but placed in an inactive state. In this state, all fields on the user record are rendered obsolete, login-credential resets for the user are prohibited, and no further access to the user record is allowed.

Note that his option applies only to the forced deletion of non-producer users with dependencies.

Import a User or Group from a Directory Service

If a directory service domain is configured in FlexNet Operations, groups can be imported from the directory service and assigned roles. Users in an imported group can perform tasks allowed by the group's roles and do not have to be added individually as FlexNet Operations users. However, users added as part of a group are not visible in the UI.

If you want to give a domain user additional roles in addition to those granted by group membership, import the user and add additional roles as shown below. Users who are explicitly imported are visible in the UI.

Domain (LDAP) users can be assigned to an account of a different type than the account to which they were originally assigned. However, these users credentials (username and password) are managed separately in the external domain.

Resetting a User Password

When you reset a non-shared user's password, an email is sent to the user with a new system-generated password. The user logs in with the new password and is immediately prompted to change the password.

If the user is shared, the email containing a system-generated password is sent to a FlexNet Operations administrator (if you specified the administrator's email address when the user was created). The administrator logs in to FlexNet Operations with the system-generated password, changes the password and keeps a record of it, then sends the new password to all users of the shared login.

Deactivating and Reactivating a User

If you are assigned a role with **View and Manage Users** permission, you can deactivate and reactivate all types of users manually. If you are assigned a role with the **View and Manage Customer Users** permission or **View and Manage Partner Users** permission, you can deactivate and reactivate only customer users or partner users, respectively. User activation status is shown on the **Create A User** page.

Users can be deactivated manually or automatically. Deactivated users remain in the FlexNet Operations database, but they cannot log in.

Non-shared users are deactivated automatically after too many consecutive failed login attempts.

***Note** ▪ The default number of consecutive failed authentications is 3; this number can be configured in the FlexNet Platform Server configuration. When a user is deactivated automatically, the User Deactivated alert is triggered if it has been configured.*

Deactivated users must be reactivated manually. A reactivated user is informed by email, and if the reactivated user is shared, an administrator receives the email stating that the user has been reactivated. Reactivation does not affect a user's password.

About Roles and Permissions

The activities a FlexNet Operations user can perform are based on the permissions that user has. However, permissions are not assigned to users directly. Instead, sets of permissions are grouped into roles and users are assigned one or more roles.

Permissions

FlexNet Operations permissions are organized into the following categories. For more information about the permissions in these categories, refer to FlexNet Operations Permissions.

- Alert Management
- System Administration
- Operations Feature Bundles
- Operations License Models
- Operations Entitlements - Producer Portal
- End-User Portal
- End-User Portal Trusted Storage Licensing
- Web Services
- Operations Export Import
- User Management
- Account Management
- Operations Features
- Operations Products, Suites, and Maintenance
- Operations Part Numbers
- Operations License Management
- Operations Policies
- Operations Trusted Storage Licensing
- Operations Sub-Accounts
- License Technologies
- FlexNet Embedded

Roles

By default, the following producer and end-user roles are available in FlexNet Operations. For more information about these roles, refer to FlexNet Operations Roles.

- Customer Support Representative
- Executive
- IT Back Office Manager
- Order Entry
- Portal Administrative User (end-user role)
- Portal User (end-user role)
- Product Manager
- Sales Operations Manager
- System Administrator

Browsing Roles

Roles for FlexNet Operations are displayed in the **Roles** page. If you are assigned a role with the **View Roles** or **View and Manage Roles** permission, you can view a summary of roles.

Assigning a Role to a User

You can assign a role to a user, if the user is able to log in to FlexNet Operations, on the user's **Create A User** page. Role assignments are made per account in the **Accounts** table near the end of the page.

Note ▪ *Not all users have sufficient permissions to assign or remove a user's role(s).*

Browsing Users with a Role

If you are assigned a role with **View Users** and **View Roles** permissions, you can view users who have been assigned a particular role. In addition, you can determine whether a user is shared; shared users are marked with an icon showing several people. The following summary information is displayed on the **Users for Role** page:

- **User Name**: Login name of the user
- **Display Name**: Full name of user
- **Date Created**: Date the user was created
- **Date of Last Login**: Date of last login by the user (not recorded for shared users)
- **Status**: Whether the user is active or inactive

User Management Exercises

These exercises use examples to guide you through the following user management tasks:

Exercise	Description
Browsing Users	Browse the **Customer Users**, **Producer Users**, **Partner Users**, and **Self Registered Users** types.
Creating a User	Create a customer user named `William Barry` and link him to account **BarryPhoto**.
Importing a User or Group from a Directory Service	Adding a user from an LDAP service.
Editing a User	Change the name of customer user `William Barry` to `Warren Barry`.
Resetting a User's Password	Reset the password of customer user `Warren Barry`.
Changing a User's Account	Change the account a user is linked to.
Deactivating or Reactivating a User	Deactivate and reactivate customer user `Warren Barry`.
Deleting a User	Delete customer user `Warren Barry`.
Browsing Roles	Browse the existing user roles on your system.
Browsing Users with a Role	Browse users who are assigned a particular role.
Assigning or Removing a User's Role	Assign the **Portal Admin User Role** to `Lisa Barry` and remove the **Portal User Role**.

Browsing Users

In this exercise, you browse FlexNet Operations users to become familiar with the **Customer Users**, **Producer Users**, **Partner Users**, and **Self Registered Users** tabs on the **Manage Users** page of the Producer Portal.

Task ***To browse existing users***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected. On a **Manage Users** page tab, you can view the following information:
   - Whether a user is a shared user (a shared user has an icon depicting several people)
   - **Display Name**: User's full name
   - **User Name**: User's login name
   - **Email Address**: User's email address
   - **Type:** User or Contact. A contact is a user account that cannot log in, and is maintained for account contact purposes.
   - **Accounts**: All accounts to which the user belongs
2. Click on the **Producer Users** tab to view the producer users. Note that **Portal User** is a shared user.
3. Click on the **Partner Users** tab to view the partner users.
4. Click on the **Self Registered Users** tab to view the self registered users.
5. Click on the **Customer Users** tab, then click the `Lisa Barry` **Display Name** link to view the details on the **Create A User** page that appears. When you are done, click **Cancel** to close the **Create A User** page.

Creating a User

In this exercise, you create a customer user named `William Barry` and link him to account **BarryPhoto**.

Task ***To create user William Barry and link him to account BarryPhoto***

1. Click **Users & Accounts** > **Create User**. The **Create A User** page appears.
2. On the **Create A User** page, select **FlexNet User**, and click **Next**.
3. Under **User Details**, enter the FlexNet Operations user information:
   a. **End-User Portal Access?**: Select **Yes**
      - **Yes** allows the user to log in to FlexNet Operations. **Time Zone**, **Status**, and **Shared Login** attributes are shown when this is selected.
      - **No** maintains the user as a contact only. **Time Zone**, **Status**, and **Shared Login** are hidden when this is selected.

   b. **User Name:** Specify a login name for the user.

   c. **Time Zone**: Select a time zone from the drop-down list

d. **Status**: Leave the status set to **Active**. The records of an inactive user remain on file, but the user no longer has access to FlexNet Operations.

***Note** ▪ Multiple unsuccessful login attempts automatically set the user's status to Inactive. The user can be reactivated by an administrator after confirming the user's legitimacy.*

e. **Shared Login**: Select **No**

- **Yes** means this account is shared by a group of users.
- **No** means this account has only one user.

4. Under **Contact Details**, enter the user's contact information:

a. **First Name**: Type `William`

b. **Last Name**: Type `Barry`

c. **Email Address**: Type `WBarry@barryphoto.com`

5. Under **Accounts**, click **Link Accounts**. The **Select Account** window opens with the **Customers** tab selected. Search for and select the **BarryPhoto** and **Portal User Role** check boxes, then click **OK** to close the window. An email containing a system-generated password and login instructions is sent to the user's email address, and this message appears: `User William Barry successfully added.`

***Note** ▪ Users can be assigned to more than one account, provided those accounts are parallel to one another or are in a different vertical hierarchy. For example, user can not be assigned to both a parent and child account because they are vertical to one another in the hierarchy.*

Importing a User or Group from a Directory Service

If a directory service domain is configured in FlexNet Operations, groups can be imported from the directory service and assigned roles. Users in an imported group can perform tasks allowed by the group's roles and do not have to be added individually as FlexNet Operations users. However, if you want to give a domain user additional roles in addition to those granted by group membership, import the user and add additional roles as shown below.

Task ***To import a user from a directory service***

1. Click **Users & Accounts** > **Create User**. This link opens the **Create A User** page.
2. On the **Create a User** page, select **User From a Directory Service**.

a. Select one of the directory service domains that contains the information to authenticate this user, and then click **Next**.

b. Search for and select one or more users to import from the directory service. Select multiple users at one time only if you plan to assign them all the same roles. Only a small amount of user information will be imported from the directory service to the FlexNet Operations database. User authentication is done by contacting the directory service. Click **Next**.

c. The user to be imported is displayed. (Leave the Status of the new user Active.)

d. Assign at least one role to the user.

e. Click **Finish**.

When the new user account is saved, the external domain user can log in to FlexNet Operations using his or her credentials from the external domain directory service.

Editing a User

In this exercise, you change the name of customer user `William Barry` to `Warren Barry`.

Task ***To edit existing user William Barry***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. In the **Users** list, click the **William Barry** link to view the user and contact details on the **Create A User** page that appears.
3. Change the user's **First Name** from **William** to **Warren**, then click **Save**. This message appears: `User Warren Barry successfully edited.`

Resetting a User's Password

In this exercise, you reset the password of customer user `Warren Barry`.

Task ***To reset Warren Barry's password***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. In the **Users** list, click the **Warren Barry** link to open the **Create A User** page.
3. On the **Create A User** page, click **Reset Password** to send an email to the user with a new system-generated password. This message appears: `Password has been reset and emailed to the user.`

Changing a User's Account

Use the following to change the account to which a user is linked.

Task ***To move a user from one account to another.***

1. Click on **Users & Accounts > All Users**. This opens up the **Manage Users** page.
2. On the **Manage Users** page, click the name of a user.
3. On the **Create a User** page, scroll down to the **Accounts** heading and click **Link Accounts.** This opens the **Select Account** page.

4. On the **Select Account** page, select the user's new account and select a role, for example: `Portal Admin User` or `Portal User`, then click **OK** to close the window. A message like the following appears: `User John Doe successfully edited.`

***Note** ▪ A user can only be moved to an account of the same type (i.e. end customer or channel partner)*

5. On the **Create a User** page, scroll down to the **Account** heading and select the account to remove, then click the **Remove** button.

***Note** ▪ A user must have at least one account associated with it. You can only assign accounts that are parallel to one another or in a different vertical hierarchy. You cannot move a user from a child account to a parent account or vice versa through the UI. It can only be done through Web Services. For more information, refer to the Web Services Guide.*

Deactivating or Reactivating a User

In this exercise, you deactivate and reactivate customer user `Warren Barry`.

Task ***To deactivate user Warren Barry***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. In the **Users** list, click the **Warren Barry** link to open the **Create A User** page.
3. On the **Create A User** page, in the **Status** drop-down list, select **Inactive**, then click **Save**. User `Warren Barry` is deactivated and this message appears: `User Warren Barry successfully edited.`

Task ***To reactivate user Warren Barry***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. In the **Users** list, click the **Warren Barry** link to open the **Create A User** page.
3. On the **Create A User** page, in the **Status** drop-down list, select **Active**, then click **Save**. User `Warren Barry` is reactivated and this message appears: `User Warren Barry successfully edited.`

Deleting a User

In this exercise, you delete customer user `Warren Barry`.

Task ***To delete a user***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. In the **Users** list, search for and select the **Warren Barry** check box.

3. Click **Delete** and click **OK** in the confirmation message. **Warren Barry** is deleted from the **Customer Users** list and this message appears: `User(s) Warren Barry have been deleted successfully.`

Note ▪ *If the user* `Warren Barry` *has dependencies (such as, for example, line items, entitlements, or alert subscriptions), you are prompted to confirm the deletion in an additional dialog. When you confirm the deletion, all fields in the user record are changed to* `Obsolete`*. This means that this user record is no longer accessible.*

Browsing Roles

In this exercise, you browse the existing user roles on your FlexNet Operations system.

Task ***To view a list of existing roles***

1. Click **Users & Accounts** > **All Roles**. The **Roles** page appears with the following information:
   - **Role Name**: Name of the role, which links to its **Edit Role** page
   - **Status**: Whether the role is active or inactive and whether it is a system-defined role
   - **Mapped Users**: Links to users who are assigned the role
2. Click one of the roles in the list. When the **Edit Role** page appears, review the different categories and permissions included in each. When you are done, click **Cancel** to return to the **Roles** page.

Browsing Users with a Role

In this exercise, you browse users who are assigned a particular role.

Task ***To browse users with a particular role***

1. Click **Users & Accounts** > **All Roles**.
2. To see the users with a **Portal User Role**, click the **users** link for that role under **Mapped Users**. The **Users For Role** page appears with the following information about the users who are assigned this role:
   - **User Name**: Login name of the user and whether the account is shared (portaluser is shared)
   - **Display Name**: Full name of the user
   - **Date Created**: Date the user was created
   - **Date of Last Login**: Date of user's last login (not recorded for shared users)
   - **Status**: Whether the user is active or inactive
3. Review the information and note that **portaluser** is a shared user.
4. Use your browser's Back button to return to the **Roles** page, then repeat Step 2 and Step 3 for the **System Administrator** role. Note that **legacyuser** and **trustedstorageuser** are also shared users.

Assigning or Removing a User's Role

In this exercise, you assign the **Portal Admin User Role** to `Lisa Barry` and you remove the **Portal User Role**.

Task ***To assign a role to a user***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. On the **Manage Users** page, search the user list for the `Lisa Barry` **Display Name**.

   Note ▪ *Users can appear on different tabs. Be sure you are looking for the user on the correct tab.*
3. Click the `Lisa Barry` link to view her **Create A User** page.
4. On the **Create A User** page, under **Accounts**, select the **Portal Admin User Role** box to assign it to `Lisa Barry`. (Possible roles appear in the **Role** column of the **Accounts** table—one set per account.)

   Note ▪ *A user must have at least one role assigned for each account to which he or she belongs.*
5. Click **Save**. The role assignment is saved and this message appears: `User Lisa Barry successfully edited.`

Task ***To remove a role from a user***

1. Click **Users & Accounts** > **All Users**. The **Manage Users** page appears with the **Customer Users** tab selected.
2. On the **Manage Users** page, search the user list for the `Lisa Barry` **Display Name**.

   Note ▪ *Users can appear on different tabs. Be sure you are looking for the user on the correct tab.*
3. Click the `Lisa Barry` link to view her **Create A User** page.
4. On the **Create A User** page, under **Accounts**, uncheck the **Portal User Role** box to remove it from `Lisa Barry`. (Possible roles appear in the **Role** column of the **Accounts** table—one set per account.)

   Note ▪ *A user must have at least one role assigned for each account to which he or she belongs.*
5. Click **Save**. The role removal is saved and this message appears: `User Lisa Barry successfully edited.`

User Management Next Steps

In this topic, you performed basic FlexNet Operations user management tasks such as browsing users, creating and editing a user, resetting a user's password, deactivating and reactivating a user, deleting a user, browsing roles, browsing users assigned a particular role, and assigning or removing a user's role.

In the next topic you will perform channel partner management, including creating tiers and adding channel partners.

User Management Advanced Topics

For more information about this advanced account management topic, refer to Managing Users.

Activations of Entitlements Across Multiple Accounts on a Single Device

Producers with the FlexNet Advanced Organization Management module who use FlexNet Embedded licensing technology can take greater advantage of their account hierarchies and channel partner sets during entitlement mapping operations. This capability also supports producers who want end users to be able to activate entitlements on any device.

FlexNet Operations enables accounts, other than the device owner, to map entitlements to a device. Producers can map entitlements from the device owner's sub-accounts to any device, and End-User Portal users can map entitlements from their account, or its sub-accounts, to any device visible to them.

Managing Channel Partners

This topic discusses the management of channel partner tiers. Channel Partner management includes adding tiers and channel parter accounts.

Channel Partner Key Concepts

- Create distribution tiers for classification of distributors and resellers.
  - Represent non-flat channel distribution structures in FlexNet Operations as they exist in an enterprise resource planning system.
- Allow multiple accounts from different distribution tiers to be associated with an entitlement.
  - Build a complete distribution list through the entire entitlement sale.
  - Split entitlements, bulk entitlements and maintenance between partners and customers.
  - Pool entitlements to existing line items to minimize proliferation of line items.
  - Self-service for channel partners to split entitlements
- Partner, such as a system integrator, can manage licensing on behalf of the end customer.
  - Visibility, roles, and permissions allow/prevent information about the partner tier account to be seen by others, as appropriate.

Partners and Distribution Tiers

Partner accounts identify accounts in your distribution chain—those accounts that act as distributors of your products and entitlements. Partner accounts exist in distribution tiers between your producer account and your end customers. You can add multiple partner accounts on the **Manage Accounts** page. Unless additional tiers are added, these partner accounts all occupy the default distribution tier.

By default, FlexNet Operations provides a **Distributor** tier and an **End Customer** tier for entitlements. The distribution chain allows entitlements and devices to move from the producer account to a distributor (partner account) to an end user (customer account). However, you can customize the distribution chain and add multiple tiers. Changes to the tiers in the distribution chain require customizations to the FlexNet Operations database and related properties files. For details, see the *FlexNet Operations On-Premises Installation & Implementation Guide*.

Unique to partner accounts is their relationship to the producer account. Information about the transactions in the partner accounts flows up through the distribution chain so that these transactions are visible on the Producer Portal.

Some FlexNet Operations features are only available to the producer account and partner accounts. For example, only partner and producer accounts (if the current owner is set to a partner account) can split entitlements.

Architecture Overview

By default, FlexNet Operations supports a single distribution tier:

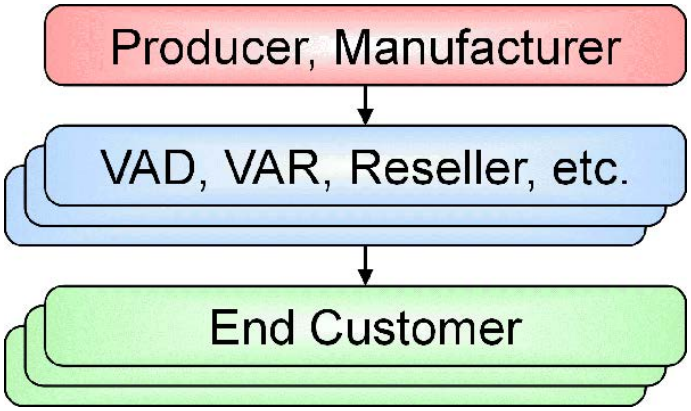


Figure 18-5: Default Tier Structure

The Advanced Organization Management module supports multiple distribution tiers:

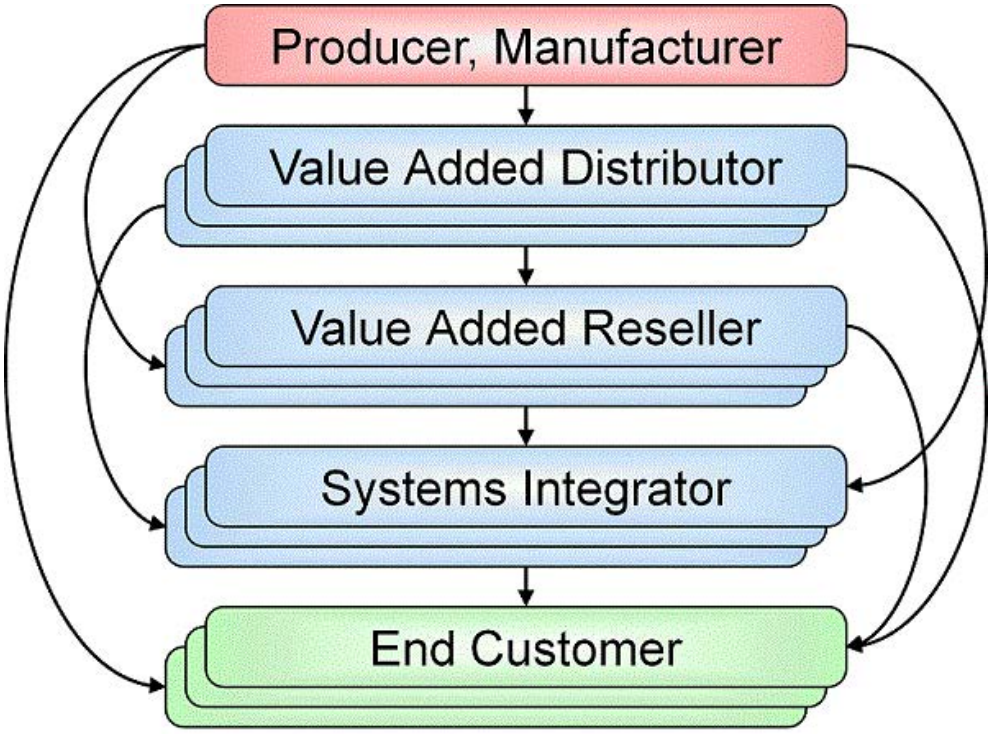


Figure 18-6: Sample Custom Tier Structure

Built-In Tiers

The built-in tiers are **End Customer** and **Distributor**.

End Customer Tier

- All simple entitlements must have the End Customer tier populated (analogous to SoldTo).
- If the end customer account is not known, the End Customer tier can be populated with `Info Not Available` (UNKNOWN_ORG_UNIT) until a known account claims the entitlement.
- Additional tiers can be populated for simple entitlements, but the End Customer tier is always required.
- End Customer tier is not supported for bulk entitlements.
- Partner accounts cannot be specified in the End Customer tier of an entitlement.

Distribution Tier

- All bulk entitlements must have the Distributor (tier1) tier populated (analogous to SoldTo).
- Additional tiers can be populated for bulk entitlements but the Distributor tier is always required.

Custom Tiers

Custom tiers have no enforced hierarchy and their presence does not change the functional requirements of the built-in tiers. Creation of the custom tiers requires direct access to the database (there is no UI for creating custom tiers) so for cloud users, custom tiers are added as part of onboarding the tenant. A channel partner set contains one or more partner tiers, each tier populated by exactly one account.

Designing Channel Partner Tiers

The first step in setting up tiers for channel partners is to sketch out what the distribution channel looks like and plan for the partner tiers to accommodate that. You need to decide how rights pass from a producer to a first level distributor, to their distributors and finally to end customers. Add enough partner tiers in the database to address the demand chain.

For information about adding channel partner tiers, see the *FlexNet Operations On-Premises Installation & Implementation Guide*.

Tracking Entitlements Through a Demand Chain

Unlike account hierarchies, there is no one direct chain between the producer and the end customer. Entitlements may be split multiple times between partner accounts before an entitlement is assumed by an End Customer. The following diagram demonstrates how a bulk entitlement can be split through several tiers of distributors and resellers to the final end customers.

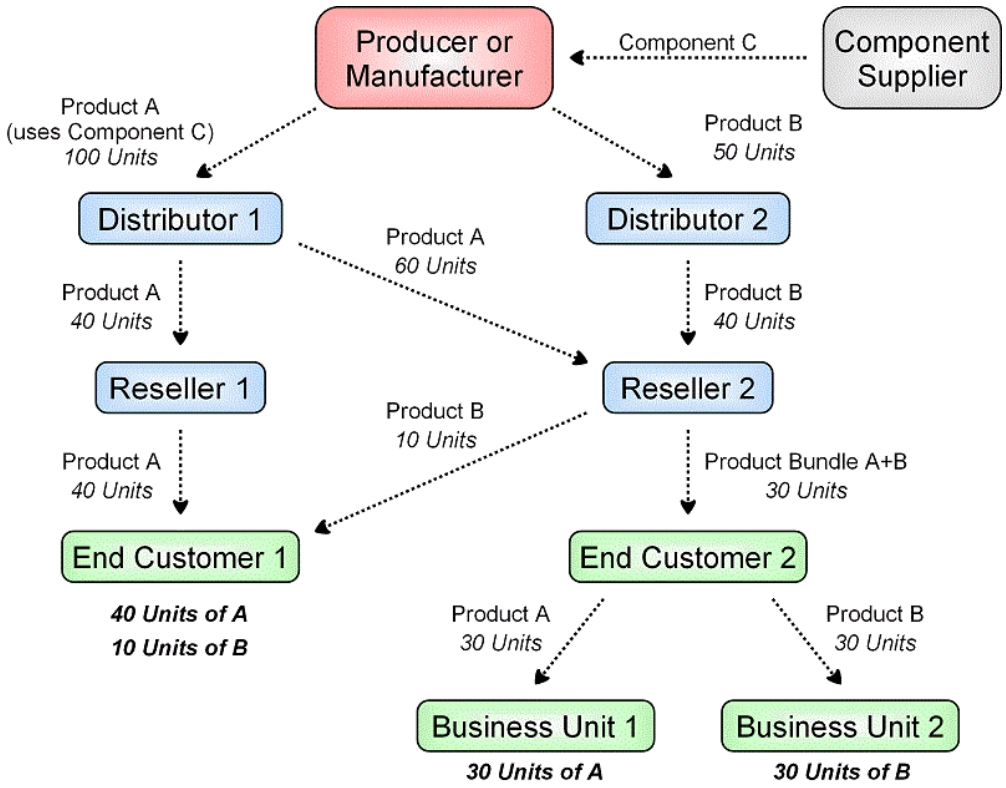


Figure 18-7: Example Demand Chain

In this example, Distributor tiers are in blue and the End Customer tier is in green.

When setting up the channel partner tiers for this example, a user would need to add one reseller tier and four channel partner accounts. The remaining tiers are already populated by default (distributor and end customer).

Accounts are not assigned to Channel Partner Tiers until you have an entitlement since the appropriate partner tier may change depending on the entitlement and the deal. See Getting Started with Entitlement Management.

Partner Relationships

Partner relationships between accounts can be defined to allow a Partner to split or sell entitlements along a distribution chain. Relationships can be set up between two Partner accounts or between a Partner account and a Customer account and can be set either by a Producer or by a Partner user.

A Partner user with the equivalent of a Portal Administrative User role can create other Partner accounts and users as well as other Customer accounts and users. Accounts created by a Partner user are automatically related to the user's account.

In Figure 18-7, accounts in blue represent Channel Partner tiers while the Customer tier is in green. Partner relationships exist between Distributor 1 and Reseller 1 as well as between Distributor 1 and Reseller 2. Likewise, Reseller 2 has partner relationships with both End Customer 1 and End Customer 2. Entitlements passing between partner accounts are split whereas entitlements from End Customer 2 to Business Unit 1 and Business Unit 2 are transferred since they are part of the same account hierarchy within the Customer tier.

Splitting Entitlements

One of the partner tiers (either the partner account or one of its sub-accounts) of an entitlement must be set as Current Owner before an entitlement can be split. A Producer user can also split an entitlement on behalf of a Partner account, however, the Current Owner must still be set. Only unactivated entitlements or web register keys can be split.

If a bulk entitlement has several layers of Channel Partners, one layer can split off some of the web register keys to another bulk entitlement to another related Channel Partner account.

Once a known End Customer is identified on the entitlement, it will be set as the current owner and the current owner cannot be changed to another tier.

If the Current Owner setting is set to a tier other than End Customer, it indicates only that a user in the account in that tier, or a producer user, can split that entitlement. It has no additional significance.

Transferring vs Splitting Entitlements

Entitlement transfers happen primarily within a customer account hierarchy because entitlements can only be transferred to a customer account. An End Customer account can transfer entitlements to a parent or child account of itself whereas a Channel Partner can only transfer an entitlement to a related customer account. To move an entitlement to a related Channel Partner account, the entitlement must be split. Producer users can transfer or split entitlements on behalf of the customer or partner users.

Information Visibility

To control visibility there is a flag on the **Create An Account** page called **Visible to other Partners**. If the flag is set to false, it will prevent distributors or resellers higher up the chain from seeing the name of the Current Owner of an entitlement. The account name will be displayed as `Name Withheld`. If the flag is set to true, all partner accounts directly related to the account can view the account name on visible entitlements.

Creating a Partner Account

Partners are special accounts in FlexNet Operations. (See Partners and Distribution Tiers for more information.)

Users assigned a role with the **View and Manage Accounts** permission can view, add, and edit accounts.

Task ***To create a partner account***

1. Click **Accounts & Users** > **Create Partner Account**.
2. On the **Create An Account** page:
   a. Enter the **Account ID** (required).
   b. Enter the **Account Name** of the account (required).
   c. Add a description and address information as desired.
   d. Set the **Visible to other Partners** check box (it is selected by default).
      - To prevent partners in different distribution tiers from seeing information about this account, uncheck **Visible to other Partners**.
      - To allow partners to see information about this account, check **Visible to other Partners**.
3. If you want to link users to the account, do one of the following:
   - Click **Create a User** to link a new user to the account. Then follow the steps outlined in Creating, Editing, or Deleting a User to create the new user account.
   - Click **Link Existing Users** to link existing users to the account. Select the users (and roles, if applicable) you want to link and click **OK**.
4. Click **Next**. On the **Linked Sub-Accounts** page, select any sub-accounts you want to link to this account. (Optional)

   Note ▪ *Only parent accounts can set up links to sub-accounts.*
5. Click **Next**. On the **Relate Accounts** page, select any partners you want to relate to this account. (Optional)

   Note ▪ *Relationships between Channel Partners and End Customers must be set up from the Channel Partner or Producer end. Producers can set up relationships between Channel Partners and End Customers but they don't participate in the relationships.*
6. Click **Complete**.

Channel Partner Next Steps

In this topic, you performed the basic FlexNet Operations partner management task creating Channel Partner Accounts.

Product ordering and entitlement is the stage of the FlexNet Operations license lifecycle that follows.

Refer to these getting started sections for concepts and exercises that guide you through electronic software delivery, usage management, and cloud licensing service tasks:

- Getting Started with Electronic Software Delivery (requires the Software Delivery module)
- Getting Started with Usage Management
- Getting Started with Cloud Licensing Service

Refer to this getting started section for concepts and exercises that guide you through entitlement management tasks:

- Getting Started with Entitlement Management

Refer to this section for detailed information on transferring and splitting entitlements:

- Entitling Customers and Activating Licenses

Refer to these getting started guides for concepts and exercises that guide you through licensing activation and support tasks:

- Getting Started with FlexNet Embedded Licensing
- Getting Started with FlexNet Publisher License File-Based Licensing
- Getting Started with FlexNet Publisher Trusted Storage-Based Licensing
- Getting Started with Non-FlexNet Licensing Technologies

Channel Partner Advanced Topics

Activations of Entitlements Across Multiple Accounts on a Single Device

Producers with the FlexNet Advanced Organization Management module who use FlexNet Embedded licensing technology can take greater advantage of their account hierarchies and channel partner sets during entitlement mapping operations. This capability also supports producers who want end users to be able to activate entitlements on any device.

FlexNet Operations enables accounts, other than the device owner, to map entitlements to a device. Producers can map entitlements from the device owner's sub-accounts to any device, and End-User Portal users can map entitlements from their account, or its sub-accounts, to any device visible to them.

Part 3
Administrator Reference

This part of the FlexNet Operations User Guide includes the following sections:

- Configuring FlexNet Operations
- Performing Administrative Tasks

19

Configuring FlexNet Operations

This chapter discusses how to configure FlexNet Operations using the links in the System menu.

Table 19-1 ▪

Topic	Description
Using the System Menu	View system configuration settings, custom content, recent news, and link to your end-user portal, your reports, system uptime statistics, and FlexNet Operations' customer community via the System menu.
Performing System Configuration	Administer system configuration settings for FlexNet Operations Producer Portal, End-User Portal, FlexNet Platform server, embedded devices, and more via the options in **System** > **Configure**.
Configuring Secure Token Single Sign-On	Configure the FlexNet Operations end-user portal to interface with a separate application, such as a corporate portal or intranet.
Viewing Transaction Histories	Describes how to search for and view transaction histories and transaction details.
Managing Custom Content	Create and manage custom HTML and text snippets to be rendered in your End-User Portal pages.

Using the System Menu

Users assigned a role with the **View System Information** permission can view system information.

The System menu includes a number of links for viewing system information as well as a number of links for managing system configuration settings and custom content and the like. The system information links are covered here. The other activities, such as system configuration, are covered in their own sections.

System information links in the System menu include the following:

Table 19-2 ▪

Link	Description
Configure	Opens the System Configuration page. For details about changing system configuration settings, see Performing System Configuration.
Custom Content	Opens the Custom Content page. For more information about administering custom content, see Managing Custom Content.
End-User Portal	A shortcut for opening your End-User Portal in a separate tab or window. Click **System** > **End-User Portal** to open your End-User Portal to the login page.
Transaction History	Opens the Search Transaction History page. For more information about searching and viewing transaction histories, see Viewing Transaction Histories.
Updates	Manually checks for updates to FlexNet Operations. To configure update check settings, see **System** > **Configure** > **Updates**.
Application Log	Opens the View FlexNet Application Log page. The FlexNet Operations application log contains useful information for debugging problems with the application, and technical support may ask you to send all or part of the log to help solve any problems you report. Click **System** > **Application Log** to view the log entries. You can also download the application log entries by clicking the Download button on the View FlexNet Application Log page.
About Advanced Lifecycle Management Module	Opens a page to give version information—versions, build numbers, patch levels, and license status—about the FlexNet Operations base module. Click **System** > **About Advanced Lifecycle Management Module** to show module-specific information.
About Electronic Software Delivery Module	Opens a page to give version information—versions, build numbers, patch levels, and license status—about the FlexNet Operations electronic software delivery module. Click **System** > **About Electronic Software Delivery Module** to show module-specific information.
Uptime	Shows basic uptime information for cloud-hosted FlexNet Operations components and environments. Click **System** > **Uptime** to show uptime information.
Latest News	Shows information about the current year's release schedule and the timing for the environment update. Click **System** > **Latest News** to show the Latest News page.
Customer Community	Opens the Revenera Customer Community home page in a new window. Click **System** > **Customer Community** to show customer community portal.

Performing System Configuration

A user must be assigned a role with the **View and Manage Configurations** permission to view system configuration and to modify any configuration settings through the Producer Portal.

To change configuration settings through the FlexNet Operations Producer Portal, click **System** > **Configure** to open the **System Configuration** page.

Note ▪ *Configuration changes made in the FlexNet Operations System Configuration page could take a few minutes to take effect on the system, typically 1-2 minutes.*

Table 19-3 ▪ System Configuration Page

Topic	Description
Configuring the FlexNet Platform Server	Customize outbound email settings, logging, timeouts, and other FlexNet Platform Server settings.
Configuring the Producer Portal User Interface	Alter user interface settings for the Producer Portal. The **System Configuration** > **User Interface** page allows you to specify settings such as the number of records per page and log lines per page.
Configuring Validators	Customize the validation of user name and password fields.
Configuring System Settings	Customize a wide range of FlexNet Operations settings. These include URLs for support and user communities, classnames for ID and fulfillment ID generators, host ID validators, as well as many other default settings and settings for optional features.
Configuring Trusted Activation Settings	Configure settings to activate or deactivate trusted storage features and specify generators for custom attributes in online responses and short code responses.
Configuring Public Services Settings	Configure settings to activate or deactivate public services and specify a generator for public services responses.
Configuring Export and Import Settings	Set limits that govern the number of features, feature bundles, license technologies, license models, and so on per exported XML file. Likewise, this page includes settings for the number of errors per file and the I/O buffer size for imports.
Configuring End-User Portal Settings	Customize settings for the FlexNet Operations End-User Portal. This page enables you to customize logos, colors, and page footer content; hide various page elements, links, fields, buttons, and views; and otherwise control the appearance and behavior of the portal.
Activating and Licensing FlexNet Operations	Activate your account's FlexNet Operations license. You must activate your FlexNet Operations license to enable the FlexNet Operations features your account purchased.

Table 19-3 ▪ System Configuration Page

Topic	Description
Importing a Configuration	Import a previously exported configuration file.
Exporting a Configuration	Export the current system configuration settings as a zip file. This exported zip file can be used to restore FlexNet Operations system configuration settings.
Configuring Embedded Devices Settings	Fine tune features related to devices and specify classnames for request handlers and device handlers.

Configuring the FlexNet Platform Server

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for the FlexNet Platform Server through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To change FlexNet Platform Server configuration settings through the FlexNet Operations Producer Portal***

1. Click **System** > **Configure**.
2. Click **FlexNet Platform Server** to open the configuration page for the FlexNet Platform Server.
3. View or change the values of the settings below.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes.

The platform server settings include the following. Note that default values are listed as the first choice. Also, required fields are indicated with an asterisk.

Table 19-4 ▪ FlexNet Platform Server Configurations

Name	Possible Values	Description	Rqd
Outbound Mail Server Host	**mail** or specify	The name of the machine that hosts the mail server for mail sent from FlexNet Operations. Default: fnosmtp	*
Outbound Mail Security	**None** or **SSL**	Type of security set for mail sent from FlexNet Operations.	

Table 19-4 ▪ FlexNet Platform Server Configurations

Name	Possible Values	Description	Rqd
Outbound Mail Server Port	**0** or specify	The port on which the outbound mail server runs: Set to 0 to use the default port determined by security: SMTP/None: 25 SMTP/SSL: 587	*
Outbound Mail Logging Detail	**Brief** or **Verbose**	Level of detail of outbound mail written to the FlexNet Operations application log. Default: Brief	
Outbound Mail Account		Mail account to use for mail sent from FlexNet Operations: Typically left blank. Value needed only if outbound mail server requires account authentication.	
Outbound Mail Password (Confirm)		Password to use for **Outbound Mail Account**: Provide confirmation for the password.	
From-Address for Outbound Mail	**flexnet-server** or specify	Email sent from FlexNet Operations is sent from this email address. (Should be an actual account in the email system.) Default: flexnet-server@myorg.com	*
FlexNet Application Logging Threshold	Debug Messages Informational Messages Warnings Errors	The maximum level of detail for the messages written to the FlexNet Operations application log file *after* FlexNet Operations starts: Only messages at or below the selected level of detail are displayed in the log.	
FlexNet Application Performance Logging	Selected or unselected	Select to enable performance logging in the application. Default: unselected	
Session Timeout	**30** or specify	If a user has been inactive for the specified amount of time (minutes), the user must log in to FlexNet Operations again.	*

Table 19-4 ▪ FlexNet Platform Server Configurations

Name	Possible Values	Description	Rqd
Consecutive Failed Authentications	**3** or specify	Number of consecutive failed attempts to log in before a user is deactivated. These attempts are counted over the **Time Period for Failed Authorizations**. For a non-shared user, the specified value applies. For a shared user, the specified value is multiplied by 2. (Example: 3 x 2 = 6; a shared user is deactivated after 6 consecutive failed login attempts within the **Time Period for Failed Authorizations**.)	*
Minutes for re-enabling a shared login after deactivation	**3** or specify	The number of minutes after which a shared user account will be reactivated after it has been deactivated due to the number of **Consecutive Failed Authentications** having been reached.	
Recaptcha Site key		The site key used to invoke the Google reCAPTCHA service on the End-User Portal. The site key is programmatically validated by the Google API. The Google reCAPTCHA mechanism enables a shared user whose account is locked (due to too many consecutive failed login attempts) to have their account reactivated before the **Minutes for re-enabling a shared login after deactivation** timeout has elapsed. In this case, the login screen of the End-User Portal shows the “I’m not a robot” check box which enables the user to validate their account.	
Recaptcha Secret key		The secret key that authorizes communication between FlexNet Operations and the Google reCAPTCHA server to verify the shared user's response. It is essential that the secret key be kept secure.	
Time Period for Failed Authorizations	**1440** or specify	Amount of time (minutes) during which **Consecutive Failed Authentications** are allowed before the user is deactivated.	*

Table 19-4 ▪ FlexNet Platform Server Configurations

Name	Possible Values	Description	Rqd
Default Account for External Domain	**MYORG** or specify	Name of the default account to be used when the account of the external domain user does not map to any account in the FlexNet Operations application. The default account for a user belonging to an external domain is MYORG. This can be changed.	*
HTTP Response Header X-FRAME-OPTIONS	SAMEORIGIN DENY	A value for X-Frame-Options in the HTTP response header. Check browser support for specified value. Default: SAMEORIGIN	
HTTP Response Header P3P		A value for P3P in the HTTP response header. Specify an appropriate P3P value if a browser privacy policy is required.	
Number of Days Email Copies retained	**1** or specify	The total number of days the email history is retained. The Purge Email History job reads this configuration and based on the number of days set, deletes all the email copies.	*
Log emails in history, do not send them	Selected or unselected	When selected, emails are logged to the email history but only reset password emails are sent. Default: unselected ***Note ▪*** *For emails generated by Order Media requests, there are two emails that are triggered. One uses the template and is sent to the end user. The other does not use the template and is sent to the producer. Because this configuration setting only applies to emails generated from templates, the email sent to the producer is still sent.*	
Maximum Batch sizes for create / update Webservices requests	**25** or specify	The batch-size maximum for requests issued from SOAP and REST web services. The value indicates the maximum number of records allowed in a single web services batch request that results in a write. Specifying a request with a batch size greater than the limit results in an error. ***Note ▪*** *Editing this setting requires the Super Administrator role.*	

Table 19-4 ▪ FlexNet Platform Server Configurations

Name	Possible Values	Description	Rqd
Maximum Batch sizes for read Webservices requests	**2000** or specify	The batch-size maximum for requests issued from SOAP and REST web services. The value indicates the maximum number of records allowed in a single web services batch request for a read. Specifying a request with a batch size greater than the limit results in an error. ***Note ▪*** *Editing this setting requires the Super Administrator role.*	

Configuring the Producer Portal User Interface

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there a problem with the new settings, you have a backup of working settings to restore.*

Task ***To change user interface configuration settings for the Producer Portal***

1. Click **System** > **Configure**.
2. Click **User Interface**.
3. View or change the values of the settings below.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes.

The user interface settings include the following. Note that default values are listed as the first choice. Also, required fields are indicated with an asterisk.

Table 19-5 ▪ User Interface Configurations

Name	Possible Values	Description	Rqd
Records Per Page	**20** or specify	Number of records displayed on a page that implements pagination (For example, **Users** page implements pagination; **Roles** and **Alert Types** pages do not.)	*

Table 19-5 ▪ User Interface Configurations

Name	Possible Values	Description	Rqd
Log Lines Per Page	**200** or specify	Number of log lines displayed on a page when **View Application Log** is clicked.	*
Alert Dismissal URL	Specify	The URL for creating an alert dismissal link generated as part of an alert's email notification. The URL syntax must be `<protocol>://<hostname>:<port>` where `<protocol>`, `<hostname>`, and `<port>` represent the FlexNet Operations server or gateway (proxy).	

Configuring Validators

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for configuring validators through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To change validators configuration settings through the FlexNet Operations Producer Portal***

1. Click **System** > **Configure**.
2. Click **Validators** to open the configuration page for validators.
3. View or change the values of the settings below.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes.

The validator settings include the following. Note that default values are listed as the first choice. Also, required fields are indicated with an asterisk.

Table 19-6 ▪ Validator Configurations

Name	Possible Values	Description	Rqd
FlexNet User Name Validator	Either: `com.flexnet.platform.services.userManagement.FLEXnetUserIdValidator` or specify another	Default Implementation class for user ID validation.	*

Table 19-6 ▪ Validator Configurations

Name	Possible Values	Description	Rqd
User Name Length	**4** or specify	Minimum length of characters allowed for a user ID by default implementation.	*
FlexNet User Authenticator	Either: `com.flexnet.platform.services.userManagement.FLEXnetUserIdValidator` or specify another	Class for additional FlexNet user authentication checks.	
FlexNet User Password Validator	Either: `com.flexnet.platform.services.userManagement.FLEXnetUserIdValidator` or specify another	Default Implementation class for user password validation.	*
User Password Length	**4** or specify	Minimum number of characters allowed for a user password by default implementation.	*
User Password Requires Uppercase Character	Selected or unselected	Select to enable uppercase character requirement for a user password by default implementation. Default: unselected	
User Password Requires Numeric Character	Selected or unselected	Select to enable the requirement that a user password requires a number. Default: unselected	
Temporary Password Timeout	**240** or specify	The amount of time, in minutes, for which a system-generated, temporary password is valid. (FlexNet Operations generates temporary passwords for new users and for users who forget their password.) The timeout period starts when the password is generated. For permanent (non-expiring) temporary passwords, set **Temporary Password Timeout** to `0`. Default: 240 minutes (4 hours).	*

Configuring System Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for FlexNet Operations settings through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To change FlexNet Operations-specific configuration settings through the FlexNet Operations Producer Portal***

1. Click **System** > **Configure**.
2. Click **FlexNet Operations** to open the configuration page for FlexNet Operations-specific settings.
3. View or change the values of the settings below.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes. Keep in mind that before certain settings are active in the Producer Portal, FlexNet Operations must be restarted.

Configuration options for FlexNet Operations appear in the following groups:

- General Options
- External Services Configuration
- Embedded Device Settings
- Custom Tags
- Renewals
- Customer Growth
- Updates

Note that default values are listed as the first choice. Also, required fields are indicated with an asterisk. Fields marked with the icon require that the FlexNet Platform Server be restarted for their changes to take effect.

General Options

These settings correspond to the **General Options** section of the **FlexNet Operations** configuration page in **System > Configure**.

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Max Recently Used Records	4 or specify	The number of recently used items to display in the product packaging pages.	*	

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Description Max Length	15 or specify	Maximum number of characters in the description field displayed in tables.	*	
Support Center Link	`http://www.revenera.com/support.htm` or specify	URL for your support center that is displayed on the **Home** page.	*	
Communities Link	`http://community.revenera.com` or specify	URL for a community link.	*	
ID Generator Classname	`com.flexnet.operations.generator.OpsEsnGenerator` or specify	Set this parameter to the class that implements the `com.flexnet.operations.publicapi.IDGenerator` interface: It is used to generate entitlement IDs, activation IDs, and web register keys.	*	
Fulfillment ID Generator Classname	`com.flexnet.operations.generator.OpsFIDGenerator` or specify	Set this parameter to the Java class that implements `com.flexnet.operations.publicapi.FulfillmentIDGenerator` interface: It is used to generate fulfillment IDs and consolidated license IDs.	*	
Host ID Validator	`com.flexnet.operations.publicapi.HostIDValidator` or specify	Set this parameter to the Java class that implements custom validations of host IDs.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Basic IP Address Host ID Validation	Selected or unselected	Permits or prohibits basic validation of IP address values by FlexNet Operations. Default: Selected. When selected, FlexNet Operations and the VCG validate the octet values of IP addresses according to the special host id types validation rules. To disable IP address validation, unselect this setting and use a version 12.8.0.1 or later VCG configured to disable validation for internet host IDs. (Some minimal validation—requiring numeric values or asterisks—still occurs based on FlexNet Publisher requirements.)		
License File Name	**license** or specify	This is the base name used to generated names for license files based on a custom license technology that is saved to disk or sent as an email attachment. These types of license files do not incorporate FlexNet capabilities. The default setting is **license**. If this field is left blank, the file name for a non-FlexNet license file or email attachment is license.lic. If the file name is set by the CustomGenerator class in the GeneratorResponse object, the system uses that file name.		
Interval to Poll the VCG	Value in ms (default 50)	After license generation process is submitted to VCG, FlexNet Operations polls VCG at this interval (in milliseconds) to check if license generation is complete.	*	
Maximum Time to Wait for a Response from the VCG	Value in ms (default 4000)	Maximum time (in milliseconds) that the server waits for a response from a VCG when generating a license.	*	

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Maximum Lifetime for a VCG Process	Number of licenses (default 50)	Maximum number of licenses that a single VCG process generates, after which the VCG instance is shut down and another one generated.	*	
Allow License Headers and Trailers	Selected or unselected	Selecting this allows header and trailer text to be entered for products.		
Always Display Page Count of Search Results	Selected or unselected	Determining the number of pages of search results is often time consuming. Deselect this box to prevent automatic display of the number of pages returned. This reduces the time needed to load the landing pages for **Entitle Customers**, **Activate Licenses**, and **Support Licenses**.		
Entitlement Records per Page	Number of records (default 10)	Number of records displayed on the **Entitle Customers** landing page. This setting overrides the **Default Records Per Page** setting in the user interface configuration.	*	
Use SUPERSEDE or SUPERSEDE_SIGN Keyword	None (default) Use SUPERSEDE for Upgrade Use SUPERSEDE for Renewal Use SUPERSEDE for upgrade and renewal Use SUPERSEDE_SIGN for Upgrade Use SUPERSEDE_SIGN for Renewal Use SUPERSEDE_SIGN for upgrade and renewal	Select to use either SUPERSEDE or SUPERSEDE SIGN for upgrade or renewal of licenses. GCS must carefully evaluate the risks before setting this flag. Refer to the product documentation to understand the risks.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Show Consolidate Licenses Functionality	Selected or unselected	Selecting this allows users to see functionality related to Consolidate Licenses. If you change the flag, you must log out and re-login for the changes to be effective.		
Override Older Fulfillments on Host Using SUPERSEDE_SIGN Keyword	Selected or unselected	When fulfillment A is upgraded or renewed to create fulfillment B, if SUPERSEDE_SIGN keyword is enabled, licenses in fulfillment B supersede signatures in fulfillment A. If fulfillment B is upgraded or renewed to fulfillment C and this is selected, fulfillment C supersedes signatures from fulfillments A and B. Ensures that counts provided by fulfillment A are disabled even if user removes fulfillment B license from their server. However, this increases length of license line (limited to 4096 bytes).		
Enable Host ID Policies	Selected or unselected	Selecting this allows host ID policies to be configured and enforced.		
Number of Allowed Retries	Number of retries	For the **createLicense** web service only: enter an integer value greater than zero to retry the **createLicense** transaction if there is a failure due to concurrent modification exception.		
Allow Multiple Owners	Selected or unselected	If selected, multiple users are able to map a line item, web register key, or entitlement to themselves.		
Do Not Sort Results by Default	Selected or unselected	If selected, search results are not sorted by **Last Modified Date** on Operations landing pages.		
Show Line Items with Zero Copies by Default	Selected or unselected	Configures the End-User Portal to show line items with zero copies remaining on the **Activatable Items** and the **Manage Entitlements** pages. Default: Unselected.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Entitlement Certificate File Name	`EntitlementCertificate.html` or specify	Default file name used for the HTML entitlement certificate. The file extension should be either `.html` or `.htm` for browser display.		
Email for On-Hold Fulfillments or On-Hold Entitlements	Valid email address	Enter an email address to notify when On-Hold fulfillment or On-Hold Entitlement is generated.		
Send Email on Set License for On-Hold Fulfillments	Selected or unselected	Determines whether to send email to an end user while a license is set for on-hold fulfillments.		
Drop Existing Supersede Sign Signatures	Selected or unselected	When selected, drops old SUPERSEDE_SIGN signatures and ensures that license length cannot exceed 4096 bytes. This feature is available in VCG 12.0 or later.		
Mapped Users or Account Records in Create Account and User Page	Number of records	Number of Mapped User or Account records displayed on the **Create Account and User** Page. This setting overrides the default **Records Per Page** setting in the User Interface configuration.	*	
Filter UMN1 Keys	One or more UMN1 values	In some rare scenarios (For example, client machines using RAID disks), the UMN1 value is not unique. In these cases, UMN1 value is being set as the model type of the client machine, rather than its disk serial number. As UMN1 is treated as a primary identifier for re-installation requests, non-unique UMN1 values can lead to problems during reinstalls, returns and rehosts. In these cases, the machine identifier (MID) is a better host identifier. This parameter can be set to a comma separated list of UMN1 values. If the trusted storage activation request contains any of these values, FlexNet Operations ignores the UMN1 value and uses the MID instead.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Add Default Comment Line in License File	Selected or unselected	For FlexNet license files containing non-ASCII characters, the first line in the license file must be a comment line. This comment line is added by default by FlexNet Operations. If this comment line is causing issues with downstream applications, deselect this setting.		
Enable Product Lines for Products, Users, and Accounts	Selected or unselected	If selected, the Product Line feature is enabled for products, users, and accounts, including visibility restrictions for users and accounts. Producers can define product lines, assign products to product lines, and link producer accounts and customer user accounts with those product lines. When this setting is enabled, End-User Portal views are filtered to show only entitlement line items for products in product lines to which the user's account is linked. To enable product lines functionality without enforcing visibility restrictions, deselect this setting and check **Enable Product Lines for Products**, instead. Default: Unselected.		
Bulk Operation Batch Size	Number of records	The number of SQL statements to group as a batch during a bulk operation.	*	
Line Items Page Size per Entitlement	10 or specify	Maximum number of line items loaded for each entitlement in page. If number of line items exceeds maximum, a more... link enables the others to be displayed. Setting value to -1 loads all line items associated with entitlement.	*	

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Bulk Operation 'Select All Line Items' Batch Size	Number of records	The number of entitlement line items to group as a batch.	*	
Bulk Operation Retry	Number of attempts	Number of times to retry a bulk operation.	*	
Bulk Operation Retry Sleep Interval	Number of seconds	The time, in seconds, to sleep before retrying a bulk operation.	*	
Default Country for Users and Account Addresses	`Unspecified` or a two-letter country code (as specified by ISO 3166 guidelines)	A two-character country code that FlexNet Operations uses as the default country for users and accounts. Use `Unspecified` if you do not want FlexNet Operations to supply a default value.	*	
Allow Editing of Deployed Entities	Selected or unselected	Permits some modification of product, suite, feature bundle, entitlement, and line item attributes post-deployment. Default: Unselected. When enabled, editing of the following elements is possible: • **Products:** name, version, package name, package version, feature/feature bundle list (can add to, or remove from list), and **Can be used on a device?** setting. • **Suites:** name, version, package name, package version, product list (can add to, or remove from list), and **Can be used on a device?** setting. • **Feature bundles:** name, version, and feature list (can add to, or remove from list). • **Entitlements** • **Line items** Note that inactive or obsolete entities cannot be changed.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Send Email When New Entitlement Is Created After Split	Selected or unselected	Configures FlexNet Operations to send a notification email when a new entitlement is created as the result of a split. (Entitlements can be split, by publisher and partner users, on the End-User Portal.) Default: Selected.		
By Default Show Product Information in the Select Host Page	Selected or unselected	Shows product information on the **Select License Host** page (part of the Generate License wizard), both in the Producer Portal and in the End-User Portal. When you hide the product information FlexNet Operations still provides a link that, when clicked, shows the product information for a specific host. Default: Selected.		
Default Operator Used for Simple Search	**Contains (default)** **Equals** **Starts With** **Ends With**	Sets the default operator for simple searches in the Producer Portal.		
Always Attach Entitlement Certificate in Email	Selected or unselected	Select to attach entitlement certificate in email.		
Enable Product Lines for Products	Selected or unselected.	Show or hide product lines functionality for products only. No visibility restrictions for users and accounts are applied. When this setting is selected, producers can define product lines, assign products to product lines Requires that the configuration setting for **Enable Product Lines for Products, Users, and Accounts** be unselected. Default: Selected.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Cloud License Service URL	test or specify	The URL used when auto-provisioning a Cloud Licensing Service instance during entitlement creation. Intended to be used in entitlement creation emails.		
Data Extract File Location	`flexnet-data\site` or specify	The relative path to the location where the output (artifact files) of optional data extract jobs are stored. For **Data Extract File Location**, specify a valid path on the local file system. For more information about scheduling data extract jobs, see Administering Alerts.		
Auto upgrade batch size	**10** or specify	Number of line items to be processed in a single transaction during automatic product upgrade. Defaults to 10.		
Highlight Latest Upgrade Line Items	Selected or unselected	By default, show only line items for the most recent version in the End-User Portal's **List Entitlements** page and **Map Entitlements** page. Related, older version are grouped under the most recent version when related, older versions are available. When **Highlight Latest Upgrade Line Items** is unselected, the **List Entitlements** page and **Map Entitlements** page show a mixed, flat list of line items—including parent line items and older versions along with the most recent version. Default: Selected.		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Enable User Expiration	Selected or unselected	Enables an expiration date when a user no longer has access to an account. This is applicable to all users except: ● Contacts ● Shared login users ● Super admin ● LDAP users To disable the expiration date for all users, unselect the box. This prevents all users' account access from expiring.		
Show environment with email subject	Selected or unselected	Enables the addition of the environment in the subject of the email. If selected the name of the environment (UAT, CI, QA, etc., except PROD or DR) that triggered the email will be included in the subject line. Default: Unselected.		
Show maintenance line items custom attributes in Entitlements Page	Selected or unselected	Controls whether custom attributes for maintenance lines are visible in the Producer Portal and End-User Portal in the following locations: ● on the List Entitlements and List Entitlements By Order pages ● on the Maintenance Line Item Details panel Default: Unselected (custom attributes for maintenance lines are not visible).		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Apply Manage Users permission to users in shared accounts	Selected or unselected	Manages the behavior when a customer user belongs to more than one account. If selected, a customer user logged in at the End-User Portal has Manage Users permissions (view, edit, reset password, link or remove an account) for other customer users that belong to the same account. Default: Unselected		
Verify user ID validity during password reset	Selected or unselected	If selected, the validity of the user ID is verified, and the user is only prompted to reply to a security question if they entered a valid user ID. If the entered user ID is invalid, an error is displayed. If unselected, the behavior is the same for valid and invalid user IDs: the user is prompted to select the answer to a security question. (If the entered user ID is invalid, a random question is displayed.) Default: Unselected		

Table 19-7 ▪ FlexNet Operations: General Option Configurations

Name	Possible Values	Description	Rqd	Restart
Allow used entitlement/line item state change to Inactive or Obsolete	Selected or unselected	Controls whether entitlements or line items that have been activated on a device can have their state changed to Inactive or Obsolete. When not selected, attempting to change such an entitlement's or line item's state to Inactive or Obsolete triggers an error message. The state can only be changed after the entitlement or line item has been unmapped from the device. When this configuration option is selected, an entitlement or line item that has been activated on a device can still be used until the license expires, even if the entitlement or line item has been deactivated or made obsolete. Default: Selected.		
Preserve Product Custom Attributes when changing a Product Line	Selected or unselected	Manages the behavior when a product line for a given product is changed. If selected, all custom attributes for a given product are preserved if the product line for the product is changed. Default: Selected.		
Process all line items in an Entitlement during Batch Rehost	Selected or unselected	If selected, all line items in the entitlement are included for processing during batch rehost. In scenarios where a large number of line items are associated with a single entitlement, selecting this option might significantly increase the time required for processing the batch rehost. If unselected, only the default number of 10 line items are included for processing during batch rehost. Default: Unselected.		

External Services Configuration

These settings correspond to the **External Services Configuration** section of the **FlexNet Operations** configuration page in **System > Configure**.

Table 19-8 ▪ FlexNet Operations: External Service Configurations

Name	Possible Values	Description	Rqd	Restart
Notification Classname		Set to class implementing the `com.flexnet.operations.notification.EntityNotifier` interface. Used to process notifications when certain entities are created, updated, or deleted.		
RabbitMQ URL	Specify valid URL	URL used by notification framework (including login credentials and virtual host) in `<protocol>://<hostname>:<port>` format.		
RabbitMQ Exchange Name	`fno.public.transactions` or specify	Exchange name used by notification framework.		
License Fulfillment Service URL	Specify valid URL	URL used by license fulfillment framework in `<protocol>://<hostname>:<port>` format.		
FlexNet Operations Cloud URL	Specify valid URL	URL for the FlexNet Operations Cloud replication service endpoint in `<protocol>://<hostname>:<port>` format.		
Windows VCG Service URL	Specify valid URL	URL for the Windows VCG service endpoint in `<protocol>://<hostname>:<port>` format.		
Linux VCG Service URL	Specify valid URL	URL for the Linux VCG service endpoint in **<protocol>://<hostname>:<port>** format.		
Usage Analytics Service URL	Specify valid URL	URL for the usage analytics service endpoint in `<protocol>://<hostname>:<port>` format.	*	
Electronic Software Delivery Host Name	Specify valid hostname	Electronic Software Delivery hostname in `<protocol>://<hostname>:<port>` format.		

Table 19-8 ▪ FlexNet Operations: External Service Configurations

Name	Possible Values	Description	Rqd	Restart
End-User Portal Host Name	Specify valid hostname	End-User Portal hostname in `<protocol>://<hostname>:<port>` format.	*	
Electronic Software Delivery Service URL	Specify valid URL	URL of **Electronic Software Delivery Service** endpoint.		
Custom License Generator Host	Specify valid host	Custom License Generator Host as `protocol://host:port`. This value can be referenced as {CUSTOM_TECH_HOST} in Custom License Technology URL.		
CMS Consumer Queue Name	`ops.cms.consumer` or specify	Name of the CMS consumer queue in RabbitMQ.	*	
Base FNOC Consumer Queue Name	`ops.fnoc.consumer` or specify	Base name of the tenant specific queue in RabbitMQ, which is concatenated with the tenantid to form the full queue name.	*	
Audit Trail Queue Name	`ops.audit.consumer` or specify	Name of the audit trail queue in RabbitMQ.	*	
Use Soap Service for VCG	Selected or unselected	Select to use the SOAP service for secure license generation, instead of the Windows VCG Service or the Linux VCG Service. Default: Unselected.		
VCG Service soap URL	Valid URL	The URL of the SOAP service hosted by the producer. FlexNet Operations must be able to access this over the internet.		
VCG Service User Name	Valid user name in the format `domain/username`	The user name used to authenticate the SOAP service for generating the secure license.		
VCG Service User Password (Confirm)		The password for the user name used to authenticate the SOAP service for generating the secure license.		

Table 19-8 ▪ FlexNet Operations: External Service Configurations

Name	Possible Values	Description	Rqd	Restart
VCG service credential in SOAP request header		If selected, users are authenticated using SOAP header-based authentication instead of basic http authentication. Only available if **Use Soap Service for VCG** is selected. Default: Unselected.		

Embedded Device Settings

These settings correspond to the **Embedded Device Settings** section of the **FlexNet Operations** configuration page in **System > Configure**.

Table 19-9 ▪ FlexNet Operations: Embedded Device Settings

Name	Possible Values	Description	Rqd	Restart
Allow Adding Backup Server for Producer	Selected or unselected	Allow or prevent adding backup servers via web services and Producer Portal.		
Server Deployment Choice	**Local** **Cloud** **Both**	Select whether FlexNet Embedded server deployments can be local, cloud, or both.		
Skip Account Check – for hosts (see next row for devices)	Selected or unselected	**Hosts:** If selected, allows a host to have line items belonging to other accounts also.		

Table 19-9 ▪ FlexNet Operations: Embedded Device Settings

Name	Possible Values	Description	Rqd	Restart
Skip Account Check – for devices (see previous row for hosts)	Selected or unselected	**Devices:** Controls sharing of devices across accounts. By default, FlexNet Operations applies rules to limit the mapping of entitlements to devices based on the device owner account. Generally, enabling **Skip Account Check** permits entitlements that belong to accounts other than the device owner and its sub-accounts to be mapped to a device. (See About Device Management for more information.) **Unselected (Default)** The FlexNet Embedded license generator executes the activation request when ● the device is owned by the same account as activation ID ● the device is owned by the parent account and the activation ID is owned by one of its child accounts The FlexNet Embedded license generator produces an error when the activation ID is owned by the parent account and the device is owned by one of its child accounts. **Selected** The FlexNet Embedded license generator executes the activation request without regard to the account that owns the device.		
Auto-provision error email recipient(s)	Valid email address	Comma-separated email IDs that receive any error emails related to auto-provisioning.		
Device user option	**Off (default)** **On with no validation** **On with validation**	Select to offer the option to assign a user to a device, as well as whether the system checks the validity of the user.		
Override license expiration date	Selected or unselected	If selected, allows user to shorten license expiration term.		

Table 19-9 ▪ FlexNet Operations: Embedded Device Settings

Name	Possible Values	Description	Rqd	Restart
Enable Producer User for CLS	Selected or unselected	If selected, allows a user to reset the Cloud Licensing Service producer user password for both existing and future Cloud License Server (CLS) instances. This producer password can be used to obtain Authorization tokens for all instances.		
Producer User's Password for CLS (Confirm)	Password fulfilling the requirements	The Cloud Licensing Service password must fulfill the following requirements: • 8-30 characters • 1 uppercase character • 1 lowercase character • 1 digit • 1 of the following special characters: (^*$-+?_&=!%{}/#) • No spaces		

Custom Tags

These settings correspond to the **Custom Tags** section of the **FlexNet Operations configuration** page in **System > Configure**.

Table 19-10 ▪ FlexNet Operations: Custom Tag Configurations

Name	Possible Values	Description	Rqd	Restart
Last in Head		Custom script tags added here are inserted last in the document <head/> of the Producer Portal.		
Last in Body		Custom script tags added here are inserted last in the document <body/> of the Producer Portal.		

Renewals

These settings correspond to the **Renewals** section of the **FlexNet Operations** configuration page in **System > Configure**. For producers who use FlexNet Operations with the FlexNet Customer Growth module, these settings determine how FlexNet Operations behaves when the Expiring Entitlements job or Expired Entitlements job runs. These settings are required for producers who use FlexNet Operations with the FlexNet Customer Growth module; otherwise, they are not used.

Note ▪ *For more information about using the Expiring Entitlements and Expired Entitlements jobs, see Administering Alerts.*

Table 19-11 ▪ FlexNet Operations: Renewal Configurations

Name	Possible Values	Description	Rqd	Restart
Renewal Look Ahead	`200` or specify. Default: 200 days.	The number of days in the future, including the day the Expiring Entitlements job runs, to search for entitlements to include in the Renewal Reminder email message. This value is also used as the upper limit for line items that appear on the Expiring Entitlements page in the End-User Portal. Those entitlements with expiration dates further out than the Renewal Look Ahead are excluded from the list. ***Note*** ▪ *This setting is also used to limit the number of* **expired** *entitlements shown on pages that list expired entitlements. Entitlements that are more than 200 days (using the default setting) past their expiration date are not shown.* ***Tip*** ▪ *The Renewal Look Ahead value must be greater than the Expiring Window value.*	*	

Table 19-11 ▪ FlexNet Operations: Renewal Configurations

Name	Possible Values	Description	Rqd	Restart
Expiring Window	`90` or specify. Default: 90 days.	The number of days in the future, including the day the Expiring Entitlements job runs, to search for entitlements that are soon to expire. Together with the Expiring Email Frequency, Expiring Window determines whether or not FlexNet Operations sends a Renewal Reminder email message. See More About the Expiring Entitlements Job for details. This value and the Renewal Critical value determine the way line items are highlighted on the Expiring Entitlements page in the End-User Portal. Line items that expire in the span between the Renewal Critical setting and the Expiring Window setting are highlighted in yellow. ***Tip ▪*** *The Expiring Window value must be smaller than the Renewal Look Ahead value.*	*	
Expiring Email Frequency	`30` or specify. Default: 30 days.	The minimum number of days to wait before sending out the next Renewal Reminder email message to a particular account. For example, using the default system configuration settings, FlexNet Operations limits the number of renewal reminders sent to an account to one every 30 days. Together with the Expiring Window, Expiring Email Frequency determines whether or not FlexNet Operations sends a Renewal Reminder email message. (Renewal Reminder email messages are based on the **Renewal Reminder** email template.) See More About the Expiring Entitlements Job for details.	*	

Table 19-11 ▪ FlexNet Operations: Renewal Configurations

Name	Possible Values	Description	Rqd	Restart
Expired Email Frequency	`30` or specify. Default: 30 days.	The minimum number of days to wait before sending out the next expired entitlements message to a particular account. If FlexNet Operations has sent an expired entitlements message to an account within the number of days specified, no new email messages are sent, even if newly expired entitlements are discovered when the Expired Entitlements job runs. (Expired entitlements messages are based on the **Renewal Reminder for Expired Entitlements** email template.) See More About the Expired Entitlements Job for details.	*	
Renewal Critical	`30` or specify. Default: 30 days.	Number of days from an entitlement's expiration date to mark the entitlement as critical. This value and the Expiring Window value determine the way line items are highlighted on the Expiring Entitlements page in the End-User Portal. Line items that expire within the number of days specified in the Renewal Critical setting are highlighted in red.	*	
Request Renewal Notification Email	Valid email address	An email address, managed by the producer, to which an end user's intent-to-renew messages are sent. In the End-User Portal, the Expiring Entitlements page includes a Request button. When an end user selects expiring entitlements and clicks Request, the End-User Portal sends an intent-to-renew message (based on the Renewal Intent for End Customer email template) to the email address you specify here. Request Renewal Notification Email is optional. The Renewal Callout and the Request Renewal Notification Email are not mutually exclusive. If both are present, FlexNet Operations runs the callout code and sends an email to the address indicated by Request Renewal Notification Email. If neither setting has a value, the Request button is suppressed in the End-User Portal.		

Table 19-11 ▪ FlexNet Operations: Renewal Configurations

Name	Possible Values	Description	Rqd	Restart
Renewal Failed Notification Email	Valid email address	An email address to which FlexNet Operations sends renewal notifications when an account with expiring or expired entitlements has no end users who have subscribed to receive renewal reminders. Producers can use this address to receive the renewal reminders on behalf of their customer accounts.		
Renewal Callout	Classname or URL	Optionally identify a callout to use when an end user clicks the Request button on the End-User Portal's Expiring Entitlements page. Specify a callout as an external SOAP endpoint that implements the **RenewalService** interface. (Click the Test Connection button to verify connectivity between FlexNet Operations and your endpoint.). The Renewal Callout and the Request Renewal Notification Email are not mutually exclusive. If both are present, FlexNet Operations runs the callout code and sends an email to the address indicated by Request Renewal Notification Email. If neither setting has a value, the Request button is suppressed in the End-User Portal. ***Version ▪*** *Sample implementations are available in the* `site/samples/renewal` *folder.*		

Customer Growth

These settings correspond to the **Customer Growth** section of the **FlexNet Operations** configuration page in **System > Configure**.

Table 19-12 ▪ FlexNet Operations: Customer Growth Configurations

Name	Possible Values	Description	Rqd	Restart
Consumption Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for service consumption levels. Consumption is considered unhealthy if below the low threshold and very healthy if at or above the high threshold.		

Table 19-12 ▪ FlexNet Operations: Customer Growth Configurations

Name	Possible Values	Description	Rqd	Restart
Renewal Health Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for a customer's renewal health. A low renewal health score is indicative of a risky renewal. A renewal health at or above the high mark translates to a high probability of the renewal.		
Account Health Thresholds (Low,High)	0-100,0-100 Default: 30,70	The low and high markers for an account's overall health. The account is considered unhealthy if below the low threshold and very healthy if at or above the high threshold.		
Alert Period	0-30 Default: 5	The period in days to wait before generating another alert for the same account and score type.		
Enable running health aggregation job on demand	Selected or unselected	Enables the health aggregation job to be run for this specific tenant on demand.		

Updates

These settings correspond to the **Updates** section of the **FlexNet Operations** configuration page in **System > Configure**.

Table 19-13 ▪ FlexNet Operations: Updates Configurations

Name	Possible Values	Description	Rqd	Restart
Platforms		Comma separated list of custom platforms which are available for an Update when defining the Release To packages.		

Configuring Trusted Activation Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for Trusted Activation settings through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To configure trusted activation settings***

1. Click **System** > **Configure**.
2. Click **Trusted Storage** to open the configuration page for trusted activation.
3. View or change the values of the settings below.
4. Click **Save Configs**.

The Producer Portal saves your configuration settings. Required fields are indicated with an asterisk.

Table 19-14 ▪ Trusted Storage Configurations

Name	Possible Values	Description	Rqd	Restart
Do not delete Generated Trusted Configurations, ASRs, and Key Files	Selected or unselected	Select to prevent the deletion of generated files stored in `<User Data Directory as configured in the configurator>` store. These files are generated when the first activation is requested using a new transaction key.		
Load Web Register Keys as Part of Trusted Type Bulk Entitlements Activation	Selected or unselected	Select to prevent pre-loading of web register keys for bulk entitlements using a trusted license model. Web register keys are loaded dynamically at the time of activation. This setting does not affect bulk entitlements using a certificate-based license models. Those web register keys are always pre-loaded.		
Enable Bulk Entitlement Linking while Creating Short Code	Selected or unselected	Select to link a bulk entitlement when creating a short code ASR. This only allows keyboard (short code) activation with bulk entitlement.		
Unwrap License Lines for Trusted Activations	Selected or unselected	In some network transport scenarios, new line between INCREMENT lines in trusted storage response XML file is stripped during transport, causing license to be invalid. In these cases, license is not applied to trusted storage. Select to remove new lines from license and sign response to prevent this problem.		

Table 19-14 ▪ Trusted Storage Configurations

Name	Possible Values	Description	Rqd	Restart
Enable Internet Address Binding	Selected or unselected	Determines whether or not to use internet address as one of the binding elements for every transaction key created. ***Caution ▪*** *Use caution when changing this configuration option. Changing the binding elements may change trusted configurations and fulfillment records on your end users' machines. Such changes can result in otherwise unnecessary repair requests.* Default: Unselected.		
Send Host Address and Port Number in the Activation Response	Selected or unselected	Determines whether or not activation responses include a host address and port number. Default: Selected.		
Generator for Custom Attributes in Online Response	Class name	This class can be used to implement the vendor dictionary response, to enable sending data back to the activation application after fulfillment generation.		
Generator for Custom Attributes in Short Code Response	Class name	This class can be used to implement the Short Code Response Overrides Generator to populate values for the short code response override keys that are configured in ASR.		
Force Default Transaction Key for all FNP versions	Selected or unselected	Default: unselected		
Server Chain Host Name	URI or blank	Enter a URI in the format `protocol://hostname:port/...` which is sent in activation responses. If blank, the URI sent in the activation responses is the actual server name. Default: blank.		

Table 19-14 ▪ Trusted Storage Configurations

Name	Possible Values	Description	Rqd	Restart
Add Version in Product ID	Selected or unselected	Select to add version information as part of product ID in `NAME=PRODUCT;VERSION=PROD_VERSION` format. Default: Selected		
Enable short code for license server	Selected or unselected	Select to create short code for a license server. Default: unselected		

Configuring Public Services Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for Public Services settings through the Producer Portal.

Public Services are described in detail in the *FlexNet Operations On-Premises Installation & Implementation Guide*.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To configure public services settings***

1. Click **System** > **Configure**.
2. Click **Public Services** to open the configuration page for public services settings.
3. View or change the values of the settings below.
4. Click **Save Configs**.

The Producer Portal saves your configuration changes.

Table 19-15 ▪ Public Service Configurations

Name	Possible Values	Description	Rqd
Publish LineItemDetails Public Service	Selected or unselected	Select to enable an activation application to query for line item information based on activation ID.	
Publish EntitlementDetails Public Service	Selected or unselected	Select to enable activation application to query for entitlement information based on entitlement ID.	

Table 19-15 ▪ Public Service Configurations

Name	Possible Values	Description	Rqd
Publish registerUser Public Service	Selected or unselected	Select to enable the activation application to create a user object in the FlexNet Operations database and map that user to an activatable item.	
Publish mapEntitlement Public Service	Selected or unselected	Select to enable the activation application to map activatable items to users.	
Public Services Response Generator Classname	Class name	Producers can choose information sent in response to **EntitlementDetails** and **LineItemDetails** public services. Set this parameter to the class that implements the interface `com.flexnet.operations.public.api.PublicServicesResponseGenerator`.	*

Configuring Export and Import Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for Export and Import settings through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations installation, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To configure export and import settings***

1. Click **System** > **Configure**.
2. Click **Import/Export Settings** to open the configuration page for export and import settings.
3. View or change the values of the settings below.
4. Click **Save Configs**.

The Producer Portal saves your configuration changes.

Table 19-16 ▪ Import/Export Setting Configurations

Name	Possible Values	Description	Rqd
Features per File	100 or specify	Maximum number of features per file during export.	*
Feature Bundles per File	100 or specify	Maximum number of feature bundles per file during export.	*

Table 19-16 ▪ Import/Export Setting Configurations

Name	Possible Values	Description	Rqd
License Technologies per File	100 or specify	Maximum number of publishers listed in one export file before a new XML file is created.	*
Publishers per File	100 or specify	Maximum number of feature bundles per file during export.	*
Custom Attributes per File	100 or specify	Maximum number of custom attributes allowed per file during export.	*
License Generator Configurations per File	100 or specify	Maximum number of license generator configurations allowed per file during export.	*
License Models per File	100 or specify	Maximum number of license models allowed per file during export.	*
Products per File	100 or specify	Maximum number of products allowed per file during export.	*
Part Numbers per File	200 or specify	Total number of part numbers allowed per file during export.	*
Transaction Keys per File	200 or specify	Maximum number of transaction keys allowed per file during export.	*
Product Relationships per File	200 or specify	Maximum number of product relationships allowed per file during export.	*
Uniform Suites per File	100 or specify	Maximum number of uniform suites allowed per file during export.	*
Maintenances per File	100 or specify	Maximum number of maintenances allowed per file during export.	*
Web Register Keys per File	100 or specify	Maximum number of web register keys allowed per file during export.	*
Bulk Entitlements per File	100 or specify	Maximum number of bulk entitlements allowed per file during export.	*
Simple Entitlements per File	100 or specify	Maximum number of simple entitlements listed in one export file before a new XML file is created.	*
Fulfillments per File	100 or specify	Maximum number of fulfillments allowed per file during export.	*

Table 19-16 ▪ Import/Export Setting Configurations

Name	Possible Values	Description	Rqd
Line Items per File	100 or specify	Maximum number of line items allowed per file during export.	*
Consolidated Licenses per File	100 or specify	Maximum number of consolidated licenses allowed per file during export.	*
Account Units per File	200 or specify	Maximum number of account units allowed per file during export.	*
Number of Errors per File	200 or specify	Maximum number of error messages listed in one file during import.	*
I/O Buffer Size	Size in KB	Size, in kilobytes, of the input/output buffer size to read XML files during import.	*

See Also
Performing System Configuration
Exporting a Configuration
Importing a Configuration

Configuring End-User Portal Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for the End-User Portal through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

This section includes the following sub-sections with instructions for changing End-User Portal settings and descriptions of different End-User Portal setting groups:

- Changing End-User Portal Settings
- General Options
- Login Page
- Portal Navigation
- End-User Portal Home Page
- Entitlements Page
- Bulk Entitlements Page
- License Support Page

- Devices Page
- Downloads Page
- Recent Releases
- Recent Files Page
- Download Order Page
- Download Packages Page
- Manage Accounts & Users
- Custom Branding
- Custom Tags

Changing End-User Portal Settings

Follow the instructions, below, to change the settings that govern the appearance and behavior of your End-User Portal.

Task ***To configure the End-User Portal***

1. Click **System** > **Configure**.
2. Click **End-User Portal Setup** to open the configuration page for the End-User Portal.
3. Make any setting changes that suit your configuration needs. Consult the tables, below, for additional information about the settings in each section.
4. Click **Save Configs** to save changes.

The Producer Portal saves your configuration changes.

General Options

These settings correspond to the **General Options** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-17 ▪ End-User Portal: General Options Configurations

Name	Possible Values	Description	Rqd
Transferred Items Set to *On Hold*	Selected or unselected	Set the state of items transferred in the End-User Portal to **On Hold** and send an email to the FlexNet Operations administrator to approve the transfer by releasing the hold.	
Enable Auto Login	Selected or unselected	Select to enable an end user to log in to the portal by passing an activation ID or entitlement ID in the login URL.	
Hide Header	Selected or unselected	Hides the header in all pages of portal. Select to enable when End-User Portal is embedded into an external portal.	

Table 19-17 ▪ End-User Portal: General Options Configurations

Name	Possible Values	Description	Rqd
Skip Home Page	Selected or unselected	Skips the **Home** page after a user logs in and proceeds directly to the List Entitlements page.	
Resource Bundle Time-to-Live	30 or specify	Reload the resource bundle cache at this time interval (minutes). Specify the number of minutes between resource bundle cache reloads.	*
Enable Self-Registration for an existing Account	Selected or unselected	Select to enable an end user to be associated with an existing Self-Registered account when they self-register in the End-User Portal with an entitlement ID or activation ID.	
Enable terms and conditions panel	Selected or unselected	Show or hide the **Privacy Terms and Conditions** link on the Register for Account page for self-registering users. If enabled, users are reminded to read the privacy terms and conditions when they click Complete on the Register for Account page. When a user clicks the link, the Privacy Terms and Conditions are opened in a new tab. Customers are not required to acknowledge that they have read the Privacy Terms and Conditions.	
Terms and conditions URL	Specify	If you selected **Enable terms and conditions panel**, enter the URL to the Privacy Terms and Conditions that a self-registering user should read before registering.	
Show Download Button	Selected or unselected	Show or hide the **Download** button on the **Downloads** tab on the device's default view. If selected, the **Download** button enables a user to download entire download packages or individual files contained in a download package. Requires that the configuration setting **Hide Download Manager** (in the Downloads Page section) be unselected and **Show Downloads Tab** (in the Devices Page section) be selected. Default: Unselected. ***Version ▪*** *This setting is only available for producers who use the Software Delivery module.*	

Login Page

These settings correspond to the **Login Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-18 ▪ End-User: Portal Login Page Configurations

Name	Possible Values	Description	Rqd
Hide Register Link	Selected or unselected	Hides the **Register** link for self-service registration near **Log In**.	
Hide Log in With Entitlement ID Option	Selected or unselected	Hides **With Entitlement ID** link in the login page. ***Important ▪*** *Hiding any two login methods removes the option box from the login form.*	
Hide Log in With Activation ID Option	Selected or unselected	Hides **With Activation ID** link in the login page. ***Important ▪*** *Hiding any two login methods removes the option box from the login form.*	
Hide Log in With User Name Option	Selected or unselected	Hides **With User Name** link in the login page. ***Important ▪*** *Hiding any two login methods removes the option box from the login form.*	

Portal Navigation

The settings correspond to the **Portal Navigation** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-19 ▪ End-User Portal: Navigation Configurations

Name	Possible Values	Description	Rqd
Hide Top-level Navigation	Selected or unselected	Hides the top-level navigation/menu in all pages of portal. Select to hide navigation/menu when End-User Portal is embedded into an external portal.	
Hide System Help	Selected or unselected	Hides the system help links in the top-level navigation.	
Hide Home Button	Selected or unselected	Hides **Home** in the top-level navigation.	

Table 19-19 ▪ End-User Portal: Navigation Configurations

Name	Possible Values	Description	Rqd
Hide Activation & Entitlements Menu	Selected or unselected	Hides the **Activation & Entitlements** menu in the top-level navigation.	
Hide Claim Activation IDs Link	Selected or unselected	Hides the **Claim Activation IDs** link in the **Activation & Entitlements** menu.	
Hide Devices Menu	Selected or unselected	Hides the **Devices** menu in the top-level navigation.	
Hide Accounts & Users Menu	Selected or unselected	Hides the **Accounts & Users** menu in the top-level navigation.	
Hide Host Transfer Jobs Link	Selected or unselected	For customer users, hides the **Host/Device Transfer Jobs** links in the **License Support** menu.	
Hide Downloads Menu	Selected or unselected	Hides the **Downloads** menu in the top-level navigation.	
Hide List Downloads Link	Selected or unselected	Hides the List **Downloads** link in the **Downloads** menu.	
Hide Recent Files Added Link	Selected or unselected	Hides the **Recent Files Added** link in the **Downloads** menu.	
Hide Recent Releases Link	Selected or unselected	Hides the **Recent Releases** link in the **Downloads** menu.	
Hide Usage Menu	Selected or unselected	Hides the **Usage** menu in the top-level navigation.	
Hide License Support Menu	Selected or unselected	Hides the **License Support** menu in the top-level navigation.	

End-User Portal Home Page

These settings correspond to the **Portal Home Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-20 ▪ End-User Portal: Home Page Configurations

Name	Possible Values	Description	Rqd
Hide Recent Entitlements Widget	Selected or unselected	Hides the **Recent Entitlements** panel on the **Home** page.	

Table 19-20 ▪ End-User Portal: Home Page Configurations

Name	Possible Values	Description	Rqd
Hide Recent Releases Widget	Selected or unselected	Hides the **Recent Releases** panel on the **Home** page.	
Hide Recent Files Widget	Selected or unselected	Hides the **Recent Files** panel on the **Home** page.	
Hide Downloads Widget	Selected or unselected	Hides the **Downloads** panel on the **Home** page.	
Hide Announcements Widget	Selected or unselected	Hides the **Announcements** panel on the **Home** page. See Managing Custom Content for information about publishing announcements to the home page.	
Hide Quick Links Widget	Selected or unselected	Hides the **Quick Links** panel on the **Home** page.	

Entitlements Page

These settings correspond to the **Entitlements Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-21 ▪ End-User Portal: Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide Activate	Selected or unselected	Hides the **Actions > Activate** link on the **Entitlements** page.	
Hide Trusted activate	Selected or unselected	Hides the **Actions > Trusted activate** link on the **Entitlements** page. For producers that support only trusted storage activation, hiding the **Trusted Activate** link prevents users from activating anything from the End-User Portal. However, the short code activation link is still shown and is usable.	
Hide Transfer	Selected or unselected	Hides the **Action > Transfer** link on the **Entitlements** page.	
Hide Split	Selected or unselected	Hides the **Action** > **Split** link on the **Entitlements** page.	
Hide Short Code Activation	Selected or unselected	Hides the **Action > Short Code Activation** link on the **Entitlements** page.	

Table 19-21 ▪ End-User Portal: Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide Print	Selected or unselected	Hides the **View > Print** link on the **Entitlements** page.	
Hide View Certificate	Selected or unselected	Hides the **View > View certificate** link on the **Entitlements** page.	
Hide Email	Selected or unselected	Hides the **View > Email** link on the **Entitlements** page.	
Hide Claim Activation IDs	Selected or unselected	Hides the **Action > Claim Activation IDs** link on the **Entitlements** page.	
Hide Export Button	Selected or unselected	Hides the **Export** button on the **Entitlements** page.	
Show View Download Packages	Selected or unselected	If selected, shows the **View > View Download Packages** link on the **Entitlements** page. Default: unselected.	

Bulk Entitlements Page

These settings correspond to the **Bulk Entitlements Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-22 ▪ End-User Portal: Bulk Entitlements Page Configurations

Name	Possible Values	Description	Rqd
Hide View Web Register Keys Button	Selected or unselected	Hides the **View > View Web Register Keys** link on the **Bulk Entitlements** page. Default: Unselected.	

License Support Page

These settings correspond to the **License Support Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-23 ▪ End-User Portal: License Support Page Configurations

Name	Possible Values	Description	Rqd
Hide Return	Selected or unselected	Hides the **Action** > **Return** link on the **License Support** page.	

Table 19-23 ▪ End-User Portal: License Support Page Configurations

Name	Possible Values	Description	Rqd
Hide Rehost	Selected or unselected	Hides the **Action** > **Rehost** link on the **License Support** page.	
Hide Repair	Selected or unselected	Hides the **Action** > **Repair** link on the **License Support** page.	
Hide Upgrade	Selected or unselected	Hides the **Action** > **Upgrade** link on the **License Support** page.	
Hide Upsell	Selected or unselected	Hides the **Action** > **Upsell** link on the **License Support** page.	
Hide Renew	Selected or unselected	Hides the **Action** > **Renew** link on the **License Support** page.	
Hide Manual Return	Selected or unselected	Hides the **Action** > **Manual Return** link on the **License Support** page.	
Hide Manual Repair	Selected or unselected	Hides the **Action** > **Manual Repair** link on the **License Support** page.	
Hide Save to File	Selected or unselected	Hides the **View** > **Save to File** on the **License Support** page.	
Hide Email License	Selected or unselected	Hides the **View** > **Email License** link on the **License Support** page.	
Hide Shipment Records	Selected or unselected	Hides the **View** > **Shipment Records** link on the **License Support** page.	
Hide View Fulfillments Button	Selected or unselected	Hides the **View** > **View Fulfillments** button on the **License Support/Consolidate Licenses** page.	
Hide Print	Selected or unselected	Hides the **View** > **Print** link.	
Hide Export Menu	Selected or unselected	Hides the **Export** menu above lists of licenses.	
Hide Consolidate Link	Selected or unselected	Hides the **Action** > **Consolidate** link on the **License Support** page.	
Hide Verify	Selected or unselected	Hides the **Action** > **Verify** link (shown when user generates a license).	

Table 19-23 ▪ End-User Portal: License Support Page Configurations

Name	Possible Values	Description	Rqd
Hide Transfer Licenses	Selected or unselected	Hides the **Action** > **Transfer Licenses** link on the **License Support** and **Manage Hosts** pages.	
Hide Product Version Details	Selected or unselected	Hides the **Product Version** details for activatable line items on all pages. Select the box to prevent the product version from being rendered in the **Product** column after the product name.	
Hide Batch Rehost	Selected or unselected	For customer users, hides the **Action** > **Batch Rehost** link.	
Hide Short Code Return	Selected or unselected	Hides the **Action** > **Short Code Return** link on the **License Support** page.	
Hide Short Code Repair	Selected or unselected	Hides the **Action** > **Short Code Repair** link on the **License Support** page.	
Hide List Hosts Link	Selected or unselected	Hides the **List Hosts** link in the **License Support** menu.	

Devices Page

These settings correspond to the **Devices Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-24 ▪ End-User Portal: Devices Page Configurations

Name	Possible Values	Description	Rqd
Hide View History Button	Selected or unselected	Hides **View History** option on the device's default view.	
Hide Download Capability Response Link	Selected or unselected	Hides the **Download Capability Response** link in the **Action** menu for the device's default view and **View Server** pages.	
Allow Standalone Device Creation	Selected or unselected	Allows creation of standalone devices in the End-User Portal. If **Allow Standalone Device Creation** and **Allow Server Device Creation** are unselected, the **Create Device** menu item and button are hidden.	
Allow Server Device Creation	Selected or unselected	Allows creation of server devices in the End-User Portal. If **Allow Standalone Device Creation** and **Allow Server Device Creation** are unselected, the **Create Device** menu item and button are hidden.	

Table 19-24 ▪ End-User Portal: Devices Page Configurations

Name	Possible Values	Description	Rqd
Hide Move Button	Selected or unselected	Hides the **Move Device** button in the **Action** menu on the device's default view.	
Allow Device Name Editing	Selected or unselected	Allows editing of device name in the End-User Portal.	
Display Site Name in Devices Page	Selected or unselected	Displays the **Site Name** attribute on the **Devices** page.	*
Enable Return Device/Server	Selected or unselected	Allows devices and servers to be returned via the End-User Portal.	
Allow Backup Server ID Editing	Selected or unselected	Allows End-User Portal users to add backup servers.	
Display vendor dictionary information in Devices page	Selected or unselected	Controls whether vendor dictionary information is visible on the device's default view in the End-User Portal. Default: selected (vendor dictionary information is visible on the device's default view).	
Show Downloads Tab	Selected or unselected	Controls whether the **Downloads** tab is visible on the device's default view. If selected, the **Downloads** tab shows all downloads that are available for a standalone device. Default: unselected. ***Version ▪*** *This setting is only available for producers who use the Software Delivery module.*	
Enforce device management permissions across accounts	Selected or unselected	Controls the capabilities available on the **Device Details** page. When selected, a user belonging to more than one account will have their permissions to view or manage devices enforced according to the account that owns the device. Default: unselected.	

Downloads Page

These settings correspond to the **Downloads Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-25 ▪ End-User Portal: Downloads Page Configurations

Name	Possible Values	Description	Rqd
Show File Count	Selected or unselected	Show or hide the download file count on the **Download** page. Select the box to have the End-User Portal show how many times each file has been downloaded.	
Hide Download Log Tab	Selected or unselected	Show or hide the **Download Log** tab on the **Downloads** page. Select the box to hide the **Download Log** tab.	
Hide Notification Log Tab	Selected or unselected	Show or hide the **Notification Log** tab on the **Downloads** page. Select the box to hide the **Notification Log** tab.	
Hide Date Added	Selected or unselected	Show or hide the **Date Added** column in the **Files** list. Select the box to hide the **Date Added** column.	
Hide Extended File Description	Selected or unselected	Show or hide the extended file description in the expanded file details. Select the box to hide the extended file description.	
Hide Custom Attributes	Selected or unselected	Show or hide custom file attributes in the expanded file details. Select the box to hide custom attributes.	
Hide File Checksums	Selected or unselected	Show or hide the checksum values in the expanded file details. Select the box to hide the checksums attribute.	
Show Download Package Version	Selected or unselected	Show or hide the version number for each download package next to the download package name above the file list on the **Download List** page. Note that download packages are not required to have a version. If no download package version is available, no download package version appears in the End-User Portal. Select the box to show the download package version numbers.	
Hide File Details	Selected or unselected	Show or hide all additional file details in the expanded file details. Select the box to hide all such details.	
Show Order Media	Selected or unselected	Show or hide **Order Media** on the **Downloads** page. **Order Media** enables End-User Portal users to request copies of the files to which they are entitled on physical media.	
Order Media Request Recipient	Specify	The email destination for the Order Media request messages. Set the email address the End-User Portal uses when an end user wants to order physical media.	*

Table 19-25 ▪ End-User Portal: Downloads Page Configurations

Name	Possible Values	Description	Rqd
Hide Download Manager	Selected or unselected	Show or hide the **Download Selected Files** button on the **Download List** page.	

Recent Releases

These settings correspond to the **Recent Releases** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-26 ▪ End-User Portal: Recent Releases Configurations

Name	Possible Values	Description	Rqd
Default Days to Show	30 or specify	Set the default recency of the release for the recent files list. This setting determines the recency, in days, for download packages to be included in the recent releases list. Common settings are 30, 60, 90, and 120.	

Recent Files Page

These settings correspond to the **Recent Files Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-27 ▪ End-User Portal: Recent Files Page Configurations

Name	Possible Values	Description	Rqd
Default Days to Show	30 or specify	Set the default recency for the recent files list. This setting determines the recency, in days, for files to be included in the recent files list. Common settings are 30, 60, 90, and 120.	

Download Order Page

These settings correspond to the **Download Order Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-28 ▪ End-User Portal: Download Order Page Configurations

Name	Possible Values	Description	Rqd
Show Version	Selected or unselected	Show or hide the **Version** column in the **Download Package** list of the **Available Downloads** page. The **Available Downloads** page lists the download packages associated with an entitlement. In the End-User Portal, the **Available Downloads** page appears when you click an entitlement's **Download Now** link on the **List Entitlements** page.	

Download Packages Page

These settings correspond to the **Download Packages Page** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-29 ▪ End-User Portal: Download Packages Page Configurations

Name	Possible Values	Description	Rqd
Show Version	Selected or unselected	Show or hide the **Version** column in the **Download Package** list on the **Download Packages** page. The **Download Packages** page lists the download packages for a product. In the End-User Portal, the **Download Packages** page appears when you click on a product name. For example, an end user might click on a product name that appears in **Your Downloads** on the **Home** page or in the list that appears after clicking **Downloads > List Downloads**.	

Manage Accounts & Users

These settings correspond to the **Manage Accounts & Users** section of the **End-User Portal Setup** page in **System > Configure**.

Note ▪ *You can also configure the display of the Created By column on the Accounts page in the End-User Portal using the OPS_PORTAL_CONFIG table. See the FlexNet Operations On-Premises Installation & Implementation Guide for more information.*

Table 19-30 ▪ End-User Portal: Manage Accounts & Users Configurations

Name	Possible Values	Description	Rqd
Hide Create a Sub Account	Selected or unselected	Hides the **Create a Sub Account** link in the **Actions** menu on the **Accounts** page.	
Hide Delete Account	Selected or unselected	Hides the **Delete Account** link in the **Actions** menu on the **Accounts** page.	
Hide Delete Subtree	Selected or unselected	Hides the **Delete Subtree** link in the **Actions** menu on the **Accounts** page.	
Hide Create a User	Selected or unselected	Hides the **Create a User** link in the **Actions** menu on the **Accounts** and **Users** pages.	
Hide Delete a User	Selected or unselected	Hides the **Delete User** link in the **Actions** menu on the **Accounts** and **Users** pages.	
Prevent editing Account ID and Account Name	Selected or unselected	Prevents customer users and partner users from editing their account ID and account name.	
Hide Create an Account	Selected or unselected	Hides the **Create partner account** and **Create customer account** links in the **Actions** menu on the **Accounts** page.	

Custom Branding

These settings correspond to the **Branding** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-31 ▪ End-User Portal: Custom Branding Configurations

Name	Possible Values	Description	Rqd
Upload Company Logo	Specify	Choose an image file (PNG or JPG format) to serve as your account's logo in the End-User Portal and upload it. Use the controls to choose a file from your local machine to upload. After an image file is uploaded, a reset button is available to enable you to clear the uploaded image. Maximum file size: 40KB Recommended image height: 30 pixels	

Table 19-31 ▪ End-User Portal: Custom Branding Configurations

Name	Possible Values	Description	Rqd
Upload CSS	Specify	Choose a CSS file to replace the style settings used by default for the End-User Portal. Uploading a customized CSS file allows for a broader range of style changes consolidated into a single place. For smaller changes, it may be simpler to use one of the override settings instead. Use the controls to choose a CSS file from your local machine to upload. (When no custom CSS file is present, the End-User Portal uses its default CSS.)	
Upload Header	Specify	Choose an HTML file to replace the default header content for the End-User Portal. Use the controls to choose a file from your local machine to upload. (When no custom header HTML is present, the End-User Portal uses its default header content.)	
Upload Footer	Specify	Choose an HTML file to replace the default footer content for the End-User Portal. Use the controls to choose a file from your local machine to upload. (When no custom footer HTML is present, the End-User Portal uses its default footer content.)	
Primary Navigation Position	Top, Left, or Right	Specify where to show the high-level navigation menu for the End-User Portal. Default: Top.	

Table 19-31 ▪ End-User Portal: Custom Branding Configurations

Name	Possible Values	Description	Rqd
Configure Portal Colors		Click **Open Configurator** to show the **Color Configurator** panel. The **Color Configurator** allows you to set the colors to use in your End-User Portal pages for the following content: • **Default button label color –** sets the color of the label on default buttons in the End-User Portal. • **Default button color –** sets the color of the default buttons in the End-User Portal. • **Background color –** sets the background page color for all End-User Portal pages. • **Title color –** sets the text color of the page titles in the End-User Portal. • **Link color –** sets the color of the link text and lightweight button text on End-User Portal pages. • **Primary navigation –** sets the background color for the primary navigation menu. • **Primary navigation open –** sets the background color for open (active) primary navigation menu items. • **Primary navigation text –** sets the color for all text in the primary navigation menu. Specify all colors using hexadecimal format. For example, `#000000` for black, `#ffffff` for white, or `#228B22` for forest green. Click **Preview** to show a sample of your color settings within the **Color Configurator**. Click **Undo** to revert any changes that have not yet been saved. Click **Use Defaults** to restore color settings to the FlexNet Operations default colors. Click **Save** to store your changes to these color settings.	

Custom Tags

These settings correspond to the **Custom Tags** section of the **End-User Portal Setup** page in **System > Configure**.

Table 19-32 ▪ End-User Portal: Custom Tag Configurations

Name	Possible Values	Description	Rqd
Last in Head		Custom script tags added here are inserted last in the document <head/> of the End-User Portal.	

Table 19-32 ▪ End-User Portal: Custom Tag Configurations

Name	Possible Values	Description	Rqd
Last in Body		Custom script tags added here are inserted last in the document <body/> of the End-User Portal.	

Activating and Licensing FlexNet Operations

You can configure your FlexNet Operations license on the Licensing configuration page (**System** > **Configure** > **Licensing**). This page is where producers activate their license to use FlexNet Operations by providing the URL for the FlexNet Embedded endpoint they receive in their welcome message from Revenera.

The Producer Portal shows the Licensing page when the first user from a producer's account logs in. Until a valid FlexNet Embedded endpoint URL is in place, the Producer Portal remains in its unactivated state, and no other pages are accessible to the producer's accounts' users.

Task ***To activate FlexNet Operations***

1. Click **System** > **Configure**.
2. Click **Licensing**. The Producer Portal opens the Licensing configuration page.
3. On the Licensing configuration page, enter your FlexNet Embedded endpoint URL.
4. Click **Save Configs**.

The Producer Portal activates for the features contained in your FlexNet Operations license.

Version ▪ *You must restart the FlexNet Operations server for these changes to take effect.*

Importing a Configuration

The configuration import utility uses the JAR file created by the configuration export utility to restore all FlexNet configuration settings. A user must be assigned a role with the **View and Manage Configurations** permission to import configuration settings.

Note ▪ *Before importing configuration settings into a working FlexNet Operations instance, export the working configuration settings (without writing over the JAR file you plan to import). If there is a problem with the imported settings, you have a backup of working settings to restore.*

Task ***To import configuration settings through the FlexNet Operations Producer Portal***

1. Click **System** > **Configure**.
2. Click **Import** to open the **Import** page.
3. Specify the JAR file that contains the configuration settings to restore.
4. Click **Import**.

The Producer Portal imports the settings contained in the imported file.

Version ▪ *You must restart the FlexNet Operations server for these changes to take effect.*

Exporting a Configuration

The configuration export utility exports all of the FlexNet configuration settings at once. Configurations are exported to a JAR file that contains database, FlexNet Platform Server, Producer Portal, and application-specific settings in separate XML files. The configuration import utility uses the JAR file to restore all configuration settings. A user must be assigned a role with the **View and Manage Configurations** permission to export configurations to a file.

Task ***To export configuration settings through the FlexNet Operations Producer Portal***

1. Click **System** > **Configure**.
2. Click **Export** to open the **Export** page.
3. Click **Export**.
4. In the File to download dialog, click **Open**, **Save,** or **Cancel**.

   Specify the location and file name for the JAR file. By default, the configuration settings are saved to a file called `flexnet_configurations.jar`. It is recommended to save the file to a safe location.

Configuring Embedded Devices Settings

A user must be assigned a role with the **View and Manage Configurations** permission to modify configuration settings for Embedded Devices through the Producer Portal.

Note ▪ *Before changing any configuration settings in a working FlexNet Operations instance, it is advisable to export the working configuration settings. If there is a problem with the new settings, you have a backup of working settings to restore.*

Task ***To configure embedded devices settings***

1. Click **System** > **Configure**.
2. Click **Embedded Devices** to open the configuration page.
3. View or change the values of the settings below.
4. Click **Save Configs**.

The Producer Portal saves your configuration changes.

Settings appear in the following groups:

- Host Options
- Capability Request Handling
- License Generation
- History Logging

Host Options

These settings correspond to the **Host Options** section of the **License Fulfillment Service Configuration Settings** page in **System > Configure**.

Table 19-33 ▪ Embedded Devices: Host Option Configurations

Name	Possible Values	Description
Default Client Host Type	FLX_CLIENT or specify	The default host type FlexNet Operations uses when creating an unknown client device from a request, if the request does not specify a host type. This value is also used when claiming a client device from the End-User Portal, if not supplied by the request, the portal UI, or a call-out. Default: FLX_CLIENT.
Default Server Host Type	FLX_SERVER or specify	The default host type FlexNet Operations uses when creating an unknown server device from a request, if the request does not specify a host type. This value is also used when claiming a server device from the End-User Portal, if not supplied by the request, the portal UI, or a call-out. Default: FLX_SERVER.
Excluded Client Host ID Types	specify	Use this option to select which of the normally supported host ID types should be excluded from the choices presented when editing the allowed ID types for a host type that supports clients.
Excluded Server Host ID Types	specify	Use this option to select which of the normally supported host ID types should be excluded from the choices presented when editing the allowed ID types for a host type that supports servers.

Table 19-33 ▪ Embedded Devices: Host Option Configurations

Name	Possible Values	Description
Entitlement Map Overlap	Value in days	Maximum elapsed time, in days, that an entitlement mapping can exceed the limits specified by any applicable host series definitions.
Allow Duration License Decrease	Selected or unselected	Select to allow licenses with duration based features to have their copies reduced. Normally, licenses using durations only allow increasing the number of copies.
Allow Duration License Decrease for Producer	Selected or unselected	Select to allow licenses with duration based features to have their copies reduced by a producer. Normally, licenses using durations only allow increasing the number of copies.
Consume Copies When Mapping	Selected or unselected	Immediately deduct the number of copies from the appropriate line item when a request to increase a host's license copies is processed. If this option is not selected, the additional copies are not deducted until the license is generated.
Clone Detection	Selected or unselected	Select to record the clone suspect events in the back office.

Capability Request Handling

These settings correspond to the **Capability Request Handling** section of the **License Fulfillment Service Configuration** page in **System > Configure**.

Table 19-34 ▪ Embedded Devices: Capability Request Handling Configurations

Name	Possible Values	Description
Device Response Lifetime	Time value in seconds, minutes, hours, days, or weeks	Lifetime for device responses generated when a device request is received. You can specify the value to explicitly identify the time unit as seconds, minutes, hours, days, or weeks with a suffix of s, m, h, d, or w. If no suffix is used, the value is assumed to be in seconds. If the value is zero (0), the responses never expire.
Allow Adding Unknown Hosts	Selected or unselected	Select to allow an unknown host to be added as a result of processing a capability request. An unknown server is added only if the capability request contains a valid activation ID. (To add a server when the request contains no activation ID, select **Allow Server Without Activation IDs**.)
Allow Server Without Activation IDs	Selected or unselected	Select to allow unknown servers to be added as a result of processing a capability request, even if the request does not contain any activation IDs.

Table 19-34 ▪ Embedded Devices: Capability Request Handling Configurations

Name	Possible Values	Description
Prohibit Virtual Hosts	Selected or unselected	Select to prohibit capability requests for hosts running on virtual machines. If this option is not selected (default), capability requests are served regardless of the machine type.
Capability Request Call-out	URL or classname	The base URL of a REST server or name of a class that implements the **com.flexnet.lm.bot.service.CapabilityRequestCallOut** interface. If specified, it is called to customize handling of capability requests and generated responses.
Capability Request Finalize Host Call-out	Selected or unselected	Select to invoke call-out just before creating an unknown host. Additional attributes can be defined before it is persisted. It can also be used to cancel creation of the new host instance.
Capability Request Access Check Call-out	Selected or unselected	Select to invoke call-out after (optionally) creating an unknown host, before proceeding with processing an off-line request. The return value can be used to deny access to the targeted host.
Capability Request Finalize Response Call-out	Selected or unselected	Select to invoke call-out after an incoming host request has been validated, but before the capability response has been generated.
Call-out Includes Host Details	Selected or unselected	Select to send details about the target host in the request body. Otherwise, just send the host id and id type, host class, host type, and alias.
Call-out Includes Add-on Details	Selected or unselected	Select to send add-on details in the request body. Otherwise, just send list of activation IDs.

License Generation

These settings correspond to the **License Generation** section of the **License Fulfillment Service Configuration** page in **System > Configure**.

Table 19-35 ▪ Embedded Devices: License Generation Configurations

Name	Possible Values	Description
Default Borrow Interval	Time value in seconds, minutes, hours, days, or weeks	The default borrow interval for features that do not specify an override. You can specify the value to explicitly identify the time unit as seconds, minutes, hours, days, or weeks with a suffix of s, m, h, d, or w. If no suffix is used, the value is assumed to be in seconds. If the value is zero (0), the interval is unlimited.

Table 19-35 ▪ Embedded Devices: License Generation Configurations

Name	Possible Values	Description
Default Renew Interval	Percentage of borrow interval	The default renew interval expressed as a percentage of the borrow interval, for features that do not specify an override. If set to zero (0), the renew interval is at the client discretion.
Include Issued Date	Selected or unselected	If selected, include the **Issued Date** attribute in generated licenses for devices. Default: Selected.
Include Start Date	Selected or unselected	If selected, include the **Start Date** attribute in generated licenses for devices. Default: Selected.
Default Metered Undo Interval	Time value in seconds, minutes, hours, days, or weeks	The default value of the undo interval for metered features that do not explicitly define an undo interval and are not reusable. You can specify the value to explicitly identify the time unit as seconds, minutes, hours, days, or weeks with a suffix of s, m, h, d, or w. If no suffix is used, the value is assumed to be in seconds.
Skip Confirmation	Selected or unselected	When selected, no confirmation capability request is required when reducing the number of copies of a license.
Skip Confirmation for Producer	Selected or unselected	When selected, no confirmation capability request is required for a producer when reducing the number of copies of a license.
Date-based Version Format	yyyy.MM or yyyy.MMdd	When a feature that uses a date-based version format is created, this format is used when converting the version date to a version representation. For a date of May 15, 2018, yyyy.MM is 2018.05 and yyyy.MMdd is 2018.0515.

History Logging

These settings correspond to the **History Logging** section of the **License Fulfillment Service Configuration** page in **System > Configure**.

Table 19-36 ▪ Embedded Devices: History Logging Configurations

Name	Possible Values	Description
Successful Capability in Request History	Selected or unselected	When selected, successful capability requests and matching responses are recorded in the request history. By default, successes are recorded only in the host history.
Record Sync in Request History	Selected or unselected	When selected, sync messages and acknowledgments are recorded in the request history. By default, messages are recorded only in the host history, at debug log level.

Table 19-36 ▪ Embedded Devices: History Logging Configurations

Name	Possible Values	Description
Write License History Events	Selected or unselected	When selected, individual license host history events are included in the request history for backward compatibility. Recording such events has been deprecated and replaced by adding fulfillment details in other events.
Host History Log Level	Debug, Information, Error	Include events in host history that are at or above the specified log level. The lowest log level is Debug; the highest is Error.

Configuring Secure Token Single Sign-On

The FlexNet Operations End-User Portal can be configured to interface with a separate application, such as a corporate portal or intranet. The single sign-on (SSO) application passes user credentials to the FlexNet Operations End-User Portal, enabling a user to have a single set of credentials for both. The user signs on to the SSO application, and gains access to both the SSO application and FlexNet Operations End-User Portal for the duration of the browser session. This section describes how to configure single sign-on applications.

The secure token single sign-on process includes the following steps:

Table 19-37 ▪ Secure Token Single Sign-On Process Steps

#	Step	Description
1	**SSO application requests secure token**	The SSO application requests a secure token from the FlexNet Operations server. The FlexNet Operations server sends the secure token back to the SSO application.
2	**SSO application receives secure token and constructs URL**	The SSO application receives the secure token and constructs a URL, which includes parameters that control the display and behavior of the End-User Portal.
3	**SSO application sends URL to FlexNet Operations server**	The SSO application sends the URL and the secure token to the FlexNet Operations server.
4	**Upon login, credentials are passed to server and user is authenticated**	When the user logs into the SSO application, credentials are passed to the FlexNet Operations server, and the user is authenticated. The FlexNet Operations server displays the End-User Portal landing page.

Configuring Secure Token Single Sign-On

Secure token single sign-on uses FlexNet Operations Web services.

- Synchronizing SSO Application User Data
- Generating a Token

- Constructing a URL

Note ▪ *For more information about Web services, including the SSO Web service, consult the FlexNet Operations Web Services Integration Guide and FlexNet Operations SOAP Web Services Guide.*

Synchronizing SSO Application User Data

Before configuring secure token single sign-on, you must synchronize SSO application user data from the SSO application with your FlexNet Operations database, as shown here.

Table 19-38 ▪ Data Synchronization for Secure Token SSO Applications

Data	Required or Optional?
User first name	Required
User last name	Required
User email ID	Required
User role	Required
User locale	Optional, defaults to system locale
User time zone	Optional, defaults to system time zone
User Account ID	Optional, ID of the account to which the user belongs
Account ID	Required for all accounts
Account display name	Required

Native Authentication

If the secure token SSO application performs authentication natively, then you must pre-load all user data from the SSO application into FlexNet Operations using the **UserAdministration** Web service. In addition, the SSO application must synchronize all subsequent changes to user information with the FlexNet Operations database.

- For example, if the application allows online user registration, the **UserAdministration** Web service must be used to create the same user in FlexNet Operations.
- Because FlexNet Operations does not allow deletion of user information, if a user is deleted from the SSO application, the user's status must be set to `Inactive` in FlexNet Operations.

External Authentication

If the secure token SSO application is authenticating users with a directory service (such as LDAP), you must configure the directory service in FlexNet Operations as follows:

Task ***To configure the directory service for external authentication:***

1. Add the directory service as a new domain in FlexNet Operations.
2. Import groups from the directory service into the FlexNet Operations database.
3. Map roles to the imported directory groups. (Typically, the groups are assigned the Portal User role.)

Subsequent changes to the directory service user database must be synchronized with FlexNet Operations using the **UserAdministration** Web service.

Note ▪ *For more information on roles, users, and domains, see Managing Accounts and Users.*

Generating a Token

FlexNet Operations Web services are used in making, processing, and generating token requests.

Task ***To generate a token:***

1. The SSO application must request a secure token from the FlexNet Operations server. This request is performed with a SOAP message using a **FlexnetAuthentication** Web service call. Create a FlexNet user for a Web service client, and pass the credentials in the request for authentication so that the **FlexnetAuthentication** service processes the request and serves the response with a valid, secure token. The request message has the form:

```
<secureTokenRequest>
   <userId>sjoe</userId>
</secureTokenRequest>
```

2. After the request is processed by the FlexNet Operations server, the response message is returned with the secure token. The response message has the form:

```
<secureTokenResponse>
   <token>vZ1VakmEUiNmTsj5-dYE38qQvUW_OcxoLeDhtNmS53v04xPF__2GmfKwUE7D6hPoZcV9W0KlqhjET
   _NjY1QvK0_j_dmNUEVhkxibIQz1A2g__wg</token>
</secureTokenResponse>
```

The token is valid for 300 seconds after creation.

Constructing a URL

After the SSO application receives the secure token, it must launch a URL to display the End-User Portal. The URL has the form:

```
http://<host>:<port>/flexnet/operationsportal/sso.do?username=<username>&token=<token>
&language=<language>&externallogoffurl=<URL>&goToPage=<page>&hideheader=<value>
```

Important ▪ *Query string parameters must be URL encoded.*

Parameters are described in the following table:

Table 19-39 ▪ SSO URL Parameters

Parameter	Description
username	User's name. Must be in the FlexNet Operations database or the login fails.
token	Secure token value.
language	Optional. The user's preferred language, such as `en_US`.
externallogoffurl	URL to display if the session times out. ***Important ▪*** *The* ***externallogoffurl*** *must be URL encoded.*
goToPage	Optional. Indicates which page of the FlexNet Operations End-User Portal to display initially. Possible values are: • `homePage` displays the End-User Portal landing page • `showEntitlements` displays the entitlements landing page • `showFulfillments` displays the fulfillments landing page • `activate` displays the item corresponding to the activation ID
activationID	Optional. If specified, the user can access only the specified activation ID. Used in conjunction with the goToPage value "`activate`" to directly navigate to activation page.
entitlementID	Optional. If specified, the user can access only the specified entitlement ID. Used in conjunction with the goToPage value "`activate`" to directly navigate to activation page. Note that if the goToPage is set to `activate`, only non-child items can be activated from this page. Child line items are those which are derived by upgrading or renewing another line item. An example of a URL that would load the activation page for a given entitlement ID: http://opshost:8888/flexnet/operationsportal/sso.do?username=admin&goToPage=activate&hideheader=true&token%3Dv9vF941Xv18xvhAY&entitlementId=SSOEnt&externallogoffurl=http%3A%2F%2Flocalhost%3A9090externalportalstartpage.jsp26language%3Den_US
hideheader	Optional. Controls the display of the End-User Portal header. Value is true or false.

Sample Application

A sample secure token single sign-on application is included with the FlexNet Operations installation. You can use this sample application to test configuration of your own single sign-on solution. The sample also includes a `readme` file that contains installation and configuration instructions.

The sample is located in the `Samples` folder and is named `portalSSODemoApp.zip`.

Viewing Transaction Histories

Producers can use the transaction history feature to view system state changes of entity transactions to troubleshoot issues by observing the transactions and/or comparing changes in the entity fields. There are several types of entities that can be viewed. These entities include:

- Account
- Product
- User
- Update
- Entitlement

You can view when the entities were created, updated, deleted, and who submitted the change.

Task ***To search for a transaction***

1. Click **System > Transaction History**.
2. Select or enter your search criteria. Options include:
   a. Select the **Entity Type** you want to search for from the drop-down menu.
   b. If you select a specific entity, you can enter a value for that type of entity.
   c. Enter the ID of the user who performed the transaction.
   d. Enter or select a start date.
   e. Enter or select an end date.
3. Click **Search**.

The Producer Portal searches for transactions that match your search criteria and shows a list of matching transactions in the search results. The results page lists the following:

- The timestamp of the transaction
- The event type (create, update or delete)
- The entity type
- The entity ID
- The user who performed the transaction.

Click on the **View details** of an entity to view the details of the transaction. On the **Transaction Details** page, you can view all the fields associated with an entity, including any changes from the **Show all fields** tab, or select the **Show only differences** tab to view just the fields that changed.

Note ▪ *Only transactions with an event type of UPDATE have the* ***Show all fields*** *and* ***Show only differences*** *tabs. There are no differences to display for CREATE events.*

Click on the Entity ID of a transaction to be taken to the create/update page for that entity.

Managing Custom Content

Producers can create custom text or HTML to be shown to their end-users in the End-User Portal. Custom content is used in the End-User Portal to customize page instructions on supported pages, add announcements to the home page, or create standalone pages.

Note ▪ *To create or edit custom content, a Producer Portal user must have the View and Manage Custom Content permission. See Working with Roles and Permissions for more information about users, roles, and permissions.*

The topics below explain more about custom content and how to manage it.

Table 19-40 ▪

Topic	Description
About Custom Content	Discusses custom content concepts, attributes, and supported End-User Portal pages.
About Product Trial Registration Support	Describes how to use the TrialRegistration custom content template to support the registration for trial products by end users, including the optional use of a custom email message and a custom registration-success page.
Listing Custom Content	Shows how to use the System menu to list all custom content.
Creating Custom Content	Explains how to create custom content.
Editing Custom Content	Describes how to edit an existing custom content item.
Localizing Custom Content	Explains how to update page instructions for localized sites.

About Custom Content

Producers can modify the on-page instructions of End-User Portal pages—typically the content at the top of a page just below the page title—by creating custom content in the Producer Portal. One common use for custom content is to add announcements to the End-User Portal's home page. Producers can also create custom, standalone HTML pages to be included in the End-User Portal using the Custom Content feature.

To use custom content to modify on-page instructions of regular End-User Portal pages, first identify the End-User Portal page you want to customize. Next, on that page, determine the custom content ID of the portion you plan to customize. Then use the controls on the Custom Content page, along with your custom text or HTML, to create the new content. The custom content you create replaces the standard content (corresponding to the custom content ID) on the End-User Portal page.

Use the pages listed in Pages That Support Custom Content to determine which custom content ID to use when you create content. For example, use NotificationLogContent to alter the instructions on the Downloads page that appears when a user clicks on a download package on the Download Packages page.

***Tip** ▪ To add announcements to the End-User Portal's home page, edit the HTML for custom content ID: **epAnnouncements**. Announcements are rendered on the home page in the Announcements panel.*

To use custom content to create custom, standalone pages, add content from the Custom Content page but be sure to use a unique, unused custom content ID.

Additional information about custom content attributes, status, supported pages, and so forth appears in the following sections:

- Custom Content Attributes
- Custom Content Status
- Pages That Support Custom Content
- Localization and Custom Content
- Additional Notes and Tips for Content Customization

For information about using custom content to support trial registrations, see About Product Trial Registration Support.

Custom Content Attributes

The following attributes are relevant to Producer Portal users who are creating or editing custom content to be shown in their End-User Portals.

Table 19-41 ▪ Custom Content Attributes

Attribute	Description
Custom Content ID	A unique ID that can be used to identify custom content in FlexNet Operations. When custom content is to replace existing, standard content on an End-User Portal page, this ID must match the ID of the content it replaces. When custom content is intended to introduce a new page to the End-User Portal, this ID must be unique and otherwise unused in the End-User Portal.
Description	A longer, descriptive name for custom content.

Table 19-41 ▪ Custom Content Attributes

Attribute	Description
Hide from Portal?	A switch that determines whether live custom content appears on the End-User Portal. • **Selected**—Hide the custom content from End-User Portal users even if the custom content is the live version. • **Unselected**—Show the custom content to End-User Portal users if it is the live version. Default: Unselected. Hide from Portal is a control that appears on the Create Content and Edit Content pages.
Template	The template to use for the custom content. Currently, only one template is available: TrialRegistration. This template is purpose built to support free trial registrations in the End-User Portal. In all other cases, leave the Template setting blank.
Status	The status of the custom content version. For custom content, status can be Live, Draft, or Archived. (See Custom Content Status, below.) Status is a value that appears in the list of custom content items on the Custom Content page.
Last Modified	The date the custom content was last changed. Last Modified is a value that appears in the list of custom content items on the Custom Content page.
Modified By	The Producer Portal user who last changed the custom content. Modified By is a value that appears in the list of custom content items on the Custom Content page.
Permalink	The relative URL for custom content in the End-User Portal. For standalone pages built from custom content, this URL can be used for links that target the custom content page. Permalink is an attribute that appears on the Edit Content page.
Content Version	The version of the custom content for the current custom content ID. Content Version values show the status and version of custom content. For example: **Draft / 1** or **Live / 2**. Content Version is a control that appears on the Edit Content page.
Content	The text or HTML to be used in the End-User Portal.

Custom Content Status

Similar to email template status values, custom content items can have one of three status values:

- **Live**—The current version of the content that appears in your End-User Portal. Only one version of a custom content item can be live at any given time.
- **Draft**—A work-in-progress version of new custom content or an existing custom content item that is being revised. Custom content items in draft state are not shown in the End-User Portal. Only one version of a custom content item can be in draft status at any given time.
- **Archived**—Formerly live versions of a custom content item. Archived versions are preserved in the system and can be made live, again, if your account is required to roll back changes made to the live version.

A custom content item's status is shown on the Custom Content page.

Pages That Support Custom Content

The following table lists End-User Portal pages that support custom content, the custom content IDs for the customizable items, and a description of how the content is used for each custom content ID.

***Note** ▪ It is also possible to create custom, standalone pages for the End-User Portal using your own custom content ID. The Trial Registration page is a special standalone page that producers can implement using the TrialRegistration template.*

Table 19-42 ▪ Pages That Support Custom Content

End-User Portal Page	Content ID	Description
Home (End-User Portal Announcements)	epAnnouncements	The Announcements panel on the home page can display messages from your account to its end users. This content is rendered on the home page unless the End-User Portal system configuration setting: Hide Announcements Widget is selected. (It is unselected by default.)
Downloads	ManufacturersContent	Displayed when the user is presented with a list of producers. If only one producer is available, the end user sees only the list of available product lines (no producer choice when files from only one producer are available). This is the page that appears when an end user chooses **Downloads** > **List Downloads** in the End-User Portal, for example. This content is rendered under the page title (Downloads) and above the list of producers and product lines.

Table 19-42 ▪ Pages That Support Custom Content

End-User Portal Page	Content ID	Description
Download Packages (Download Package Versions)	NewDownloadPackagesInfo	The Download Packages page is the page that appears when an end user chooses a product line on the Producers page (the page the End-User Portal shows when end users click **Downloads** > **List Downloads**). This content is displayed when the New Versions tab is rendered and there are previous (archived) versions available for the product line selected.
Download Packages (Download Package Versions)	ArchivedDownloadPackagesInfo	The Download Packages page is the page that appears when an end user chooses a product line on the Producers page (the page the End-User Portal shows when end users click **Downloads** > **List Downloads**). This content is displayed when the Previous Versions tab is rendered and there are new (current) versions available for the product line selected.
Download Packages (View Download Order)	NewDownloadOrderContent	The Download Order page is the page that appears when an end user clicks **Download Now** on the Entitlements page (the page the End-User Portal shows when end users click **Activation & Entitlements > List Entitlements**). This content is displayed when the New Versions tab is selected.
Download Packages (View Download Order)	ArchivedDownloadOrderContent	The Download Order page is the page that appears when an end user clicks **Download Now** on the Entitlements page (the page the End-User Portal shows when end users click **Activation & Entitlements > List Entitlements**). This content is displayed when the Archived Versions tab is selected.
Download Search	SearchContent	This content is displayed on the Download Search page and rendered under the page title and above the search controls.

Table 19-42 ▪ Pages That Support Custom Content

End-User Portal Page	Content ID	Description
Download Files	DownloadContent	Displayed on the Downloads page. This is the page that appears when an end user clicks on a download package on the Downloads page. This content is present when the Files tab is active. It is rendered below the page title (Downloads) and above the download package name. Note that download package-specific content is still maintained via the download package Download Instructions attribute. (Download instructions appear below the download package name and just above the Files, Download Log, and Notification Log tabs.)
Download Log	DownloadLogContent	Displayed on the Downloads page when the Download Log tab is active and the Download Log tab is showing its default Files Downloaded view. It is rendered below the page title (Downloads) and above the download package name. Note that the Download Log tab can show three different views: Files Downloaded, Download Transactions, and Download Details. Each view corresponds to a separate HTML content entry.
Download Log Detail	DownloadDetailContent	This content is displayed on the Downloads page for a download package when a user clicks a file name on the Download Log tab. (Clicking a file name shows the Download Log's Download Transactions view for that file.) The custom content for DownloadDetailContent is rendered below the page title (Downloads) and above the download package name. Note that the Download Log tab can show three different views: Files Downloaded, Download Transactions, and Download Details. Each view corresponds to a separate custom content entry.

Table 19-42 ▪ Pages That Support Custom Content

End-User Portal Page	Content ID	Description
Download Log Detail File	DownloadDetailFileContent	This content is displayed on the Downloads page for a download package when a user clicks a date-time value on the transaction list on the tab's Download Transactions view. (Clicking a time-date value shows the Download Log's Download Details view.) The custom content for DownloadDetailFileContent is rendered below the page title (Downloads) and above the download package name. Note that the Download Log tab can show three different views: Files Downloaded, Download Transactions, and Download Details. Each view corresponds to a separate custom content entry.
Notification Log	NotificationLogContent	Displayed on the Notification Log accessible from the Download page. Custom content for NotificationLogContent is rendered below the page title (Downloads) and above the download package name.
DownloadOrder	DownloadOrderContent	Displayed on the Available Downloads page. The Available Downloads page is shown when a user clicks the Download Now link for an entitlement on the List Entitlements page. The Available Downloads page shows download packages for the products in the entitlement that include downloads. Custom content for DownloadOrderContent is rendered below the page title (Available Downloads) and above the Activation ID.
View Recent Files	ViewRecentFilesContent	Displayed on the View Recent Files page on the Home page for specific implementation.
View Recent Products	RecentProductReleasesContent	Displayed on the View Recent Products page.
LandingPage	NoDownloadContent	Displayed on the landing page when no downloads are available for the current user.
Files Not Downloaded	NoDownloadContent	Displayed on the Files Not Downloaded page when no downloads are available for the current user.

Table 19-42 ▪ Pages That Support Custom Content

End-User Portal Page	Content ID	Description
Claim and Activate	ClaimAndActivateContent	Displayed on the Claim and Activate page. Custom content for ClaimAndActivateContent is rendered below the page title (Claim and Activate) and above the form inputs on that page.
Map by Activation IDs	AddOnUserEntryContent	Displayed on the Map by Activation IDs page. Custom content for AddOnUserEntryContent is rendered below the page title (Map by Activation IDs) and above the Device ID and Activation IDs field.
Password Reset	ForgotOrResetPassword	Displayed when a user clicks the Forgot Password link on the sign-in page. On the Password Reset page, the user is asked for their user ID and then asked to correctly answer their security question.
Expiring Entitlements	ExpiringEntitlementsContent	Displayed when, in the End-User Portal, a user clicks Activations & Entitlements > Expiring Entitlements. On the Expiring Entitlements page, the End-User Portal shows a list of entitlements in which the entitlements due to expire soonest are listed first. ExpiringEntitlementsContent is rendered below the page title and above the list of entitlements. (Default: blank.)

Localization and Custom Content

Producers can localize the following custom content IDs, used to display custom instructions and information on specific End-User Portal pages:

- **Download Files** (Content ID: `DownloadContent`)
- **Home (End-User Portal Announcements)** (Content ID: `epAnnouncements`)
- **Password Reset** (Content ID: `ForgotOrResetPassword`)

Custom content IDs are defined using the System > Custom Content page (see Listing Custom Content).

To localize the content associated with the IDs listed above, you must add the locale code as a suffix to the ID. For example, to localize the `epAnouncements` content for France, add the "-fr_FR" suffix to the ID: `epAnnouncements-fr_FR`.

For step-by-step instructions, see Localizing Custom Content.

Additional Notes and Tips for Content Customization

A short list of tips to keep in mind as you customize End-User Portal pages.

- Remember that custom content items replace the content in question rather than appending to it.

- To revert the content of an End-User Portal page back to the standard content, edit the page's customized HTML content (Edit Custom Content Data) so that its Hide from Portal attribute is selected.
- A completely empty custom content file does not remove a page's standard content. To remove standard page instructions, use an empty HTML comment in the page's custom content. For example, `<!-- -->`.
- Troubleshooting: In the End-User Portal pages, customizable content has HTML comments before and after it to indicate its custom content ID. Therefore, when you view the page source, you can see where the custom content is placed and what its ID is. Custom content appears like the following in the page source:

```
<!--BEGIN HTML Content ID <Custom Content ID value> -->
<Custom Content>
<!--END HTML Content ID <Custom Content ID value> -->
```

About Product Trial Registration Support

Producers who want to offer trial registrations in the End-User Portal can use the TrialRegistration template to create a landing page for the free trial software users.

The TrialRegistration template uses the AngularJS framework along with standard custom content functionality to render a list of trial products from which end users can select and form fields for them to enter an email address (required) as well as additional contact information.

***Tip** ▪ See About Trial Products to learn how to configure the products you want to make available for free trials.*

Trial Registration Process

Upon successful submission of the trial registration form, FlexNet Operations generates a new account and a new user account for the trial user (based on the email address provided). FlexNet Operations also creates an entitlement for that user to the trial product the end-user selected. The End-User Portal sends an email based on the **Welcome Email for End Users** template to the new trial user, giving that user access to their trial entitlement on the End-User Portal.

***Tip** ▪ Producers can create a variation of the **Welcome Email for End Users** template to use specifically for trial registrations. This variation name is then used in the trial registration custom content. In the custom content for your Trial Registration page, locate the hidden input,* `emailTemplate`*, and replace default value* `{{formData.emailTemplate}}` *with the Welcome Email for End Users email template's variation name.*

Sending End Users to a Trial Registration Page

With a custom content Trial Registration page, and all trial registration elements in place, producers can send trial users to their trial registration page using a URL based on their End-User Portal location domain plus the Permalink path for the trial registration custom content page. For example, if your End-User Portal is hosted at `mycompany.flexnetoperations.com/flexnet/operationsportal` and the content ID for your trial registration page is `TrialReg`, the URL for your trial registration page would be

https://mycompany.flexnetoperations.com/flexnet/operationsportal/showTrialRegisterUserPage.do?contentId=TrialReg

Showing a Custom Registration-Success Page (Optional)

When an end user successfully registers, the End-User Portal shows a simple registration-success page. However, a producer can create a custom registration-success page to show to end users who complete the trial registration form. To do so, a producer first creates a standalone custom content page to serve as the custom registration-success page. The content ID of this new standalone page can then be used as the value for the hidden `landingContentId` input on the Trial Registration page.

Customizing Trial Registration Content

You can customize the trial registration template that is available on the Custom Content page. To access the trial registration template, in section Creating Custom Content, follow Step 1 through Step 4. By default, the trial registration template contains predefined code that you can customize as required.

The Preview option enables you to see how your code is rendered.

The following subsections explain the sections and individual fields that are included in the code, as well as how to customize the trial registration template code if custom attributes are used in FlexNet Operations.

"Trial Registration" Section

The only mandatory information that FlexNet Operations requires from a user to create an entitlement is a valid email address. Any other information is optional.

Table 19-43 ▪ Trial Registration Fields

Field(s)	Description
userEmail	Required. Prompts the user to enter their email address. The email address is the only user information required by FlexNet Operations to create an entitlement. By default, FlexNet Operations automatically generates the code snippet for the `userEmail` field with the label `Email`, and the field is displayed in the End-User Portal. This is the address that the trial details will be sent to.
userFirstName **userLastName** **companyphoneNumber** **streetAddress** **city** **state** **postalCode**	Optional fields that can be used to collect additional customer information. By default, FlexNet Operations automatically generates the code snippet for these additional fields. You can edit the code according to your requirements.

"Product Selection" Section

There are several ways to let your users select one or more part numbers, or you can specify a predefined part number in a hidden field:

- **Hidden input**—Does not let the user select a part number. You can include a predefined part number that cannot be seen or modified by users when the form is submitted.
- **Check boxes**—Enables the user to select one or more predefined part numbers. If you present the user with this option, the user should be required to select at least one check box.
- **Other selection/input mechanisms**—Listing all available selection or input mechanisms here would exceed the scope of this documentation. Offer the mechanism that suits your environment.

Table 19-44 ▪ Product Selection Fields

Field(s)	Description
selectedPartNumbers	Use this field to specify the part number or selection of part numbers.

"Additional Information" Section

This section contains code snippets that illustrate how to customize the trial registration template code if custom attributes are used in FlexNet Operations. These custom attributes can be user attributes, account attributes, or license attributes. For information about custom attributes, see Defining Custom Attributes.

Defining Custom Attributes

It is important that you use the same structure for your code as demonstrated in the code snippets, otherwise errors may occur. You can include CSS styles, if required.

The following notes are applicable to all code snippets in this section and its subsections:

- Any class attribute must reference the style `"liExtProperty"`. This style can only be used on list item (`<li>`) tags.
- `class="required"` marks the custom attribute as mandatory (the output includes the red * symbol). Leave this out if the custom attribute is optional.
- The code snippets use the ng-model directive to bind the value of a user input field to a variable created in AngularJS. Permitted binding values are `formData.licenseCustomAttributes`, `formData.orgUnitCustomAttributes`, and `formData.userCustomAttributes`.

Defining Custom User Attributes

When you define custom user attributes in FlexNet Operations, the trial registration template will automatically contain relevant code for these attributes. You can customize this code to suit your needs.

Example

```
<li class="liExtProperty"><label >User_Identity:</label>
    <input type='text' ng-model="formData.userCustomAttributes['User_Identity'][0]" />
```

```
</li>
<li class="liExtProperty"><label class="required">User_Identity_required:</label>
    <input type='text' ng-model="formData.userCustomAttributes['User_Identity_required'][0]" />
</li>
```

Defining Custom Account Attributes

When you define customer account attributes in FlexNet Operations, the trial registration template will automatically contain relevant code for these attributes. You can customize this code to suit your needs.

Example

```
<li class="liExtProperty"><label >Account_Custom_Attribute:</label>
    <input type='text' ng-model="formData.orgUnitCustomAttributes['Account_Custom_Attribute'][0]" />
</li>
<li class="liExtProperty"><label class="required">Account_Custom_Attribute_Required:</label>
    <input type='text' ng-model="formData.orgUnitCustomAttributes['Account_Custom_Attribute_
        Required'][0]" />
</li>
```

Defining Custom License Attributes

When you define custom license attributes using FlexNet Operations for FlexNet Licensing, the trial registration template will automatically generate code for these attributes. However, the auto-generated code is not visible to the user until you remove the code `style="display: none"`, which is included by default. For more information on the effect of `style="display: none"`, see Customization with Toggle Switch for Custom License Attributes.

Producer Portal users need to ensure these custom license attributes match existing part numbers. For custom license technology (other than FlexNet Licensing), the producer user has to define custom license attributes manually. The code snippets in this section help you with this task.

Customizing Custom Content Code for a Single Part Number

The following code snippet demonstrates how to create a trial activation for only one part number. The snippet shows custom content code for data type “number”. For snippets using different data types, see Custom License Attribute Code Samples for Different Data Types.

```
<fieldset>
    <ol>
        <div id="Flexnet_Part1" class="WideColumnBlock left" >
            <li class="liExtProperty"><label class="required">CustLMA1:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1'][0]" />
            </li>
        </div>
    </ol>
</fieldset>
```

Notes

- `Flexnet_Part1` is the part number that was created and mapped to the product for trial activation.
- `CustLMA1` is the name of the custom license model attribute.

- In the trial registration template, this code snippet can be placed after the "Please answer the following questions" paragraph tag which is already included in the sample code.

Customizing Custom Content Code for Multiple Part Numbers with Different Custom License Attributes

If the trial registration allows the user to select between multiple part numbers, you can customize the content code so that either:

- only custom license attributes are displayed that apply to the part number that the user has selected. See Customization with Toggle Switch for Custom License Attributes.
- all configured custom license attributes are displayed in the End-User Portal, irrespective of the part number selection. See Customization Without Toggle Switch for Custom License Attributes.

The following subsections explain how to customize the code and possible use cases for both scenarios.

Customization with Toggle Switch for Custom License Attributes

When you customize the code to include a toggle switch, the End-User Portal initially does not display any custom license attributes. When the user selects a part number, only those custom license attributes are displayed that apply to the selected part number. When the user clears the part number selection, the custom license attributes are hidden.

Use the code `style="display: none"` to hide custom license attributes, as shown in the following snippet.

```
<fieldset>
    <ol>
        <div id="Flexnet_Part1" class="WideColumnBlock left" style="display: none" >
            <li class="liExtProperty"><label class="required">CUSTLMA_4_Flexnet_Part1:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CUSTLMA_4_Flexnet_Part1']
                [0]" />
            </li>
        </div>
        <div id="Flexnet_Part2" class="WideColumnBlock left" style="display: none" >
            <li class="liExtProperty"><label class="required">CustLMA1:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1'][0]" />
            </li>
            <li class="liExtProperty"><label >CustLMA2:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA2'][0]" />
            </li>
        </div>
    </ol>
</fieldset>
```

Notes

- The code `style="display: none"` hides the license attributes for all unselected part numbers. If you want the preview to show the license attributes for all part numbers (regardless of whether they are selected), remove the code `style="display: none"` and then generate a preview. Make sure that after the preview you add this code back to the custom content to enable the toggle functionality in the End-User Portal.
- `Flexnet_Part1` and `Flexnet_Part2` are the part numbers created and mapped to products for trial activation.
- `CUSTLMA_4_Flexnet_Part1`, `CustLMA1` and `CustLMA2` are the names of the custom license model attributes.

- License attributes `CUSTLMA_4_Flexnet_Part1` and `CustLMA1` are required attributes, as indicated by `<label class="required">`, whereas license attribute `CustLMA2` is optional.

Customization Without Toggle Switch for Custom License Attributes

When you do not include a toggle switch, all configured custom license attributes related to available trial part numbers are displayed in the End-User Portal, irrespective of the part number selection.

Note ▪ *If you have multiple products defined that use different license models, it is possible that each license model has different custom license attributes defined. For trial activation, all custom license attributes that are associated with the product are displayed, irrespective of the selected part number. In this case, it might be advisable to include a toggle switch, as described in* *Customization with Toggle Switch for Custom License Attributes**.*

Sample code

```
<fieldset>
    <ol>
        <div id="Flexnet_Part1" class="WideColumnBlock left" >
            <li class="liExtProperty"><label class="required">CUSTLMA_4_Flexnet_Part1:</label>
            <input type='text' ng-model="formData.licenseCustomAttributes['CUSTLMA_4_Flexnet_Part1']
              [0]"/>
            </li>
        </div>
        <div id="Flexnet_Part2" class="WideColumnBlock left"  >
            <li class="liExtProperty"><label class="required">CustLMA1:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1'][0]" />
            </li>
            <li class="liExtProperty"><label >CustLMA2:</label>
              <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA2'][0]" />
            </li>
        </div>
    </ol>
</fieldset>
```

Notes

- `Flexnet_Part1` and `Flexnet_Part2` are the part numbers created and mapped to products for trial activation.
- `CUSTLMA_4_Flexnet_Part1`, `CustLMA1` and `CustLMA2` are the names of the custom license model attributes.
- License attributes `CUSTLMA_4_Flexnet_Part1` and `CustLMA1` are required attributes, as indicated by `<label class="required">`, whereas license attribute `CustLMA2` is optional.

Custom License Attribute Code Samples for Different Data Types

The code snippets in this section demonstrate how to customize the custom license attributes for different data types.

Type "Number"

```
<li class="liExtProperty"><label >CUSTLMA_4_Flexnet_Part1:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CUSTLMA_4_Flexnet_Part1'][0]" />
```

```
</li>
```

Type "Boolean"

```
<li class="liExtProperty"><label >CLM_BOOLEAN:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_BOOLEAN'][0]" />
</li>
```

Note that currently the `Boolean` data type accepts only `true` or `false` as whole words, not `T` or `F` as on the Trial Registration page.

Type "Date"

```
<li class="liExtProperty"><label >CLM_DATE:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_DATE'][0]" />
</li>
```

Note that currently the `Date` data type accepts only the date format `"MM/DD/YYYY"` (for example, `10/24/2018`) on the Trial Registration page.

Type "Long Text" and Subtype "Text Area"

```
<li class="liExtProperty"><label >CLM_LONG_TXT_TXT_AREA:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_LONG_TXT_TXT_AREA'][0]" />
</li>
```

Type "Long Text" and Subtype "Text Field"

```
<li class="liExtProperty"><label >CLM_LONG_TXT_TXT_FLD:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_LONG_TXT_TXT_FLD'][0]" />
</li>
```

Type "Text" and Text Type "Single Select"

You can choose between a dropdown menu or radio buttons.

```
<li class="liExtProperty"><label >CLM_TEXT_FREFORM_SINGLE_SELECT:</label>
```

- Code snippet for dropdown menu:

  ```
  <select ng-model="formData.licenseCustomAttributes['CLM_TEXT_FREFORM_SINGLE_SELECT'][0]"
  ng-options="v as v for v in selectedLicenseCustomAttributes['CLM_TEXT_FREFORM_SINGLE_SELECT'].
    values"/>
  ```

- Code snippet for radio buttons:

  ```
  <table cellspacing="0" cellpadding="0" border="0">
  <tbody><tr  ng-repeat="value in selectedLicenseCustomAttributes['CLM_TEXT_FREFORM_SINGLE_SELECT'].
    values">
      <td  valign="top" nowrap="true">
      <input class="form"  type='radio' ng-
      model="formData.licenseCustomAttributes['CLM_TEXT_FREFORM_SINGLE_SELECT']
        [0]"
          name="formData.licenseCustomAttributes['CLM_TEXT_FREFORM_SINGLE_SELECT'][0]" ng-
          value="value" /><label style="text-align:left" >{{value}}</label>
      </td>
  </tr>
  </tbody>
  </table>
  ```

Type "Text", Text Type "Free Form" and Display Type "Text Area"

```
<li class="liExtProperty"><label >CLM_TEXT_FREFORM_TXTAREA:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_TEXT_FREFORM_TXTAREA'][0]" />
</li>
```

Type "Text", Text Type "Free Form" and Display Type "Text Field"

```
<li class="liExtProperty"><label >CLM_TEXT_FREFORM_TXTFIELD:</label>
  <input type='text' ng-model="formData.licenseCustomAttributes['CLM_TEXT_FREFORM_TXTFIELD'][0]" />
</li>
```

Type "Text" and Text Type "Multi-Valued Text"

```
<li class="liExtProperty"><label >CLM_TEXT_MULTI_VALUED_TXT:</label>
  <table cellspacing="0" cellpadding="0" border="0">
   <tbody><tr ng-repeat="value in selectedLicenseCustomAttributes['CLM_TEXT_MULTI_VALUED_TXT'].values">
    <td  valign="top" nowrap="true">
        <input class="form"  type='checkbox' ng-model="value.checked"   />
          <label style="text-align:left" >{{value.val}}</label>
    </td>
    </tr>
   </tbody>
  </table>
</li>
```

Listing Custom Content

Use the System menu to show a list of all existing custom content items.

Task ***To list custom content***

Click **System** > **Custom Content**.

The Producer Portal shows the Custom Content page. This page shows the ID, description, and status of each custom content item, plus its last modified date and the Producer Portal user who made the modification. Click the ID of a custom content item to see its Edit Content page.

Creating Custom Content

You can create custom content items from the Custom Content page. A new custom content item can replace the default content (if any) on a supported End-User Portal page or create a new standalone page.

Task ***To create custom content***

1. On the Custom Content page, click **Create Content**. The Producer Portal opens the Create Content page.
2. On the Create Content page, set content details and enter the custom content in the field provided. See Custom Content Attributes in About Custom Content for more information.

***Important** ▪ To change the content for a supported End-User Portal page, you must use the custom content ID for that page. To instead create a custom, standalone page, you must use a unique, unused custom content ID value. See Pages that Support Custom Content in About Custom Content for details.*

3. Choose whether the custom content is available to viewers in the End-User Portal:
   - Select the **Hide from Portal?** check box to prevent this content from appearing in the End-User Portal.
   - Leave the **Hide from Portal?** check box unchecked to allow this content to appear in the End-User Portal (when its status is Live).
4. Choose a template.
   - For producers who want to create a landing page for free product trial registrations, click **Template** > **TrialRegistration**. See About Product Trial Registration Support for more information, in particular Sending End Users to a Trial Registration Page, which includes the URL for your trial registration page.
   - For all other custom content pages, leave **Template** blank.
5. Click the **Preview** icon. The Producer Portal shows the Preview Content in a pop-up window where you can see the custom content rendered.
6. Choose whether to save the custom content as a draft or to save and publish it:
   - Click **Save Draft** to save the content in its current state in Draft status. The Producer Portal saves the custom content with a status of Draft.
   - Click **Publish** to save the content in its current state in Live status. The Producer Portal saves the custom content with a status of Live. Custom content with Live status is available to End-User Portal users unless its Hide from Portal? check box is selected.

You can edit the custom content later by clicking its ID on the Custom Content page.

Editing Custom Content

When you edit custom content, you can alter its ID, description, the custom content, whether or not to show the content in the End-User Portal, and its version.

***Tip** ▪ Notice that the custom content details on Edit Content page include a **Permalink** attribute. If the custom content is to be used as a stand-alone page, use the Permalink URI to link to your custom page.*

***Note** ▪ For more information about the use of content customizations, see About Custom Content.*

Task** **To edit custom content

1. On the Custom Content page, click the ID of the item to edit. The Producer Portal opens the Edit Content page for the custom content.
2. If necessary, change the content ID or description for this custom content.

3. Choose whether the custom content is available to viewers in the End-User Portal:
   - Select the **Hide from Portal?** check box to prevent this content from appearing in the End-User Portal.
   - Leave the **Hide from Portal?** check box unselected to allow this content to appear in the End-User Portal (when its status is Live).
4. If necessary, change the version of the custom content with the **Content Version** control.
5. In **Content**, revise the text or HTML as needed.
6. Click the **Preview** icon. The Producer Portal shows the Preview Content in a pop-up window where you can see the custom content rendered.
7. Choose whether to save the custom content as a draft or to save and publish it:
   - Click **Save Draft** to save the content in its current state in Draft status. The Producer Portal saves the custom content with a status of Draft.
   - Click **Publish** to save the content in its current state in Live status. The Producer Portal saves the custom content with a status of Live. Custom content with Live status is available to End-User Portal users unless its Hide from Portal? check box is selected.

***Tip** ▪ Note that the **Permalink** attribute on the **Edit Content** page identifies the path to the custom content page where your End-User Portal is hosted. You can link directly to the custom content page by creating a URL that uses your End-User Portal domain plus the **Permalink** value.*

Localizing Custom Content

You can update page instructions for localized sites. When you localize custom content, you create new content by suffixing a custom content ID with a locale code. You can also decide whether or not to show the content in the End-User Portal.

***Note** ▪ For information about the content that is localizable, see Localization and Custom Content.*

Task** **To localize custom content

1. On the Custom Content page, click **Create Content**. The Producer Portal opens the Create Content page.
2. On the Create Content page, provide the following information:
   a. **Content ID**: Enter the content ID of a supported End-User Portal page, followed by the locale code as a suffix to the ID. For example, to localize the `epAnouncements` content for France, add the "-fr_FR" suffix to the ID: `epAnnouncements-fr_FR`.
   b. **Description**: Enter a descriptive name for custom content. (This content will not be visible on the End-User Portal page.)
   c. Choose whether the custom content is available to viewers in the End-User Portal:

- Select the **Hide from Portal?** check box to prevent this content from appearing in the End-User Portal.
- Leave the **Hide from Portal?** check box unselected to allow this content to appear in the End-User Portal (when its status is Live).

3. Leave **Template** blank.
4. In **Content**, enter the localized text or HTML to be displayed in the End-User Portal.
5. Click the **Preview** icon. The Producer Portal shows the Preview Content in a pop-up window where you can see the custom content rendered.
6. Choose whether to save the custom content as a draft or to save and publish it:
   - Click **Save Draft** to save the content in its current state in Draft status. The Producer Portal saves the custom content with a status of Draft.
   - Click **Publish** to save the content in its current state in Live status. The Producer Portal saves the custom content with a status of Live. Custom content with Live status is available to End-User Portal users unless its Hide from Portal? check box is selected.

20

Performing Administrative Tasks

Depending on the permissions you have been granted through FlexNet Operations roles, you can perform administration activities using the links in the Administer menu.

Table 20-1 ▪

Topic	Description
Administering Alerts	View and configure alerts using the Alerts links in the Administer menu.
Administering Custom Attributes	View and manage custom attributes, custom host attributes, and custom license attributes.
Administering Domains	View, add, and edit domains.
Importing and Exporting Entities	Migrate data between different FlexNet Operations instances by importing or exporting entities.
Administering License Technologies	Use the License Setup and Custom Attributes links in the Administer menu to manage license technologies and license generator configurations, and custom license generator and license model attributes.
Administering License Models	View, add, and edit license models.
Working with Time Zones	Describes how to use the time zone functionality to bind license usage to a specified geographic location by identifying the time zone of that region. Only for producers who use certificate-based licenses.
Administering Device and License Server Setup	Covers the setup and administration of device series, device models, server host types, publishers, and publisher identities.

Table 20-1 ▪

Topic	Description
Working with Transaction Keys	Only for producers who use FlexNet licensing with trusted storage, this section explains how to use transaction keys and anchoring.
Working with Application Specification Records (ASRs)	Explains the use of Application Specification Records (ASRs) for local trials and short code activation.
View and Manage Trusted Activation Requests	Describes how to administer trusted activation requests.
Managing Email and Email Templates	Covers the administration of email messaging as well as email template management.

Administering Alerts

Alerts, which by default are displayed in the Start Page, notify FlexNet Operations users of events that may require attention, such as expired or expiring entitlements, updated product definitions, or notifications for importing product part numbers or bulk entitlement Web register keys.

Alerts pages allow you to view a summary of alerts, view the types of alerts, and define alerts. Depending on the permissions you have been granted through roles, you can browse alert messages that have been triggered (and not dismissed) or configure how alerts behave and who is notified when they are triggered.

Table 20-2 ▪

Topic	Description
Browsing Alerts	Explains how to view alerts.
Dismissing (Removing) an Alert	Describes how to remove alerts from the Alerts page.
Configuring Alert Behavior	Shows how to configure alert behavior, including setting detection and notification interval, setting email notification properties, and limiting who can see an alert by their user role.
Setting Alert Subscriptions	Explains how to subscribe to an alert. Producers who subscribe to an alert receive an email when the job associated with that alert runs (depending on which alerts have been configured, the outcome of the job, and the subscription properties you set).
FlexNet Operations Alert Types	Provides more information about alert types.

Browsing Alerts

Recent alerts appear on the Producer Portal home page, but you can also browse alerts via the Administer menu.

Users assigned roles with the **View Alerts** or **View and Manage Alerts** permission can view a summary of alerts.

Task ***To view a summary of alerts***

- Click **Administer** > **Alerts**.

The Producer Portal shows the Alerts page.

In the **Alerts** page, you can view the

- **Date**: Date the alert message was sent
- **Message**: Text of the alert message

Dismissing (Removing) an Alert

When an alert message is dismissed, its message is removed from the **Alerts** page. After an alert message is dismissed, the alert is displayed again if the alert condition is not corrected before the next time the alert condition is checked (based on the alert's detection and notification interval).

Users assigned a role with the **View and Manage Alerts** permission can dismiss an alert.

Task ***To remove an alert***

On the **Alerts** page, select the alert and then click **Dismiss** to remove it from the list.

Configuring Alert Behavior

There are alerts available in FlexNet Operations that can be used to notify specified users about different types of conditions or events. Alerts can be configured to display to the **Alerts** page or to send one or more email messages.

Users assigned a role with the **View and Manage Alert Configurations** permission can configure alert behavior.

Task ***To configure the behavior of an alert***

1. Click **Administer** > **Configure Alerts/Jobs**.
2. For the alert type you want to configure, click **Configure**. The Producer Portal shows the Configure Alert/Job Schedule page.
3. On the Configure Alert/Job Schedule page, select a Status of **Active** or **Inactive**. When you select **Active**, the Schedule option appears. For all alerts, except **Purge Email History**, the default status is **Inactive**.
4. For the **Schedule** option you can:

- Select the **Standard** option to set the number and time interval (default is 30 days).

  Note ▪ *For **Purge Email History,** the default setting is to run once a day. It purges all sent emails older than 183 days or whatever is configured in **System > Configuration**.*

- Select the **Advanced** option to set a cron expression for the time and frequency of the schedule. See Creating a Customized Schedule for more information.

  An alert condition is first checked within a couple of minutes of the configuration being saved. Thereafter, the alert condition is checked according to the **Schedule**. For example, if an alert was configured with an interval of 15 minutes, the first check occurs a couple of minutes after the configuration is saved. The second check occurs 15 minutes after the first checking process finishes, the third check occurs 15 minutes after the second checking process finishes, etc. Therefore, the clock time that an alert condition is checked varies according to when the original alert configuration was saved and how long each checking process lasts.

5. Specify a **Subscription Restriction**. You can choose to allow only certain roles to subscribe to the alert.
   - Click **Add**.
   - Check the role(s) that you wish to allow to subscribe to that alert.
   - Click **Select**, to save.
6. Click **Save**.

The Producer Portal saves your alert behavior changes.

Creating a Customized Schedule

For more advanced scheduling options, you can use a CronTrigger using a standard cron expression. A cron expression is a string consisting 6-7 fields (sub-expressions) that describe the details of the schedule. These fields are separated by a white space and are described in table Allowed Fields and Values of Cron Expressions in their expected order.

Table 20-3 ▪ Allowed Fields and Values of Cron Expressions

Field	Required	Allowed Values	Allowed Special Characters
Seconds	Yes	0-59	, - * /
Minutes	Yes	0-59	, - * /
Hours	Yes	0-23	, - * /
Day of Month	Yes	1-3	, - * / ? L W
Month	Yes	0-11 or JAN-DEC	, - * /
Day of Week	Yes	1-7 or SUN-SAT	, - * / ? L #
Year	No	empty or 1970-2099	, - * /

The purpose of the special characters is explained in the following table:

Table 20-4 ▪ Explanation of Special Characters

Character	Description
,	Used to specify a list of values not in a range. For example: “2,4,6” or “MON,WED,FRI” in the day-of-the-week field means “the days Monday, Wednesday and Friday”.
-	Used to indicate a range of values or an offset. For example “10-12” in the hour field means “the hours 10-12”.
*	Wildcard meaning every possible value of this field.
/	Used to specify increments to values. For example “0/15” in the minutes field means “every 15th minute of the hour, starting at minute zero”, i.e. 0, 15, 30, and 45. A “3/20” in the minutes field means “every 20 minutes starting at minute 3”, i.e. 3, 23 and 43. A “1/3” in the day-of-the-month field means “every three days starting on the first day of the month.” Omitting the initial number is equivalent to using 0, i.e. “/35” is the same as “0/35”.
?	Used for day-of-the-month and day-of-the-week fields to mean “no specific value”. This is useful when you must specify something in one of the two fields but not the other. For example if you want to schedule a job for the 10th day of the month, regardless of the day of the week, you would put a “10” in the day-of-the-month field and a “?” in the day-of-the-week field.
L	Used for day-of-the-month and day-of-the-week fields and is used to specify “Last”, but it has different interpretations in each of those fields. An “L” in the day-of-the-month field means the “last day of the month, i.e. 31 for January or 28 for February on non-leap years and 29 on leap years. If used in the day-of-the-week field by itself, it means “7” or “SAT”, but if used in the day-of-the-week field after another value, it means the last *x* day of the month. For example, “6L” or “FRIL” both mean “the last Friday of the month.” You can also specify offsets such as “L-3” which means the third to the last day of the calendar month. ***Note ▪*** *When using the “L” option, it is important not to specify lists or ranges of values as you will get unexpected results.* The “L” and “W” characters can be combined in the day-of-the-month field to yield “LW” which means “last weekday of the month”.

Table 20-4 ▪ (cont.)Explanation of Special Characters

Character	Description
W	Used to specify the “Weekday” (Monday-Friday) nearest the given day. For example 15W as a day-of-the-month value means, “the nearest weekday to the 15th of the month.” However, if you specify “1W” as the value for the day-of-the-month and the 1st is on a Saturday, the job is scheduled for Monday, the 3rd because the previous Friday (which is closer to the 1st) is in a different month. ***Note ▪*** *When using the “W” option, it is important not to specify lists or ranges of values as you will get unexpected results.*
#	Used for day-of-the-week fields to specify *nth X* day of the month. For example, the value “6#3” or “FRI#3” means “the third Friday of the month.” ***Note ▪*** *If you specify #5 and there are not 5 of the given day-of-the-week in the month, then no firing occurs that month.*

Cron Expression Examples

The following table gives a list of example cron expressions.

Table 20-5 ▪ Sample Cron Expressions

Expression	Meaning
0 0 12 * * ?	Fire at 12:00pm (noon) every day
0 15 10 ? * *	Fire at 10:15am every day
0 15 10 * * ?	Fire at 10:15am every day
0 15 10 * * ? *	Fire at 10:15am every day
0 15 10 * * ? 2017	Fire at 10:15am every day during the year 2017
0 10,44 14 ? 3 WED	Fire at 2:10pm and at 2:44pm every Wednesday in the month of March
0 15 10 ? * MON-FRI	Fire at 10:15am every Monday, Tuesday, Wednesday, Thursday, and Friday
0 15 10 15 * ?	Fire at 10:15am on the 15th day of every month
0 15 10 L * ?	Fire at 10:15am on the last day of every month
0 15 10 L-2 * ?	Fire at 10:15am on the 2nd-to-last day of every month
0 15 10 ? * 6L	Fire at 10:15am on the last Friday of every month

Table 20-5 ▪ (cont.)Sample Cron Expressions

Expression	Meaning
0 15 10 ? * 6L	Fire at 10:15am on the last Friday of every month
0 15 10 ? * 6L 2017-2020	Fire at 10:15am on every last Friday of every month during the years 2017, 2018, 2019, and 2020
0 15 10 ? * 6#3	Fire at 10:15am on the third Friday of every month
0 0 12 1/5 * ?	Fire at 12pm (noon) every 5 days every month, starting on the first day of the month
0 11 11 11 11 ?	Fire every November 11th at 11:11am

Note ▪ *Be mindful of setting times between the hours of the morning when the change to or from "daylight saving time" begins (for U.S. locales, this is between 1 am and 3 am) because the time shift can cause a skip or a repeat depending on whether the time moves back or jumps forward.*

Setting Alert Subscriptions

After you have set the behavior of an alert type, you can set up to three email subscriptions for that alert type. Users assigned a role with the **View and Manage Alert Configurations** permission can set an alert subscription.

Task ***To set an email subscription for an alert type***

1. In the user menu, click your name and then click **Alert Subscriptions**.
2. Click **Subscribe/Edit** for one of the alert types.
3. In the **Create/Edit Alert Subscription** page, set the following properties:
   - **Inbox Notification**: Choose whether or not to display the alert in the **Alerts** page. Once the alert has been displayed in the page, it is not displayed again unless the alert is dismissed and the alert condition remains uncorrected.
   - **Show Additional Email Notifications:** Select the box to configure more than one email subscription. One email notification per detected alert is sent for each email subscription that is specified for an alert. Consider setting up multiple email subscriptions with different trigger times to escalate alerts to different email recipients if an alert condition is not corrected.

Task ***To configure email subscription properties***

1. Select the **Enabled** check box for the subscription.
2. Supply the following information for the alert subscription:

- **Trigger time:** Minutes, hours, days after the alert date or days before the alert date. The alert date is the time the alert condition began, and the trigger time is the time offset from the alert date when the alert email is triggered, but not necessarily sent. Email with a trigger delay is sent when the alert condition is next checked after the trigger time has passed, if the triggering alert has not been dismissed.

  Note that if an email subscription is set with a trigger time delay (for example, 1 hour) less than the detection interval (for example, 1 day), an email could be triggered by an alert condition on Monday, but not actually be sent until the alert is checked again on Tuesday (if the alert was not dismissed). Therefore, for clarity, set a trigger time to be a multiple of the **Detection and Notification Interval**.

  We strongly recommend setting one subscription to trigger immediately upon detection of the event and setting trigger time delays only on additional subscriptions.

- **Send Email to**: Address for alert email. Multiple email address can be specified in a comma-separated list.

3. Click **Save**.

FlexNet Operations Alert Types

Alerts can be used to notify specified users about different types of conditions or events.

In new installations of FlexNet Operations, all alerts are set to Inactive. If you want an alert to run, you must set its status to active and define an interval at which it is to run. (Upgrades of FlexNet Operations from previous versions retain the previous alert status.)

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
User Deactivated	Detection and notification interval: *n* minutes, hours, days. The default is 30 seconds.	Generated when a user has been deactivated because the user has incorrectly logged in to FlexNet Operations too many times. The number of times that a user login can fail within a specified time period before being deactivated can be configured in the FlexNet Platform Server configuration. A FlexNet Operations administrator must reactivate a deactivated user before the user can log in to FlexNet Operations again.
Expired/Expiring Entitlements	Detection and notification interval: *n* minutes, hours, days. The default is 1 day.	Generated when any entitlement line items are expiring in the next 30 days. Lists all of the line items that are expiring in the next 30 days and all the line items that have already expired.
Updated Products	Detection and notification interval: *n* minutes, hours, days. The default is 1 day.	Generated when a Licensed Product is updated.

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
Importing Bulk Entitlement Web Register Keys	Detection and notification interval: *n* minutes, hours, days. The default is 1 day.	Generated when bulk entitlement Web register keys are imported. This job is required for producers who want to load Web register keys via a user-supplied file, via auto-generation, or via Web service requests that are processed asynchronously. ***Tip ▪*** *If this job is not active, FlexNet Operations does not import Web register keys. See Loading Web Register Keys for more information.*
Importing Part Numbers	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Generated when part numbers are imported.
Export and Import Background Jobs	Detection and notification interval: *n* minutes, hours, days. The default is 1 day.	Controls how frequently FlexNet Operations checks for new export or import background jobs. When scheduled and active, this job runs background import jobs based on both JAR file imports and data import template imports. Likewise, this alert runs any background export jobs (regardless of format) that are pending.
Fulfillment Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of fulfillment events. This job takes a snapshot of fulfillments that have been created or updated. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.*

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
Device Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of device and license server events. This job takes a snapshot of devices and license servers that have been created or updated (including the licenses mapped to them). Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.* ***Version ▪*** *Only producers who use FlexNet Embedded licensing gather device and license server events.*
Served Device Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of served device events. This job takes a snapshot of served devices that have been created or updated. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.* ***Version ▪*** *Only producers who use FlexNet Embedded licensing gather served device events.*

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
User Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of user events. This job takes a snapshot of user accounts that have been created or updated. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.*
Account Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of account events. This job takes a snapshot of accounts that have been created or updated. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.*
Usage Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to generate a snapshot of all usage events from the previous day. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.*

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
Product Version Upgrade	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to automatically add product upgrade line items to eligible entitlements. This job creates upgrade line items for qualifying products and line items. Note that logic the Product Version Upgrade job may create unwanted upgrade lines and related email messages for producers who are not properly prepared for its use. See More About the Product Version Upgrade Job for guidelines about using this job as well as product and line-item eligibility requirements.
Expiring Entitlements	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to identify entitlements scheduled to expire in the near future. When this job finds entitlements that are nearing their expiration date, FlexNet Operations generates a Renewal Reminder email message and sends it to end users in the account that owns the entitlement and have subscribed to receive renewal notifications (users that have the Expiring Entitlements Email check box selected). See More About the Expiring Entitlements Job for guidelines about using this job.
Expired Entitlements	Detection and notification interval: *n* minutes, hours, days. The default is 30 days.	Controls how often FlexNet Operations runs a job to identify entitlements that have expired. When this job finds entitlements that have expired, FlexNet Operations generates an Expired Entitlements email message and sends it to end users in the account that owns the entitlement and have subscribed to receive renewal notifications (users that have the Expiring Entitlements Email check box selected). See More About the Expired Entitlements Job for guidelines about using this job.

Table 20-6 ▪ FlexNet Operations Alerts

Alert Type	Possible Values	Description
Entitlement Data Extract	Detection and notification interval: *n* minutes, hours, days. The default is 1 day.	Controls how often FlexNet Operations runs a job to generate a snapshot of all entitlement data from the previous day. Designed to be run on a daily basis, this job's first run gathers data on events from the previous day—from 00:00:00 until 23:59:59. Subsequently, the job attempts to gather data on events starting from the end of the last successful run of the job until the current time. ***Note ▪*** *For more information on this extract, see the FlexNet Operations Web Services Integration Guide.*

More About the Product Version Upgrade Job

The Product Version Upgrade job automates the creation of upgrade line items. For eligible products and line items, it causes FlexNet Operations to create upgrade line items, to add them to existing entitlements, and to send an email message to end users to notify them about the upgrade.

Important ▪ *To avoid the creation of unexpected upgrade line items and unwanted email messages, be sure to review the guidance in Product Version Upgrade Use Guidelines and Product and Line Item Eligibility Rules before scheduling the Product Version Upgrade job.*

Product Version Upgrade Use Guidelines

Due to the qualifications FlexNet Operations uses to determine which entitlements receive the automatic upgrade line items, the use of this feature is best suited for producers who structure their product upgrades in the following ways:

- Product upgrade relationships are relatively simple. Products upgrade in a direct line from one version to the next without branching into multiple upgrade paths.
- Permanent entitlements, if offered, are sold with maintenance items.
- All accounts are entitled to product upgrades. (No need to filter out specific accounts.)

Producers who follow different product upgrade models may not benefit from using the Product Version Upgrade Job.

Note ▪ *To support the Product Version Upgrade job, products include product-upgrade-specific attributes:* ***Start Date****,* ***End Date****, and* ***Email Template to Use for Product Upgrade****. The dates play a role in determining which products are eligible to upgrade. The email template attribute specifies which variation to use for the email messages sent to end users as a result of this new job. See Creating a Product for more information.*

Product and Line Item Eligibility Rules

The Product Version Upgrade job determines which entitlements receive upgrade line items based on associated product and line item attributes.

- Upgrade relationships must exist between the products (with only one possible upgrade-to path).
- The license model to use for upgrade entitlements must be clearly determined due to some combination of the following conditions:
  - An upgrade product is linked to the same license model as the license model on the line item to be upgraded.
  - An upgrade product is linked to only one license model.
  - A default license model has been defined on an upgrade relationship. (See Relating Products to Other Products for instructions on setting the default license model in **Upgrade Default Model** for an upgrade relationship.)
- Product start and end dates are either valid or unspecified.
- Line items must be deployed.
- Line items cannot include multiple products.
- Permanent line items must be linked to a maintenance item that has not expired.
- Non-permanent line items must not be expired (past a known end date). They are not required to be linked to a maintenance item. However, when a non-permanent line item is linked to a maintenance item, the maintenance item must not be expired.
- If a line item is linked to a maintenance line item, the following conditions must be met:
  - Maintenance products must have Allow Upgrades set to Yes.
  - The upgrade-to product must be related to all the maintenance products to which the upgrade-from product is related. The Product Version Upgrade job does not create upgrade lines for a product if the upgrade-from product has relationships that the upgrade-to product does not have.
- Line items must not already have been otherwise upgraded, upsold, or renewed.

Entitlements that do not meet these qualifications are ignored by the upgrade job.

Avoiding the Creation of Upgrade Line Items with Incompatible License Models

Some license technology and license model conflicts can prevent the successful activation of upgrade line items. (FlexNet Operations does not prevent the creation of these upgrade line items, but the resulting line items cannot be successfully activated.) The following upgrade paths result in upgrade line items that cannot be activated:

Table 20-7 ▪

Upgrading From	Upgrading To	Notes
Custom licensing	FlexNet Publisher Trusted Licensing	Sharing counts between a license model from a custom license technology and retail activation license model is not supported.

Table 20-7 ▪

Upgrading From	Upgrading To	Notes
FlexNet Publisher Certificate Licensing	FlexNet Publisher Trusted Licensing	Sharing counts between a floating, counted license model and a retail activation license model is not supported.
FlexNet Embedded Licensing	FlexNet Publisher Certificate Licensing	Sharing counts between an embedded counted license model and a node-locked, uncounted license model is not supported.
FlexNet Embedded Licensing	FlexNet Publisher Trusted Licensing	Sharing counts between an embedded, counted license model and a retail activation license model is not supported.

Information Copied During the Upgrade

During the upgrade job, the following information is copied from the line item to be upgraded to the upgrade line:

- License model (if possible)
- Start date and license term settings
- Number of copies
- Custom line item attribute values
- Entitlement-time license model attribute values. (This copying happens even if the license technologies are different as long as the license model attributes have the same name and data type.)

Tip ▪ *To learn about how predefined and custom attribute values can be substituted into license strings, see Employing a Predefined Substitution Variable.*

Running the Job

Producers can schedule the Product Version Upgrade job to run activating the Product Version Upgrade alert on its Configure Alert Definition page. By default, this alert is inactive and the Product Version Upgrade job does not run. (See Configuring Alert Behavior for instructions.)

When the Product Version Upgrade job is completed, customers can use the End-User Portal to view the new upgrade line items in their entitlements, then download and activate them.

More About the Expiring Entitlements Job

The Expiring Entitlements job finds entitlements that are nearing their expiration date and generates email messages to end user accounts with expiring entitlements.

Like other jobs, producers can schedule the Expiring Entitlements job and subscribe to its alerts in the Producer Portal. However, when the Expiring Entitlements job finds entitlements that are soon to expire for an account, FlexNet Operations generates an email message about that account's expiring entitlements and attempts to send the message to the account's users. End users who elect to receive renewal notifications will receive an email message when their account's entitlements are nearing their expiration date.

The FlexNet Customer Growth module also adds an End-User Portal page to list expiring entitlements and to highlight those entitlements that are closest to their expiration date. From this Expiring Entitlements page, end users can click the Request button to send the producer an email message that indicates their intent to renew.

For producers, a number of system configuration settings determine when email messages are triggered, which entitlements are included in the Renewal Reminder message, whether or not an email is to be sent, and how frequently an account can receive such email messages. Producers can also customize the email template FlexNet Operations uses when it sends these renewal notifications.

***Tip** ▪ In determining when to send an Renewal Reminder email message, FlexNet Operations uses the system configuration settings **Renewal Look Ahead** (default: 200 days), **Expiring Window** (default: 90 days), and **Expiring Email Frequency** (default: 30 days). These values are set in the Renewals settings on the FlexNet Operations system configuration page at **System** > **Configure** > **FlexNet Operations**. For details about these system configuration settings, see Configuring System Settings.*

Understanding When FlexNet Operations Generates a Renewal Reminder Email Message

When the Expiring Entitlements job runs, it scans all of your end user accounts' entitlements to see if any are approaching their expiration date. For a given account, FlexNet Operations first looks to see if any of the entitlements have line items or maintenance lines expiration dates that fall within the Expiring Window. If so, FlexNet Operations then checks when that account last received an Renewal Reminder email message.

- If FlexNet Operations has recently sent an Renewal Reminder email message to the account, no new email messages are sent, even if newly expiring entitlements (per the Expiring Window setting) are discovered when the Expiring Entitlements job runs.
- If FlexNet Operations has not sent an email to the account within the number of days specified in the system configuration setting, Expiring Email Frequency, it generates a new Renewal Reminder email message for that account.

Using the default system configuration settings, when an account has expiring entitlements, FlexNet Operations limits the frequency of its renewal reminders to once every 30 days per account. Producers can customize this frequency (**Expiring Email Frequency**) to best suit the needs of their end users.

***Note** ▪ The decision of whether or not to generate an email is made at the account level. The choice to receive renewal notifications happens at the user level. End users who belong to multiple accounts may receive multiple Renewal Reminder messages (one for each account that qualifies for an Renewal Reminder email message).*

Anticipating the Content of the Renewal Reminder Email Message

The content of the Renewal Reminder email message that FlexNet Operations generates depends mainly on two factors:

- The **Renewal Reminder** email template content. Producers can customize the content of the email template FlexNet Operations uses to send Renewal Reminder email messages. (See Managing Email Templates for instructions on editing an email template.)
- The account's entitlement line items and maintenance lines that expire within the number of days specified in the system configuration setting, **Renewal Look Ahead**.

For the Renewal Reminder email message, FlexNet Operations compiles a list of all the account's entitlements with line items or maintenance lines that expire within the Renewal Look Ahead range. All the account's line items and maintenance lines that expire within that range are all included in the Renewal Reminder email message that FlexNet Operations generates.

***Tip** ▪ The Renewal Look Ahead is a separate system configuration from the Expiring Window setting. The Expiring Window determines whether or not to generate an Renewal Reminder message. The Renewal Look Ahead determines which line items or maintenance lines are included in the message itself.*

Understanding Who Receives Renewal Reminders

After generating a Renewal Reminder message for an account, FlexNet Operations sends the message to that account's End-User Portal users who have opted to receive expiring entitlement email. If none of the account's end users is subscribed to receive renewal reminders, FlexNet Operations instead sends the Renewal Reminder message to the address you specify for the system configuration setting, Renewal Failed Notification Email (optional). If there are no end users who have subscribed to receive renewal reminders and no valid email address specified for Renewal Failed Notification Email, then FlexNet Operations does not send any renewal reminders for that account, even if the Expiring Entitlements job finds qualifying, expiring entitlements.

***Tip** ▪ To receive renewal reminders, end users must select the **Expiring Entitlements Email** check box in their user profiles.*

***Important** ▪ End users must have the **View Expiring Entitlements** permission to subscribe to see the Expiring Entitlements Email check box, receive renewal reminders, or see the Expiring Entitlements page in the End-User Portal. (End users with the Portal Administrator User role have the View Expiring Entitlements permission by default.)*

More About the Expired Entitlements Job

The Expired Entitlements job finds entitlements that have expired since the last time the job was run and generates email messages to end-user accounts with expired entitlements.

Like other jobs, producers can schedule the Expired Entitlements job and subscribe to its alerts in the Producer Portal. However, when the Expired Entitlements job finds entitlements that are expired for an account, FlexNet Operations generates an email message about that account's expired entitlements and attempts to send the message to the account's users. End users who elect to receive renewal notifications will receive an email message when their account's entitlements have expired.

The FlexNet Customer Growth module also adds an End-User Portal page to list expiring entitlements and to highlight those entitlements that are closest to their expiration date. (Expired entitlements are not shown by default. End users can use on-page filters in the End-User Portal to include expired entitlements in the list.) From the Expiring Entitlements page, end users can click the Request button to send the producer an email message that indicates their intent to renew.

For producers, system configuration settings help determine how frequently an account can receive such email messages, as well as which expired entitlements appear in the End-User Portal's Expiring Entitlements page. Producers can also customize the email template FlexNet Operations uses when it sends these renewal reminders.

Tip ▪ *In determining when to send an Expired Entitlements email message, FlexNet Operations uses the system configuration setting,* ***Expired Email Frequency*** *(default: 30 days). This value is set in the Renewals settings on the FlexNet Operations system configuration page at* ***System*** *>* ***Configure*** *>* ***FlexNet Operations****. For details about these system configuration settings, see Configuring System Settings.*

Understanding When FlexNet Operations Generates an Expired Entitlements Email Message

When the Expired Entitlements job runs, it scans all of your end user accounts' entitlements to see if any have expired line items or maintenance lines. If so, FlexNet Operations then checks when that account last received an email message about expired entitlements (based on the Renewal Reminder for Expired Entitlements email template).

- If FlexNet Operations has recently sent an email message about expired entitlements to the account, no new email messages are sent, even if newly expired entitlements are discovered when the Expired Entitlements job runs.
- If FlexNet Operations has not sent an expired entitlements message to the account within the number of days specified in the system configuration setting, Expired Email Frequency, it generates a new renewal reminder email message for that account.

Using the default system configuration settings, when an account has expired entitlements, FlexNet Operations limits the frequency of its expired entitlements message to once every 30 days per account. Producers can customize this frequency (**Expired Email Frequency**) to best suit the needs of their end users.

Note ▪ *The decision of whether or not to generate an email is made at the account level. The choice to receive renewal notifications happens at the user level. End users who belong to multiple accounts may receive multiple Renewal Reminder for Expired Entitlements messages (one for each account that qualifies for an expired entitlements message).*

Anticipating the Content of the Expired Entitlements Email Message

The content of the Expired Entitlements email message that FlexNet Operations generates depends mainly on two factors:

- The **Renewal Reminder for Expired Entitlements** email template content. Producers can customize the content of the email template FlexNet Operations uses to send Expired Entitlements email messages. (See Managing Email Templates for instructions on editing an email template.)

- The account's entitlement line items and maintenance lines that have expired since the last time the expired entitlements message was sent to subscribed users in that account.

FlexNet Operations uses the Renewal Reminder for Expired Entitlements email template to create expired entitlements messages. For this email message, FlexNet Operations compiles a list of all the account's line items and maintenance lines that expired since the Expired Entitlements job was last run and includes that list in the message.

***Tip** ▪ The frequency with which the Expired Entitlements job runs is set on its Configure Alert/Job Schedule page, but the frequency with which FlexNet Operations sends expired entitlements messages is also restricted by the system configuration setting, **Expired Entitlements Frequency**. Even if the job runs and finds new expired entitlements, no email messages about expired entitlements are sent for a particular account until the specified number of days has passed since the account was last messaged about expired entitlements.*

Understanding Who Receives Renewal Reminders

After generating a Renewal Reminder message for an account, FlexNet Operations sends the message to that account's End-User Portal users who have opted to receive expiring entitlement email. If none of the account's end users is subscribed to receive renewal reminders, FlexNet Operations instead sends the expired entitlements message to the address you specify for the system configuration setting, Renewal Failed Notification Email (optional). If there are no end users who have subscribed to receive renewal reminders and no valid email address specified for Renewal Failed Notification Email, then FlexNet Operations does not send any renewal reminders for that account, even if the Expired Entitlements job finds qualifying, expired entitlements.

***Tip** ▪ To receive renewal reminders, end users must select the **Expiring Entitlements Email** check box in their user profiles.*

***Important** ▪ End users must have the **View Expiring Entitlements** permission to subscribe to see the Expiring Entitlements Email check box in their user profiles, receive expired entitlements messages, or see the Expiring Entitlements page in the End-User Portal. (End users with the Portal Administrator User role have the View Expiring Entitlements permission by default.)*

Administering Custom Attributes

Producers can use the commands in the Administer menu to view and manage custom attributes, custom host attributes, and custom license attributes.

The *FlexNet Operations On-Premises Installation & Implementation Guide* is also a useful resource for information about customizing custom attributes.

Table 20-8 ▪

Topic	Description
About Custom Attributes	Discusses the custom attributes FlexNet Operations supports, how they operate in FlexNet Operations, and some rules particular to their use, including custom attribute data types, required versus optional attributes, and attribute status, and the use of the Copy to Data Warehouse setting.
Managing Custom Attributes	Covers the management of the standard set of custom attributes for entities such as users, accounts, products, entitlements, entitlement lines, download packages, and download files. Topics include • Custom Attribute Settings • Adding Custom Attributes • Listing Custom Attributes • Editing Custom Attributes • Deleting Custom Attributes
Managing Custom Host Attributes	Covers the management of custom host attributes on custom license technologies. Topics include • Custom Host Attribute Settings • Adding Custom Host Attributes • Listing Custom Host Attributes • Deleting Custom Host Attributes
Managing Custom License Attributes	Covers the management of custom license attributes defined on a particular technology. Topics describe how to list, create, edit, and delete custom license generator attributes and custom license model attributes. Topics include • Custom License Generator Attribute Settings • Custom License Model Attribute Settings • Adding Custom License Attributes • Listing Custom License Attributes • Editing Custom License Attributes • Deleting Custom License Attributes

About Custom Attributes

In the Producer Portal, custom attributes occur in three different groups, and each group is managed from a different page:

Table 20-9 ▪ Custom Attribute Types

Type	Description
Custom attributes or entity-specific custom attributes	Custom attributes that apply to entities like users, accounts, products, and so forth are referred to simply as *custom attributes*, or *entity-specific custom attributes* when necessary to distinguish them from the other two groups. Entity-specific custom attributes allow producers to capture extra information and associate it with a user, account, product, entitlement, entitlement line, download package, or file. Producers manage these attributes from the **Custom Attributes** page. ***Note ▪*** *See Managing Custom Attributes for details.*
Custom host attributes	Custom attributes that apply only to host types of custom license technologies are called *custom host attributes*. Custom host attributes provide a way for producers to capture information that can be used to generate host IDs for custom license technology fulfillments. Producers manage these attributes from the **Custom Host Attributes** page. ***Note ▪*** *See Managing Custom Host Attributes for details.*
Custom license attributes	Custom attributes that apply to license generators or license models of a particular license technology are called *custom license attributes*. These include custom license generator attributes and custom license model attributes. • **License generator attributes** provide a way to capture information that can be sent to a custom license generator. • **License model attributes** provide a way to capture licensing-related information that might be useful in the entitlement lifecycle or even expressed in license text. Producers manage these attributes from the **Custom License Attributes** page. ***Note ▪*** *See Managing Custom License Attributes for details.*

Required Attributes and Optional Attributes

When you create a custom attribute, you can define it as required or optional. Generally, you must supply a value for each required custom attribute when creating or editing the entity to which it is associated; the value for optional custom attributes can be left blank.

When considering whether to make a product-specific custom attribute required, for example, be aware that the custom attribute is also required on any existing product the next time that product is edited.

The Required setting can be toggled on and off for entity-specific custom attributes; however, the Required setting is permanent for custom host attributes and custom license attributes after they are created.

For custom license model attributes, when a custom attribute is required, it means that the value of the custom attribute must be set at the specified time in the entitlement lifecycle (license model creation time, entitlement time, or activation time). However, the value of an inactive custom attribute is not asked for at the specified time.

***Tip** ▪ License model attributes can be defined as optional when they are created, but later can be defined as required when they are enabled on individual license models.*

Custom Attribute Status

Entity-specific custom attributes can have a status of either active or inactive. All active custom attributes defined for a particular entity are automatically displayed on Producer Portal and End-User Portal pages on which those entities are created or edited.

***Note** ▪ Entity-specific custom attributes have a Status setting. Custom host attributes and custom license attributes do not.*

Only entity-specific custom attributes can be made inactive. Custom host attributes and license generator attributes can only be active.

Likewise, custom license model attributes can only be active but, unlike other groups of custom attributes, active custom license model attributes are not automatically displayed. When you create a custom license model attribute, you can specify the possible times the attribute's value can be set (license model creation time, entitlement time, or fulfillment time). A custom license model attribute is not displayed on a license model unless at least one setting is enabled for **When to Request this Attribute Value**.

Inactive custom attributes are hidden in the End-User Portal and Producer Portal pages; however, they remain visible in the Producer Portal under **Administer > Custom Attributes** so that they can be managed. (Click the **Show All** link to view both inactive and active custom attributes.)

A custom attribute is not required to be inactive to be deleted. However, after a custom attribute is in use, with values recorded on related entitlements, users, or other entities, it cannot be deleted from the system.

Custom Attribute Data Types

When you create a custom attribute, you choose the data type for that attribute. (A custom attribute's data type cannot be changed after it is set.)

Table 20-10 ▪ Custom Attribute Data Types

Data Type	Description
Number	A numeral, for example, **33452**. (The value must be an integer.)
Text	An alphanumeric string. If you choose this option, the Producer Portal reveals additional controls for Max. Length and Text Type. ● **Max Length**: Maximum number of characters the text field accepts. ● **Text Type**: (Required) Choose from **Free Form**, **Single Select**, or **Multi Valued Text**. (This choice cannot be changed once set.) **Free Form**: If you select this option, your custom attribute takes a typed-in alphanumeric string. When the Text Type is Free Form, also choose a **Display Type** to determine how the text attribute is displayed: **Text Field** or **Text Area**. **Single Select**: If you select this option, your custom attribute takes the value of an item from a drop-down list. When the Text Type is Single Select, also specify **Valid Values** with the **Add Value** button. Valid Values determine the list of values a user can choose for this attribute. **Multi Valued Text**: If you select this option, your custom attribute takes the value of several selected boxes next to items in a specified list. When the Text Type is Multi Valued Text, also specify **Valid Values** with the **Add Value** button. Valid Values determine the list of values a user can choose for this attribute.
Long Text	An alphanumeric string that can be up to 16384 characters. The value can be typed or pasted into the text box. When the attribute's Type is Long Text, also choose a **Display Type** to determine how the text attribute is displayed: **Text Field** or **Text Area**.
Boolean	A pair of options for mutually exclusive choices, such as **Yes** or **No**.
Date	A calendar date.

Copying to the Data Warehouse

Most but not all custom attributes can be copied to the data warehouse. The Copy to Data Warehouse setting flags attributes to be included in the reporting transformation process. Those attributes that are copied to the data warehouse are subsequently available for reporting.

Entity-specific custom attributes for Download Packages and Download Files are not transformed to the reporting data warehouse. Also, custom host attributes and custom license generator attributes cannot be copied to the data warehouse. In addition, some custom attributes are also unavailable for reporting due to the data type used for the attribute. For example, custom license model attributes that use a Long Text data type are not allowed to be copied to the data warehouse.

Specifically, the following conditions apply:

- Download Package and File-specific custom attributes cannot be transformed.

- Attributes of all data types except **Long Text** are available for reporting.
- There is a limit of 30 attributes for a single entity and single tenant.
- If there are more than 30 attributes, or if the attribute type is set to **Long Text**, the **Copy to Data Warehouse** check box is not visible.
- After it is selected and saved, the option cannot be reverted (the **Copy to Data Warehouse** check box is disabled) nor can the attribute modified. (However, the attribute can be deleted if it has not yet been used, and then re-created as a new attribute.)
- **Multi Valued Text** type is supported, but only allows 255 characters, with all the values separated by a vertical bar (a | pipe character) as a delimiter. For example, if the values are **Address,Email,Phone**, then the value in the data warehouse is transformed into **Address | Email | Phone** format.

Managing Custom Attributes

Entity-specific custom attributes allow producers to capture extra information and associate it with a user, account, product, entitlement, entitlement line, download package, or file. Producers can define these custom attributes for the following entity types:

- Users
- Accounts
- Products
- Entitlements
- Entitlement Lines
- Download Packages
- Download Files

Note ▪ *For information about managing custom host attributes or custom license attributes, see Managing Custom Host Attributes or Managing Custom License Attributes, respectively.*

Table 20-11 ▪

Topic	Description
Custom Attribute Settings	Provides details about the settings associated with custom attributes.
Adding Custom Attributes	Explains how to add entity-specific custom attributes for users, accounts, products, entitlements, entitlement lines, download packages, and download files.
Listing Custom Attributes	Describes how to show a list of custom attributes.
Editing Custom Attributes	Explains how to edit an existing custom attribute.
Deleting Custom Attributes	Shows how to remove custom attributes.

Custom Attribute Settings

***Note** ▪ Custom host attributes and custom license attributes are managed separately. For details, see Managing Custom Host Attributes or Managing Custom License Attributes.*

Custom attributes have the following settings:

Table 20-12 ▪

Setting	Description
Name	Type a name to uniquely identify this custom attribute. This name must be unique for the entity type you select next. Custom attribute names can contain upper and lower case alphabet characters, numbers, and underscores.
Entity Type	For **Entity Type**, choose entity to which you want this attribute added. Choose from • **Account** • **User** • **Product** • **Entitlement** • **Entitlement Line** • **Download Package** • **File** After the attribute is saved, you cannot change its Entity Type. Note that custom attributes for Download Packages and Files cannot be copied to the data warehouse and, as a result, cannot be made available for reporting. For details, see Copying to the Data Warehouse in About Custom Attributes.
Required?	Choose **Yes** or **No** to specify whether this custom attribute is required or optional. If required, a value for this attribute must be set when the entity is created. For more information about required and optional custom attributes, see Required Attributes and Optional Attributes in About Custom Attributes.
Status	Sets the custom attribute to active or inactive status.

Table 20-12 ▪

Setting	Description
Type	The data type of the values the custom attribute accepts. Type cannot be changed once set. Choose from the following: • **Number** • **Text** (requires **Max. Length** and **Text Type** settings) • **Long Text** (requires **Display Type** setting) • **Boolean** • **Date** For details about these data types, see Custom Attribute Data Types in About Custom Attributes.
Copy to Data Warehouse	If selected, this attribute is included in the data transformation for reporting. Otherwise, the custom attribute is not available for reporting. Note that some data types cannot be copied to the data warehouse and, as a result, cannot be made available for reporting. For details, see Copying to the Data Warehouse in About Custom Attributes.

Adding Custom Attributes

Producers can add custom attributes for users, accounts, products, entitlements, entitlement lines, download packages, and download files from the Custom Attributes page.

Note ▪ *To add custom host attributes or custom license attributes (license model attributes or license generator configuration attributes), see Adding Custom Host Attributes or Adding Custom License Attributes.*

Task ***To add a custom attribute***

1. In the Producer Portal, click **Administer** > **Custom Attributes**. This link shows the Custom Attributes page.
2. On the Custom Attributes page, click **Add Attribute**.
3. On the Create Custom Attribute page, specify custom attribute settings.

   See Custom Attribute Settings for more information about attribute properties.
4. Click **Save**.

The Producer Portal adds the custom attribute using the settings you provided, and returns to the Custom Attributes page.

Listing Custom Attributes

The Producer Portal shows previously defined custom attributes on the Custom Attributes page.

***Note** ▪ Custom host attributes and custom license attributes are managed separately. For details, see Managing Custom Host Attributes or Managing Custom License Attributes.*

Task ***To list existing custom attributes***

- Click **Administer** > **Custom Attributes**.

The Producer Portal shows the Custom Attributes page. This page lists attributes with the following information:

Table 20-13 ▪ Custom Attributes Information

Field	Description
Name	Name of the custom attribute
Data Type	Type of value the custom attribute accepts: Boolean, Date, Text (free form or single select), Multi-valued text, Long Text, or Date.
Required	Shows whether or not the attribute is required. • true for required attributes • false for optional attributes See Custom Attribute Settings for more information about required versus optional attributes.
Status	Shows whether the attribute is active or inactive.

***Tip** ▪ By default, only active custom attributes are shown. To display both active and inactive attributes, click **Show All**.*

Click an attribute name to view its details.

Click **Add Attribute** to add a custom attribute.

Editing Custom Attributes

You can edit existing custom attributes from the Custom Attributes page.

***Note** ▪ Custom host attributes and custom license attributes are managed separately. For details, see Managing Custom Host Attributes or Managing Custom License Attributes.*

Task ***To edit a custom attribute***

1. In the Producer Portal, click **Administer** > **Custom Attributes**. This link shows the Custom Attributes page.
2. On the Custom Attributes page, click the name of the attribute you want to change.
3. On the Create Custom Attribute page, specify custom attribute settings.

   Some attribute settings cannot be edited. The ability to edit a setting depends, in part, on its status, whether or not it has been in use, and whether it is required or optional. See Custom Attribute Settings for more information about attribute properties.
4. Click **Save**.

The Producer Portal saves your changes to the attribute settings.

Deleting Custom Attributes

Except for download package custom attributes and file custom attributes, most unused custom attributes can be deleted from the Create Custom Attribute page.

Download package-specific and file-specific custom attributes cannot be deleted. Attributes defined on users, accounts, products, entitlements, and line items can be deleted only if they have never been assigned a value on any entity.

Note ▪ *Custom host attributes and custom license attributes are managed separately. For details, see Managing Custom Host Attributes or Managing Custom License Attributes.*

Task ***To delete a custom attribute***

1. In the Producer Portal, click **Administer** > **Custom Attributes** to show a list of custom attributes.
2. On the Custom Attributes page, click the name of the custom attribute you want to delete. The Producer Portal shows the attribute's Create Custom Attribute page.
3. On the Create Custom Attribute page, click **Delete**. The Producer Portal prompts you to confirm the deletion.
4. Click **OK** to confirm the deletion of the selected custom attributes.

The Producer Portal deletes the selected attributes and refreshes the custom attributes list.

Managing Custom Host Attributes

You can manage your custom host attributes from the Custom Host Attributes page.

Custom host attributes apply only to host types of custom license technologies and provide a way for producers to capture information that can be used to generate host IDs for custom license technology fulfillments.

Licenses are usually bound to either a node or a host. Defining a host attribute allows you to create a host ID for a host and to use the host as the criteria for capabilities like batch rehosts, searching and sorting on hosts, and listing all fulfillments for a given host.

If custom host attributes are defined for a host type, FlexNet Operations displays them to users when they create a host of that type.

***Note** ▪ You can generate a unique identifier for a host, based on these attributes, by implementing the HostIdentifierGeneratorByHostType interface under System Configuration. Also, you can validate whether or not the user supplied the appropriate values for these attributes.*

The topics below discuss how to add, list, and delete custom host attributes.

***Note** ▪ For information about entity-specific custom attributes or custom license attributes, see Managing Custom Attributes or Managing Custom License Attributes, respectively.*

Table 20-14 ▪

Topic	Description
Custom Host Attribute Settings	Provides details about the settings associated with custom host attributes.
Adding Custom Host Attributes	Explains how to add a custom host attribute and specify its name, license technology, host type, and data type.
Listing Custom Host Attributes	Describes how to show a list of custom host attributes.
Deleting Custom Host Attributes	Shows how to remove custom host attributes.

Custom Host Attribute Settings

Custom host attributes have the following settings:

Table 20-15 ▪

Setting	Description
Name	Type a name to identify this custom host attribute.
License Technology	The type of license technology with which the attribute is to be used.
Host Type	Select a host type from the list provided.

Table 20-15 ▪

Setting	Description
Required?	Choose **Yes** or **No** to specify whether this custom attribute is required or optional. If required, a value for this attribute must be set when the entity is created. For more information about required and optional custom attributes, see Required Attributes and Optional Attributes in About Custom Attributes.
Type	The data type of the values the custom attribute accepts. Type cannot be changed once set. Choose from the following: ● **Number** ● **Text** (requires **Max. Length** and **Text Type** settings) ● **Long Text** (requires **Display Type** setting) ● **Boolean** ● **Date** For details about these data types, see Custom Attribute Data Types in About Custom Attributes.

Adding Custom Host Attributes

Follow the instructions, below, to create a custom host attribute.

Task ***To add a custom host attribute***

1. In the Producer Portal, click **Administer** > **Custom Host Attributes**. The Producer Portal opens the Create Custom Host Attribute page.
2. On the Create Custom Host Attribute page, provide a name for the attribute and specify values for its other settings. See Custom Host Attribute Settings for setting details.
3. Complete the attribute creation process by clicking **Save** or **Add New**:
   - Click **Save** to save the attribute and remain on the current page.
   - Click **Add New** to save the current attribute and begin creating another custom host attribute.

The custom host attributes you create here are typically assigned values for a given host when that host is created.

Listing Custom Host Attributes

The Producer Portal shows all previously defined custom host attributes on the Custom Host Attributes page.

Task ***To list existing custom host attributes***

- Click **Administer** > **Custom Host Attributes**.

The Producer Portal shows the Custom Host Attributes page. This page lists attributes with the following information:

Table 20-16 ▪ Custom Attributes Information

Field	Description
Name	Name of the custom attribute.
Type	Type of value the custom attribute accepts: Boolean, Date, Text (free form or single select), Multi-valued text, Long Text, or Date.
License Technology	Name of the license technology to which the attribute belongs.
Host Type	Type of host for the custom attribute.

Click an attribute name to view its details.

Click **Create** to add a custom host attribute.

Select the box next to an attribute and click **Delete** to delete it. Custom host attributes cannot be deleted if the associated license technology is in Deployed status.

Deleting Custom Host Attributes

Custom host attributes can be deleted from the Custom Host Attributes page.

Custom attributes cannot be deleted if the associated license technology is deployed. When a custom attribute is deleted from a draft license technology, all references to this attribute are deleted from the corresponding generator configuration or license model.

Task ***To delete custom host attributes***

1. On the Custom Host Attributes page, select the check box of the custom host attributes you want to delete and then click **Delete**. The Producer Portal prompts you to confirm the deletion.
2. Click **OK** to confirm the deletion of the selected custom attributes.

The Producer Portal deletes the selected attributes and refreshes the custom host attributes list.

Managing Custom License Attributes

You can manage your custom license generator attributes and custom license model attributes from the Custom License Attributes page.

Custom license attributes include custom license generator attributes and custom license model attributes. License generator attributes provide a way to capture information that can be sent to a custom license generator. License model attributes provide a way to capture licensing-related information that might be useful in the entitlement lifecycle or even expressed in license text.

The topics below discuss how to add, list, edit, and delete custom license generator attributes and custom license model attributes.

Note ▪ *For information about entity-specific custom attributes or custom host attributes, see Managing Custom Attributes or Managing Custom Host Attributes, respectively.*

Table 20-17 ▪

Topic	Description
Custom License Generator Attribute Settings	Provides details about the settings associated with custom license generator attributes.
Custom License Model Attribute Settings	Provides details about the settings associated with custom license model attributes.
Adding Custom License Attributes	Explains how to add custom license model and license generator configuration attributes. • For custom license generator configuration attributes, these instructions cover specifying a numeric, text, boolean, or date attribute for a license generator configuration associated with a license technology. • For custom license model attributes, these instructions cover creating attributes for custom license models or creating custom attributes for FlexNet Publisher Licensing Toolkit models
Listing Custom License Attributes	Describes how to show a list of custom license attributes.
Editing Custom License Attributes	Explains how to edit existing custom license generator attributes and custom license model attributes.
Deleting Custom License Attributes	Shows how to remove custom license attributes.

Custom License Generator Attribute Settings

Custom license generator attributes have the following settings:

Table 20-18 ▪

Setting	Description
Name	A name to uniquely identify this custom license generator attribute. This name must be unique within a given license technology.
License Technology	License technology of which the attribute is a part. Choose from the drop-down list.
Required?	Is this a required or optional attribute for license generation? If required, this attribute can only be created for a license technology in the draft state.
Type	The data type of the values the custom attribute accepts. Type cannot be changed after it is set. Choose from the following: • **Number** • **Text** (requires **Max. Length** and **Text Type** settings) • **Long Text** (requires **Display Type** setting) • **Boolean** • **Date** For details about these data types, see Custom Attribute Data Types in About Custom Attributes.

Custom License Model Attribute Settings

Custom license model attributes have the following settings:

Table 20-19 ▪

Setting	Description
Name	A name to uniquely identify this custom license model attribute. This name must be unique within a given license technology.
License Technology	License technology of which the attribute is a part. Choose from the drop-down list. If you choose FlexNet Licensing from this list, you are setting custom attributes on its license models.

Table 20-19 ▪

Setting	Description
When to Request this Attribute Value	The events during which it is possible for to specify the values of this attribute: • License Model Creation: when creating a license model that enables this attribute • Entitlement: when creating entitlements with license models that enable this attribute • Fulfillment: when activating licenses with license models that enable this attribute The selected events, above, define the events when the values of this attribute may be specified on some license model of the selected license technology. When the current license model attribute is enabled on a particular license model, one event from the set of possible events must be selected. For more information, see Setting Up Custom License Model Attributes.
Required?	Is this a required or optional attribute for license generation? If required, this attribute can only be created for a license technology in the draft state.
Type	The data type of the values the custom attribute accepts. Type cannot be changed after it is set. Choose from the following: • **Number** • **Text** (requires **Max. Length** and **Text Type** settings) • **Long Text** (requires **Display Type** setting) • **Boolean** • **Date** For details about these data types, see Custom Attribute Data Types in About Custom Attributes.
Copy to Data Warehouse	If selected, this attribute is included in the data transformation for reporting. Otherwise, the custom attribute is not available for reporting. Note that some data types cannot be copies to the data warehouse and, as a result, cannot be made available for reporting. For details, see Copying to the Data Warehouse in About Custom Attributes.

Adding Custom License Attributes

Although you can create custom license generator configuration attributes and custom license model attributes as part of the license technology creation wizard, both types of custom attributes can also be created directly from the Custom License Attributes page.

This topic explains how to create custom license generator configuration attributes and custom license model attributes:

- For custom license generator configuration attributes, these instructions cover specifying a numeric, text, boolean, or date attribute for a license generator configuration associated with a license technology. See Adding Custom License Generator Attributes, below.
- For custom license model attributes, these instructions cover creating attributes for custom license models or setting custom attributes for FlexNet Licensing models. See Adding Custom License Model Attributes, below.

Adding Custom License Generator Attributes

Custom license generator attributes can be created as part of the license technology creation wizard or they can be created independently of that wizard. These instructions start from the Create a License Generator Attribute page.

In the license technology creation wizard, the **Create a License Generator Attribute** page is step 2. To open the Create a License Generator Attribute page independently of that wizard, click **Administer** > **Custom License Attributes**. Then, click **Add a License Generator Attribute**.

***Note** ▪ When creating a license technology, if you implement your license generator class so that it references the license generator executable, you can skip this step.*

You can create a license generator attribute for custom license technologies in the draft state. You cannot create a license generator attribute for FlexNet Licensing.

Task ***To add a custom license generator attribute***

1. On the Create a License Generator Attribute page, provide a name for the attribute and specify values for its other settings. See Custom License Generator Attribute Settings for setting details.
2. Complete the attribute creation process by clicking **Save**, **Add New**, **Reset**, or **Next**:
   - Click **Save** to save the attribute and remain on the current page.
   - Click **Add New** to save the current attribute and begin creating another custom license generator attribute.
   - Click **Reset** to clear the current form and start again.
   - Click **Next** to save the license technology and move to the Create License Generator Configuration page.

The custom license generator attributes you create here are typically configured for a given license generator when that license generator is created. These license generator configurations are set up in the Create a License Technology wizard. See Creating a License Generator Configuration for more information.

Adding Custom License Model Attributes

Custom license model attributes can be created as part of the license technology creation wizard or they can be created independently of that wizard. These instructions start from the Create a License Model Attribute page.

In the license technology creation wizard, the **Create a License Model Attribute** page is step 4. To open the Create a License Model Attribute page independently of that wizard, click **Administer** > **Custom License Attributes**. Then, click **Add a License Model Attribute**.

Task ***To add a custom license model attribute***

1. On the Create a License Model Attribute page, provide a name for the attribute and specify values for its other settings. See Custom License Model Attribute Settings for setting details.
2. Complete the attribute creation process by clicking **Save**, **Add New**, or **Complete**:
   - Click **Save** to save the attribute and remain on the current page.
   - Click **Add New** to save the current attribute and begin creating another custom license model attribute.
   - Click **Complete** to save the license technology and return the License Technologies page.

The custom license model attributes you create here are typically configured for a given license model when the license model is created. The license model creation wizard includes a step in which you can set up how the available custom license model attributes are to be used (or not) for the current license model. See Setting Up Custom License Model Attributes for instructions.

Note ▪ *If you create an attribute for a custom technology called "SERIAL_NUMBER," its label, by default, is displayed as "Serial Number." This is because SERIAL_NUMBER is a FlexNet Licensing attribute for which resources are already defined. If you change the label for the custom SERIAL_NUMBER attribute, its FlexNet Licensing display label also changes.*

Listing Custom License Attributes

The Producer Portal shows all previously defined custom license generator attributes and custom license model attributes on the Custom License Attributes page.

Task ***To list existing custom license attributes***

- Click **Administer** > **Custom License Attributes**.

The Producer Portal shows the Custom License Attributes page. This page lists attributes with the following information:

Table 20-20 ▪ Custom Attributes Information

Field	Description
Name	Name of the custom attribute.
Type	Type of value the custom attribute accepts: Boolean, Date, Text (free form or single select), Multi-valued text, or Long Text.

Table 20-20 ▪ Custom Attributes Information

Field	Description
Belongs To	Whether the attribute is associated with license models or license generator configurations.
License Technology	Name of the license technology to which the attribute belongs.

From this page, you can add a license generator attribute or a license model attribute, edit an existing attribute, or delete existing attributes. Producers can also export the attributes the license attributes that appear in the list.

Click an attribute name to view its details.

- Click **Add a License Model Attribute** to create a custom license model attribute.
- Click **Add a License Generator Attribute** to create a license generator configuration attribute.

See Adding Custom License Attributes for instructions.

Tip ▪ *If you have many custom license attributes, note that the list of attributes is paginated. Use the page controls to view more attributes. Use the search features on the Custom License Attributes page to narrow the list.*

Editing Custom License Attributes

Both custom license generator attributes and custom license model attributes can be edited from the Custom License Attributes page. (Not all settings for these custom license attributes are editable.)

Task ***To edit a custom license attribute***

1. On the Custom License Attributes page, click the name of the custom attribute you want to edit. The Producer Portal opens the Create a License Generator Attribute or the Create a License Model Attribute page, depending on the type of attribute you choose.
2. Edit the settings for the current attribute. For details about these settings, see Custom License Generator Attribute Settings or Custom License Model Attribute Settings.
3. Click **Save**.

The Producer Portal saves your changes to the attribute settings.

Deleting Custom License Attributes

Both custom license generator attributes and custom license model attributes can be deleted from the Custom License Attributes page.

Custom license attributes cannot be deleted if the associated license technology is deployed. When a custom license attribute is deleted from a draft license technology, all references to this attribute are deleted from the corresponding generator configuration or license model.

Task ***To delete custom license attributes***

1. On the Custom License Attributes page, select the check box of the custom attributes you want to delete and then click **Delete**. The Producer Portal prompts you to confirm the deletion.
2. Click **OK** to confirm the deletion of the selected custom attributes.

The Producer Portal deletes the selected attributes and refreshes the custom license attributes list.

Administering Domains

User information is obtained from one or more domains in which it is stored. FlexNet Operations users entered manually into the application are users in the FlexNet domain. Authentication information for a user in the FlexNet domain is stored in the FlexNet Operations database. If FlexNet Operations is configured to support one or more directory services, information for a FlexNet Operations user or group of users can be imported from the directory service. Only minimal information from the directory service is imported to allow FlexNet Operations to contact the service; authentication information for a user in a directory service domain is maintained in the directory service. Any user in a configured directory service domain can log in to FlexNet Operations. However, to perform any tasks in FlexNet Operations, a directory service user must be imported as a FlexNet Operations user or be a member of an imported group and be assigned at least one role.

The following topics cover how to work with domains in the Producer Portal:

Table 20-21 ▪

Topic	Description
Listing Domains	Describes how to show a list of domains in the Producer Portal.
Adding a Domain	Shows how to add a new domain to FlexNet Operations.
Editing a Domain	Explains how to change the settings for an existing domain.

Listing Domains

Users assigned roles with the **View Domains** or **View and Manage Domains** permission can browse domains.

Task ***To browse existing domains***

1. Click **Administer** > **List Domains**.
2. In the **Domains** page, you can view the following information:
   a. **Name**: Domain name.
   b. **Host**: Name of the machine that hosts the directory service.
   c. **Status**: Whether the domain is active or inactive.

Adding a Domain

If a directory service domain is configured in FlexNet Operations, users and user groups can be imported from the directory service and assigned roles.

Users assigned a role with the **View and Manage Domains** permission can view, add, and edit domains.

***Caution** ▪ Before configuring a new domain, you should ensure you understand the directory structure and its data. It is strongly recommended that you consult with the LDAP administrator for more information on LDAP configuration.*

Task ***To configure access to a directory service***

1. Click **Administer** > **Create a Domain**.
2. Enter values for the following settings. Defaults may be defined based on the type of directory service:

Table 20-22 ▪

Settings	Description	Req.
Name	Name that uniquely identifies the domain, which is used as an identifier in cases such as Single Sign On and web services. The domain name for the domain that contains users entered manually into FlexNet Operations is **FlexNet**. Additional domains that are added are directory service domains. ***Note** ▪ A domain name should not have any spaces.*	Yes
Protocol	LDAP and LDAPS protocols are supported. LDAPS uses SSL connections. If LDAPS is selected, see the *FlexNet Operations On-Premises Installation & Implementation Guide* for instructions to configure secure (SSL) client settings for the FlexNet Platform Server.	
Host	Name of the host machine on which the directory service runs.	Yes
Port	Port on the host machine on which the directory service listens for requests. The default LDAP port is 389; the default LDAPS port is 636.	Yes
Domain Login	The distinguished user (DN) name of the user that will connect to the directory server. If the directory server allows anonymous binding, then leave this field blank. The directory server must allow an anonymous login to bind as well as perform searches for users and groups.	Yes
Domain Password	The password used when binding to the active directory domain to perform domain operations. (Password is only required if you configure a valid user to connect to the directory server.)	Yes

Table 20-22 ▪

Settings	Description	Req.
Base Distinguished Name	The distinguished name (DN of the node in the directory service) at which to start searching for user information.	Yes
User Search Filter	The directory service filter condition that is used to identify a user. The syntax (include parentheses) is (*attribute_name=value*), where *value* is the value of the directory service attribute when the object is a user. This filter is used to search for users imported from the directory service.	Yes
Authentication Filter	Filter condition used during the authentication process, to find the user who is trying to log on to the directory server. The filter condition contains the name of an attribute.	
UserID Attribute	An attribute of the user type entry that contains the user ID identifying the user. Used to store the user ID value in FlexNet Operations as user name.	
Group Name Attribute	Directory service attribute of a user that contains the groups to which that user belongs.	
User Display Name Attribute	The directory service attribute that contains the display name of a user.	Yes
User Display Detail Attribute	Optional directory service attribute that contains the display detail of a user. The value of this property is displayed in the Create User page when you create a user from a directory service. If not defined, the default value is the User Distinguished Name in the directory service.	
User Account Unit Attribute	Optional name of the attribute in the directory service that stores the user's account. The value specified in the directory service for this property must be the same as that defined by the Account Name in Operations. If these values do not match exactly, Operations uses the value defined in the **Default Account for External Domain** property in System Configuration.	
User Email Attribute	Optional name of the attribute in the directory service that stores the user's email. If this is not defined, the user email will not be populated.	
User Locale Attribute	Optional name of the attribute in the directory service that stores the user's locale. The Locale ID value specified by this property in the directory service must take a format <language code>_<country code>. For example, en_GB for Great Britain English or en_US for United States English.	

Table 20-22 ▪

Settings	Description	Req.
User TimeZone Attribute	Optional name of the attribute in the directory service that stores the time zone defined for that user. The value specified by this property in the directory service must take one of the following formats (these are supported by Java): 1. Time Zone ID, such as America/New York or America/Los_Angeles 2. GMT standard format : GMT<+|–><Hours>:<Minutes> GMT<+|–><Hours><Minutes> GMT<+|–><Hours> There are no spaces between each value. Hours are represented as either single-digit or double-digit. Minutes are represented as double-digit. A digit is a number 0 through 9. For example, valid values could be GMT+05:30, GMT+0500 or GMT+5.	
Group Search Filter	The directory service filter condition that is used to identify a group. The syntax (include parentheses) is (*attribute_name=value*), where *value* is the value of the directory service attribute when the object is a group. Typically, the entry is identified by the `objectclass` attribute.	Yes
Group Display Name Attribute	Directory service attribute that contains the display name of a group.	Yes
Group Display Detail Attribute	Optional directory service attribute that contains the display detail of a group. The value of this property is displayed in the Add Group page when you create a group from a directory service. If not defined, the default value is the Group Distinguished Name in the directory service.	
Returned Page Size	If a positive number is specified, FlexNet Operations tries to use paging when searching for directory service entries. Paging means that the directory service returns no more than the specified number of entries at a time instead of all entries in one batch. Set to a number less than or equal to the page size limit imposed by the directory service. Not all directory services support paging; if your directory service does not, set page size to 0.	
Status	An active domain can be used to import or authenticate a user; an inactive domain cannot. Leave the status of a new domain **Active**. (If you do not wish to grant access to users from a specific domain, set the value to Inactive. You can set it to Active at a later time.)	

3. Click **Save**.

When the new directory service domain is saved, any user in the domain can log in to FlexNet Operations. To allow users who are maintained in that directory service to perform tasks in FlexNet Operations, users and groups can be imported into FlexNet Operations and granted roles.

4. Verify in the **Domains** page that the domain was added.

Editing a Domain

Users assigned a role with the View and Manage Domains permission can view, add, and edit domains.

Task ***To edit an existing domain***

1. Click **Administer** > **List Domains**.
2. In the **Domains** table, click a domain name to view the **Edit Domain** page.
3. Edit the values of any of the editable fields. The domain name is never editable; others may not be. See Adding a Domain for field descriptions.
4. Click **Save** to save your changes to the domain.

Importing and Exporting Entities

You can import and export entities from the FlexNet Operations database into other Operations databases. This enables you to migrate data between different FlexNet Operations installations. In addition, data export can be helpful when troubleshooting issues. For example, problematic entities can be exported to a file and then sent to tech support for review.

Imports can be either contained in packages or Unicode text. Packages are `.jar` files that contain an XML meta-file to describe the contents of the package and the order in which the content files should be loaded, and content XML files for the entities. Unicode `.txt` files are saved from Data Import Templates in .xlt format. Blank Data Import Templates can be downloaded from the Data Import Templates tab, as described in Using Data Import Templates.

Exports can be in either .jar or Data Import Template (.xlt) format. With a Data Import Template, modification of the data is simplified with tools designed to ensure compatibility with the FlexNet Operations database. See Using Data Import Templates for more information.

Information about importing and exporting entities is described in the following sections:

- Import/Export Package Structure
- Importing and Exporting Entities Overview
- System Configuration
- Exporting Entities
- Importing Entities
- Using Data Import Templates
- Import/Export Job Status

Import/Export Package Structure

During the import/export process, FlexNet Operations works with an export-import package, which is a `.jar` file containing the following:

- An XML metafile to describe the contents of the package and the order in which the files should be loaded.

  ***Note** ▪ For more information, see XML Metafile Structure.*

- A set of content XML files for the entities that are exported. Each file contains entities of one type only. For example, products are in one XML file, and license models are in another XML file.

***Version** ▪ A sample import/export `.jar` file can be found in the following location:*
`<ops_install_dir>``\release\flexnet-data\site\samples\exportimport`

***Important** ▪ FlexNet Operations does not support the importing or exporting of test entities, such as test entitlements.*

XML Metafile Structure

If a package is built by hand, this metafile must be constructed and packaged into a `.jar` file with the content XML files.

The type tag in XML specifies the type of entity being imported. You can set the type to one of the enumerated values listed in `<ops_install_dir>\release\flexnet-data\site\schema-public\exportimport\exportimportmetafile.xsd`.

A sample metadata file is shown here:

```
<fileMetaInfo version="8.3">
    <statusInfo> <!--This tag is optional and it is not used during import-->
       <message>Exported from FNO 8.3 installed on host blind</message>
       <timestamp>03/16/2007 14:30:35</timestamp>
    </statusInfo>
    <fileInfo>
       <file order="1" type="LIC_TECH">1</file>
       <file order="2" type="MODEL">1</file>
       <file order="3" type="FEATURE">1</file>
       <file order="4" type="PRODUCT">1</file>
       <file order="5" type="ENTITLEMENT">5</file>
    </fileInfo>
    <fileDetails><!-- This tag lists the location of each file and the order it should be loaded -->
   <fileSet type="LICTECH">
      <fileName order="1">lictech_1.xml</fileName>
   </fileSet>
   <fileSet type="MODEL">
      <fileName order="1">licmodel_1.xml</fileName>
   </fileSet>
   <fileSet type="FEATURE">
```

```
      <fileName order="1">feature_1.xml</fileName>
   </fileSet>
   <fileSet type="PRODUCT">
      <fileName order="1">product_1.xml</fileName>
   </fileSet>
   <fileSet type="ENTITLEMENT">
      <fileName order="1">entitlement_1.xml</fileName>
      <fileName order="2">entitlement_2.xml</fileName>
      <fileName order="3">entitlement_3.xml</fileName>
      <fileName order="4">entitlement_4.xml</fileName>
      <fileName order="5">entitlement_5.xml</fileName>
   </fileSet>
    </fileDetails>
</fileMetaInfo>
```

File Order

The order in which entities are loaded is important. Before an entity is loaded, all of its dependencies must exist in the system. There are two points to consider while determining the file order in the metafile:

- Different entity types: For example, before an entitlement is loaded, the product and license model the entitlement refers to must exist in the system. So, the product XML files must be loaded before loading the entitlement XML files.
- Same entity types: If there is a parent-child relationship between the same entity types, the parent must be loaded before the child is loaded. For example, if an entitlement line item is defined as an upgrade of another line item. The parent line item must be loaded before the upgraded line item is loaded.

Each content XML file must be of a reasonable size to ensure that the I/O processes proceed smoothly.

Content XML Files

In general, all constants in the content XML files are enumerated types which are defined in the corresponding `.xsd` file. Publishers can refer to the schema definition files in `<ops_install_dir>\release\flexnet-data\site\schema-public\exportimport` for details of the content XML files.

In general, if the user wants to update even one attribute, such as state, the entire XML file must be submitted along with all the collections and references.

For example, if the user wants to import a product, then the entire product definition along with the features, bundles, license models, parts, and associated parameters, has to be provided in the XML file. If the product already exists in the system, the user is given a choice to either update the record or report an error during the import process. If the user selects to update the record, then the entire product definition is replaced by the details in the XML imported. This means that the existing features, bundles, license models, parts in the product are replaced by the new collections mentioned in the imported XML.

Common specifications for each content XML include:

- Date values must be entered in `yyyy-mm-dd` format.
- Time Zone must be entered in a format like `-7:00`, which indicates GMT -7 hours.
- Locales must be entered as `en` or `en_US`. A locale's language is specified by the ISO 639 standard and the locale's country code is specified by the ISO 3166 standard. If the locale entered does not conform to these standards, then a default value of `en` is stored.

Importing and Exporting Entities Overview

When importing or exporting, you can select a single entity, specific entities, or all entities of a certain type. For example, you can export a single product, selected products, or all products. If you export an entity, you can also choose to export its dependent entities (dependencies). For example, if you export an entitlement, and you select its dependencies, FlexNet Operations can also export the entitlement's dependent product, features and other associated entities.

Permission to view an entity also includes permission to export it.

Important ▪ *Only the .jar package mechanism supports importing and exporting of feature bundles.*

Importable and exportable entities include:

- License Technologies, License Models and License Generator Configurations
- Publishers and publisher identities
- Custom Attributes
- Features and feature bundles
- Part Numbers
- Transaction Keys
- Products and Suites
- Product relationships to license models, features, feature bundles, license models, part numbers and other products
- Simple entitlements and line items
- Bulk entitlements and Web register keys.
- Fulfillments, including fulfillment vendor names. (Import limitations apply. See Fulfillment Import Limitations.)
- Consolidated licenses
- All business objects in FlexNet Operations (including account units, license technologies, products, suites, features, feature bundles, license models, entitlements, and fulfillment records).

Important ▪ *You cannot import or export test entities, such as test entitlements.*

Note ▪ *Administrative entities like roles and domains, and records like history and audit trails cannot be exported or imported.*

System Configuration

Imports and exports are processed as background jobs. Before importing or exporting, configure an alert for the background queue.

Task ***To configure alerts for background queue processing***

1. Click **Administer** > **Configure Alerts**.
2. Under Export and Import Background Jobs, click **Configure**.
3. On the Set Alert Handlers page, set your alert handlers.
4. If desired, set a value for the interval at which FlexNet Operations checks for background jobs. The default is 5 seconds.
5. Click **Save**.
6. Subscribe to the alert as usual.

Exporting Entities

The following tasks explain how to export entities.

- Exporting an Entity or Set of Entities as a JAR File
- Exporting the Entire FlexNet Operations Database
- Exporting a Set of Entities as a Data Import Template File

Exporting an Entity or Set of Entities as a JAR File

To export an entity or a set of entities from FlexNet Operations as a JAR file, perform the following steps.

Task ***To export an entity or set of entities from FlexNet Operations as JAR file***

1. On the landing page for the entity, do one of the following:
   a. To export selected entities, select one or more entities, then click **Export** > **Selected Items** or **Selected Items With Their Dependencies**.
   b. To export all entities in the list, click **Export** > **All Items** or **All Items With Their Dependencies**.
2. The selected entities are exported to a `jar` file. If you chose to include dependencies, the dependencies are included.

Exporting the Entire FlexNet Operations Database

To export the entire FlexNet Operations database, perform the following steps.

Task ***To export the entire FlexNet Operations database***

1. Click **Administer** > **Export Data Objects**.
2. On the Export Business Objects page, click **Export**.
3. Click **Yes** to confirm export.

4. All exportable business objects in FlexNet Operations are exported to a `.jar` file. Your job is assigned a request number, and an alert is sent when processing is completed. You can check the job status on the Status page. See Import/Export Job Status for more information.

Exporting a Set of Entities as a Data Import Template File

To export the a set of entities as a Data Import Template file, perform the following steps.

Task ***To export a set of entities from FlexNet Operations as Data Import Template file***

1. On the landing page for the entity, click **Export** > **Data Import Template**.

   Note ▪ *For Users and Accounts, click* ***Export > Data Import Template*** *from any tab. All user or all account data is exported into the template file. For Download Packages and Files, go to the* ***Products > Search Download Packages*** *or* ***Search Files*** *page and click the* ***Search*** *button to access the Search Results page, then click* ***Export > Data Import Template****. All Download Packages or all Files are downloaded into the template file, regardless of the filtering on the search page.*

2. A message similar to the following appears:

   ```
   Request 3137 to export all Products as data import template successfully submitted. An alert will be
       sent after the request is processed.
   ```

3. Go to **Administer** > **Import/Export Status**.

4. When the request has completed, select the check box next to its **Job ID** and click the **Download exported file** button. The selected entities are exported to a Data Import Template (.xlt) file. Data for all the tabs in the template are included in the downloaded file.

Note ▪ *The Products download does not include the Create/Update Product line tab data available in the blank Data Import Template. Save each tab of the downloaded .xlt file as a separate Unicode text file for uploading to another instance of FlexNet Operations. The Create-Update Features data is included as a separate tab in the PackageProducts.xlt export as well as a standalone tab in the FeatureExport.xlt export.*

Importing Entities

To import a set of entities into FlexNet Operations, perform the following steps.

Task ***To import a set of entities into FlexNet Operations***

1. Click **Administer** > **Import Data Objects**.

2. In the **Import Settings** tab, under Upload Type, select either **Unicode of Data Import Template** or **Jar file**. If you select **Unicode of Data Import Template**, skip to Step 6, otherwise go to Step 3.

3. If you are importing a JAR file larger than 2 MB in size, select the **Run job in background?** check box.

- If **Run job in background?** is selected (default setting), FlexNet Operations processes the import job asynchronously. FlexNet Operations submits the job for processing and assigns the job a record number. (You can check the status of the import job on the status page. See Import/Export Job Status for more information.)
- If **Run job in background?** is not selected, FlexNet Operations processes the import immediately.

See Configuring Alert Behavior for more information on configuring background jobs.

4. For Error handling, select one of the following options:
   - **Continue with errors**—The import process continues even if errors are encountered.
   - **Stop import job**—The import process stops upon encountering an error.
5. For Duplicate record handling, select one of the following options:
   - **Update record**—If the entity already exists in the database, the record is updated with the information in the import file.
   - **Skip and Generate Error**—If the entity already exists in the database, it is not updated and an error message is generated.
6. For File Name, click **Choose File**. Browse to the Unicode `.txt` or `.jar` file containing the data you want to import.

   ***Note** ▪ When importing a large number of Web Register Keys, it is recommended that you limit each job to a maximum of 1,000 keys to optimize performance. If necessary, split the task into multiple jobs to stay within the recommended limit.*
7. Click **Import**. The file is imported into FlexNet Operations.

Import Order

If copying data from one instance of FlexNet Operations to another, dependencies such as Transaction Keys, License Technologies, and License Models must be imported first. Use the **Selected Items with their Dependencies** (if available) or **Selected items** to download JAR files from their respective entity pages and upload them before uploading a Product Packing or Entitlement Management Unicode text file.

***Note** ▪ See Exporting an Entity or Set of Entities as a JAR File and Downloading a Data Import Template for more information.*

The following lists the order each type of entity should be uploaded.

Table 20-23 ▪ Upload Order of Entities

Entity Type	Upload Order
Dependencies	Dependencies must be uploaded in the following order: 1. License Generator 2. License Technology 3. License Model 4. Hosts 5. Accounts 6. Users 7. Product Lines 8. Custom Attributes 9. Custom Host Attributes 10. Custom License Attributes
Product Entities	Product entities must be uploaded in the following order: 1. Features 2. Products 3. Maintenance Products 4. Part Number or Product Relationship
Entitlement Entities	Entitlement entities must be uploaded in the following order: 1. Simple and Bulk Entitlements 2. Maintenance Line Item 3. Web Reg Keys

Note ▪ *Not all entities have an export option. For any entity page that does not include an Export option, data must be manually entered into the new instance of FlexNet Operations*

Fulfillment Import Limitations

If updates on import are allowed, the following limitations apply:

- Existing *on-hold* fulfillments can be updated only to *active* by import.
- Existing *active* fulfillments can be updated only to *obsolete* by import.
- Existing *obsolete* fulfillments cannot be updated by import.

Using Data Import Templates

Data Import Templates enable you to do a batch import of data into FlexNet Operations. You can add new entities or modify existing ones. This approach may be preferred if there is a lot of data to be added or modified.

Templates for entitlements, accounts and users, and products can be downloaded and populated with data that can be imported into a FlexNet Operations database using the import function (see the task described under Importing Entities). Features of the templates include

- Color coded column headers based on transaction type, account, user, entitlement, line item, product and feature.
- Column headings of required fields for a transaction are in bold.
- Column heading comments containing information about the data expected for the column and any other column dependencies associated with this column.

Any Custom Attribute fields you have configured will be included in the templates. Unique Custom Attributes and License Model Attributes and Policies utilize the following heading name conventions:

- License Model Attribute: `LM[<LicenseModelName>|<AttributeName>]`
- License Model Policy Attribute: `PO[<LicenseModelName>|<AttributeName>|<PolicyAbbreviation]`
- Custom Attributes: `CA[<Entity>|<AttributeName>]` where `Entity` = `USER`, `PROD`, `ENT`, or `LINE`

Downloading a Data Import Template

To download a Data Import Template, perform the following steps.

Task ***To download a Data Import Template***

1. Click **Administer** > **Import Data Objects**.
2. Click the **Data Import Templates** tab.
3. Click the appropriate Download link for one of the following template types:
   - **Product Packaging Template**—Products, features, and other data associated with product packaging.
   - **Entitlement Management Template**—Entitlements, maintenance line items, bulk entitlements, web register keys and other data associated with entitlements.
   - **Download Packaging Template**—Download packages, files and other data associated with download packages.
   - **Account and User Template**—Accounts and users.
   - **Updates Template**—Updates.
4. Save the `.xlt` file

Editing and Saving a Data Import Template

To edit and save a Data Import Template, perform the following steps.

Task ***Editing and saving a Data Import Template***

1. Open the `.xlt` file in Excel (or another compatible spreadsheet application).
2. Fill in the spreadsheet columns as appropriate.

   Important ▪ *CreateUpdate transactions can blank existing data. If you upload a file containing transactions of these types, FlexNet Operations assumes any columns you include contain the desired value. If a column contains no values, then when FlexNet Operations updates the records, any existing data is lost. If you do not want to provide values in a column, then remove the column from the spreadsheet.*

   When working with spreadsheets, follow these guidelines:

   - Do not change heading names. If they are changed, the transactions are processed but values in the columns whose names have been changed are not assigned to the corresponding fields in the database.
   - Only columns with a heading in bold text are required.
   - Hover over the heading to see comments on how to populate the field and to determine if there is a dependency requiring other columns to be completed. If there is more text in the comment that can be viewed by hovering over the heading, right click the heading and select **Edit Comment** to open the comment box and use the arrow keys to scroll up or down.
   - For Users, see Time Zone Settings for correct construct of the time zone attribute.
   - For Accounts, self-registered accounts cannot be imported into the Producer Portal. Also, the following restrictions apply to default accounts:
     - MYORG: Only the account name can be changed. No other updates are permitted and this account cannot be deleted.
     - PORTAL_ORG_UNIT: This account cannot be updated or deleted.
     - UNKNOWN_ORG_UNIT: This account cannot be updated or deleted.
   - Products and Entitlements contain multi-valued attributes such as features and line items. To have multiple features and line items, they cannot be set in a single row but must be added on separate rows repeating any identifier fields for the product or entitlement. Data that is only needed once for the transaction type is taken from the first row and data that can have multiple values is aggregated from the succeeding rows, which is why you cannot change a field using multiple rows of data for the same product or entitlement in the same Data Import Template file.
   - If you want to change a field for products or entitlements, upload it in a separate Data Import Template file.
   - When importing a large number of Web Register Keys, it is recommended that you limit each job to a maximum of 1000 keys to optimize performance. If necessary, split the task into multiple jobs to stay within the recommended limit.
3. After all changes are made, save the file as a Unicode `.txt` file.

Time Zone Settings

One of the attributes that can be set for creating/updating users is a user's time zone. Determine the correct time zone configuration from the following table.

Table 20-24 ▪ Time Zone Settings

Time Zone	Setting
Midway Island, Samoa	GMT-11.0DST0
Hawaii	GMT-10.0DST0
Hawaii-Aleutian Daylight Time	GMT-10.0DST60
Marquesas Time	GMT-9.5DST0
Gambier Time	GMT-9.0DST0
Alaska Daylight Time	GMT-9,0DST60
Pitcairn Standard Time	GMT-8.0DST0
Pacific Time	GMT-8.0DST60
Mountain Standard Time	GMT-7.0DST0
Mountain Daylight Time	GMT-7.0DST60
Central America	GMT-6.0DST0
Central Time	GMT-6.0DST60
Ecuador, Columbia, Peru Time	GMT-5.0DST0
Eastern Time	GMT-5.0DST60
Venezuela Time	GMT-4.5DST0
Guyana, Bolivia Time	GMT-4.0DST0
Atlantic Time (Canada)	GMT-4.0DST60
Newfoundland Daylight Time	GMT-3.5DST60
Argentine Time, French Guiana, Uruguay Time	GMT-3.0DST0
Brazil, Greenland Time	GMT-3.0DST60
Mid-Atlantic	GMT-2.0DST0

Table 20-24 ▪ (cont.)Time Zone Settings (cont.)

Time Zone	Setting
Cape Verde Time	GMT-1.0DST0
Azores Time	GMT-1.0DST60
Coordinated Universal Time	GMT0.0.DST0
British Time	GMT0.0DST60
Antarctica/Troll	GMT0.0DST120
Western Africa Time	GMT1.0DST0
Western European Time	GMT1.0DST60
Central African, South African Standard Time	GMT2.0DST0
Israel Daylight Time, Eastern European Time	GMT2.0DST60
Arabia Time	GMT3.0DST0
Iran Daylight Time	GMT3.5DST60
Mauritius, Seychelles Time	GMT4.0DST0
Georgia, Armenia, Azerbaijan Time	GMT4.0DST60
Afghanistan Time	GMT4.5DST0
Uzbekistan, Turkmenistan, Tajikistan, Pakistan, Maldives Time	GMT5.0DST0
India Standard Time	GMT5.5DST0
Nepal Time	GMT5.75DST0
Bangladesh, Sri Lanka, Bhutan Time	GMT6.0DST0
Myanmar Time, Cocos Island Time	GMT6.5DST0
Indochina, Christmas Island Time	GMT7.0DST0
Krasnoyarsk Time	GMT7.0DST60
China, Malaysia, Hong Kong, Singapore, Philippines, Western Australia Time	GMT8,0DST0
Irkutsk Summer Time	GMT8.0DST60

Table 20-24 ▪ (cont.)Time Zone Settings (cont.)

Time Zone	Setting
Pyongyang Time	GMT8.5DST0
Central Western Standard Time (Australia)	GMT8.75DST0
Japan, Korea Standard Time	GMT9.0DST0
Australia Northern Territory Time	GMT9.5DST0
South Australia Time	GMT9.5DST60
Papua New Guinea	GMT10.0DST0
Tasmania, Victoria, New South Wales Time	GMT10.0DST60
Load Howe Summer Time	GMT10.5DST30
New Caledonia, Vanuatu, Solomon Island Time	GMT11.0DST0
Fiji, Marshall Islands Time	GMT12.0DST0
New Zealand Time	GMT12.0DST60
Chatham Daylight Time	GMT12.75DST60
Phoenix Island Time, Tonga Time	GMT13.0DST0
Enderbury, Fakaofo, Tongatapu Island Time	GMT13.0DST60
Line Island Time	GMT14DST0

Import/Export Job Status

You can view the status of data import or export operations executed in the background on the **Import/Export Status** page.

Note ▪ *You must first configure the Export and Import Background Jobs alert on the* ***Configure Alerts*** *page. The default setting for this alert is a Detection and Notification interval of 30 days with a status of inactive. See To configure alerts for background queue processing for more information.*

Task ***To check the status of an import or export job***

1. Click **Administer** > **Import/Export Status**.
2. The **Export & Import Job Status** page opens with a table that includes the following:

Column	Description
Job ID	Auto generated unique identifier.
Request type	`Import` or `Export`.
Export type	The type of business object being exported. If downloading all business objects, the value is `FlexNet Operations`.
Submitted by	The ID of the user making the import or export request.
Submitted on	Date and time of the import or export was submitted.
Input filename	Name of the file being imported or exported.
State	**Failed**—All of the entities failed on import. **Completed**—At least one of the entities succeeded on import.
Completed time	Date and time the import or export was completed.
Error	If some or all of the entity transactions have failed, the following message appears: `Some of the entities have failed. Please view the error log for details. Download Error Log` A link to a zip file contains the download error log in XML format. If there were no failures, this column is blank.

3. To delete a job from the historical record, select the job and click **Delete**.
4. To download a job log to a local file, select the job and click **Download Exported File**.

Updating FlexNet Operations

Between standard releases of FlexNet Operations, updates become available to fix minor problems or to add enhancements. Each patch is designed to be installed on a specific version of an application module and is identified by its module, version, and patch level.

Table 20-25 ▪ Updating FlexNet Operations

Term	Definition
Module	A module is a component of this FlexNet application; for example, platform or deploy. A FlexNet application consists of several modules. A patch applies to a single module.
Version	The version number of a module (`major.minor.maintenance`), for example, **platform 1.5.0**: A particular version of a FlexNet application consists of several modules, each module with its own identifying version number. A patch applies to a single version of a module.
Patch Level	An integer that identifies an update for a particular module and version: The highest-level patch for a module is the most recent patch, *and it contains all previous updates* for that version of the module.

Downloading a Patch Using the Updates Page

Downloading a patch also imports the patch.

Task ***To download a patch using the Updates page***

1. Verify that the FlexNet application has been configured in the **Administer Operations > System Configuration > Updates** page to receive updates through the Producer Portal.
2. Select **Administer Operations > View Updates** to open the **Updates** page.

   Each time the **View Updates** page is opened, all available updates and information messages for FlexNet Operations are displayed. Alternatively, alerts can be configured to notify users about new updates and information messages.
3. Review the list of available patches (listed under **Software Updates**).

   All unexpired patches applicable to this FlexNet application appear, even if you have already downloaded those patches. Download is disabled for the patches that have been downloaded and are currently imported. Note that this does not mean that the imported patches are already deployed.
4. Click **Download** for each patch you want to download.

   Regardless of where the Web browser is running, a patch file is downloaded to the machine on which the FlexNet Platform Server is running.
5. See the *FlexNet Operations On-Premises Installation & Implementation Guide* and follow the command-line instructions to install and deploy the patch(es) you just downloaded.

Administering License Technologies

In addition to FlexNet Publisher Licensing Toolkit technology, FlexNet Operations supports the use of other license technologies with the core product packaging, entitlement generation, and license support capabilities.

FlexNet Publisher Licensing Toolkit is a feature-based license technology, wherein a software product's binary code is rendered into licensable features. Variations of the product are achieved by combining different licensed features using FlexNet Operations product packaging rather than changing the binary code. You can view the components of the FlexNet Publisher Licensing Toolkit technology by navigating to **Administer** > **License Technologies**, and clicking FlexNet Publisher Licensing Toolkit.

License technology administration can be divided into the following activities.

Table 20-26 ▪ License Technology Administration Activities

Topic	Description
Managing License Technologies	Viewing, changing the state of, deleting, and specifying the class files for license technologies ● Creating a License Technology
Using External Services with License Technologies	Explains how to use Revenera-provided interfaces to generate license keys by an external SOAP service. ● External Service Operations ● Creating an External Service
Managing License Generator Configurations	Viewing, deleting, and creating license generator configurations ● Creating a License Generator Configuration ● Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration
Managing License Model or License Generator Custom Attributes	Viewing, deleting and adding custom license generator configuration and license model attributes. ● Creating a License Generator Configuration Custom Attribute ● Creating a Custom License Model Custom Attribute
Managing Custom Host Attributes	Viewing, adding, deleting, and creating custom host attributes. ● Creating a Custom Host Attribute

Managing License Technologies

This page lists the license technologies registered with FlexNet Operations that can be used to create license generator configurations, linked with license models, and associated with products/suites.

Viewing the Details of a License Technology

To view the details of a license technology, perform the following steps.

Task ***To view the details of a license technology***

Click its name from the technologies listed.

Changing the State of a License Technology

To change the state of a license technology, perform the following steps.

Task ***To change the state of a license technology***

1. Select the box next to its name.
2. Click **Change State**.
3. Select a state (**Draft** or **Deploy** from the Change State drop-down box).

Note ▪ *A license technology is created in draft state. After it has been deployed, you can continue to add license generator configurations. However, these generator configurations cannot be edited once they are used to create a (non-test) entitlement. (See Creating an Entitlement.)*

Deleting a License Technology

To delete a license technology, perform the following steps.

Task ***To delete a license technology***

Select the box next to its name and click **Delete**. A license technology can only be deleted in draft state, and if there are no license generator configurations, products, suites, or license models (including those in draft state) linked to the technology.

Once a license technology is deleted, all custom attributes associated with it are also deleted. You *cannot* delete the FlexNet Publisher Licensing Toolkit technology.

Creating a License Technology

To create a license technology, perform the following steps.

Task ***To create a license technology***

1. Click **Administer** > **License Technologies**.
2. Click **Add a License Technology**.

3. Enter the following information in the **Create a License Technology** page:

Table 20-27 ▪ Creating a License Technology

Field	Description
Name	Name to uniquely identify this license technology. This is a required field and must be unique.
Description	Describe the characteristics of this license technology that make it unique. The description can be changed at any time.
State	A new license technology is always created in a draft state. Any attribute, except the name of the license technology, can be edited in this state. After a license technology is deployed, no attributes can be edited. Its state can be changed back to draft only if there are no products, suites, and licenses models (entities in draft state excluded) linked to the technology. A license technology can only be deleted in the draft state.
Type	Select a license technology type: ● **Manual**: licenses are generated by a customer support representative manually using a third-party system. Since this license generator is not integrated into FlexNet Operations, when a user generates a license, the generated fulfillment is placed on hold and an email address is sent to the administrator at the address configured in System Configuration. The administrator logs in to the third-party system and generates the license, and then returns to FlexNet Operations to set the license on the on-hold fulfillment record. The user can then download the license. ● **Hands-Free**: licenses are generated programmatically using a third-party system. After generation, a fulfillment record is placed on hold. Web services are used to update the license text on the fulfillment record. Please refer to the *FlexNet Operations Web Services Guide* for more information. ● **External SOAP Service**: licenses are generated by FlexNet Operations, by implementing a web service interface. Please refer to the *FlexNet Operations Web Services Guide* for more information. ● **Use Generator Interface**: licenses are generated by FlexNet Operations, by implementing a CustomGenerator interface. Please refer to the *FlexNet Operations On-Premises Installation & Implementation Guide* for more information. Refer to Getting Started with Non-FlexNet Licensing Technologies for additional information on these types.

Table 20-27 ▪ Creating a License Technology

Field	Description
Generator Service End Point	Enter the path for this licensing technology's license generator service (required when the license technology type is External SOAP Service; otherwise, optional). FlexNet Operations expects a URL in the following format. `protocol://host:port/path` See Using External Services with License Technologies for more information.
Generator Service	Enter the name of the Java class that generates licenses for this license technology. This class must implement the `com.flexnet.operations.publicapi.LicenseGeneratorService` interface. This setting appears when you select **Use Generator Interface** for the license technology type. For instructions on building and correctly placing the class file in your FlexNet Operations installation, refer to the*FlexNet Operations On-Premises Installation & Implementation Guide*.
Generator Validator	Enter the name of the Java class that validates products and license models for this license technology. This class must implement the `com.flexnet.operations.publicapi.LicenseGeneratorValidator` interface. For instructions on building and correctly placing the class file in your FlexNet Operations installation, refer to the *FlexNet Operations On-Premises Installation & Implementation Guide*.
License Consolidator	Enter the name of the Java class that consolidates licenses for this license technology. This class must implement the `com.flexnet.operations.publicapi.LicenseConsolidator` interface. For instructions on building and correctly placing the class file in your FlexNet Operations installation, refer to the *FlexNet Operations On-Premises Installation & Implementation Guide*.
Entitlement Certificate Template	The variation name of the email template to use to generate an entitlement certificate for this license technology. When no path is specified, the default Entitlement Certificate template is used instead.
Entitlement Certificate Email Template	The variation name of the email template to use to create the body of the email for sending an entitlement certificate email attachment for this license technology. ***Note ▪*** *HTML content is always retrieved for this template.* When no path is specified, the default Entitlement template is used instead.

Table 20-27 ▪ Creating a License Technology

Field	Description
Multiple Consolidated Licenses Email Template	The variation name of the email template to use to send a multiple consolidated license email attachment for this license technology. When no path is specified, the default Multiple Consolidated Licenses template is used instead.
Consolidated License Email Template	The variation name of the email template to use to send a consolidated license email attachment for this license technology. When no path is specified, the default Consolidated License template is used instead.
Multiple License Files Email Template	The variation name of the email template to use to send a multiple license files email attachment for this license technology. When no path is specified, the default Multiple Licenses template is used instead.
License File Email Template	The variation name of the email template to use to send a license email attachment for this license technology. When no path is specified, the default License template is used instead.
Filename Generator	Enter the name of the Java class that generates license file names for this License Technology. This class must implement the `com.flexnet.operations.publicapi.MultipleLicenseFilenameGenerator` interface. For instructions on building and correctly placing the class file in your FlexNet Operations installation, refer to the *FlexNet Operations On-Premises Installation & Implementation Guide*.
Is Counted?	Indicate whether or not the user is prompted to provide a fulfillment count when activating the license. A license technology that has counted license models belonging to it can also be defined as counted. For an uncounted license model, a license is generated for only 1 copy at a time.

Table 20-27 ▪ Creating a License Technology

Field	Description
Does this license technology generate replacement keys (i.e., regenerative licensing)	Select whether or not the license technology generates replacement keys. Such a license technology is called regenerative. ● **Yes**—With a regenerative (or replacement) license technology, the last license issued overwrites the previous one. Indicate whether or not the license technology is replacement or incremental. A master copy of the license is stored on the host. For all license lifecycle activities, such as returns or repairs, the master license is updated by FlexNet Operations. When a user downloads a license for a fulfillment record belonging to a replacement technology, the license on the corresponding host is given to the user. ● **No**—For an incremental license technology, each fulfillment record contains its own license.
Is Return Operation Allowed?	Indicate whether the technology allows license returns.
Is Repair Operation Allowed?	Indicate whether the technology allows license repairs.
Is Rehost Operation Allowed?	Indicate whether the technology allows license rehosts.
Is Stop Gap Operation Allowed?	Indicate whether the technology allows stop gap licenses.
Is Emergency Operation Allowed?	Indicate whether the technology allows emergency licensing.
Is Publisher Error Correction Operation Allowed?	Indicate whether the technology allows publisher correction operations.
Is Upgrade/Upsell/Renew of Fulfillments Allowed?	Indicate whether the technology allows upgrade, upsell, or renewal operations.

Table 20-27 ▪ Creating a License Technology

Field	Description
File Definitions	If the license technology uses multiple license files, you can define multiple file types for each fulfillment record. The end user can download multiple files from each fulfillment record, or receive multiple files of different types as email attachments. 1. Click Add File Definition to add a license file type. 2. In the Create File Definition window, enter a name for the file definition. 3. Select whether the license file type is text or binary. 4. Optionally, enter a description of the file type. 5. If any custom host type attributes are defined for this type, enter values for these attributes. (See Managing Custom Host Attributes.) 6. Click OK.
Host Type (non-FlexNet)	Host type represents a class of device on which the license-enabled code is intended to run. When a license is generated for a product, FlexNet Operations prompts for the attributes that belong to the product's host type. The settings in the Create Host Type window differ for FlexNet and non-FlexNet licensing technologies. Host types can be included in a license technology either by adding a new host type or selecting an existing host type. **To add a host type** 1. Click Add Host Type. 2. In the Create Host Type window, enter a name for the host type. 3. Optionally, enter a description of the host type. 4. Enter the name of the custom class (Hostid Generator Class) used to generate host IDs for the host type. This custom class should implement the interface: `com.flexnet.operations.publicapi.HostIdentifierGeneratorByHostType` 5. Click OK. **To select an existing host type** 1. Click Select Host Type. 2. In the Select Host Type window, select the check box for a host type, and then click OK.

4. Click **Save** to save your changes, **Reset** to clear all fields, and **Add New** to save and specify a different license technology.
5. Click **Next** to specify attributes for a license generator configuration.

Using External Services with License Technologies

Producers can use Revenera-provided interfaces to deploy external services that provide customized functionality within FlexNet Operations. License keys can be generated, for instance, by an external SOAP service that implements the **LicenseGeneratorService** Web Services Description Language (WSDL).

The server that implements this WSDL is hosted separately from the one that runs FlexNet Operations. It hosts the service externally and operates independently of FlexNet Operations, as shown in the figure below. The external service is accessed by FlexNet Operations at run time for operations such as product and license model validation and license generation.

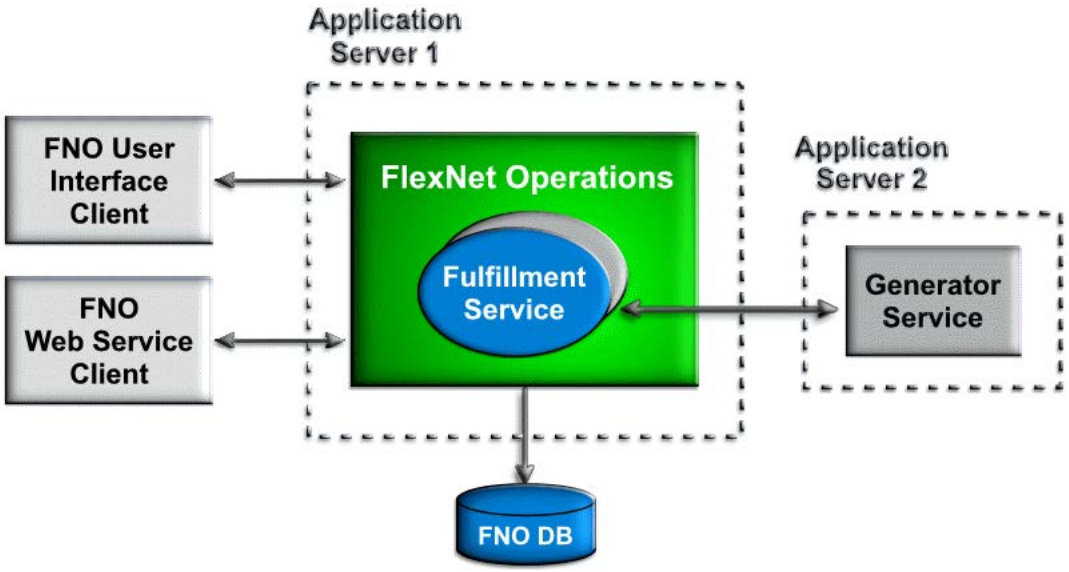


Figure 20-1: External License Generator

For information on using external services with license technologies, see the following topics:

- External Service Operations
- Creating an External Service

Note ▪ *The availability of certain operations varies with your FlexNet Operations license technology type. To customize the way license file names are generated for FlexNet Licensing Technology, implement the com.flexnet.operations.publicapi.MultipleLicenseFilenameGenerator interface and enter the name of that Java class in* ***Filename Generator*** *on the* ***Create A License Technology*** *page.*

External Service Operations

An external service can be invoked from FlexNet Operations for the following operations:

- CustomGeneratorService
- CustomGeneratorValidator
- CustomLicenseConsolidator

- CustomFilenameGenerator
- CustomHostIdGeneration

External service operations and their descriptions are listed in the following table.

Table 20-28 ▪ External Service Operations

External Service Operation	Description
generateLicense	Generates license
validateProduct	Validates product
validateLicenseModel	Validates license model
consolidateFulfillments	Consolidates licenses for multiple fulfillments
generateConsolidatedLicenseFilenames	Generates license file names for consolidated licenses
generateFulfillmentLicenseFilenames	Generates license file names for single fulfillments
generateCustomHostIdentifier	Generates custom host identifier
ping	Tests external service availability

Creating an External Service

Important ▪ *Examples and procedures in this section are based on Java. However, the external service can be created in any technology that supports SOAP, such as gSOAP, C#, or Java. You must make the necessary modifications and follow the procedures specific to the technology you choose.*

Following are procedures for setting up a sample external service web application, creating the external service license technology, and testing the external service. You must have the `extgenservice.zip` FlexNet Operations build archive (download the `extgenservice.zip` archive from the Product and License Center at https://flexerasoftware.flexnetoperations.com), and the application server on which the custom service is to be deployed must be running.

Configuring the License Technology URL

On the FlexNet Operations **Create A License Technology** page, the license technology end point is called the **Generator Service End Point**. It is required when a license technology **Type** of **External SOAP Service** is selected, and optional for FlexNet Licensing Technology or when a **Manual** or **Hands-Free** technology is selected (manual and hands-free technologies rely on an external service for optional consolidators, file name generators, and host ID generators).

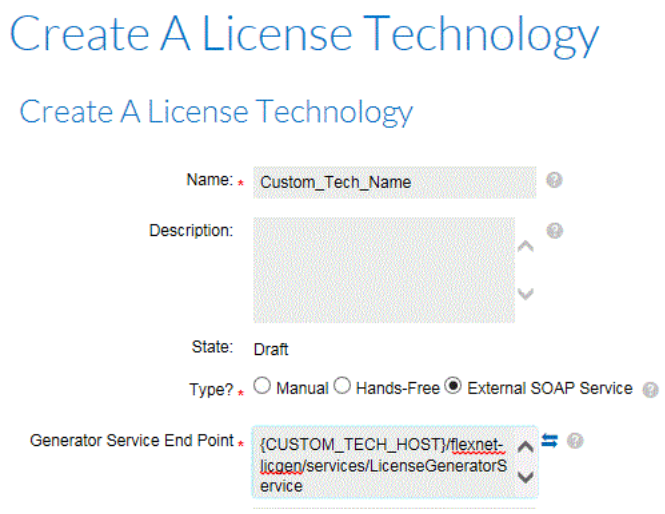


Figure 20-2: Create a License Technology Page

Enter the URL to the custom generator service in this format: `protocol://host:port/path`.

For existing custom license technology configurations, the old custom license technology URL in the system configuration is deleted from the database when the URL is updated.

Task ***To set up the sample external service web application***

1. Create a directory on your local machine called `C:\TenantTests\ExtLicenseService`, for example.
2. Extract the `extgenservice.zip` archive, which contains these files:
   - `lib` – required `.jar` files
   - `src` – sample implementation Java files
   - `schema` – WSDL and XSD files
   - `build.xml` – `ant build` file
   - `readme.txt` – information file
3. Run the `ant build` tool to build the `flexnet-licgen.war` sample application.
4. Rename the `.war` file, if necessary, to use a different context path.
5. Deploy the `.war` file in the application server.
6. Start the application server, which deploys the application.

Task ***To create the external service license technology***

1. Log in to FlexNet Operations.
2. Create the external license service technology. (Refer to the Creating a License Technology procedure).
   a. For **Type**, select the license generator type **called External SOAP Service**.

b. For **Generator Service End Point**, type this path:
`{CUSTOM_TECH_HOST}/flexnet-licgen/services/LicenseGeneratorService`

3. Click to test the connection.
4. Deploy the external service license technology. (Refer to the Managing License Technologies procedure).
5. Create the external service license model. (Refer to the Creating a License Model procedure).
6. Deploy the external service license model. (Refer to the Deploying a License Model procedure).
7. Create a product using the external service license technology and license model, then deploy the product. (Refer to the Creating a Product and Deploying a Product procedures).
8. Create an entitlement for a few copies of the product, then deploy the entitlement. (Refer to the Creating an Entitlement and Viewing Entitlements procedures).
9. Ensure that the system configuration specifies the default URL for the external service (**System > Configure > FlexNet Operations**).

Task ***To test the external service***

1. Activate a license for one copy of the product to send a request to the external service.
2. To perform a negative test, stop the application server. Try to activate a license for another copy of the product. You should receive an error message because the application server is not running.

Managing License Generator Configurations

A given license technology may have one, or many associated *license generator configurations*. For example, FlexNet Publisher Licensing Toolkit may have several license generator configurations to support different release versions. You may also want different license generator configurations to support different encryption levels for generated licenses.

A license generator configuration lets a publisher model any attributes that are specific to the license generation toolkit or executable. These are typically not business attributes. For example, with FlexNet technology, an example of an attribute could be the encryption strength used to generate a license.

The **License Generator Configurations** page displays the following information:

Table 20-29 ▪ License Generator Configuration Page

Field	Description
Name	Name of the license generator configuration.
License Technology	License technology to which the license generator configuration belongs.
Description	Description of the license generator configuration.

Viewing the Details of the License Generator Configuration

To view the details of the license generator configuration, perform the following steps.

Task ***To view the details of the license generator configuration***

Click its name.

Deleting a Configuration

To delete a configuration, perform the following steps.

Task ***To delete a configuration***

Select the box next to its name, and click **Delete**. A configuration cannot be deleted if its associated license technology is deployed, or if there are products and suites associated with the configuration.

Creating a New Configuration

To create a new configuration from a page, perform the following steps.

Task ***To create a new configuration from this page***

Click **Add a License Generator Configuration**.

You can edit a license generator configuration as long as there are no (non-test) fulfillments against it.

Creating a License Generator Configuration

Note ▪ *When creating a license technology, if you do not have any configuration for the license generator executable, you can skip this step.*

Task ***To create a license generator configuration for a draft or deployed license technology***

1. Navigate to the **Create a License Generator Configuration** page.
2. Enter the following fields:

Field	Description
Name	Name to uniquely identify this license generator configuration. This is a required field and must be unique for a given license technology.
Description	Describe the characteristics of this license generator configuration that make it unique. The description can be changed at any time.
License Technology	License technology for which this license generator configuration generates licenses. This field cannot be changed after it is saved.

3. If the license generator configuration has custom attributes defined, you must specify their values on this page.
4. Click **Save** to save your changes, **Reset** to clear all fields, and **Add New** to specify a different configuration.
5. Click **Next** to create a custom license model attribute.

To create a license generator configuration for FlexNet Publisher Licensing Toolkit, see Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration.

Creating a FlexNet Publisher Licensing Toolkit License Generator (VCG) Configuration

A *Vendor Certificate Generator (VCG)* is an executable built by a publisher using the FlexNet Publisher Licensing Toolkit technology. A VCG contains unique encryption seeds used to digitally sign licenses. FlexNet Operations can be configured to use multiple VCGs. FlexNet Operations ships with a VCG for a vendor named "demo," which you can use for testing purposes. This is equivalent to `lmcrypt` in the FlexNet Licensing toolkit.

FlexNet Publisher Licensing Toolkit license files are encoded using UTF-8.

Task ***To configure FlexNet Operations with your own production VCG***

1. In the FlexNet Operations Producer Portal, click **Administer** > **License Generators**.
2. Click **Add a License Generator Configuration**.
3. From the **License Technology** drop-down list, select FlexNet Publisher Licensing Toolkit. (To create a license generator configuration for a different license technology, see Creating a License Generator Configuration.)
4. View or change the values of the following settings. Required fields are indicated with an asterisk. If a default value exists, it is listed as the first choice.

Setting	Description
Name	Name to uniquely identify this license generator configuration in drop-down lists.
Description	Describe the characteristics of this license generator configuration that make it unique. The description can be changed at any time.
License Technology	License technology for which this VCG configuration generates licenses: Select FlexNet Publisher Licensing Toolkit.
Name of the VCG Executable	The name of the VCG executable. For example, the name of the demo VCG executable is "demo," "demo_vcg," (UNIX) or "demo_vcg.exe" (Windows only). Required.

Setting	Description
Vendor Daemon Name	Name of the vendor daemon for which this VCG generates licenses. If not specified, this name is inferred from the name of the VCG executable. ***Note*** ▪ *Vendor daemon name must match the vendor name in the publisher.xml file. The name is case-sensitive.*
Index to VCG Generator Function Table (default is 0)	Integer index into the custom generator table inside the VCG.
Index to VCG Crypt Seed Table (default is 0)	Integer index into the key seed array inside the VCG.
License Signature Strength	The encryption strength of licenses generated by the VCG: The strength configured in the VCG can be overridden on this page. For an explanation of the choices, please see the *FlexNet Operations On-Premises Installation & Implementation Guide*.
License Signature Compatibility Level	Used to allow backward compatibility with version 8.0 CRO (TRL). The setting in the VCG can be overridden on this page.
Include License Key Strength for pre-TRL Compatibility	Used to add a 20-character license key along with a SIGN= signature. The setting in the VCG can be overridden on this page.
FlexNet Licensing Version for Compatibility with Client Application	The FlexNet Publisher Licensing Toolkit license file format to use to format the generated license: The setting in the VCG can be overridden on this page.
Format String for Date-based Versions	When a feature is created in FlexNet Operations, its version is specified to be either fixed or date-based. Using date-based versions is a product versioning strategy. In this scheme, the version number of the FlexNet Publisher Licensing Toolkit feature line is a representation of the calendar date when a customer's maintenance for the product expires. The version number that the application asks for when it checks out a license is a representation of the date it was built. Therefore, a customer has the right to use a version (the build date) of the application less than or equal to the date that the maintenance expires (the version in the license). The date-based version that the VCG puts in the license varies from license certificate to license certificate, whereas a fixed version is the same for all licenses generated for that product-version combination. If a feature is created that uses a date-based version format, the date that is expressed in that format is specified when an entitlement line item containing that product is configured. For a date of May 15, 2009, yyyy.MM gives 2009.05 and yyyy.MMdd gives 2009.0515.

Setting	Description
Suppress START Date Keyword in License Text	Used to suppress the START Date keyword identifying the license start date in a feature line.
Suppress ISSUED Date Keyword in License Text	Used to suppress the ISSUED Date keyword identifying the license issue date in a feature line.
Server host ID used for Trusted Activations	Fill in applicable data.
Default Server Port Number in License File	Fill in applicable data.
Version of VCG	Version number of the VCG executable used to generate licenses. This setting is used to check whether FlexNet Publisher keywords and hostID types in a license are supported by the version of the VCG and also to deliver appropriate error messages when conflicts are discovered. If you are using VCG 11.5, for example, then set **Version of VCG** to 11.5.0. Default version: 6.2.1. Your current VCG version can be identified by executing the VCG with the version flag. For example: `demo_vcg.exe version`. So, if this command returns the VCG version (not the vendor version) 12.11.0.0, for instance, the **Version of VCG** value can be 12.11, 12.11.0, or 12.11.0.0.

5. Click **Save** to save the configuration for this VCG.

Managing License Model or License Generator Custom Attributes

The **Custom Attributes** page lists custom attributes with the following information:

Table 20-30 ▪ Custom Attributes Information

Field	Description
Name	Name of the custom attribute
Type	Type of value the custom attribute accepts: Boolean, Date, Text (free form or single select), Multi-valued text, or Long Text.
Belongs To	Whether the attribute is associated with a license model or a license generator configuration
License Technology	Name of the license technology to which the attribute belongs.

Click an attribute name to *view* its details.

- Click **Add a License Model Attribute** to create a custom license model attribute.
- Click **Add a License Generator Attribute** to create a license generator configuration attribute, as described in Creating a License Generator Configuration Custom Attribute.

Select the box next to an attribute and click **Delete** to delete it.

- Custom attributes cannot be deleted if the associated license technology is deployed.
- When a custom attribute is deleted from a draft license technology, then all references to this attribute are deleted from the corresponding generator configuration or license model.

Creating a License Generator Configuration Custom Attribute

***Note** ▪ When creating a license technology, if you implement your license generator class so that it references the license generator executable, you can skip this step. In the flow of the **Create a License Technology** wizard, this step precedes creating the license technology configuration itself.*

You can create a license generator configuration attribute for custom license technologies in the draft state. You cannot create a license generator configuration attribute for FlexNet Publisher Licensing Toolkit.

Task ***To create a license generator configuration attribute:***

1. Navigate to the **Create Custom Attribute** page.
2. Specify the following information for your custom generator attribute:

Field	Description
Name	Name to uniquely identify this custom license generator configuration attribute: this name must be unique within a given license technology.
License Technology	License technology that includes the license generator configuration for this attribute. Choose from the drop-down list. This value cannot be changed after it is set.
Is Required?	Will this be a required or optional attribute for license generation?

Field	Description

Type	Type of value the custom attribute accepts. This cannot be changed after it is set.
	• **Number**: An integer.
	• **Text**: An alphanumeric string.
	• **Max Length**: Maximum number of characters the text field will accept
	• **Text Type**: this cannot be changed after it is set.
	  ◦ **Free Form**: If you select this option, your custom attribute will take a typed-in alphanumeric string.
	  ◦ **Single Select**: If you select this option, your custom attribute will take the value of an item from a drop-down list.
	  ◦ **Multi Valued Text**: If you select this option, your custom attribute will take the value of several selected boxes next to items in a specified list.
	  ◦ **Valid Values**: Use to specify a list from which **Single Select** or **Multi Valued Text** items can be chosen.
	  ◦ **Long Text**: A text value that can be up to 16384 characters. The value can be typed or pasted into the text box. (The Display Type setting controls how a long text value will be displayed.)
	• **Boolean**: A pair of options for mutually exclusive choices, that is, “Yes” or “No”.
	• **Date**: A date that can be selected from a calendar tool.

3. Click **Save** to save your changes, **Next** to move to the next page without saving, **Reset** to clear all fields, and **Add New** to specify another attribute.

***Note** ▪ If necessary, create an attribute for the name of your license generator executable.*

4. Click **Next** to create a license generator configuration.

Creating a Custom License Model Custom Attribute

***Note** ▪ In the flow of the **Create a License Technology** wizard, this step precedes creating the license model itself.*

Task ***To create a custom license model attribute***

1. Navigate to the **Create Custom Attribute** page.
2. Fill in the following fields for each attribute you create:

Field	Description
Name	Name to uniquely identify this custom license model attribute: this name must be unique within a given license technology.
License Technology	License technology of which the attribute is a part. Choose from the drop-down list. If you choose FlexNet Publisher Licensing Toolkit from this list, you will be setting custom attributes on its license models.
When Choices	When the value of this attribute must be specified: • **License Model Creation**—When creating a license model that uses this attribute • **Entitlement**:—When creating entitlements with license models that use this attribute • **Fulfillment**—When activating licenses with license models that use this attribute
Is Required?	Will this be a required or optional attribute for license generation? If required, this attribute can only be created for a license technology in the draft state.

Field	Description	
Type	Type of value the custom attribute accepts.	
	Number	An integer (for example, 33452).
	Text	An alphanumeric string. If you choose this option, the Producer Portal reveals additional controls for **Max Length** and **Text Type**. **Max Length**: Maximum number of characters the text field will accept. **Text Type**: Choose one of the following: ● **Free Form**—If you select this option, your custom attribute will take a typed-in alphanumeric string. When you select this option, you also need to choose a **Display Type** to determine how the text attribute will be displayed: **Text Field** or **Text Area**. ● **Single Select**—If you select this option, your custom attribute will take the value of an item from a drop-down list. When you select this option, you also need to specify **Valid Values** with **Add Value**. Valid Values determine the list of values a user can choose for this attribute. ● **Multi Valued Text**—If you select this option, your custom attribute will take the value of several selected boxes next to items in a specified list. When you select this option, you also need to specify **Valid Values** with **Add Value**. Valid Values determine the list of values a user can choose for this attribute. ***Important*** ▪ *The **Text Type** selection cannot be changed after it is set.*
	Long Text	An alphanumeric string that can be up to 16384 characters. The value can be typed or pasted into the text box. When the attribute's Type is Long Text, also choose a **Display Type** to determine how the text attribute will be displayed: **Text Field** or **Text Area**.
	Boolean	A pair of options for mutually exclusive choices, such as Yes or No.
	Date	A calendar date.
Required for Reporting	If Yes, then this attribute will be included in data transformation for reporting.	

***Note** ▪ If you create an attribute called "SERIAL_NUMBER," its label, by default, is displayed as "Serial Number." This is because SERIAL_NUMBER is a FlexNet Publisher Licensing Toolkit attribute for which resources are already defined. If you change the label for the custom SERIAL_NUMBER attribute, its FlexNet Publisher Licensing Toolkit display label will also change.*

3. Click **Save** to save your changes, **Reset** to clear all fields, and **Add New** to specify another attribute, and **Complete** to save and exit this page.

Managing Custom Host Attributes

Licenses are usually bound to either a node or a host. Defining a host attribute allows you to use the host as the criteria for capabilities like batch rehosts, searching and sorting on hosts, and listing all fulfillments for a given host.

The **Custom Host Attributes** page lists attributes with the following information:

Table 20-31 ▪ Custom Attributes Information

Field	Description
Name	Name of the custom attribute
Type	Type of value the custom attribute accepts: Boolean, Date, Text (free form or single select), Multi-valued text, or Long Text.
License Technology	Name of the license technology to which the attribute belongs.
Host Type	Type of host for the custom attribute.

Click an attribute name to view its details.

Click **Add a Host Attribute** to create a custom host attribute.

Select the box next to an attribute and click **Delete** to delete it. Custom host attributes cannot be deleted if the associated license technology is in Deployed status.

Creating a Custom Host Attribute

If custom host attributes are defined for a host type, FlexNet Operations displays them to users when they create a host of that type. You define custom host attributes in a manner similar to defining custom license model attributes.

***Note** ▪ You can generate a unique identifier for a host, based on these attributes, by implementing the HostIdentifierGeneratorByHostType interface under System Configuration. Also, you can validate whether or not the user supplied the appropriate values for these attributes.*

Task ***To create a custom host attribute***

1. Navigate to the **Create a Custom Host Attribute** page.
2. Fill in the following fields for each attribute you create:

Field	Description
Name	Name to uniquely identify this custom host attribute. This name must be unique within a given license technology/host type combination.
License Technology	The type of license technology with which the attribute is to be used. FlexNet Operations does not report on host attributes for non-FlexNet license technologies.
Host Type	Select a host type from the drop-down list.
Is Required?	Will this be a required or optional attribute for license generation? Click **Yes** for required attributes. Click **No** for optional attributes. Required attributes can only be created for a license technology in the draft state.

Field	Description
Type	Type of value the custom attribute accepts. Type cannot be changed after it is set. **Number**: An integer (for example, `33452`). **Text**: An alphanumeric string. If you choose this option, the Producer Portal reveals additional controls for Max. Length and Text Type. ● **Max Length**: Maximum number of characters the text field will accept. ● **Text Type**: Choose from Free Form, Single Select, or Multi Valued Text. (This cannot be changed after it is set.) **Free Form**: If you select this option, your custom attribute will take a typed-in alphanumeric string. When the Text Type is Free Form, also choose a **Display Type** to determine how the text attribute will be displayed: **Text Field** or **Text Area**. **Single Select**: If you select this option, your custom attribute will take the value of an item from a drop-down list. When the Text Type is Single Select, also specify **Valid Values** with **Add Value**. Valid Values determine the list of values a user can choose for this attribute. **Multi Valued Text**: If you select this option, your custom attribute will take the value of several selected boxes next to items in a specified list. When the Text Type is Multi Valued Text, also specify **Valid Values** with **Add Value**. Valid Values determine the list of values a user can choose for this attribute. **Long Text**: An alphanumeric string that can be up to 16384 characters. The value can by typed or pasted into the text box. When the attribute's Type is Long Text, also choose a **Display Type** to determine how the text attribute will be displayed: **Text Field** or **Text Area**. **Boolean**: A pair of options for mutually exclusive choices, such as `Yes` or `No`. **Date**: A calendar date.
Required for Reporting	If **Yes**, then this attribute will be included in data transformation for reporting. The following custom host attribute types are not available for reporting: ● Attributes that use a license technology other than FlexNet Licensing ● Long Text type attributes ● Multi Valued Text type attributes.

3. Click **Save** when complete.

Administering License Models

This section explains what license models are, and how to create and configure license models. Included are the following topics:

Table 20-32 ▪

Topic	Description
About License Models	Answers the question, “What is a license model?” Subtopics also describe the types of license models directly supported by FlexNet Operations and the provide details on the use of certain license model attributes.
Managing License Models	Briefly describes how to view, add, delete, print, and change the state of a license model.
Creating a License Model	Provides a detailed explanation of the license model creation process.
Copying a License Model	Explains how to use a copy of a license model to quickly create a new license model with settings similar to the original.
Deleting a License Model	Shows how to delete license models.
Deploying a License Model	Describes how to change a license model’s state to Deployed.
Printing a License Model	Explains how to print a license model. Printing a license model opens a pop-up window with details about the license model.
Exporting License Models	Discusses how to export one or more license models, as .jar files, with or without dependencies.
Copying a License Model	Describes how to use predefined substitution variables in a license string.
Setting Up Custom License Model Attributes	Discusses how to set up custom license model attributes for a license model.
Setting License Model Policies	Provides an overview of the license model policies you can set after you create a license model.

About License Models

A *license model* defines licensing characteristics that determine how, when, where, and by whom a Flex-enabled product or suite can be used. One or more license models are linked with licensed products when the products are packaged.

Additional information about license models and license model attributes is collected in the following topics.

Table 20-33 ▪

Topic	Description
License Model Types	Discusses the different types of license models. This topic includes the following subtopics: • Certificate License Models • Trusted License Models • Embedded License Models • Custom License Models
License Model Attribute Specification Time	Explains how producers can choose when a license model attribute is specified. Typically, attributes can be specified when the license model is created, when an entitlement is created, or when a license is fulfilled.
About Overdraft Support	Explains how the license model attribute, Overdraft, operates for license models that support overdraft.
Predefined Substitution Variables for License Strings	Describes the use of predefined substitution variables in license strings and lists predefined substitution variables.
Custom Attributes in License Strings	Describes the use of custom license model attributes in license strings.

Important ▪ *License models must be deployed before the products with which they are linked are deployed; deploying a product does not deploy the linked license models.*

License Model Types

FlexNet Operations comes with sample license models of each type, and it is possible to create custom license models as well.

These license models can be categorized into the following types:

Table 20-34 ▪ Types of License Models

License Model	Description
Certificate License Models	The FlexNet license server uses the contents of a license file, or license certificate, to control how a given piece of software can be used. You can vary the contents of a license file to provide variations of your application with different licensing needs, such as an evaluation version and a full version, without being required to provide different binaries or recompile your application. Licensing systems that use license files are referred to as certificate-based licensing.
Trusted License Models	License information is stored securely in trusted storage rather than in license certificates. Trusted storage is a secure location on the target system into which FlexNet Publisher Licensing Toolkit can write licensing data. The licensing data stored in trusted storage is encrypted and authenticated so that the end user cannot read or modify it. Moreover, FlexNet Publisher Licensing Toolkit can detect if trusted storage has been deleted or tampered with.
Embedded License Models	For device manufacturers using FlexNet Embedded. The embedded license model includes two license types: counted and uncounted.
Custom License Models	FlexNet Operations can be configured with a variety of custom license models.

Certificate License Models

Certificate license models are used to generate licenses that are distributed as license certificates. After delivery, license certificates cannot be securely revoked. The following table describes the four certificate models that are delivered with FlexNet Operations.

Table 20-35 ▪ Certificate License Models

Certificate Models	Description
Floating Counted	License rights available network-wide from a license server system that can be shared by a limited number of simultaneous instances of the FLEXenabled application.
Floating Uncounted	License rights available network-wide from a license server system that can be shared by an unlimited number of simultaneous instances of the FLEXenabled application: Very uncommon license model.
Nodelocked Counted	License rights to authorize a limited number of instances of a FLEXenabled application running on a specific machine identified by a unique machine ID or host ID: Uncommon license model.

Table 20-35 ▪ Certificate License Models

Certificate Models	Description
Nodelocked Uncounted	License rights to authorize an unlimited number of instances of a FLEXenabled application running on a specific machine identified by a unique machine ID or host ID.

Trusted License Models

FlexNet Publisher Licensing Toolkit version 11 introduced the ability to store license information securely in trusted storage rather than in license certificates.

If a product is licensed with any trusted license model, the product must be linked with a transaction key. A transaction key is linked with a product at the time the first trusted license model is linked with the product, and can be overridden for local trials and short code ASRs.

The following table describes the four trusted models that are delivered with FlexNet Operations.

Table 20-36 ▪ Trusted License Models

Trusted Models	Description
Enterprise Activation	The first step in the life of these license rights is activation on a license server. From there, the vendor daemon can: ● Transfer the licenses to another license server, or ● Activate those licenses on end-user machines. Though the licenses are activated on a license server, they are never floating. Also known as *Activatable-Server*.
Floating Borrowable	The first step in the life of these license rights is activation on a license server. From there, the vendor daemon can: ● Transfer the licenses to another license server, ● Serve them as floating licenses, or ● Activate those licenses on end-user machines. Also known as *Hybrid*.
Floating Transferrable	The first step in the life of these license rights is activation on a license server. From there, the vendor daemon can: ● Transfer the licenses to another license server, or ● Serve them as floating licenses. The vendor daemon cannot activate these licenses on end-user machines. Also known as *Concurrent*.

Table 20-36 ▪ Trusted License Models

Trusted Models	Description
Retail Activation	These license rights are activated only on an end-user machine and authorize an unlimited number of instances of a FlexEnabled application running on that machine. Also known as *Activatable-Client*.

Note ▪ *If you intend to use trusted storage-based licensing, you must build your publisher-specific activation utilities. There are two types of activation utilities: application activation utilities and server activation utilities.*

- *An* **application activation utility** *initiates and manages the installation of license rights into trusted storage on an end user's system.*
- *A* **server activation utility** *is responsible for initiating and managing the installation of license rights into trusted storage on a license server machine, enabling it to serve licenses to clients.*

Embedded License Models

Embedded license models are intended for use with software as well as intelligent hardware devices. FlexNet Embedded hosts can be standard software hosts as well as devices and servers.

Devices typically have limited memory and network connectivity, and are manufactured in a variety of types, with different licensable features.

These hardware devices have two license sources to enable their feature set.

- A *pre-installed license* enables the device's default features.
- An *additional license* enables the features specific to a particular device model. For example, a manufacturer can create a basic camera model with a pre-installed license, and then create any number of additional models in the same line that use the same hardware as the basic camera, but include additional licenses that enable each model's features.

The following table describes the four embedded license models that are delivered with FlexNet Operations:

Table 20-37 ▪ Embedded License Models

Embedded Models	Description
Embedded Counted	License rights authorize a limited number of instances of a device feature set, identified by a unique device ID or host ID.
Embedded Uncounted	License rights authorize an unlimited number of instances of a device feature set, identified by a unique device ID or host ID.
Named User Licensing	Auto-provisioned model that eliminates borrow period for served devices.
Concurrent User Licensing	Auto-provisioned model for any served device.

Note ▪ *Models were added as a convenience for those who want to mimic user based licensing scenarios with Cloud Licensing Service.*

For producers who use FlexNet Usage Management, FlexNet Operations also supports metered license models. Metered license models reflect licensing scenarios where usage is flexibly tracked and reported so that, while firm limits can still be enforced, end users can consume capacity or counts and later reconcile payment based on their actual usage. (See About Usage Management for an introduction to usage management.)

Note ▪ *Embedded license models are only available for software publishers and device manufacturers who use FlexNet Embedded.*

Custom License Models

You can also configure FlexNet Operations with a variety of custom license models. Consult the *FlexNet Operations On-Premises Installation & Implementation Guide* for details on configuring and customizing FlexNet Operations.

License Model Attribute Specification Time

To help make an individual license model applicable to a set of products, the value of many license model attributes can be set to be specified at one of several times, for example:

- License Model Time—Fixed when a license model is created
- Entitlement Time—Set when an entitlement line item is configured
- Fulfillment Time—Specified when a license is activated

Additional license models can be created through the Producer Portal, either from scratch or by copying one of the existing license models. License models cannot be imported using the Product Packaging Web service.

About Overdraft Support

As described in Overdraft, you can enable the **Overdraft** option to allow a specified number of users to run a software package during peak usage times, even after the application's license limit has been reached. When defining overdraft support in a license model, you define a set of rules that govern the total overdraft count available per entitlement, and how much may be applied each time a license is activated.

You specify the overdraft **Maximum** value as either unlimited, a specific number, a specific percentage, or you can choose to specify a number when you create an entitlement based upon this license model. After you specify the Maximum overdraft value, you are then prompted to specify a **Floor** and a **Ceiling** overdraft value:

Table 20-38 ▪

Field	Definition	Options
Floor	Use to define a per-fulfillment minimum overdraft, which is the overdraft count that must be issued for each license activated using this license model, subject to the overdraft **Maximum** value. The **Floor** value must be a non-negative integer. ***Note ▪*** *If a license is activated such that applying the Floor would violate the overdraft Maximum value, then the Maximum value takes precedence (and therefore, the issued overdraft count may be less than the Floor value.)*	Choose one of the following options: • **Unlimited**: There is no Floor value; a license may have zero overdraft. • **Specify now**: The license model defines the **Floor** value for all licenses activated using this model. • **Specify now as percentage**: The license model defines the **Floor** value as a percentage of the fulfillment count. The computed **Floor** value is rounded down (for example, 7.3 would be rounded *down* to 7).
Ceiling	Use to define a per-fulfillment maximum overdraft, which is the overdraft count that must be issued for each license activated using this license model, subject to the overdraft **Maximum** value. The **Ceiling** value must be a non-negative integer. If a license is activated such that applying the **Maximum** would violate the overdraft **Ceiling** value, then the **Ceiling** value takes precedence, and therefore, the issued overdraft count may be less than the **Maximum** value.	Choose one of the following options: • **Unlimited**: There is no ceiling. • **Specify now**: The license model defines the **Ceiling** for all activations using this model. • **Specify now as percentage**: The license model defines the **Ceiling** as a percentage of each activation count. The computed **Ceiling** is rounded *up* (for example, 7.3 would be rounded up to 8).

The **Maximum** overdraft value is stored as a property of the item, and it restricts the total overdraft count that can be issued for that item. Any license activated for the item is validated such that the total overdraft issued remains at or below this maximum value.

Note ▪ *The sum of the Overdraft counts issued for every fulfillment against a line item must remain at or below the **Maximum**. This rule takes precedence over the **Ceiling** and **Floor**.*

Example 1: Overdraft Maximum Applied to Fulfillments of an Entitlement

The Overdraft Maximum represents a limit on the total count of Overdraft that can be issued against each line item for this model.

The license model used in this example is:

Table 20-39 ▪ License Model Example

Value	Description
Maximum	10
Floor	Unlimited
Ceiling	Unlimited

The entitlement used in this example is:

Table 20-40 ▪ Entitlement Example

Value	Description
Count	15
Maximum	10 (From Model)
Floor	Unconstrained
Ceiling	Unconstrained

The following table lists the results of four customer fulfillments of this entitlement:

Table 20-41 ▪ Customer Fulfillments

Request Number	Fulfillment Request	Result	Entitlement Remaining
Beginning Count			Count = 15 Overdraft = 10
Request 1	Count = 5 Overdraft = 5	Request succeeds.	Count = 10 Overdraft = 5
Request 2	Count = 3 Overdraft = 3	Request succeeds.	Count = 7 Overdraft = 2
Request 3	Count = 5 Overdraft = 5	Request succeeds, but the returned amounts are Count = 5, Overdraft = 2 because only 2 Overdrafts are available.	Count = 2 Overdraft = 0
Request 4	Count = 7, Overdraft = 0	Request returns an error, because the requested count cannot be satisfied.	Count = 2 Overdraft = 0

Note ▪ *Failure to satisfy the requested count is an error condition, whereas the requested overdraft is simply reduced to the amount available.*

Example 2: Overdraft Floor and Ceiling Applied to Fulfillments of an Entitlement

The Overdraft **Floor** and **Ceiling** represent lower and upper limits on the total overdraft count that can be issued against each line item for this model.

The license model used in this example is:

Table 20-42 ▪ License Model Example

Value	Description
Maximum	50%
Floor	5
Ceiling	25%

The entitlement used in this example is:

Table 20-43 ▪ Entitlement Example

Value	Description
Count	45
Maximum	45 x 50% = 22.5, which rounds to 23, the nearest whole number.
Floor	5
Ceiling	45 x 25% = 11.25, which rounds up to 12

The following table lists the results of two customer fulfillments of this entitlement:

Table 20-44 ▪ Customer Fulfillment

Request Number	Fulfillment Request	Results	Entitlement Count Remaining
Beginning Count			Count = 45 Overdraft = 23
Request 1	Count = 12 Overdraft = 0	Request succeeds with Count = 12, but Overdraft is set to 5, due to the Floor.	Count = 33 Overdraft = 18

Table 20-44 ▪ Customer Fulfillment

Request Number	Fulfillment Request	Results	Entitlement Count Remaining
Request 2	Count = 20 Overdraft = 15	Request succeeds with Count = 20, but Overdraft is set to 12, due to the Ceiling.	Count = 13 Overdraft = 6

Example 3: Overdraft Floor and Ceiling Rounding Example

Each of the three Overdraft values (Maximum, Floor, and Ceiling) rounds differently when computed as a percentage:

- **Maximum**: Rounded to the nearest whole number. If the fractional part of the computed value is less than 0.5, it rounds down; if it is greater than or equal to 0.5, it rounds up. For example, 3.25 rounds down to 3, while 3.6 rounds up to 4.
- **Floor**: Rounded down to the previous whole number. For example, 3.75 rounds down to 3.
- **Ceiling**: Rounds up to the next whole number. For example, 3.25 rounds up to 4.

So, if the license model is:

Table 20-45 ▪ License Model Overdraft Values

Value	Description
Maximum	50%
Floor	25%
Ceiling	25%

The computed Maximum, Floor, and Ceiling overdraft values for this entitlement would be:

Table 20-46 ▪ Entitlement Overdraft Values

Value	Description
Count	15
Maximum	15 x 50% = 7.5, which rounds to 8, the nearest whole number.
Floor	15 x 25% = 3.75, which rounds down to 3.
Ceiling	15 x 25% = 3.75, which rounds up to 4.

About the License Expiration Grace Period

As described in Grace Period Days, you can enable the **Grace Period** option to allow a FlexNet Embedded application to function, without interruption, after its license has expired. Granting a license expiration grace period enables a producer to detect that an end customer's application is functioning in a grace period, and to notify the customer that it is time to renew to prevent disruption of their normal business work flow.

The license **expiration date** is the expiration date that is entered and displayed in FlexNet Operations; for license models that support it, the *grace period* is the number of days beyond the license expiration date that an application continues to function. When the license is generated, FlexNet Operations uses the expiration date plus the grace period to set the *entitlement expiration date* (in other words, the grace expiration date)—the date on which the application stops functioning. For example, if the producer enters a grace period of 14 days for a license that expires on March 1st, then the entitlement expiration date is March 15th.

The grace period is configured by the producer at the license model, where the option can be turned on or off (the default value). It is supported on local and cloud license servers for metered and concurrent license models.

Note ▪ *If a renewal entitlement is mapped before an application's parent entitlement expires (to avoid an interruption of service), the grace period of the parent entitlement is suppressed to prevent creation of an extra entitlement during the grace period.*

Grace Period Handling in the Usage Analytics Service

When an entitlement line item uses a license model that includes a grace period, notifications about that entitlement sent to UAS include the extended grace period in their end date. This ensures that reports accurately record any usage during the grace period. Currently, UAS does not highlight grace usage separately in its reports; that functionality is planned for a future release.

Note ▪ *It is recommended that producers set the entitlement expiration date right after expiration to prevent gaps in usage tracking and enable usage statistics to carry over to the new entitlement.*

Predefined Substitution Variables for License Strings

Variables can be used as values for supported license strings: VENDOR_STRING, NOTICE, ISSUER, and SERIAL_NUMBER. These variables are resolved when the license is generated.

To express a predefined substitution variable in a license string, on the **Create a License Model** page, specify the value of the string as the substitution variable enclosed in curly braces. For example, to use the Sold-to account ID use {SoldTo.name} or to use the Sold-to account name use {SoldTo.displayName}.

Important ▪ *Predefined substitution variables can be used with custom license technologies provided the license technology implements the GeneratorRequest interface.*

The following substitution variables are defined:

Table 20-47 ▪ Predefined Substitution Variables

Substitution Variable	Definition
Sold-to account ID	{SoldTo.name}
Sold-to account name	{SoldTo.displayName}
Ship-to address on an entitlement	{Entitlement.shipToAddress}
Order ID on an entitlement line item	{EntitlementLineItem.orderId}
Order line number on an entitlement line item (only for simple entitlements)	{EntitlementLineItem.orderLineNumber}
Activation ID on an entitlement line item	{EntitlementLineItem.activationId}
Product name on an entitlement line item	{EntitlementLineItem.productName}
Product version on an entitlement line item	{EntitlementLineItem.productVersion}
Part number on an entitlement line item	{EntitlementLineItem.partNumber}
Fulfillment ID	{Fulfillment.id}
Entitlement ID	{Entitlement.id}
Feature version	{Feature.version} This variable can only be used in the **Vendor String** field. The format of the feature version specified using the {Feature.version} variable depends on its location: ● The **Vendor String** field outside of the FlexNet Publisher license lists all feature versions that are present in the product as comma-separated values. ● Inside the FlexNet Publisher license, each individual INCREMENT line displays the VENDOR_STRING keyword with its feature version.
Quantity configured on device	{mappedQuantity} This variable is applicable only to FlexNet Embedded licenses.

Custom Attributes in License Strings

In addition to explicitly specified strings and predefined substitution variables, a publisher can configure one or more custom attributes that can be expressed as the value of one of the four license strings: Issuer, Notice, Serial Number, and Vendor String.

***Note** ▪ Custom license model attributes are defined as part of the license technology and their use is governed, in part, by the way they are set up in the license model. For more information about creating custom license model attributes, see Adding Custom License Attributes. For more information about creating other types of custom attributes, see Adding Custom Attributes.*

To express a custom attribute in a license string, at the time the license model is created (on the Create a License Model page), specify the value of the attribute in the license string as the name of the attribute, with a prefix depending on the type of attribute, enclosed in curly braces.

Table 20-48 ▪

Custom Attribute Type	Prefix
License Model	(no prefix)
Product	Product.
Line Item	EntitlementLineItem.
Entitlement	Entitlement.
Account	SoldTo.

For example, to use the value of a license model attribute named CPU_CAPACITY in VENDOR_STRING:

```
Vendor String | Specify Value Now | {CPU_CAPACITY}
```

For example, to use the value of a product attribute named PRODUCT_FAMILY in NOTICE:

```
Notice | Specify Value Now | {Product.PRODUCT_FAMILY}
```

The name of the attribute as specified in the license string is case sensitive.

If any custom license model attributes have been configured on the license technology, they are displayed in the license model wizard in the **Set Up Custom Attributes** page that appears between the **Create a License Model** and **Set Up Policies** pages. The **Set Up Custom Attributes** page is used to select the time that the true value of the custom license model attribute is set (license model time, entitlement time, or fulfillment time).

Other custom attributes are displayed when creating or editing instances of the entities they are defined on.

Managing License Models

License models can be managed on the License Model page.

Task ***To open the License Model page***

- Click **Administer** > **License Models**.

The License Model page automatically displays recently accessed license models, if applicable. To view all license models, select **License Models** from the **Search For** choice list, and click the **Simple Search** button. You can also search for license models based on specific criteria.

Several sample license models are delivered with FlexNet Operations.

From this page, you can

Table 20-49 ▪ Managing License Models

Capability	Description
Add a new license model from scratch	To add a new license model, click **Create New License Model**.
Make a new license model from a copy of an existing license model	To copy a license model, select exactly one license model and click the **Copy** button. Follow the guidelines to add a new license model.
Delete a license model	To delete a license model, select one or more license models and click the **Delete** button.
Change the state of a license model	To change the state of one or more license models, select the license models, click the **Change State** choice list, and select a state. License models can be in one of the following states: **Draft**, **Deployed**, **Inactive**, or **Obsolete**. • **Draft**: A license model is created and can be edited in the draft state. • **Deployed**: A license model must be deployed to be linked to a product. • **Inactive**: An inactive license model cannot be linked to a product or used to create an entitlement. Existing fulfillments using an inactive license model can be activated, returned, repaired, and rehosted. • **Obsolete**: An obsolete license model can be deleted.
Print a license model	To print a license model, select one or more license models and click the **Print** button.

Creating a License Model

A license model defines licensing characteristics that determine how, when, and where a Flex-enabled product can be used.

Tip ▪ *A license model can be created from scratch or by editing a copy of an existing license model. To start with a copy, select an existing license model on the License Models page and click Copy.*

Task ***To create a license model***

1. Click **Administer** > **License Models**. This link opens the License Models page.
2. Click **Create New License Model**. This button opens the Create a License Model page.
3. If more than one license technology is defined, select the license technology for which this license model is valid.
4. If the license model is for FlexNet Publisher Licensing Toolkit or for a custom license technology, follow these steps to define the license model.

Note ▪ *Required fields are indicated with a red asterisk*.

5. Provide a name and a description for the license model, and specify the expiration setting.

Table 20-50 ▪ Identifying a New License Model

Value	Description
Name	Name to uniquely identify this license model: The name can contain spaces.
Description	Describe the characteristics of this license model that make it unique. The description can be changed after the license model is deployed.
State	A license model can be in one of four states: Draft, Deployed, Inactive, or Obsolete: ● **Draft**: A license model is created as a draft that can be modified or deleted. ● **Deployed**: After a license model is deployed to use in production, it cannot be deleted or modified. Before a product can be deployed, its linked license models must be deployed (deploying a product does not deploy its linked license models). A draft license model can be linked to a deployed product or suite, but the license model cannot be used in an entitlement line item until it is deployed. ● **Inactive**: An inactive license model cannot be deleted or modified. An inactive license model cannot be used to create an entitlement, but a product with an inactive license model on an existing entitlement line item can be activated. ● **Obsolete**: Deployed and inactive license models can be made obsolete. Obsolete license models behave like inactive license models, but can be deleted.

Table 20-50 ▪ Identifying a New License Model

Value	Description
Expiration	Should licenses activated using this license model be permanent or should they expire? • **None**: If you choose **None**, you defer deciding if these licenses are permanent or expiring until the time you configure an entitlement line item. • **Permanent**: If you choose **Permanent**, these licenses never expire. • **Expiring**: If you choose **Expiring**, set a duration of *n* days, weeks, months, or years.

6. Subsequent steps vary depending on whether you are creating a license model with FlexNet license technology or custom license technology:

- If this is a license model for a custom license technology, configure any custom license model attributes and click **Save** to save the license model or click **Next** to configure policies on the license model.
- If this is a FlexNet Publisher Licensing Toolkit or FlexNet Embedded license model, click **Next** to continue defining the license model. FlexNet Operations presents the license model settings as a dynamic set of decisions. (Additional information about these attributes is available in FlexNet Publisher Licensing Toolkit or FlexNet Embedded documentation.)

a. **Is this an Embedded License Model?**

Table 20-51 ▪

Value	Description
Yes	Identifies the license model intended for devices that use the FlexNet Embedded toolkit.
No	Identifies the license model as one intended for software products that use the FlexNet Publisher toolkit.

b. **Will this License Model be Sharable? (FNP toolkit)**

Table 20-52 ▪

Value	Description
Yes	A sharable, or floating license can be used by anyone on the network, up to the limit specified in the license. Floating licenses require a license server system to be running to count the concurrent usage of licenses. If a license is floating, it is most common for it to be counted, allowing only limited checkouts.
No	A license that is not sharable, sometimes known as node-locked, can be used only on one machine or a specified set of machines.

c. **Is this a Counted Model? (FNE toolkit)**

Table 20-53 ▪

Value	Description
Yes	Counts the number of seats deployed to customers.
No	Provides unlimited copies.

d. **Will this License Model allow Unlimited Checkouts? (FNP toolkit)**

Table 20-54 ▪

Value	Descriptiont
Yes (unlimited)	An uncounted license allows unlimited concurrent usage. If a license is uncounted, it is most common for it to be nodelocked. The floating uncounted certificate license model in FlexNet Operations is implemented as a floating counted license with DUP_GROUP=SITE.
No (limited)	A counted license allows usage limited by the count in the license. If a certificate license is counted, it is most common for it to be floating. However, it is possible to have a nodelocked counted license.

e. **Is this an Activatable License Model?**

Table 20-55 ▪

Is this license delivered into trusted storage or as a certificate?	
Select **Yes** if license is delivered into trusted storage.	FlexNet Publisher Licensing Toolkit v11.x can activate trusted licenses. Trusted licenses are usually activated automatically and securely with an activation utility written by the publisher of the licensed software. Products linked with a trusted license model must also be associated with a transaction key.
Select **No** if license is delivered as a certificate.	All versions of FlexNet Publisher Licensing Toolkit can generate certificate licenses that are emailed or otherwise delivered to a software customer.

f. **Is this License Model Detachable?**

Table 20-56 ▪

This license can be transferred among license servers. Is it also detachable to a client machine?	
Yes (detachable)	Only applicable to trusted license models. Licenses are floating and served from a license server, but they can also be removed from the floating group of licenses and be activated on an individual client machine.

Table 20-56 ▪

This license can be transferred among license servers. Is it also detachable to a client machine?	
No (not detachable)	Only applicable to trusted license models. Licenses are floating and only served from a license server. The licenses can be configured to allow them to be transferred between vendor daemons.

g. **Is this License Model for an End User or for an Enterprise?**

Table 20-57 ▪

Will this license be activated from FlexNet Operations by a retail client or by a license server in an enterprise environment?	
End User	An end-user license is sold to an individual retail user. Only applicable to trusted license models.
Enterprise	A volume license is sold to an enterprise user. Only applicable to trusted license models.

h. **Is this a Metered Model? (FNE toolkit)**

Table 20-58 ▪

Value	Description
Yes	Designates the license model as a usage-based model. (Usage-based licensing is available to producers who use FlexNet Embedded and FlexNet Usage Management.)
No	License does not use the usage management feature to track usage.

i. **Fill in the Attributes for this License Model.**

Depending on the decisions made above, sets of choices are presented.

Table 20-59 ▪

Choice	Description
Allow Partial fulfillments	If you select Yes, when you Activate Licenses for a customer, FlexNet Operations allow syou to activate a portion of the total amount entitled to that customer (that is, the total amount that they purchased). If you select No, you must activate the total amount in the single transaction.

Table 20-59 ▪

Choice	Description
Package Specification (for uncounted licenses)	Applicable to all uncounted certificate license models. Select **None** if this license model is to be associated with a product that is not defined as a package. Select **Basic** if this license model is used to provide a PACKAGE line as a compact, efficient way to distribute a large number of features that share most of their feature line arguments.
Package Specification (for certificate counted licenses)	Applicable to certificate counted licenses. ● Select **None** if this license model is to be associated with a product that is not defined as a package. ● Select **Basic** for the **Package Specification** if this license model to provide a PACKAGE line as a compact, efficient way to distribute a large number of features that share most of their feature line arguments. Select **Suite** if this license model: ● Is to be associated with a product that is a package. ● Is counted. ● Allows a license to be shared among the components of the package using OPTIONS=SUITE on a PACKAGE line. Within a package suite, a license is shared by the components of the package rather than being applied to one specific feature. Select **Suite Reserved** if this license model: ● Is to be associated with a product that is a package. ● Is counted. ● Specifies Client Uniqueness, most as commonly **User**. ● Allows a set of package components to be granted to a fixed number of users at any one time using OPTIONS=SUITE_RESERVED on a PACKAGE line. In addition, after a user checks out a license for one component, licenses for the other package components are reserved for that user. A set of package components remain reserved for the given user until all licenses for the set are checked back in.

Table 20-59 ▪

Choice	Description
Package Specification (for trusted floating licenses)	Applicable to trusted floating (transferable and borrowable) licenses. Select **None** if this license model is to be associated with a product that is not defined as a package. Select **Suite Reserved** if this license model: ● Is to be associated with a product that is a package. ● Is counted. ● Specifies Client Uniqueness, most as commonly **User**. ● Allows a set of package components to be granted to a fixed number of users at any one time using OPTIONS=SUITE_RESERVED on a PACKAGE line. In addition, after a user checks out a license for one component, licenses for the other package components are reserved for that user. A set of package components remain reserved for the given user until all licenses for the set are checked back in.
Client Uniqueness	● Applicable to certificate counted licenses and trusted floating transferable and floating borrowable licenses. Also known as duplicate grouping. ● Duplicate grouping allows a vendor-defined combination of users, hosts, and displays to be considered in the same group such that license requests from any member consumes only one license. Any combination of **User**, **Host**, **Display**, and **Vendor** can be selected. ● If **Vendor** is selected, LM_A_CHECKOUT_DATA must be set and all requests with the same vendor-defined data use the same license. This is useful for sharing licenses among otherwise unrelated processes. ● Setting **Client Uniqueness** for a package suite affects only its enabling feature line. It limits the total number of users of the package to the number of licenses, and allows the package to be shared among the users that have the suite checked out. Without **Client Uniqueness** constraints specified in the components of package suite, a floating license is shared among the components of the package regardless of the number of users. ● **Client Uniqueness** must be specified to get suite reserved behavior.

Table 20-59 ▪

Choice	Description
Terminal Server Usage	Controls whether a licensed application can be run from a Terminal Server client. Choose from • **Not Used**—Prevents Terminal Server client access in the license model. This is the default setting for Terminal Server Usage. • **Specify Value Now**—Permits Terminal Server client access (for one or many clients) in the license model. • **Specify Value at Entitlement Time**—Allows Terminal Server Usage to be set during entitlement. • **Specify Value at Fulfillment Time**—Allows Terminal Server Usage to be set when the license is fulfilled. To permit access from one Terminal Server client (one session), choose **One Connection Allowed**. This adds the `ONE_TS_OK` keyword to the feature line. This setting only applies to Flex-enabled applications built with FlexNet Publisher Licensing Toolkit version 11.5 or later. To permit access from multiple clients (multiple sessions), choose **Many Connections Allowed**. This adds the `TS_OK` keyword to the feature line. This setting only applies to Flex-enabled applications built with FlexNet Publisher Licensing Toolkit version 8.0 or later. To prevent access from Terminal Server clients, choose **Not Used**. Applications built with versions of FlexNet Publisher Licensing Toolkit prior to version 8.0 do not support this license model feature (and thus may always run using Terminal Server). Therefore, in licenses for applications built with version 8.0 or earlier FlexNet Publisher Licensing Toolkit set Terminal Server Usage to **Not Used**. Similarly, applications built with a version of FlexNet Publisher prior to 11.5 do not support the **One Connection Allowed** setting. These settings apply to applications using a nodelocked uncounted, retail activation, or enterprise activation license. FlexNet Publisher Licensing Toolkit detects when a nodelocked uncounted license is running under Windows Terminal Server. To allow your Flex-enabled application to run using a Terminal Server client, nodelock the license to the Terminal Server.

Table 20-59 ▪

Choice	Description
FLEXid Sharing	This property, which is applicable to nodelocked uncounted licenses, enables mobile licensing using a FLEX*id* with FLOAT_OK for a particular feature line. This feature line must be nodelocked to a FLEX*id* (a dongle that connects to a parallel or USB port). One feature line containing the FLOAT_OK keyword and one FLEX*id* is needed for each instance of a license that can be mobile. When the FLEX*id* is attached to a license server, the license floats on the network. When the FLEX*id* is removed from the license server, the license is available only on the standalone computer with the FLEX*id* attached. This property is supported only on Windows machines. If a license is to be moved between different Windows machines, it is nodelocked to a FLEX*id*. To move a license to a different machine, the dongle must be moved to that machine. Select one of the following options: ● **Not Used**: Select to disallow mobile licensing. ● **Allow**: Select to allow mobile licensing using a FLEX*id* with the FLOAT_OK keyword (without a `server_hostid`). The FLOAT_OK keyword is generated for each FEATURE line in the license file. The nodelocked host ID given at fulfillment time lists the FLEX*id* to which the license should be attached. ● **Specify Value At Entitlement Time**: Select to prompt the user at entitlement time to specify if mobile licensing is allowed. At that time, the user would enter the host ID of the license server machine to which the FLEX*id* (specified as the nodelocked host ID) can be attached to allow this license to float. ● **Specify Value At Fulfillment Time:** Select to prompt the user at fulfillment time to specify if mobile licensing is allowed. At that time, the user would enter the host ID of the license server machine to which the FLEX*id* (specified as the nodelocked host ID) can be attached to allow this license to float.

Table 20-59 ▪

Choice	Description
FLEXid Sharing ***(continued)***	When generating a license, specify a FLEX*id* as the **Nodelocked Hostid** and the server host ID for **FLEXid Sharing**. A SERVER line is added to the generated license certificate and: • The `server_hostid` is the same host ID that appears on the SERVER line of the license file, or could be a different host ID that refers to the same machine. If the SERVER line host ID is ANY, the FLOAT_OK `server_hostid` must be specific to the license server machine. • The license server can only be run on the machine with the host ID that lmhostid returns equal to the `server_hostid` specified with FLOAT_OK. • A user can run on the license server machine, but he can use only the license being served by the license server, not the nodelocked license. Otherwise an extra use for each FLOAT_OK license could occur. Note that without the `server_hostid` specified on the feature line, the FLOAT_OK license can be served from any computer, as long as the FLEX*id* is attached to it. • The host ID on the FLOAT_OK feature line must be only a single host ID. For multiple FLEX*id*s, use individual feature lines for each FLEX*id*.

Table 20-59 ▪

Choice	Description
Time Zone	Controls whether or not licensing is limited to specified regions (expressed as time zones). Choose from • **Not Used**—Licenses are not restricted by time zone. This is the default setting for Time Zone. • **Specify Value Now**—Limits licenses to publisher-defined time zone values in the license model. • **Specify Value at Entitlement Time**—Allows Time Zone limitations to be set during entitlement. • **Specify Value at Fulfillment Time**—Allows Time Zone limitations to be set when the license is fulfilled. To limit usage based on time zone, choose a time zone value from the list. Time zone values must be defined by the publisher. For details, see Working with Time Zones. To limit usage to machines running in the same time zone as the license server machine (served licenses only), choose **Server Time Zone Only**. To ignore time zones for licensing purposes, choose **Not Used**. Time zone-based licensing is supported for licenses generated by FlexNet Publisher version 11.7 or later, and applies to the following certificate-based licenses: floating counted, floating uncounted, and nodelocked counted. Time zone-based licensing is not available for nodelocked uncounted license models (because limiting licenses based on their geographic location is not required if an unlimited number of licenses is available). In this case, the **Time Zone** setting will be blank. The special **Time Zone** setting, **Server Time Zone Only**, is not applicable to licenses that do not include a SERVER line nor to nodelocked uncounted licenses, generally.

Table 20-59 ▪

Choice	Description
Virtualization Restrictions	Controls whether or not licensed applications are restricted to running only on physical machines or only on virtual machines. Choose from • **Not Used**—Permits usage on physical and virtual machines the license model: no restrictions. This is the default setting for Virtualization Restrictions. • **Specify Value Now**—Restricts licensed applications to running, either on physical machines or on virtual machines, in the license model. • **Specify Value at Entitlement Time**—Allows Virtualization Restrictions to be set during entitlement. • **Specify Value at Fulfillment Time**—Allows Virtualization Restrictions to be set when the license is fulfilled. To limit usage to physical machines only, choose **Restrict to Physical Machines**. This adds `VM_PLATFORMS=PHYSICAL` to the feature line. To limit usage to virtual machines only, choose **Restrict to Virtual Machines**. This adds `VM_PLATFORMS=VM_ONLY` to the feature line. To operate without restrictions, choose **Not Used**. Virtualization Restrictions are supported for licenses generated by FlexNet Publisher version 11.7 or later, and apply to certificate license models: floating counted, floating uncounted, nodelocked counted, and nodelocked uncounted.
Borrowing	Applicable to counted, certificate licenses. To disable borrowing, select **Not Used**. If any other setting is selected, license borrowing is enabled. If borrowing is allowed, the maximum number of hours that the license can be borrowed for can be specified as the default (168 hours, or one week) or can be specified in the license model, during entitlement, or during fulfillment. The maximum borrow period is limited by the maximum value of a 32-bit integer: 2 billion hours.
Renew Interval	How often—if ever—the client attempts to re-contact the local license server. Successful contact extends the server-imposed expiration based on the borrow period. When using a finite borrow period, for maximum effectiveness, the renew interval should be set such that the client attempts renewal at least two times per borrow interval. It is set as a percentage of the borrow interval in the license model. ***Note*** *▪ Renew interval is not enforced; it is for the publisher's convenience to use as they want.*

Table 20-59 ▪

Choice	Description
Unique Users and Hosts	Applicable to certificate counted licenses and trusted floating transferrable and floating borrowable licenses. Sets the number of users (**User Based**) or host names (**Host Based**) that can be specified in INCLUDE statements in the end-user options file. ● Select **Not Used** if you do not want to include the USER_BASED or HOST_BASED keyword. ● Select **Use Default Value** to use the full license count. ● Select **Specify Value Now** to specify the number of users or host names in the license model. ● Select **Specify Value At Entitlement Time** or **Specify Value At Fulfillment Time** to specify the number of users or host names later.
Reusable	Applicable to metered (usage-based) license models, Reusable specifies whether the usage counts can be increased and decreased by the usage client or only increased. Choose either Yes or No. ● **Yes**: Usage counts can be increased when counts are consumed and decreased if a feature checkout is canceled or reversed. ● **No**: Usage counts can only increase (with possible exceptions expressed in the Undo Interval).
Undo Interval	Applicable to metered (usage-based) license models, Undo Interval defines a window in which feature checkouts can be canceled even if Reusable is set to No. Choose from Not Used, Specify Value Now, and Specify Value at Entitlement Time. ● Select **Not Used** if Reusable is set to Yes or if Reusable is set to No and you do not want to permit counts to be decreased. ● Select **Specify Value Now** to set the length of time after feature checkout when the checkout can be canceled and the usage count reverted. Specify a number of seconds, minutes, hours, days, or weeks. ● Select **Specify Value At Entitlement Time** to allow or require the Undo Interval setting later.

Table 20-59 ▪

Choice	Description
Overdraft	Select the **Overdraft** option to allow, for example, a specified number of users to run the software package during peak usage times even after the application's license limit has been reached. Usage above the license limit is reported by the FlexNet Manager reporting tool, expressed using the OVERDRAFT license keyword. By viewing this report on actual usage, you can accurately determine your account's license requirements, and purchase any additional licenses that are needed. The Overdraft option is applicable to both certificate and trusted counted licenses. Overdraft is specified as a **Maximum** value per entitlement line item with **Floor** and **Ceiling** values per fulfillment against that line item. From the **Maximum** list, select one of the following: ● **Not Used**: Select if you want to disable Overdraft support. ● **Unlimited**: Select if you want to allow unlimited overdrafts. You are then prompted to specify a **Floor** and **Ceiling** value. (For metered license models, Unlimited does not require Floor/Ceiling values.) ● **Specify # now**: Select if you want to specify a number value for the overdraft maximum. After your selection, enter a number in the box to specify the overdraft maximum for a line item. For non-metered models, you are then prompted to specify a **Floor** and **Ceiling** value. ● **Specify % now**: Select if you want to specify a percentage value for the overdraft maximum. The percentage is applied to the entitlement line item count to compute the overdraft maximum for a line item. The computed value is rounded to the *nearest* whole number (4.2 would be rounded to 4, while 4.8 would be rounded to 5). After your selection, enter a percentage value in the box. For non-metered models, you are then prompted to specify a **Floor** and **Ceiling** value. Overdraft licenses are allocated as a percentage of each fulfillment count. ● **Specify # at Entitlement Time**: Select if you want to specify the number value for the overdraft maximum at the time of entitlement. For non-metered models, you are then prompted to specify a **Floor** and **Ceiling** value. For metered models, designate whether or not the Overdraft value is required at entitlement time. If the decision to set the maximum overdraft is deferred until entitlement time (FlexNet Operations user interface or Web services), only an absolute number can be set, not a percentage. See About Overdraft Support for more information.

Table 20-59 ▪

Choice	Description
Grace Period Days	Select the **Grace Period Days** option to enable a FlexNet Embedded application to function for a specified number of days, without interruption, after its license has expired. Choose from ● **Not Used**: Grace period is not used for this license model (default). ● **Specify Value Now**: Specify the grace period, in number of days, for this license model. ● **Specify Value At Entitlement Time**: To defer the decision about grace period. Users must choose whether or not to add a grace period when they are creating entitlements based on this license model. ● Select the **Required** check box if the user *must* add a grace period. See About the License Expiration Grace Period for more information.
Auto Provision	For producers who use FlexNet Cloud Licensing Service, FlexNet Operations can automatically generate a Cloud Licensing Service license server for new customer accounts and automatically map new entitlements to an existing Cloud Licensing Service license server for existing customer accounts. Choose from ● **No**: To manually create license servers for entitlements based on this license model. ● **Yes**: To permit the automatic creation of Cloud Licensing Service license servers. ● **Specify Value at Entitlement Time**: To defer the decision about auto-provisioning. Users must choose whether or not to use auto-provisioning when they are creating entitlements based on this license model. ***Note ▪*** *The following limitations exist for auto-provisioned license servers that have entitlements mapped for metered features:* ● *License servers cannot be moved to another account.* ● *You cannot remove licenses using Licenses > Remove Licenses.* ● *License servers can be made obsolete, which will remove all licenses mapped to the server. However, this is not recommended, because future line items will not be mapped automatically to the auto-provisioned license server.*

Table 20-59 ▪

Choice	Description
Issuer	Issuer of the license: Applicable to all license models. Select **Not Used** if you do not want to include the ISSUER keyword, or select **Specify Value Now** to set the value of ISSUER in the license model. Select **Specify Value At Entitlement Time** or **Specify Value At Fulfillment Time** to specify the ISSUER value later. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute.
Serial Number	Serial number used to identify feature lines: Applicable to all license models. Select **Not Used** if you do not want to include the SN keyword, or select **Specify Value Now** to set the value of SN in the license model. Select **Specify Value At Entitlement Time** or **Specify Value At Fulfillment Time** to specify the SN value later. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute.
Vendor String	Vendor string used to identify feature lines: Applicable to all license models. Select **Not Used** if you do not want to include the VENDOR_STRING keyword, or select **Specify Value Now** to specify the value of the VENDOR_STRING in the license model. Select **Specify Value At Entitlement Time** or **Specify Value At Fulfillment Time** to specify the VENDOR_STRING value later. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute.
Notice	Notice string used to identify feature lines: Applicable to all license models. Select **Not Used** if you do not want to include the NOTICE keyword, or select **Specify Value Now** to specify the value of the NOTICE in the license model. Select **Specify Value at Entitlement Time** or **Specify Value at Fulfillment Time** to specify the NOTICE value later. In addition to accepting an explicitly specified string, this field can accept, enclosed in curly braces, one of several pre-defined substitution variables or the name of a custom attribute.

Table 20-59 ▪

Choice	Description
USE SERVER	Applicable only to certificate licenses. USE_SERVER takes no arguments and has no impact on the server. When the application sees USE_SERVER, it ignores everything in the license file except preceding SERVER lines and transfers checkout validation to the vendor daemon. For uncounted features, USE_SERVER is used to force logging of usage by the daemons. You can specify to use or not use USE_SERVER in the license model, or specify whether to use it at the time of entitlement or fulfillment.
Platforms	Applicable to all license models. Usage is limited to the selected platforms. Select **No Platform Restrictions** if you do not want to specify any platform restrictions. Select **Specify Value Now** to specify the allowed platforms in the license model. Select **Specify Value At Entitlement Time** or **Specify Value At Fulfillment Time** to specify the allowed platforms later. The platforms are selected with check boxes. They are expressed in a license using the PLATFORMS keyword.

Table 20-59 ▪

Choice	Description
Client Repair Count %	Applicable only to Floating Borrowable and Enterprise Activation license models. A fulfillment record of a vendor daemon contains a fulfill count and a repair count. The fulfill count indicates how many client activations the vendor daemon can perform and the repair count indicates the number of repairs of those client activations the vendor daemon can perform. After the repair count has been used, no more repairs can ever be done against that vendor daemon fulfillment record. FlexNet Operations license model policies affect only direct transactions between FlexNet Operations and a requesting vendor daemon or client application; they do not affect transactions between a vendor daemon and its clients. Therefore, a parameter has been added to license models to restrict the number of repairs that a vendor daemon can perform on activations from one of its fulfillment records. When a vendor daemon makes an activation request to FlexNet Operations, it can request a fulfill count and a repair count against that fulfill count. The **Client Repair Count %** is applied to the requested fulfill count and compared to the requested repair count: the minimum of the two values is returned to the vendor daemon as the repair count on the fulfillment record. For example: ● A vendor daemon requests a fulfill amount of 100 and a repair count of 20. **Client Repair Count %** is 100%. FlexNet Operations returns a repair count of 20. ● A vendor daemon requests a fulfill amount of 100 and a repair count of 200. **Client Repair Count %** is 100%. FlexNet Operations returns a repair count of 100. ● A vendor daemon requests a fulfill amount of 100 and a repair count of 100. **Client Repair Count %** is 0%. FlexNet Operations returns a repair count of 0.
Max Transfers	Applicable only to trusted models. If a license is bound to a license server, this is the number of transfers of a license allowed between vendor daemons.

7. Complete the license model creation process by clicking **Save**, **Complete**, or **Next**:
   - Click **Save** to save the license model and remain on the current page.
   - Click **Complete** to save the license model and return the License Model page.
   - Click **Next** to save the license model settings and continue by setting up custom license model attributes (if any have been created) or setting policies for the current license model. (See Setting Up Custom License Model Attributes and Setting License Model Policies.)

After creating a license model, you can continue creating more license models, or start creating features, feature bundles, or products.

***Note** ▪ After a license model has been saved, the history of its state change can be viewed by clicking the **View History** button.*

Copying a License Model

A license model can be copied on the License Model page. Typically, you copy a license model as a shortcut in the license model creation process. Rather than adding a license model and manually specifying all the license model's settings, you can copy an existing license model that most closely matches the new license model and rename and customize the copy.

Task ***To copy an existing license model***

1. Click **Administer** > **License Models**. This link opens the License Model page.
2. Locate the license model to copy, and click **Copy**. This button opens the Create a License Model page.
3. Provide a name for the copied license model and change license model settings as necessary. (For information about particular license model settings, see Creating a License Model.)

Deleting a License Model

A license model can be deleted from the License Models page. Deleting a license model removes it from FlexNet Operations. You cannot delete deployed license models. Only draft license models and obsolete license models can be deleted.

Task ***To delete a license model***

1. Click **Administer** > **License Models**. This link opens the License Models page.
2. Locate the license model to delete, and click **Delete**.
3. Confirm your choice by clicking OK.

The Producer Portal removes the license model and refreshes the License Models page.

Deploying a License Model

A license model can be deployed on the License Model page. Deploying a license model makes it active for linking to products and suites. You deploy a license model by changing its state from Draft to Deployed.

Task ***To deploy a license model***

1. Click **Administer** > **License Models**. This link opens the License Models page.
2. Locate the license model to deploy, and click **Change State** > **Deploy**.
3. Confirm your choice by clicking **OK**.

The License Models page refreshes to show the new state for the license model you changed.

Printing a License Model

Details about a license model can be printed on the License Model page.

Task ***To print a license model***

1. Click **Administer** > **License Models**. This link opens the License Models page.
2. Locate the license model to print, and click **Print**.

The Print button starts the print process. The exact behavior varies slightly depending on your browser and operating system.

Exporting License Models

License models can be exported on the License Model page. Exporting a license model creates a file that can then be imported into a different instance of FlexNet Operations or modified by a separate program. The Export button provides option to create traditional (.jar) export files of all license models or selected license models, with or without their dependencies. For more information, see Importing and Exporting Entities.

Task ***To export license models***

1. Click **Administer** > **License Models**. This link opens the License Models page.
2. Locate the license models to export, and click **Export**, and then choose from the following export options:
   - **Selected Items**
   - **Selected Items with their Dependencies**
   - **All Items**
   - **All Items with their Dependencies**

The Producer Portal downloads the export file according to the export option you chose. (The exact behavior depends on the browser and operating system you are using.)

Employing a Predefined Substitution Variable

The following instructions describe how to use a substitution variable for a license model attribute that corresponds to a supported license string.

Task ***To employ a predefined substitution variable in the license model***

1. On the Create a License Model page, locate the license model attribute for which you want to use a predefined substitution variable.
2. For the license model attribute, choose **Specify Value Now**.
3. In the field provided, enter the substitution variable you want to use. For example, `{SoldTo.displayName}`. (See Predefined Substitution Variables for License Strings for a listing of available substitution variables.)
4. Click **Save**.

Note ▪ *The license model attributes for license strings can also take custom attributes as substitution variables. See Custom Attributes in License Strings.*

Setting Up Custom License Model Attributes

After setting license model attributes on the Create a License Model page, producers can set the custom license model attributes on the Set Up Custom Attributes page. The Producer Portal shows this page when you click Next on the Create a License Model page.

The custom attributes available on the Set Up Custom Attributes page depend on the custom license model attributes that have been defined for the license model's license technology. (See Managing Custom License Attributes for more information.)

Task ***To set up custom license model attributes***

1. On the Create a License Model page, click **Next**. This button opens the Set Up Custom Attributes page.
2. For each custom license model attribute, choose whether to use it in the license model, and the entitlements and licenses that use the license model.
   - If the custom license model attribute is used, set the time at which its value is to be specified. Choose from
     - **Specify Value Now**
     - **Specify Value at Entitlement Time**
     - **Specify Value at Fulfillment Time**.
   - If the custom license model attribute is not used, set it to **Not Used**.
3. Complete setting up custom license model attributes by clicking Save, Complete, or Next.
   - Click **Save** to save your custom attribute settings and remain on the current page.

- Click **Complete** to save your custom attribute settings and return to the License Model page.
- Click **Next** to save your custom attribute settings and proceed to the Set Up Policies page. (See Setting License Model Policies for more information.)

Setting License Model Policies

Policies allowed by a license model are configured after the license model attributes are defined. These settings affect all entitlement line items using the license model, and they are applied to activation both from the Producer Portal and from the End-User Portal.

All of these policies are applied per entitlement line item. For activations done with a Web register key, policies are applied per the entitlement line item in the simple entitlement created when the Web register key is redeemed.

Table 20-60 ▪ License Model Policies

Policy	Description
Number of Rehosts	The number of times a customer can rehost a license generated from a particular entitlement item.
Number of Returns	The number of times a customer can return a license generated from a particular entitlement item.
Number of Repairs	The number of times a customer can repair a license generated from a particular entitlement item.
Number of Extra Activations	The number of extra activations allowed for an entitlement line item. This is the additional number of unpurchased copies of a product the customer is allowed to activate.
Cancel License Policy	If Yes, on a return, a returned license is credited back to entitlements.

Table 20-60 ▪ License Model Policies

Policy	Description
Virtualization Policy	For trusted or embedded license models, determine whether to allow activations on virtual machines. This policy can be set or reset at the license model level or at the entitlement level. Selections are: • **Specify Value Now**, then click **Yes** or **No** • **Specify Value at Entitlement Time** If an activation request comes from a virtual machine, FlexNet Operations evaluates the product's virtualization policy. When virtual machine activations are allowed, FlexNet Operations attempts to use the product's virtualization-aware transaction key to configure trusted storage. (If no virtualization-aware transaction key exists, FlexNet Operations reports an error.) When virtual machine activations are not allowed, the activation fails. If an activation request comes from a physical machine, the virtualization policy is not evaluated at activation time. The virtualization policy is supported for licenses generated by FlexNet Publisher version 11.10 or later. For trusted license models, if virtual machine activations are allowed, determine whether to deny license repair if the virtual machine's ACPI Generation ID (UMN5) is changed. This policy can be set or reset at the license model level or at the entitlement level. Selections are: • **Specify Value Now**, then click **Yes** or **No** • **Specify Value at Entitlement Time** By default, this is set to **Specify Value Now/Yes**. Repair requests from physical machines are not impacted. The repair policy is supported for virtual machine licenses generated by FlexNet Publisher version 11.12.1 or later.
Redundant Server Policy	Redundant servers are supported with certificate-based licensing only for floating counted, floating uncounted, and nodelocked counted license models. **Do you want to configure redundant servers?** • **Yes**—The license model supports three-server redundancy for failover support. This is a capability available with certificate-based licenses. When you activate the license, you define the three-server host IDs that are a part of this configuration. For more information about three-server redundancy, see the FlexNet Publisher Licensing Toolkit documentation. • **No**—The license model does NOT support three-server redundancy.

Table 20-60 ▪ License Model Policies

Policy	Description
Number of Reinstalls	If a customer has reinstalled a host's operating system (for example, due to a system crash), the trusted storage on the host is lost. Activation must be reconfigured. In this case, you can choose to allow the customer to obtain a license without consuming the entitlement count. FlexNet Operations determines whether a user is reconfiguring activation for a specific host using host identifiers like UMN Types 1, 2, 3, and 5 and MID (Machine Identifier). FlexNet Operations tries to match the host using host identifiers according to the FNP client version and host identifiers sent in the request. (Not all activation requests contain the FNP client version or all of the host identifiers.) If the FNP client version is not sent in the request, the order the host identifiers are checked is UMN1, MID, then UMN2. For FlexNet Operations to correctly handle requests from a range of FNP client versions, UMN values are checked from UMN1 to newer UMN versions, and lastly MID is checked. ● You can choose to enforce the same policy for any host identifier received. To configure this, click Specify Value Now and provide a value. ● If you want to specify different policies for each host identifier, click Specify Value Now and select Advanced. Then specify the policy for each host identifier. ● If you want FlexNet Operations to always provide the license to the user without decrementing count for a reinstall operation, and not enforce any policy, then select Ignore Policy. ***Note ▪*** *Depending on the machine that issued the request, FlexNet Operations may not receive all identifiers in a given activation request. Refer to the FlexNet Publisher Licensing Toolkit documentation for more information on host identifiers.*

Table 20-60 ▪ License Model Policies

Policy	Description
Host ID Policies for Producer Portal	A host ID is an identifier used to uniquely identify a specific machine. A host ID policy is a rule that defines what *type of information* about the system is used to identify the machine. Example host ID types are host name, IP address, disk serial number, etc. This policy allows you to specify which host ID types (for example, the host name and IP address) are available when activating a license. When you activate a license, you can define a server host ID to ensure the license is used on only on a specific license server. In addition, you can define a nodelocked host ID that allows only a specific client (or user) to check out the feature and run your application. The policies in this section affect activations performed using the Producer Portal. These settings do not apply to activations performed in the End-User Portal. See Host ID Policies for Portal UI to separately configure host ID policies in the End-User Portal. There are two policies for you to define: ● **Server Host ID Policies**—This policy helps publishers restrict host ID types for server hosts. ● **Nodelocked Host ID Policies**—This policy helps publishers restrict host ID types for nodelocked hosts. For each policy, select a value: ● **Specify Value Now**—Define the list of valid host ID types for this license model. All licenses generated using this license model can use only these host ID types. ● **Specify Value at Entitlement Time**—Host ID types must be specified at entitlement time. This gives the publisher flexibility to specify different host ID types for different entitlements. ● **Ignore Policy**—Any host ID type can be used. Notice that host ID types are grouped into families related to their platform/environment: legacy, virtualization-aware (prefixed with PHY, VM, VMW, HPV, or LMB), and cloud-specific (prefixed with AMZN). For more information about the host ID type options displayed, see Special Host ID Types.
Host ID Policies for Portal UI	Publishers can restrict host ID types used during license generation from the End-User Portal using this policy. Refer to Host ID Policies for Producer Portal for information on policy settings. Also see Special Host ID Types for details about the host ID type options displayed.

Note ▪ *If users who have override policy permission log in, all host types are displayed to them, regardless of the policy settings, as they can choose to generate licenses for host types not allowed by policy.*

Working with Time Zones

Time zone functionality enables publishers to bind license usage to a specified geographic location by identifying the time zone of that region. This makes it possible for the publisher to vary license model pricing based on the geographic location in which the software is used.

At run time, when a license checkout is requested, the time and time zone of the client machine is read and compared to the time zone specified in the license file. If the time zone read from the client machine matches the time zone in the license file, the checkout proceeds as usual. If, however, there is a mismatch between the time zone read from the client machine and the time zone specified in the license file, the checkout request is denied.

The time zone is expressed in a license file using the TZ keyword to define a region within which license usage is permitted. The SERVERTZ time zone setting is preloaded in FlexNet Operations and binds served license usage to the time zone of the license server. However, before Producer Portal users can select any other time zone settings for a license model (served or nodelocked certificate licenses only), those settings must be configured by manually adding rows to the FlexNet Operations database table, `PROD_FNP_TIMEZONE`. For information about adding time zones and supported license models, see the *FlexNet Operations On-Premises Installation & Implementation Guide*. In the Producer Portal, time zone settings are displayed in a single-select drop-down list.

Important ▪ *Time zone licensing is intended for use with customers with whom you have a trusted relationship. There is no secure programmatic restriction with time zone licensing functionality: If an end user manually changes the time zone to match the time zone specified in the license certificate, a license can be consumed.*

Supported License Types

Time zone-based licensing is supported for licenses used by applications built with FlexNet Publisher version 11.7 or later, and applies to the following certificate-based licenses: floating counted, floating uncounted, and nodelocked counted. Licenses that contain the TZ keyword must be generated by a version 12.7 Vendor Certificate Generator (VCG) that has its version configured as 12.7 in its license generator configuration.

Time zone-based licensing is not available for nodelocked uncounted licenses (because limiting licenses based on their geographic location is not required if an unlimited number of licenses is available).

FlexNet Publisher supports a time zone range from GMT -12:00 to GMT +12:00 (or GMT -12:00 to GMT +14:00 if using FlexNet Publisher 11.15.1 or later).

Administering Device and License Server Setup

Producers who use FlexNet Embedded licensing can manage their device series, device model, and server host types using the Administer menu.

The topics, below, describe FlexNet Embedded licensing administration concepts and tasks.

Table 20-61 ▪

Topic	Description
About Device and License Server Setup	Discusses the device series, device model, and server host type concepts and the administration of these elements as well as publishers and identities.

Table 20-61 ▪

Topic	Description
Managing Publisher Identities	Describes how to create publishers and publisher identities, and how to download identity files from the Producer Portal.
Managing Device Series	Covers listing, adding, and editing device series.
Managing Device Models	Covers searching, viewing, creating, and editing device models.
Managing Server Host Types	Covers listing, creating, and editing server host types.
Viewing Request History	Describes how to use the Request History link in the Administer menu to view request history records based on date-time or request ID criteria.
Monitoring the FlexNet Embedded Back Office	Lists exposed FlexNet Embedded back office endpoints for customers who want to verify that it is responding as expected.

About Device and License Server Setup

Device and license server setup includes the management of publishers, publisher identities, device series, device models, and server host types. For producers who use FlexNet Embedded licensing to manage features and entitlements for intelligent devices, the foundation for devices and license servers that can be created are the device series, device model, and server host type.

Table 20-62 ▪

Topic	Description
About Device Series and Device Models	Discusses the role of device series and device models for producers who use FlexNet Embedded licensing.
About Server Host Types	Discusses the role of server host types for FlexNet Embedded license servers.
Device Series Attributes	Describes the attributes of device series.
Device Model Attributes	Describes the attributes of device models.
Server Host Type Attributes	Describes the attributes of server host types.
About Publishers and Publisher Identities	Discusses the role of publishers and publisher identities for FlexNet Embedded devices and license servers.

About Device Series and Device Models

To understand the basic concepts of using FlexNet Embedded licensing in FlexNet Operations, use the following example use case where Acme Networks, Inc. is a manufacturer that has created a series of VPN devices that includes three device models.

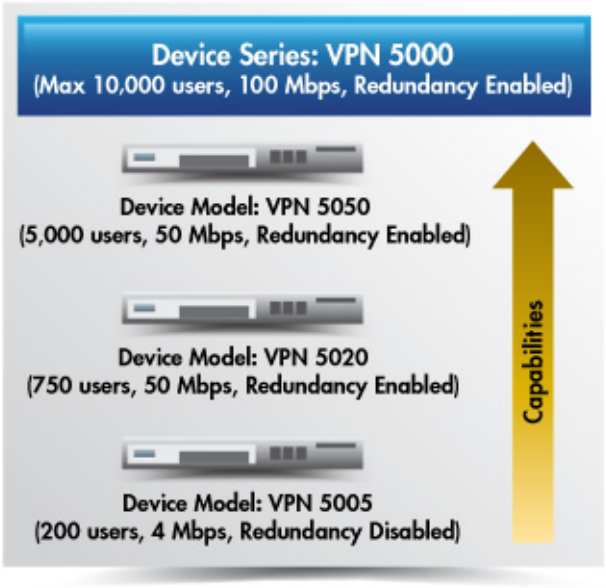


Figure 20-3: Device Series and Device Models

- **Device Series**—A collection of device models that are physically identical but upgradable in the field through license changes and additional capabilities. In the figure, above, VPN 5000 is an example of a device series.

  A device series sets the maximum limits for device capabilities and capacities. In this example, all device models within the VPN 5000 device series can have

  - No more than 10,000 simultaneous users
  - No more than 100 Mbps of throughput
  - Redundancy enabled or disabled

- **Device Model**—A basic model for a device that manufacturers use to create a pre-installed license. A pre-installed license defines a set of capabilities within the maximum limits for the device series. The device model with that particular pre-installed license represents a purchasable configuration for a device. In the figure, above, VPN 5005, VPN 5020, and VPN 5050 are all device models and part of the VPN 5000 device series. They each define and represent a different set of basic capabilities.

  In this example, the VPN 5050 device model includes

  - 5,000 simultaneous users
  - 50 Mbps of throughput
  - Redundancy Enabled

- **Additional Product**—A product you create to represent a license change that grants additional capabilities for a device. In this example, an additional product might include 1,000 simultaneous users and 10 Mbps of throughput.

About Server Host Types

A server host type works with servers like a device model works with devices; it establishes a default identity and a default host ID type for servers created based on the server host type.

Producer Portal users have a predefined server host type: FLX_SERVER. FLX_SERVER facilitates the creation of servers without the need for new users to define their own server host types, and is associated, by default, with the first identity that the producer creates. Although FLX_SERVER is initially designated as the default server host type, Producer Portal users can later designate any server host type as the default.

Device Series Attributes

Device series include the following attributes.

Table 20-63 ▪

Attribute	Description
Name	A unique value per producer.
Notes	A short description for the device series.
Alias	An optional, alternate name for the device series.

Device series can have a number of capabilities as well. Any capabilities added to the device series express the maximum capabilities and capacities for devices based on the device series.

Device Model Attributes

Device models include the following attributes.

Table 20-64 ▪

Attribute	Description
Model Name	Model Name must be unique per producer.
Description	An optional description for the device model.
Alias	An optional, alternative descriptive name for the device model.
Default Host ID Type	Default Host ID Type specifies a host ID type for devices based on this device model. Default Host ID Type is used whenever a device of this model is created without specifying a host ID Type.

Table 20-64 ▪

Attribute	Description
License Format	The storage format for the pre-installed license and additional capabilities. • Pre-installed license in file, additional licenses in trusted storage—Any features in the pre-installed product are expressed in a license file while any additional products applied to the device are expressed in trusted storage. • Pre-installed license and additional licenses in file—All features from the pre-installed product and additional products applied to the device are expressed in a license file. • Pre-installed license and additional licenses in trusted storage—All features from the pre-installed product and additional products applied to the device are expressed in trusted storage.
Device Series	The device series that is the parent of the device model.
Identity	The publisher identity for the device model.
Default	A check box that designates the current device model as the default device model. If you create a device without specifying a device model, the default device model is used for that device.
Pre-installed Product	The product that determines the features included in the pre-installed license for devices of this device model type. Pre-installed product settings also determine the license model, license model attributes, and expiration terms used in the pre-installed license for such devices. When a pre-installed product is specified for a device model, that pre-installed product is used for devices based on that device model unless a different product is specified when the device is created.

Server Host Type Attributes

Server host type attributes are similar to device model attributes. These attributes are used when searching, adding, and editing server host types.

Table 20-65 ▪

Attribute	Description
Server Host Type Name	A unique identifier for the server host type. This value must be unique per producer.
Description	A description for the server host type.
Alias	An alias for the server host type.

Table 20-65 ▪

Attribute	Description
Default Host ID Type	Specifies a default host ID type for servers based on this server host type. This host ID type is used if a server is created without specifying a host ID Type. Two special host types appear in the Default Host ID Type attribute: PUBLISHER_DEFINED and EXTENDED. For more information on these host ID types, see the *FlexNet Embedded License Server Producer Guide*.
Identity	The publisher identity for the license server.
Default	A check box that designates the current server host type as the default server host type. If you create a license server without specifying a server host type, the default server host type is used for that server.
Pre-installed Product	The product that determines the features included in the pre-installed license for license servers of this server host type. Pre-installed product settings also determine the license model, license model attributes, and expiration terms used in the pre-installed license for such license servers. When a pre-installed product is specified for a server host type, that pre-installed product is used for license servers based on that server host type unless a different pre-installed product is specified when the license server is created.

About Publishers and Publisher Identities

Software publishers and device manufacturers can be assigned one or more publisher identities. A publisher identity is binary data that contains a publisher or manufacturer name and encryption data. There are two main components to a publisher identity: the server component used to sign licenses, and a client component (containing public keys) that go into the license-enabled code. In addition, back-office identities facilitate FlexNet Embedded trials.

Public keys for your publisher identity were supplied upon purchase of FlexNet Operations. Please consult the FlexNet Publishing Licensing Toolkit documentation for details.

Managing Publisher Identities

The topics, below, describe procedures for publisher and identity management.

Table 20-66 ▪

Topic	Description
Creating a Publisher	Describes how to add a publisher to FlexNet Operations via the Producer Portal.

Table 20-66 ▪

Topic	Description
Creating a Publisher Identity	Shows how to add a publisher identity in the Producer Portal.
Downloading Identity Files	Shows how to download client, client-server, and back-office identity files from the Producer Portal.

Creating a Publisher

You can add a publisher from the Administer menu in the Producer Portal.

Task ***To create a publisher***

1. Click **Administer** > **Publishers**. The Producer Portal opens the List Publishers page.
2. Click **Add Publisher**. The Producer Portal opens the Create a Publisher page.
3. In **Publisher Name**, enter the name of the publisher.
4. In **Notes**, optionally enter a description of the publisher.
5. In **Publisher Keys**, enter the vendor keys used by the publisher.
6. Click **Save**. You can now add publisher identities for the publisher.

Creating a Publisher Identity

You can add identities from the Administer menu in the Producer Portal.

Task ***To create a publisher identity***

1. Click **Administer** > **Identities**. The Producer Portal opens the List Identities page.
2. On the List Identities page, click **Add Identity**. The Producer Portal opens the Add Identity page.
3. In **Identity Name**, enter the identity name.
4. In **Notes**, optionally enter a description of the publisher identity.
5. In **Signature Algorithm**, select an algorithm and signature strength combination that will be used to generate digital signatures. For example, **TRL_163**.
6. If you have a custom back office identity to upload, click **Choose File** and locate the file on your local system. (This step is optional, and controls for choosing a file vary depending on the browser you are using.)
7. Click **Save**.

Important ▪ *Because it is impossible to re-create an identity—even by entering the same input parameters in the Creating a Publisher Identity procedure—it is strongly recommended that you save backup copies of your identity files in case it is necessary to restore your FlexNet Operations instance.*

To save a backup identity file:

a. After you successfully create a publisher identity, the **List Identities** page is displayed.

b. On the **List Identities** page, click the identity that you just created to display its **View Identity** page.

c. In the **Identity Files** section of the **View Identity** page, click the **Binary File** link below **Download Back Office Identity**.

d. When you are prompted to save the identity file, choose a unique name to differentiate it from other publisher identity backup files, and save it in a secure location.

To re-create an identity in the new FlexNet Operations instance from a backup identity file:

a. After you reinstall FlexNet Operations, click **Administer > Identities** to display the **List Identities** page.

b. On the **List Identities** page, click **Create Identity** to display the **Create Identity** page.

c. From the **Publisher Name** list, select the publisher that the identity belongs to.

d. In the **Custom IdentityBackOffice.bin** field of the **Create Identity** page, click **Browse...** to find and select the backup identity file.

e. Click **Save** to re-create the identity in the restored FlexNet Operations instance.

Downloading Identity Files

The following instruction sets show how to download client, client-server, and back-office identity files. Identity files are a necessary part of your license-enabled code. See your FlexNet Embedded documentation for details.

Task ***To download a client identity file***

1. Click **Administer** > **Identities**.
2. On the List Identities page, click on the identity name for the identity you want to download.
3. Click the Download Client Identity link for the format you want to download.

This file must be compiled into your license-enabled code for client devices.

Task ***To download a client-server identity file***

1. Click **Administer** > **Identities**.
2. On the List Identities page, click on the identity name for the identity you want to download.
3. Click the Download Client Server Identity link for the format you want to download.

This file must be compiled into your license-enabled code for server devices.

Task ***To download a back-office identity file***

1. Click **Administer** > **Identities**.
2. On the List Identities page, click on the identity name for the identity you want to download.
3. Click the Download Back Office Identity link.

Managing Device Series

Producers who use FlexNet Embedded licensing can manage device series from the Administer menu. The following topics cover device series management tasks.

Table 20-67 ▪

Topic	Description
Listing Device Series	Shows how to list all device series for your account.
Viewing a Device Series	Shows how to view a device series from the List Device Series page.
Adding a Device Series	Explains how to create a new device series.
Editing a Device Series	Explains how to edit an existing device series.

Listing Device Series

You can list all the device series available to your account on the Producer Portal.

Task ***To list device series***

- Click **Administer** > **Device Series**.

The Producer Portal opens the List Device Series page. To view an existing device series, click its name in the list.

Viewing a Device Series

You can view a device series from the List Device Series page.

Task ***To view a device series***

- On the List Device Series page, click the name of the device series you want to view.

The Producer Portal opens the View Device Series page for the device name you clicked.

Adding a Device Series

A device series is a collection of device models that are physically identical but upgradable in the field through license changes and additional capabilities. A device series sets the maximum limits for device capabilities and capacities.

Tip ▪ *A pre-defined device series, FLX_CLIENT_SERIES, is provided for all producers. Those producers who do not require the additional complexity of defining multiple device series and device models can leverage the FLX_CLIENT_SERIES instead of creating their own device series.*

You can add a device series from the List Device Series page. Use the following steps to add a device series.

Task ***To Add a Device Series***

1. Click **Add Device Series**. The Producer Portal opens the Add Device Series page.
2. For **Name**, type a unique identifier for the device series.
3. Optionally type any information needed in **Notes**.
4. Optionally, for **Alias**, type a human-readable name for the device series.
5. Optionally, add capabilities to the device series:
   - Under **Add Capabilities**, click the arrow next to the drop-down menu, select a capability, and then click **Add**.
   - Type the maximum units for each counted capability for the device series.

   Note ▪ *The maximum unit for uncounted capabilities defaults to Enabled.*
6. Click **Add Device Series**.

The Producer Portal adds the device series and opens its View Device Series page.

Editing a Device Series

You can edit a device series from its View Device Series page. For an existing device series, you can change the notes, alias, and capabilities values. (The device series name cannot be changed.)

Task ***To edit a device series***

1. On the View Device Series page, click **Edit** > **Edit this Device Series**. The Producer Portal opens the Edit Device Series page for the current device series.
2. Make any necessary changes.
3. Click **Edit Device Series**.

The Producer Portal saves your changes to the device series and opens its View Device Series page.

Managing Device Models

Producers who use FlexNet Embedded licensing can manage their device models from the Administer menu.

Table 20-68 ▪

Topic	Description
Searching Device Models	Shows how to search for device models created for your account.
Viewing a Device Model	Shows how to view a device model from the Search Device Models results page.
Creating a Device Model	Describes how to create a new device model.
Editing a Device Model	Explains how to edit an existing device model.

Searching Device Models

You can search for device models on the Producer Portal from the Administer menu.

Task ***To search for device models***

1. Click **Administer** > **Search Device Models**. The Producer Portal opens the Search Device Models page.
2. Type search criteria to match the device models you are looking for.
3. Click **Search**.

The Producer Portal finds device models that match your search criteria and lists them on the Search Device Models results page.

Viewing a Device Model

You can view a device model from the Search Device Models page.

Task ***To view a device model***

- On the Search Device Models results page, click the model name of the device model you want to view.

The Producer Portal opens the View Device Model page for the model name you clicked.

Creating a Device Model

A device model is a basic model for a device that producers use to create a pre-installed license and, optionally, define a pre-installed product. A pre-installed license can define a set of capabilities, as defined in the pre-installed product's features, within the maximum limits for the device series. The device model with that particular pre-installed license represents a purchasable configuration for a device. If a device model has a certain capability, that capability can be increased to what is defined as the maximum in the series.

***Tip** ▪ A pre-defined device model, FLX_CLIENT, is provided for all producers. Those producers who do not require the additional complexity of defining multiple device series and device models can leverage the FLX_CLIENT instead of creating their own device models.*

You can create a device model from the Administer menu.

Task ***To create a device model***

1. Click **Administer** > **Create Device Model**. The Producer Portal opens the Create Device Model page.
2. For **Model Name**, type a unique identifier for the device model.
3. Optionally, for **Description**, type a short description of the device model.
4. Optionally, for **Name**, type a human-readable name for the device model.
5. For **Default Host ID Type**, select a host ID type. Choose from
   - **ETHERNET**
   - **INTERNET**
   - **INTERNET_6**
   - **FLEXID_9**
   - **FLEXID_10**
   - **STRING**
   - **USER**
   - **VM_UUID**
   - **CONTAINER_ID**
6. For **License Format**, select a license format. Choose from
   - **Pre-installed license in file, additional licenses in trusted storage**
   - **Pre-installed license and additional licenses in file**
   - **Pre-installed license and additional licenses in trusted storage**
7. For **Device Series**, choose from a list of available device series.
8. For **Identity**, choose from a list of available publisher identities.

9. Optionally, select the **Default** check box. If you select the check box, the current device model becomes the default device model for all new devices.

10. Optionally, add a pre-installed product to the device model.

    A pre-installed product defines a set of built-in features for devices based on this device model. (A device model with no pre-installed product results in devices with no built-in features. In this case, all features would be additional features.) To add a pre-installed product

    a. Click **Add**. The Add Pre-Installed Product page opens in a pop-up window.

    b. On the Add Pre-installed Product page, click **By Product**. The Select Product page opens in another pop-up window. The Select Product page lists products with features permitted by the restrictions imposed (if any) by the device model's device series.

    c. On the Select Product page, click the option for the pre-installed product and then click **OK**. The Select Product window closes and the product name and version of the selected product are shown on the Add Pre-installed Product page.

    d. On the Add Pre-installed Product page, specify a license model, license model attributes (optional), and expiration terms.

Setting	Description
License Model	Choose a license model for the pre-installed product. License models available are determined by the license models that are linked to the selected pre-installed product.
License Model Attributes	Optionally, provide settings for license model attributes (such as **Notice** and **Vendor String**). Any values set here become the default values for devices based on this device model.
Expiration Terms	Express the **Start Date** and **Expiration** for the pre-installed product.

    e. Click **Add**. The Add Pre-installed Product window closes and you return to the Create Device Model page. Notice that the Pre-installed Product settings show the product you selected as well as its expiration terms.

11. Click **Create Device Model**. The Producer Portal adds the device model you defined and shows its View Device Model page.

Editing a Device Model

You can edit a device from its View Device Model page. For an existing device model, you can change its description, its alias, and whether or not it is the default device model. You cannot change its model name, default host ID type, license format, device series, identity, or pre-installed product (if any).

Task ***To edit a device model***

1. On the View Device Model page, click **Edit** > **Edit this Device Model**. The Producer Portal opens the Edit Device Model page for the current device model.
2. Make any necessary changes.
3. Click **Edit Device Model**. The Producer Portal saves your changes to the device model and opens its View Device Model page.

Managing Server Host Types

You can view fulfillment or license information associated with previously-defined hosts.

Table 20-69 ▪

Topic	Description
Listing Server Host Types	Shows how to list all server host types for your account.
Viewing a Server Host Type	Shows how to view a server host type from the List Server Host Types page.
Creating a Server Host Type	Explains how to create a new server host type.
Editing a Server Host Type	Explains how to edit an existing server host type.

Listing Server Host Types

You can list all the server host types available to your account on the Producer Portal.

Task ***To list server host types***

- Click **Administer** > **Server Host Types**.

The Producer Portal opens the List Server Host Types page. To view an existing server host type, click its name in the list.

Viewing a Server Host Type

You can view a server host type from the List Server Host Types page.

Task ***To view a server host type***

- On the List Server Host Types page, click the name of the host type you want to view.

The Producer Portal opens the View Server Host Type page for the host type name you clicked.

Creating a Server Host Type

You can create a server host type from the Server Host Types page.

Task ***To create a server host type***

1. Click **Create Server Host Type**. The Producer Portal opens the Create Server Host Type page.
2. For **Server Host Type Name**, type a unique identifier for the host type.
3. Optionally, type a description for the server host type in **Description**.
4. Optionally, for **Name**, type a human-readable name for the server host type.
5. For **Default Host ID Type**, select a host ID type. Choose from
   - **ETHERNET**
   - **INTERNET**
   - **INTERNET_6**
   - **FLEXID_9**
   - **FLEXID_10**
   - **STRING**
   - **USER**
   - **VM_UUID**
   - **EXTENDED**
   - **PUBLISHER_DEFINED**
   - **CONTAINER_ID**
6. For **Identity**, choose from a list of available publisher identities.
7. Optionally, select the **Default** check box. If you select the check box, the current host type becomes the default host type for all new license servers.
8. Optionally, add a pre-installed product to the server host type.

   A pre-installed product defines a set of built-in features for license servers based on this server host type. (A server host type with no pre-installed product results in license servers with no built-in features. In this case, all features would be additional features.) To add a pre-installed product:

   a. Click **Add**. The Add Pre-installed Product page opens in a pop-up window.

b. On the Add Pre-installed Product page, click **By Product**. The Select Product page opens in another pop-up window.

c. On the Select Product page, click the option for the pre-installed product and then click **OK**. The Select Product window closes and the product name and version of the selected product are shown on the Add Pre-installed Product page.

d. On the Add Pre-installed Product page, specify a license model, license model attributes (optional), and expiration terms.

Setting	Description
License Model	Choose a license model for the pre-installed product. License models available are determined by the license models that are linked to the selected pre-installed product.
License Model Attributes	Optionally, provide settings for license model attributes (such as **Notice** and **Vendor String**). Any values set here become the default values for devices based on this device model.
Expiration Terms	Express the **Start Date** and **Expiration** for the pre-installed product.

e. Click **Add**. The Add Pre-installed Product window closes and you return to the Create Server Host Type page. Note that the Pre-installed Product settings show the product you selected as well as its expiration terms.

9. Click **Create Host Type**. The Producer Portal adds the server host type and opens its View Server Host Type page.

Editing a Server Host Type

You can edit a server host type from its View Server Host Type page. For an existing host type, you can change its description, its alias, and whether or not it is the default server host type. You cannot change its name, its default host ID type, or its identity.

Task ***To edit a server host type***

1. On the View Server Host Type page, click **Edit** > **Edit this Server Host Type**. The Producer Portal opens the Edit Server Host Type page for the current host type.
2. Make any necessary changes.
3. Click **Edit Server Host Type**. The Producer Portal saves your changes to the server host type and opens its View Server Host Type page.

Viewing Request History

Use the following instruction sets to view the history of all device and license server requests and, optionally, to filter the request history by date and time or by request ID.

Task ***To View Request History***

- Click **Administer** > **Request History**. The Producer Portal opens the Request History page.

The Request History page shows all requests, by default.

Request history results can be filtered by date or by ID.

Task ***To Filter the Request History Results***

1. On the Request History page, enter any date or ID values you want to use to filter the request history results.
   - **Max Request Time**—Determines how recent the requests included in the request history results are. No requests that occurred after the specified date are included in the results.
   - **Max Request ID**—Limits the request history results according to the request ID. No requests with a request ID number higher than the specified request ID are included in the results. (Only numbers are possible in the Max Request ID field, and wildcards are not permitted.)
2. Click **Get History**. The Producer Portal refreshes the Request History page to show only the requests that match the filters.

Monitoring the FlexNet Embedded Back Office

For customers who want to periodically ping the FlexNet Embedded back office to verify that it is responding as expected, the following endpoint URLs are exposed.

Note ▪ *For information about the site ID used in these URLs, see About Your Site ID in FlexNet Operations Environments.*

User Acceptance Testing

The UAT environment is a place to perform configuration, integration development, testing, and training.

Use	URL
End-User Portal	`https://<siteID>-uat.flexnetoperations.com/flexnet/operationsportal/deviceservices/ping`
Producer Portal	`https://<siteID>-uat.flexnetoperations.com/flexnet/operationsportal/deviceservices/ping`
License Fulfillment Service	`https://<siteID>-uat.compliance.flexnetoperations.com/deviceservices/ping`
Cloud Licensing Service	`https://<siteID>-uat.compliance.flexnetoperations.com/api/1.0/instances/ping`

Use	URL
Notification Server	`https://<siteID>-ns-uat.flexnetoperations.com/ping`

Production (PROD)

The Production instance is for customer entitlement management and licenses, usage, and delivery activities.

Use	URL
End-User Portal	`https://<siteID>.flexnetoperations.com/flexnet/operationsportal/deviceservices/ping`
Producer Portal	`https://<siteID>-fno.flexnetoperations.com/flexnet/operations/deviceservices/ping`
License Fulfillment Service	`https://<siteID>.compliance.flexnetoperations.com/deviceservices/ping`
Cloud Licensing Service	`https://<siteID>.compliance.flexnetoperations.com/api/1.0/instances/ping`
Notification Server	`https://<siteID>-ns.flexnetoperations.com/ping`

Working with Transaction Keys

A product is linked with a transaction key only if the product is licensed with a trusted license model. A transaction key is linked with a product at the time the first trusted license model is linked with the product, and can be changed later or overridden for local trials and short code ASRs that use the product. Therefore, create at least one transaction key before linking a trusted license model with a product.

Table 20-70 ▪

Topic	Description
About Transaction Keys	Discusses the use of transaction keys and anchoring with products that use trusted licensing models.
Managing Transaction Keys	Briefly describes the management of transaction keys—including adding, deleting, printing, and viewing the history of transaction keys.
Creating a Transaction Key	Covers the creation of transaction keys in greater detail.
Configuring Anchoring	Explains how to configure anchoring for a transaction key.

Do not define transaction keys if products are licensed only with certificate license models.

Important ▪ *Transaction keys cannot be imported using the Product Packaging web service.*

About Transaction Keys

Products that use FlexNet licensing with a trusted license model require at least one transaction key. (Do not define transaction keys if products are licensed only with certificate license models.)

A transaction key consists of a trusted ID, a set of transaction key seeds, and a set of bindings. The transaction key determines a FlexNet Publisher Licensing Toolkit Trusted ID configuration. FlexNet Operations provides no direct access to the Trusted ID configuration.

Anchoring Types

Anchors record the deletion and restoration of trusted storage. Available anchors are dependent on the operating system and provide different levels of security. The following table describes the anchoring types on different platforms:

Note ▪ *When the transaction key binding type is set to* ***Virtualization-aware Fingerprint****, only Windows (registry and track zero) and Linux (file based) anchoring are supported.*

Table 20-71 ▪ Anchors and Supported Platforms

Anchoring Type	Description
Registry	Windows: Windows registry entry
Track Zero	Windows: Write to track zero
File Based	Macintosh, Solaris, Linux: Anchors written to system files
OSX File Based	Macintosh: Anchors written to system files

Transaction Key Usage

As long as all transaction key seeds are random, no transaction key is intrinsically more secure than another. However, if a Trusted ID configuration is compromised, the transaction key that created that Trusted ID configuration may be compromised.

Consider creating several transaction keys to use for different types of activations or products. For example, one transaction key could be used for regular activations, one for local trials, and one for short code activations. If you support activation of products of different values, consider linking high value, narrowly distributed products with one transaction key and lower value, widely distributed products with a different transaction key.

Linking different transaction keys (and, therefore, different Trusted ID configurations) to different distribution mechanisms or products has a security benefit: high value or securely distributed products are not at risk if the Trusted ID configuration for lower value or less-securely-distributed products is compromised.

Virtualization-Aware Transaction Keys

Similarly, consider using virtualization-aware transaction keys (in addition to default transaction keys) for products that may run on virtual machines. A virtualization-aware transaction key binds to the VMID of a virtual machine and, therefore, results in a binding that is specific to that instance of the virtual machine. (Clones of a virtual machine each have a different VMID.) However, when running on a virtual machine that the licensing client does not recognize as a virtual environment, the licensing client uses the default transaction keys, treating the machine as if it were a physical machine.

Note ▪ *Virtualization-aware transaction keys require FlexNet Publisher 11.10 or later.*

Important ▪ *Transaction keys cannot be imported using the Product Packaging web service.*

Managing Transaction Keys

The Transaction Keys page automatically displays recently accessed transaction keys, if applicable. From this page, you can add, delete, print or export transaction keys:

- **Add**: To add a new transaction key, click Add.
- **Save**: To save a transaction key to a file, click Save to file.
- **Delete**: To delete transaction keys, select one or more transaction keys and click Delete.
- **Print**: To print transaction keys, select one or more transaction keys and click Print.
- **Export**: To export transaction keys to a `.jar` file, select one or more transaction keys and click Export.
- **Revision History**: Shows revisions to transaction keys.

To search transaction keys, select **Transaction Key Name** from the **Search For** choice list, and click **Simple Search**. You can also search for transaction keys based on transaction key name, trusted ID, transaction key seed, product, or keys without products.

Creating a Transaction Key

Create at least one transaction key before linking a trusted license model with a product.

Task ***To create a transaction key***

1. Click **Administer** > **Transaction Keys**. The Package Products page opens.
2. Click **Add a Transaction Key.** The Create a Transaction Key page opens.

3. Provide values for the following fields. Required fields are indicated with a red asterisk.

Table 20-72 ▪ Transaction Key Fields

Field	Description
Name	Name to uniquely identify this transaction key: The name can contain spaces and can be changed at any time.
Description	Describe the characteristics of this transaction key that make it unique. The description can be changed at any time.
Publisher ID	Select a publisher ID from the drop-down list to associate with this transaction key.
Transaction Key Seeds	Enter 8 unique 32-bit hexadecimal numbers as key seeds. (See example below.) Do not specify the same seeds in a transaction key that are specified in `publisher.xml`. These key seeds cannot be edited after the transaction key is saved. Example 32-bit Hexadecimal Number: 2e24ec82 A single 32-bit hexadecimal number consists of 4 pairs of 2 valid hex digits. Valid hexadecimal digits are 0-9 and A-F.
Binding Type	Select a binding type for the transaction key. Choose from • **Default Fingerprint**—Binds to supported physical machines and virtual machines. The transaction key is used to configure trusted storage by the physical machine's characteristics. • **Virtualization-aware Fingerprint**—Binds to supported virtual machines only. The transaction key is used to configure trusted storage by the virtual machine's VMID. For trusted licensing, a product can have up to two transaction keys—one default transaction key and one virtualization-aware transaction key.
Short Code Response Strength	Signature strength of the short code response. Choose from • **Low** – `Short_21` transaction key, for pre-11.5 FNP kits (default option) • **Medium** – `Short_24` transaction key • **High** – `Short_26` transaction key

4. Decide if you want to use anchoring.
   - **Yes** - Default
   - **No** - Not recommended
5. If you are not using anchoring, click **Save** to save the transaction key or click **Add New Transaction Key** to save this transaction key and create a new transaction key. Click **Reset** to reset all the transaction key fields.
6. If you are using anchoring, click **Next** to continue with Configuring Anchoring.

Configuring Anchoring

If you have decided to configure anchoring, the following decisions are presented. Based on these decisions, you are presented with additional decisions and finally a set of attributes to select. The usefulness and ramifications of these attributes can be further explored in FlexNet Publisher Licensing Toolkit documentation.

1. **Do you want to use the same anchoring for end users and enterprise users?**

   License models that apply to end users are retail activation, enterprise activation, and floating borrowable license models. License models that apply to enterprise users are enterprise activation, floating transferable, and floating borrowable license models.

   - **Yes** - Default: If this transaction key is associated with a product meant to be activated on both end-user and license server machines, the same anchoring is used.
   - **No** - Different anchoring is used for the same product when activated on end-user and license server machines.

2. **Do you want to use default anchoring for all supported operating systems?**

   - **Yes** - Default. The Default anchoring configuration is displayed but not changeable. See the default anchoring configuration in the next table.
   - **No** - You are asked to choose anchoring for each supported operating system from the available anchoring.

   Note ▪ *When the transaction key binding type is set to* ***Virtualization-aware Fingerprint****, only Windows (registry and track zero) and Linux (file based) anchoring are supported.*

OS	Anchoring Type
Windows	Registry
Linux	File Based
Macintosh	File Based and OSX File Based
Solaris	File Based

3. If you answer **Yes** to Question 1 and Question 2, click the **Save** button to save the transaction key. If not, decide whether to use default anchors for different types of users on different operating systems.
4. **For End Users: Do you want to use default anchoring for supported operating systems?**

   - **Yes** - Default anchoring for end-user machines displayed.
   - **No** - You are asked to choose anchoring for each supported operating system from the available anchoring.

5. **For Enterprise Users: Do you want to use default anchoring for supported operating systems?**

   - **Yes** - Default anchoring for license server machines displayed.

- **No** - You are asked to choose anchoring for each supported operating system from the available anchoring.

6. If you selected **No** to either Question 4 or Question 5, configure the anchors for end users and/or enterprise users, if necessary.
7. Click the **Save** button to save the transaction key.

Working with Application Specification Records (ASRs)

Application Specification Records (ASRs) are transactions codes that use shorter length values to support local trial and short code activation scenarios.

Table 20-73 ▪

Topic	Description
About Activation Specification Records (ASRs)	Discusses what ASRs are and how they can be used for local trials and short code activations.
Local Trials	Explains how to create, manage, and email ASRs for local trials.
Short Code ASRs	Explains how to create, link, email, and otherwise manage ASRs for short code activation.

About Activation Specification Records (ASRs)

An *Activation Specification Record (ASR)*, which is tied to a product in FlexNet Operations, is a digitally signed XML file describing the licensing terms of a particular product. Local trials and short code activations are implemented by creating an ASR in FlexNet Operations and bundling the ASR with a product. The activation utility for the product uses the bundling ASR to activate a license instead of communicating with the FlexNet Operations server.

The two scenarios supported by FlexNet Operations that use ASRs are local trials and short-code activations.

- A **local trial** is typically a time-limited license intended for use as an evaluation license or an emergency license. The application activation utility reads the license rights from the ASR instead of communicating with the server, and installs the rights in trusted storage. A local trial license cannot be returned, repaired, or rehosted. See Local Trials for more information.

  Note ▪ *In the FlexNet Publisher Licensing Toolkit, local trial ASRs are referred to as Embedded Activation.*

- A **short-code activation** is one intended for customers that do not have the network connection resources needed for typical activation transactions, and therefore need to activate a product manually, such as over the telephone. Using a short-code ASR, a customer can provide a short request code and receive a short response code (to be typed into the application interface, for example) over the telephone, without the

prohibitively long codes used in typical activations. Unlike a local trial license, a license activated with short-code activation can be returned, repaired, and rehosted. See Short Code ASRs for more information.

Local Trials

A local trial is one of two kinds of trusted activation that do not require a real-time response from the FlexNet Operations server when a product is activated. Local trials usually expire after a short time and are used to:

- Allow evaluations of a product (trial)
- Cover a situation in which an application machine loses contact with the license server system machine (emergency)

Local trial licenses cannot be rehosted, returned, or repaired.

Table 20-74 ▪

Topic	Description
Managing Local Trial ASRs	Briefly discusses viewing, creating, and deleting local trial ASRs.
Creating a Local Trial ASR	Provides a more detailed explanation of creating local trial ASRs.
Emailing a Local Trial ASR	Describes how to email a local trial ASR.

Managing Local Trial ASRs

The Local Trials page automatically displays recently accessed local trials for a product.

To view all local trials for a product, click the **Search** button.

From this page, you can perform several tasks. Among them are

- Creating a Local Trial ASR: To add a new local trial, click **Add**.
- Deleting a local trial: To delete local trial ASRs, select one or more local trials and click **Delete**.

Creating a Local Trial ASR

Local Trial ASRs can be created in the Producer Portal on the Local Trial ASRs page.

Task ***To create a local trial ASR***

1. Click **Administer** > **Local Trial ASRs**. This link opens the Local Trial ASRs page.
2. Click **Add**. This button opens the Create a Local Trial ASR page.

3. Provide values for the following fields. Required fields are indicated with a red asterisk.

Table 20-75 ▪ Local Trial Fields

Field	Description
Name	Name to uniquely identify this local trial ASR: The name can contain spaces, however, you may not want to include spaces because this name is used to construct the local trial ASR file name.
Trial Type	Select whether this is for a trial or an emergency.
Description	Describe the characteristics of this local trial ASR that make it unique.
Product Details: **- Product Name** **- Product Version** **- Part Number**	Search for a product by name or part number. To search by product name: ● Click **By Product**. A pop-up window displays a list of products by product name and allows you to search for a specific product. ● Search for and select a product. The version number is added to the Product Version field automatically. If the product is mapped to more than one part number, select the correct one from the Part Number drop-down list. To search by part number, click **By Part Number**. A pop-up window displays a list of products by part number and allows you to search for a specific product. The product name, product version, and part number fields are populated automatically.
Duration	Set Duration so an individual local trial activation expires at a fixed time from the activation date. If you want to set the duration, enter the units of time (Days, Weeks, Months, Years) and enter the number of those units. If unlimited activations per computer are allowed by this local trial ASR, the local trial can be reactivated up until the expiration date.
Expiration Date	Set the date that this local trial ASR expires. This is the absolute expiration date of the license, regardless of when it is activated by the client. No new local trial activations can use this ASR after the expiration date, regardless of how many activations per computer are allowed. If a product in the local trial contains a feature with an Expiration Date, set the date. 3. To specify an ExpirationDate date, click the Calendar button next to the Expiration Date field and click a date. 4. Click the **Clear** button to clear the **Expiration Date** field.

Table 20-75 ▪ Local Trial Fields

Field	Description
Activations per Computer	Select whether this local trial ASR allows only one or unlimited numbers of activations on a computer. Even if unlimited, no more activations can be done after the Expiration date.
Enable Local Trial Anchors	Select whether or not to enable local trial anchors. Trial anchors serve as additional identifiers for types of trials, and are numbered from 0 to 255, allowing each publisher to support 256 distinct trial types. The number shown here is decremented by 1 each time a trial anchor is assigned to a Flex-enabled product. If a trial anchor is created in error, delete the ASR so its anchor is added back to the pool.
License Model	Select one of the trusted license models that is associated with the selected product. Specify any entitlement-time license model attributes.
Virtualization Keyword	Specify the Virtualization Keyword associated with this Local Trial ASR. This option determines whether or not FlexNet Operations adds a Virtualization Policy to the ASR and, if so, whether the trial uses default or virtualization-aware binding. Choose from ● **Omitted**—No Virtualization Policy added to the ASR. ● **Default**—Adds a Virtualization Policy to the ASR and specifies default binding for the ASR. ● **Virtual**—Adds a Virtualization Policy to the ASR and specifies virtualization-aware binding for the ASR. The choice you make here also determines the type of transaction keys available in **Transaction Key** (below).
Transaction Key	Select a transaction key to link with this local trial. If a transaction key is not specified here, the key associated with the product is used. The choice you make for **Virtualization Keyword** determines which transaction keys are available for selection. When Virtualization Keyword is set to **Omitted** or **Default**, only default transaction keys are available. When Virtualization Keyword is set to **Virtual**, only virtualization-aware transaction keys are available.

4. Click **Save To File** to save the local trial to a file (default file name `LocalTrial_namexxxxx.asr`) that can be bundled in a software product, click **Email** to email this local trial ASR to a customer, or click **Complete** to finish working with this local trial ASR.

Emailing a Local Trial ASR

A newly or previously generated local trial ASR can be sent as an email attachment to one or more email addresses. The email attachment is sent as a file, by default called `LocalTrial_namexxxxx.asr`, where `xxxxx` is a random number. The default subject line is:

`File containing your activation specification record (ASR) attached`

The **Ship To Email** field contains the email address where the local trial ASR should be sent. Additional email addresses can be entered, and multiple email addresses are formatted in a comma-separated list that contains no spaces.

Note ▪ *If FlexNet Operations is localized with multiple locales, you can select which language to send the email in.*

After the email is sent, a confirmation message appears on the page.

Publishers must configure FlexNet Operations before they can successfully email a local trial ASR:

Task ***To configure FlexNet Operations***

If you are emailing local trial ASRs to customers, in the FlexNet Platform Server configuration settings, set the **Outbound Mail Server Host** to your organization's mail server and **From-Address for Outbound Mail** to the email address you want to use as the from-address for license emails.

Short Code ASRs

Short code activations are implemented by creating a short code Activation Specification Record (ASR) in FlexNet Operations and bundling the short code ASR with the software product. The ASR is tied to an entitlement in FlexNet Operations.

Table 20-76 ▪

Topic	Description
About Short Code Activations	Discusses the intended use of short code activations.
Managing Short Code ASRs	Briefly covers viewing, creating, deleting, and saving short code ASRs.
Creating a Short Code ASR	Describes the process of creating a short code ASR in greater detail.
Linking a Short Code ASR with a Bulk Entitlement	Shows how to link a short code ASR with an existing bulk entitlement.
Viewing Short Code Summary	Explains how to view a short code ASR summary.
Emailing a Short Code ASR	Shows how to email a short code ASR.

***Note** ▪ The amount of information transmitted in short code transactions is much less extensive than ordinary programmatic activations. For example, only part of the UMN is passed. This reduces the security of short code transactions.*

About Short Code Activations

A short code activation is one intended for customers who do not have the network connection resources needed for typical activation transactions, and therefore must activate a product manually, such as over the telephone.

Using the short code ASR, a customer can provide a short request code and receive a short response code (to be typed into the application interface, for example) over the telephone, without the prohibitively long codes used in typical activations.

You can use either pre-loaded Web Reg Keys or dynamic Web Reg Keys and use the Web Reg Key as Activation ID while generating the short code. If you use dynamic Web Reg Keys, make sure to enable the **Load web reg keys as part of activation for trusted type bulk entitlements?** property (found in System > Configure > Trusted Storage).

Unlike local trial licenses, licenses activated with short code activation can be rehosted, returned, or repaired like licenses activated using secure transactions.

***Note** ▪ The amount of information transmitted in short code transactions is much less extensive than ordinary programmatic activations. For example, only part of the UMN is passed. This reduces the security of short code transactions.*

Managing Short Code ASRs

The Short Code ASRs page short code ASRs for all products. You can also search the list of short code ASRs by name, part number, license model, or product.

From this page, you can create or delete short code ASRs, email them, or save them to an XML file.

Instructions for deleting a short code ASR and for saving a short code ASR to a file are below. For instructions on creating a short code ASR, see Creating a Short Code ASR.

Task ***To delete a short code ASR***

1. Select the short code ASR you wish to delete and click **Delete**.
2. Click **OK** to confirm deletion.

Task ***To save a short code ASR to a file***

1. Select the short code ASR you wish to save and click **Save to File**.
2. Browse to a location to save the file.

Creating a Short Code ASR

Short code ASRs can be created in the Producer Portal on the Short Code ASRs page.

Task ***To create a short code ASR***

1. Click **Administer** > **Short Code ASRs**. This link opens the Short Code ASRs page.
2. Click **Add**. The Create a Short Code ASR page opens.
3. Provide values for the following fields. Required fields are indicated with a red asterisk.

Table 20-77 ▪ Short Code ASR Fields

Field	Description
Name	Name to uniquely identify this short code ASR. The name can contain spaces, however, you may not want to include spaces because this name is used to construct the short code ASR file name.
Description	Describe the characteristics of this short code ASR.
FNP client library version	 ***Note ▪*** *Not available when bulk entitlement linking is enabled in Trusted Storage system configuration (System > Configure > Trusted Storage).* Specify which FlexNet Publisher Licensing client library version the short code ASR is to be used with. Choose from • **Pre 11.5?** • **Between 11.5 and 11.14?** • **11.14 and above?** For FlexNet Publisher client versions 11.14 and above: • A UMN length of 8 to 40 hexadecimal characters is specifiable • License server ASR is supported • UMN3 is supported for client and server ASRs

Table 20-77 ▪ Short Code ASR Fields

Field	Description
Generate alphanumeric Code?	 ***Note ▪*** *Only valid for FlexNet Publisher Licensing Toolkit 11.5 and later. Not available when bulk entitlement linking is enabled in Trusted Storage system configuration (System > Configure > Trusted Storage).* Specify whether to generate alphanumeric or numeric short code values for both request and response. (Alphanumeric short codes contain letters and numbers and can encode the same information in a shorter string than just numeric codes.) Choose either ● Yes. Short codes use alphanumeric values. ● No. Short codes use numeric values.
Product Details **- Product Name** **- Product Version** **- Part Number**	Search for a product by its name or a part number. To search by product name: ● Click **By Product**. A pop-up window displays a list of products by product name and allows you to search for a specific product. Search for and select a product. The version number is added to the **Product Version** field automatically. If the product is mapped to more than one part number, select the correct one from the **Part Number** drop-down list. ● To search by part number, click **By Part Number**. A pop-up window displays a list of products by part number and allows you to search for a specific product. The product name, product version, and part number fields are populated automatically.
Permanent	If the license generated using this keyboard (short code) activation must be permanent, select **Yes**. If an individual keyboard activation expires, select **No**, then set **Duration** or **Expiration Date**.
Duration	Set either **Duration** or **Expiration Date** for an expiring keyboard (short code) activation. ● Set **Duration** if you want the keyboard activation to expire at a fixed time from the activation date. If you want to set the duration for an expiring keyboard activation, enter the unit of time (**Days**, **Weeks**, **Months**, **Years**) and enter the number of units.

Table 20-77 ▪ Short Code ASR Fields

Field	Description
Expiration Date	If a license generated from this short code must expire on a certain date, enter that date here. To specify an **Expiration Date**, click the **Calendar** next to the **Expiration Date** field and click a date. Click **Clear** to clear the **Expiration Date** field. The specific **Expiration Date Format** to use is defined in the FlexNet Operations system configuration.
License Model	Select one of the trusted license models that is associated with the selected product.
Transaction Key	Select a transaction key to link with this short code ASR. If a transaction key is not specified here, the key associated with the product is used.
No. of environment aware UMN characters	 ***Note ▪*** *Only valid for FlexNet Publisher Licensing Toolkit 11.5 and later. Not available when bulk entitlement linking is enabled in Trusted Storage system configuration (System > Configure > Trusted Storage).* Number of environment aware UMN characters to be used in the short code request. A UMN length of 8 to 40 hexadecimal characters is specifiable when FNP client library version is set to FlexNet Publisher client version 11.14 and above. For older versions, UMN values are hard-coded to 8 chars for activation requests and 6 chars for return/repair requests. Environment aware UMN means UMN1 on physical machines and UMN3 on virtual machines.
No. of UMN-2 characters	 ***Note ▪*** *Only valid for FlexNet Publisher Licensing Toolkit 11.5 and later. Not available when bulk entitlement linking is enabled in Trusted Storage system configuration (System > Configure > Trusted Storage).* Number of UMN2 characters to be used in the short code request.

Table 20-77 ▪ Short Code ASR Fields

Field	Description
Add custom data to short code response?	 ***Note ▪*** *Only valid for FlexNet Publisher Licensing Toolkit 11.5 and later. Not available when bulk entitlement linking is enabled in Trusted Storage system configuration (System > Configure > Trusted Storage).* Select **Yes** to add response override keys. Short code response overrides allow a publisher to add vendor-specific data to a short code response. For each row, provide a unique name for the vendor data key and an integer number to control the maximum size of the value provided for the key in the response. ● Key names must have consistent naming conventions. For example, enter key names in upper case, and separate multiple words with an underscore: COUNTRY_LIST. ● Key names must not contain special characters. ● There is no restriction on key name length. ● Provide a suitable minimum size for the length of the response data corresponding to the key name. ● Verify that your key name and size are correctly entered. After a key name and its size are saved, they are part of the generated ASR and cannot be changed. For more information on short code response overrides, consult the *FlexNet Operations On-Premises Installation & Implementation Guide*.

4. Click **Create short code ASR** to save the short code ASR.

After a short code ASR is created, you can use the controls on the Short Code ASRs page to email the short code ASR to a recipient or save it to a file for later reference.

Tip ▪ *When the Producer Portal is configured to support linking bulk entitlements to short code ASRs, you can click **Next** to show controls for linking the short code ASR to a bulk entitlement.*

Linking a Short Code ASR with a Bulk Entitlement

When the Producer Portal is configured to support it, short code ASRs can be linked with one or more bulk entitlements.

Important ▪ *The ability to link short code ASRs with bulk entitlements is controlled by the **Enable Bulk Entitlement Linking while Creating Short Code** system configuration setting. Administrators can change this setting on the Trusted Storage system configuration page (**System** > **Configure** > **Trusted Storage**).*

A *bulk entitlement* represents a large number of individual entitlements (for the reseller channel, for example) for a single product, each of which is expected to be resold to a different customer. The bulk entitlements can already exist or can be created now.

When linking to a bulk entitlement, you must first choose to either create a new bulk entitlement or link an existing bulk entitlement containing the product used to create the short code ASR.

- Creating a New Bulk Entitlement to Link with this Short Code ASR
- Linking an Existing Bulk Entitlement

Creating a New Bulk Entitlement to Link with this Short Code ASR

Use the instructions, below, to create a bulk entitlement during the short code ASR creation process.

Task ***To create a new bulk entitlement to link with this short code ASR***

1. Click **Create a Bulk Entitlement**. The Producer Portal shows controls for bulk entitlement creation.
2. Provide values for the following fields. Required fields are indicated with a red asterisk.

Table 20-78 ▪ Create a Bulk Entitlement to Link to the Short Code ASR

Field	Description
Order ID	ID of an order, perhaps in an ERP system, on which the entitlement is based: FlexNet Operations does not validate or use the Order ID; it is included as a reference to an external order system.
Entitlement ID	The entitlement identifier uniquely identifies the bulk entitlement: Select **Auto Generate** to let FlexNet Operations assign an entitlement ID, or select **User Supplied** to enter an entitlement ID of your choice. When you generate an entitlement, you ship an entitlement ID to the customer. The ID is input to FlexNet Operations when generating or activating a license. A customer can also use the entitlement ID to log in to the FlexNet Operations End-User Portal.
Description	Describe the characteristics of this entitlement that make it unique.
Number of Copies	Enter the number of seats that are available per Web register key.
Sold To	Click **Search** and select the account associated with this entitlement. The **Sold To** account has the right to activate against this entitlement.
Ship To Email	This field contains the email address where the short code ASR for this entitlement is sent. After the sold-to account is specified, a **Search** button appears next to the **Ship To Email** field. Click **Search** to select an email address for one of the contacts in the sold-to account. Additional email addresses may be entered in a comma-separated list that contains no spaces.

Table 20-78 ▪ Create a Bulk Entitlement to Link to the Short Code ASR

Field	Description
Ship To Mail	Enter the mailing address where the short code ASR for this entitlement is sent. It may be the mailing address of one of the contacts in the account.

3. Click **Save** to save the bulk entitlement. It appears in the list of **Associated Bulk Entitlements**.
   - This bulk entitlement must be deployed before it can be used for short code activations. Deploy the entitlement and load Web register keys from the **Entitle Customers to Licenses** pages.
   - To delete an associated bulk entitlement, select the bulk entitlement and click **Delete**.
4. Click **Next** to view a summary of short code ASRs.

Linking an Existing Bulk Entitlement

Use the instructions, below, to link to an existing bulk entitlement during the short code ASR creation process.

Task ***To link this short code ASR with one or more existing bulk entitlements***

1. Click **Link a bulk entitlement**. The Producer Portal shows controls for finding a bulk entitlement.
2. Click **Search**. The Producer Portal opens the Select Entitlements page in a pop-up window. Bulk entitlements containing the same product as the short code ASR appear in the new window.
3. On the Select Entitlements page, select bulk entitlements to link with the current short code ASR. Click one or more bulk entitlements and then click **OK**. The Producer Portal closes the Select Entitlements page. The selected entitlements appear in the list of **Associated Bulk Entitlements**.

   Note ▪ *You can also remove bulk entitlements from the Associated Bulk Entitlements list. To remove an associated bulk entitlement, select its check box and then click* ***Delete****.*
4. Click **Next** to view a summary of short code ASRs. (See Viewing Short Code Summary.)

Note ▪ *After a short code ASR is linked to a bulk entitlement, it can only be used with web register keys belonging to that bulk entitlement.*

Viewing Short Code Summary

The short code summary page shows bulk entitlements associated with the selected short code ASR.

Click **Save To File** to save the short code ASR to a file (default file name `SC_namexxxxx.asr`) that can be bundled in a software product, click **Email License** to email this short code ASR to a customer, or click **Complete** to finish working with this short code ASR.

Emailing a Short Code ASR

A newly or previously generated short code ASR can be sent as an email attachment to one or more email addresses. The email attachment is sent as a file, by default called `SC_namexxxxx.asr`, where `xxxxx` is a random number. The subject of the ASR email cannot be edited; the subject line is:

```
File containing your activation specification record (ASR) attached
```

The **Ship To Email** field contains the email address where the short code ASR is sent. Additional email addresses can be entered, and multiple email addresses are formatted in a comma-separated list that contains no spaces.

After the email is sent, a confirmation message appears on the page.

Publishers must configure FlexNet Operations before they can successfully email a short code ASR.

Task ***To configure FlexNet Operations***

If you are emailing short code ASRs to customers, in the FlexNet Platform Server configuration settings, set the **Outbound Mail Server Host** to your organization's mail server and **From-Address for Outbound Mail** to the email address you want to use as the from-address for license emails.

View and Manage Trusted Activation Requests

You can view and edit information on trusted storage requests made by users.

Task ***To manage trusted storage requests***

1. Click **Administer > Trusted Activation Requests**.
2. On the Trusted Activation Requests page, click **Publisher XML Details** to view the publisher ID, the vendor name, the vendor encryption seeds, and the publisher XML file path. You can search the list of requests by Activation ID or Fulfillment ID.

Table 20-79 ▪ Trusted Storage Requests

Field	Description
Request #	Unique identifier of the trusted storage request.
MID/UMN	Machine ID (MID) and Unique Machine Identifiers (UMNs) of the host that made the request.
Submitted On	Date and time the request was submitted.
Status Updated On	Date and time the request was processed.
Status	Indicates whether or not the request was processed successfully.
Completed	Indicates whether or not the request was completed.

Table 20-79 ▪ Trusted Storage Requests

Field	Description
Processed By	Host that processed the request.
Request Type	Type of trusted storage request.
Activation ID	Activation ID of the request.
Fulfillment ID	Fulfillment ID of the request.

Other options include:

- To view a request in detail, click the request number.
- To download the trusted activation response to a local XML file, select the trusted activation request and click **Download Response**.
- To delete a trusted activation request, select the request to be deleted and click **Delete**.
- To email a response, select the request to be emailed and click **Email Response**.

Managing Email and Email Templates

The Producer Portal can send email messages to your customers and create email templates for your account to use to communicate about new entitlements, or other events.

Email messages can be generated automatically based on certain event triggers or generated manually as needed. Through the Administer menu, you can send email messages and also create, modify, or delete email templates.

Table 20-80 ▪

Topic	Description
Managing Email	Explains how to manage the email messages sent via the Producer Portal. Managing Email includes the following subtopics: • Creating a Download Package Notification • Creating a File Notification • List Sent Emails • View Sent Emails • Resend Email

Table 20-80 ▪

Topic	Description
Managing Email Templates	Shows how to manage your account's email templates. Managing Email Templates includes the following subtopics: • About Email Templates • Listing Email Templates • Adding Email Templates • Viewing Email Templates • Editing an Email Template

Managing Email

Use the following topics to manage your account's email messages.

Table 20-81 ▪

Topic	Description
Creating a Download Package Notification	Describes how to create an email to send to all the customers entitled to a particular download package.
Creating a File Notification	Describes how to create an email to send to all the customers entitled to download a specified file.
List Sent Emails	Describes how to view a list of sent emails.
View Sent Emails	Describes how to get a detailed view of a sent email.
Resend Email	Describes how to resend a previously sent email.

Tip ▪ *Email messages can also be sent from other pages in the Producer Portal. For example, you can create notifications from the View Download Package page or the View File page for a download package or file. You can also send an email from pages like the Activatable Line Items page and the Local Trial ASRs page.*

Creating a Download Package Notification

You can create an email notification for one or more download packages on the Create Update Notification Email by Download Package page. There, you can enter the download package IDs of the download packages, directly, or search for download packages to which the email pertains.

***Tip** ▪ To successfully send an email notification for a download package, the default variation of the Update Notification Email template must be active and permitted to send messages (**Will Email Be Sent** set to **Yes**).*

Task** **To send a download package notification email

1. Click **Administer** > **Send Download Package Notification**. This link opens the Create Update Notification Email by Download Package page.
2. Identify the download packages for which you want to send an email. Choose whether to enter download package IDs or to search for download packages:
   - Enter download package IDs when you already know their download package IDs or system download package IDs.
     a. In the download package IDs field, type the download package IDs as a comma-separated list or enter them one per line. Note: If you enter system download package IDs, remember to select the **Use System IDs** check box.
     b. Click **Create Email**.
   - Search for download packages by entering search criteria if you do not know the IDs of the download packages.
     a. Type your search criteria into the download package search fields.
     b. Click **Search**. The Producer Portal shows a list of download packages that match your criteria.
     c. Select download packages and click **Save**.

   The Producer Portal shows the Distribution List Options and Choose an Email Template settings.
3. Set Distribution List Options for the email message.

Setting	Description
Effective Date	The first date (inclusive) that this entitlement is available to the end user.
Include Expired Entitlements	Determines whether or not to include expired entitlements in the distribution list. By default, only users with active entitlements are included in the distribution list.
Exclude Email Filters	Allows you to identify specific email addresses or email address ranges to exclude from the distribution list. For a single address, type the address in the space provided. For multiple addresses, add a comma-separated list of email addresses in the space provided. Use an asterisk as a wildcard to exclude ranges of email addresses. For example, `*@somedomain.com, *.edu`.

Setting	Description
Limit to Countries	Restricts the delivery of notifications to countries identified by their two-character country code. Use a comma-separated list of country codes to permit delivery to multiple countries. For example, specifying `US,FR` permits notification delivery to users in the United States and France. When no country codes are specified, FlexNet Operations places no notification delivery restrictions based on the recipient's country.
Send Separate Email for Each Download Package	Determines whether to send a single message for all download packages (when multiple download packages have been selected) or to send a separate message for each download package.
Send Email Immediately	Determines whether the message is sent as soon as it is created or sent later. If you select this check box, the Producer Portal sends the message as soon as you click Create on this page. Do not use this option if you want to modify the message before it is sent.

4. **Choose an Email Template** variation for this message.

   Download Package notification messages use the Update Notification Email template. Select any active variation of that template for the download package notification.

   ***Tip** ▪ You can manage your email templates in the Producer Portal. For more information about email templates, see Managing Email Templates.*

5. Click **Create**. The Producer Portal creates the email message for the download packages you specified, using the settings you provided, and shows the View Email page.
6. On the View Email page, click **Edit** > **Send Email**. The Producer Portal opens the Send Email page.
7. On the Send Email page, choose to send the email or schedule its delivery.
   - To send immediately, click **Send**.
   - To schedule delivery for a later date,
     a. Click **Queue to be sent at**.
     b. Set the Send Date.
     c. Specify the Send Time (24-hour format).
     d. Click **Send**.

The Producer Portal sends the email notification.

Creating a File Notification

You can create an email notification for customers of one or more files on the Create Update Notification Email by File page. There, you can enter the file IDs of the files, directly, or search for files to which the email pertains.

Task To send a file notification email

1. Click **Administer** > **Send File Notification**. This link opens the Create Update Notification Email by File page.
2. Identify the files for which you want to send an email. Choose whether to enter file IDs or to search for files:
   - Enter file IDs when you already know their file IDs or system file IDs.
     a. In the **File IDs** field, type the file IDs as a comma-separated list or enter them one per line. Note: If you enter system file IDs, remember to select the **Use System IDs** check box.
     b. Click **Create Notification**.
   - Search for files by entering search criteria if you do not know the IDs of the files.
     a. Type your search criteria into the file search fields.
     b. Click **Submit**. The Producer Portal shows a list of files that match your criteria.
     c. Select files and click **Create**.

   The Producer Portal shows the Distribution List Options and Choose an Email Template settings.
3. Set Distribution List Options for the email message.

Setting	Description
Effective Date	The first date (inclusive) that this entitlement is available to the end user.
Include Expired Entitlements	Determines whether or not to include expired entitlements in the distribution list. By default, only users with active entitlements are included in the distribution list.
Downloaded Status	Identifies the accounts and users (members) who are to receive the notification based upon whether or not the file on which the notification is based has been downloaded. Choose from • **All Members** to deliver the notification regardless of whether or not the file has been downloaded. • **Members with Download Activity** to deliver the notification only to users who have downloaded the file. • **Accounts with Download Activity** to deliver the notification only to users in an account that has downloaded the file.
Exclude Email Filters	Allows you to identify specific email addresses or email address ranges to exclude from the distribution list. For a single address, type the address in the space provided. For multiple addresses, add a comma-separated list of email addresses in the space provided. Use an asterisk as a wildcard to exclude ranges of email addresses. For example, `*@somedomain.com, *.edu`.

Setting	Description
Limit to Countries	Restricts the delivery of notifications to countries identified by their two-character country code. Use a comma-separated list of country codes to permit delivery to multiple countries. For example, specifying `US,FR` permits notification delivery to users in the United States and France. When no country codes are specified, FlexNet Operations places no notification delivery restrictions based on the recipient's country.
Send Separate Email for Each File	Determines whether to send a single message for all files (when multiple files have been selected) or to send a separate message for each file.
Send Email Immediately	Determines whether the message is sent as soon as it is created or sent later. If you select this check box, the Producer Portal sends the message as soon as you click Create on this page. Do not use this option if you want to modify the message before it is sent.

4. **Choose an Email Template** variation for this message.

   File notification messages use the Update Notification Email template. Select any active variation of that template for the file notification message.

   ***Note** ▪ For localized email template variations, if either the Text and HTML Content fields or the Subject field is left blank, the default locale (US English) variation will be used when sending emails. If the Subject, Text, or HTML content fields are not empty, then the localized template variation will be used.*

   ***Tip** ▪ You can manage your email templates in the Producer Portal. For more information about email templates, see Managing Email Templates.*

5. Click **Create**. The Producer Portal creates the email message for the files you specified, uses the settings you provided, and shows the View Email page.
6. On the View Email page, click **Edit** > **Send Email**. The Producer Portal opens the Send Email page.
7. On the Send Email page, choose to send the email or schedule its delivery.
   - To send immediately, click **Send**.
   - To schedule delivery for a later date,
     a. Click **Queue to be sent at**.
     b. Set the Send Date.
     c. Specify the Send Time (24-hour format).
     d. Click **Send**.

   The Producer Portal sends the email notification.

List Sent Emails

The Producer Portal allows you to list, view, and resend emails previously sent. Email retention is defined by a retention policy set in the system configuration. To prevent performance issues, sent email has a set number of days that it is retained. See Configuring the FlexNet Platform Server for more information on setting this configuration.

You can show all emails sent by clicking the Sent Emails link in the System menu.

***Note** ▪ Email is only retained for a limited number of days as set by the email retention policy. See Configuring the FlexNet Platform Server for more information.*

Task ***To list all sent emails***

1. Click **Administer > Sent Emails**.

The Producer Portal opens the **Sent Emails** page. By default, the emails are listed by the Sent date (most recent first).

The table contains the following columns:

Table 20-82 ▪

Column	Description
Subject	Lists the subject of the email with a link to view the details of the email. ***Note** ▪ If the template used to create the email has the **View Email in Sent history** setting turned off, the subject line does not contain a link and the details of the email cannot be viewed, nor can the email be resent.*
Email Type	Lists the template used to create the email.
Recipients	List of the recipients on the To list of the email. If there is more than one, they are all displayed in a comma separated list.
Sent	The date the email was sent.

Task ***To search sent emails***

1. Use the drop-down menu to select the search criteria. Options include:
   - Email
   - Template Name
   - Sent Before

- Sent After
- Sent On

2. Enter a value to search on.

Task ***To download a list of sent emails***

1. From the **Sent Emails** page, click the download icon to download a list of the sent emails.
2. The downloaded file is in the format: `SentEmails-`*`timestamp`*`.csv`. For example: .**SentEmails-2017-03-28-12-14-11.csv**. The CSV file contains the following columns:

Table 20-83 ▪

Column	Description
Email Type	The template used to generate the email.
Subject	The subject of the email.
TO Recipient	The address(es) the email was sent to.
CC Recipient	The address(es) the email was CC'd to.
From	The address that sent the email.
Sent	The timestamp the email was sent.

View Sent Emails

To view an email, click the link in the **Subject** column of the **Sent Email** screen. The **View Sent Email** screen is displayed. Any email created from a template that has the **View Email in Sent history** unselected does not have a link and cannot be viewed.

The **View Sent Email** page lists the **From**, **Reply To**, **Subject**, original **Sent** date and the **Template** used to generate the email. In addition it contains the following::

Table 20-84 ▪

Column	Description
Type	Lists if the recipient was a "To," "CC," or "BCC" recipient.
Email	Lists the email of the recipient.
Account	Lists the account of the recipient.
Sent Language	Lists the language selected for the email. **English** is the default.

Table 20-84 ▪

Column	Description
Text Content	Lists the content of the email in ASCII text.
HTML Content	Lists the content of the email with any HTML formatting.

Resend Email

Task ***To resend an email***

1. On the **View Sent Email** screen, click the **Resend** button. A pop-up screen appears and lists the **Email To:** field. This is the only editable field. Enter a comma separated list of emails to resend the email to.
2. Click either **Save** to send the email or click **Cancel** to cancel the operation.

Managing Email Templates

The Producer Portal allows you to change the templates that are used by FlexNet Operations to send email to your end users.

The following topics discuss email template management in detail.

Table 20-85 ▪

Topic	Description
About Email Templates	Discusses email templates, email template concepts, and email template examples.
Listing Email Templates	Shows how to list all the existing email templates. From the List Email Templates page, you can view and edit existing email templates and create new email template variations.
Adding Email Templates	Explains how to add new email template variations.
Viewing Email Templates	Describes how to use the options in the View menu of the View Email Template page.
Editing an Email Template	Describes how to edit email template definitions and email template content.

About Email Templates

The Producer Portal offers you flexibility in editing your email templates. This topic includes short discussions and examples on the following subjects:

- Email Template Types

- About Email Template Status Settings
- Email Template Attributes
- More About Email Template Content
- Merge Tag Example: Repeating Blocks
- Merge Tag Example: Selected Contact
- Merge Tag Example: Maintenance Line Items
- Merge Tag Example: Using IF to Display Conditional Text
- Merge Tag Example: Custom Attributes
- Merge Tag Example: Custom Attributes for Accounts and Users
- Merge Tag Example: CHILD-ONLY
- Special Handling of Alert Email Templates
- Common Email Template Questions

Email Template Types

The Producer Portal includes a number of email template types for producers to use with FlexNet Operations, such as the Entitlement Certificate template and the Update Notification Email template.

Initially, the set of email templates includes only the default variation of each template type. Producers can choose to edit the default variation—creating new versions of the default email template—or to add new variations of an existing email template type. For some emails that FlexNet Operations sends, users can choose from active variations of an email template prior to sending the message. Multiple active variations of a given email template type can exist, but each email template variation can only have one active version. (See About Email Template Status Settings.)

There are a number of built-in email template types in FlexNet Operations. You can create one or more variations for each email type, but not all template types support the use of custom variations. Custom email template variations are supported for only the following email template types: **Entitlement**, **Entitlement Certificate**, **License**, **Multiple Licenses**, **Consolidated License**, **Multiple Consolidated Licenses**, **Update Notification Email**, and **Product Upgrade Job Email**. The original (and in most cases, the only usable) email template for each type has a variation name of DEFAULT.

Template variations must be set to Active and their Send indicators set to true to be used.

Table 20-86 ▪

Email Template Types	Notes
Approve Entitlement On Hold (Portal Admin)	Entitlements that are created as the result of transferring an entitlement in the End-User Portal are created with an on-hold status. On-hold entitlements must be approved by a producer user before they are deployed. An email using this template is triggered when a producer user approves the on-hold entitlement from the Producer Portal. The email is sent to the partner or customer user that initiated the transfer. Only the default variation of this template is used by FlexNet Operations.

Table 20-86 ▪

Email Template Types	Notes
Consolidated License	FNP certificate or custom technology licenses can be consolidated and downloaded or emailed. An email using this template is triggered when a single consolidated fulfillment is selected and its consolidated license attachment is emailed to the specified email addresses from the End-User or Producer Portal, or via web services (**emailConsolidatedLicenses**). If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology.
Create Entitlement On Hold (Portal Admin)	Entitlements that are created as the result of transferring an entitlement in the End-User Portal are created with an on-hold status. On-hold entitlements must be approved by a producer user before they are deployed. An email using this template is triggered and sent to the partner or customer user that initiated the transfer when an on-hold entitlement is created in the End-User Portal. Only the default variation of this template is used by FlexNet Operations.
Create Entitlement On Hold (Publisher)	Entitlements that are created as the result of transferring an entitlement in the End-User Portal are created with an on-hold status. On-hold entitlements must be approved by a producer user before they are deployed. An email using this template is triggered and sent to a producer email address when an on-hold entitlement is created, to notify the producer that the entitlement is waiting to be approved. The producer email address is specified in the System Configuration setting, **System > Configure > FlexNet Operations > General > Email for On-Hold Fulfillments or On-Hold Entitlements.** Only the default variation of this template is used by FlexNet Operations.
Entitlement	This email template is used for the body of the email message sent for either a single line item or entire entitlement. An entitlement certificate, which uses a separate template, can be optionally attached to the entitlement email. An email using this template is triggered when an entitlement email is sent to the specified email addresses from the End-User or Producer Portal, or via web services (**emailActivatableItem** or **emailEntitlement**). See the web services documentation that describes how email addresses can be specified, validated, and filtered in the web service request. If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology or entitlement. ***Note ▪*** *One or more variations of both this entitlement template and the entitlement certificate template must be set to active for FlexNet Operations to send out entitlement emails.*

Table 20-86 ▪

Email Template Types	Notes
Entitlement Certificate	Entitlement emails as described above can optionally include an entitlement certificate attachment, depending on the System Configuration setting which is enabled by default, **System > Configure > FlexNet Operations > General > Always Attach Entitlement Certificate in Email**. This email template is used for that certificate attachment. An email with an attachment using this template is triggered when an entitlement email is sent to the specified email addresses from the End-User or Producer Portal, or via web services (**emailActivatableItem** or **emailEntitlement**) if certificate attachments are enabled. See the web services documentation that describes how email addresses can be specified, validated, and filtered in the web service request. If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology. ***Note ▪*** *One or more variations of both this entitlement certificate template and the entitlement template must be set to active for FlexNet Operations to send out entitlement emails.*
Entitlement Split	Partner users can split entitlements to related partner or customer accounts. An email with an attachment using this template is triggered when an entitlement is split from the End-User Portal, or via web services, if the System Configuration is enabled to **System > Configure > FlexNet Operations > General > Send Email When New Entitlement is Created after Split**. The recipient of the email is the contact that is specified in the target account distributor tier. If no contact is specified in the target tier, no email is sent. Only the default variation of this template is used by FlexNet Operations.
Fulfillment License Set	Fulfillments for some custom technologies, for example manual technologies, are created in FlexNet Operations and license files are generated outside of FlexNet Operations. These fulfillments are created with on-hold status and license files are set later. Emails using this template are triggered when a license generated outside of FlexNet Operations is set on a fulfillment and the Send Email is selected when the license is set and if the **System Configuration setting System > Configure > FlexNet Operations > General > Send Email on Set License for On-Hold Fulfillments** is enabled. The emails are sent to the ship-to email address on the fulfillment and to the producer email address is specified in the **System Configuration setting, System > Configure > FlexNet Operations > General > Email for On-Hold Fulfillments or On-Hold Entitlements**. Only the default variation of this template is used by FlexNet Operations.

Table 20-86 ▪

Email Template Types	Notes
Fulfillment On Hold	Fulfillments for some custom technologies, for example manual technologies, are created in FlexNet Operations and license files are generated outside of FlexNet Operations. These fulfillments are created with on-hold status and license files are set later. An email using this template is triggered and sent to a producer email address when an on-hold fulfillment is created, to notify the producer that the fulfillment is waiting for a license to be set. The producer email address is specified in the **System Configuration setting, System > Configure > FlexNet Operations > General > Email for On-Hold Fulfillments or On-Hold Entitlements**. Only the default variation of this template is used by FlexNet Operations.
License	This email template is used for the body of the email message sent with a FlexNet Publisher certificate or custom technology license file attachment for a single fulfillment. An email using this template is triggered when one fulfillment is selected and an email is sent to the specified email addresses from the End-User or Producer Portal, or via web services (**emailLicense**). See the web services documentation that describes how email addresses can be specified, validated, and filtered in the web service request. If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology.
Local Trial	An email using this template is triggered when a user Producer Portal sends a notification for a FlexNet Publisher Local Trial ASR. (For example, a user can click **Administer > Local Trial ASRs**. Select the check box of the local trial ASR, click **Email**, and specify email addresses.) Only the default variation of this template is used by FlexNet Operations.
Multiple Consolidated Licenses	FlexNet Publisher certificates or custom technology licenses can be consolidated and downloaded or emailed. An email using this template is triggered when multiple consolidated fulfillments are selected and their consolidated license attachments are emailed to the specified email addresses from the End-User or Producer Portal, or via web services (**emailConsolidatedLicenses**). See the web services documentation that describes how email addresses can be specified, validated, and filtered in the web service request. If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology.

Table 20-86 ▪

Email Template Types	Notes
Multiple Licenses	This email template is used for the body of the email message sent with a FlexNet Publisher certificate or custom technology license file attachments for more than one fulfillment. An email using this template is triggered when multiple fulfillments are selected and an email is sent from the End-User or Producer Portal, or via web services (**emailLicense**). See the web services documentation that describes how email addresses can be specified, validated, and filtered in the web service request. If multiple active variations of this template exist, producers can choose which email template variation to use for each license technology.
Order Media	An email using this template is triggered when a user in the End-User Portal places an order for physical media for files from a selected download package. An email is sent to a producer email address configured in **System > Configure > End-User Portal Setup > Downloads Page > Order media request recipient**. Only the default variation of this template is used by FlexNet Operations.
Product Upgrade Job Email	Used to send email messages to end users for whom FlexNet Operations has automatically created upgrade line items. (FlexNet Operations only creates these upgrade line items automatically when you have qualifying products and line items and have scheduled the Product Version Upgrade job.) This email template is only triggered by upgrades that result from running the Product Version Upgrade job. It is not triggered for manual upgrades nor for bulk upgrades. For details about the Product Version Upgrade job, see FlexNet Operations Alert Types. Producers set the variation of this email template to be used on the **Create a Product** page. (Only active variations of this template can be selected. Draft variations are not shown.) For instructions about specifying a variation to use, see Creating a Product.
Reject Entitlement On Hold (Portal Admin)	Entitlements that are created as the result of transferring an entitlement in the End-User Portal are created with an on-hold status. On-hold entitlements must be approved by a producer user before they are deployed. An email using this template is triggered when a producer user rejects the on-hold entitlement from the Producer Portal. The email is sent to a partner or customer user. Only the default variation of this template is used by FlexNet Operations.

Table 20-86 ▪

Email Template Types	Notes
Renewal Intent for End Customer	Allows an end user to let the producer know they want to renew an entitlement. Emails using this template are triggered when an end user clicks the **Request** button on the End-User Portal Expiring Entitlements page. Copies of the intent-to-renew email are sent to the end user who initiated the request and also to the producer at the address specified for the system configuration setting, **System > Configure > FlexNet Operations > Renewals > Request Renewal Notification Email**. Unlike other email templates, Renewal Intent for End Customer does not use the **From** address. Instead, the value for **From** is always the email address of the end user who initiates the message. Only the default variation of this template is used by FlexNet Operations.
Renewal Reminder	If a producer has configured and runs the Expired Entitlements job, producers can send Renewal Reminder emails to end users for entitlements that expires in the near future. For an end user to receive these emails, they must have the View Expiring Entitlements permission and subscribe by selecting the Expiring Entitlements Email check box in their user profiles. The frequency that this email is sent to a user is based on **Configure > FlexNet Operations > Renewals > Expiring email frequency**. Only the default variation of this template is used by FlexNet Operations. See More About the Expiring Entitlements Job for details.
Renewal Reminder for Expired Entitlements	If a producer has configured and runs the Expired Entitlements job, producers can send Renewal Reminder emails to end users for entitlements that have expired. For an end user to receive these emails, they must have the View Expiring Entitlements permission and subscribe by selecting the Entitlements Email check box in their user profiles. The frequency that this email is sent to a user is based on **Configure > FlexNet Operations > Renewals > Expired email frequency**. Each expired entitlement appears in only one email message. Only the default variation of this template is used by FlexNet Operations. See More About the Expired Entitlements Job for details.

Table 20-86 ▪

Email Template Types	Notes
Reset Password	Used to send email messages when FlexNet Operations must send a system-generated, temporary password to any user in the FlexNet domain (that is, not LDAP users), for logging into either the End-User or Producer Portal. Emails using this template are triggered when new users request a password, when existing active or inactive users forget their password, or when administrators reset a user's password. ***Tip*** *▪ Producers who use single sign-on can prevent FlexNet Operations from sending Reset Password email messages by setting* ***Will Email Be Sent?*** *to* ***No*** *on the* ***Edit Email Template Definition*** *page.* Only the default variation of this template is used by FlexNet Operations. ***Note*** *▪ This template must always be set to Active unless single sign-on is used.*
Short Code	An email using this template is triggered when a user Producer Portal sends a notification for a FlexNet Publisher Short Code ASR. (For example, a user can click **Administer > Short Code ASRs**. Select the check box of the short code ASR, click **Email**, and specify email addresses.) Only the default variation of this template is used by FlexNet Operations.
Trusted Activation	An email using this template is triggered when a user in the Producer Portal sends a notification for a trusted activation request. (For example, a user can click **Administer > Trusted Activation Requests**. Select the check box of the activation request, click **Email response**, and specify email addresses.) Only the default variation of this template is used by FlexNet Operations.
Update Notification Email	An email using this template is triggered when a user in the Producer Portal sends a notification email for a download file or download package. (For example, a user can click **Administer > Send File Notification or Administer > Send Download Package Notification**.) If multiple active variations of this template exist, producers can choose which email template variation to use for each file or download package notification.

Table 20-86 ▪

Email Template Types	Notes
User Enabled	An email using this template is triggered when a user is reactivated through the UI. If this template has not been configured with any content, an email with default content is sent from FlexNet Operations when the user is reactivated. [Email is currently not sent when user is reactivated using the **updateUser** web service operation.] Only the default variation of this template is used by FlexNet Operations. ***Note*** *▪ This template must always be set to Active unless single sign-on is used.*
Welcome Email for End Users	Welcome emails are sent to new users created in the FlexNet domain (that is, not LDAP users). An email using this template is triggered when a customer, partner, or self-registered user is created in the End-User or Producer Portals, or via web services (**createUser**). Producers who use single sign-on typically make this template inactive. Otherwise, the default variation of this template must be active to support basic functionality of FlexNet Operations. Producers who want to offer trial registration to their end users can create a variation of this template to use specifically for trial registrations. This variation name is then used in the custom content page, based on the TrialRegistration custom content template, in place of `{{formData.emailTemplate}}`. See About Product Trial Registration Support and About Trial Products for more information.
Welcome Email for Producers	Welcome emails are sent to new producer users created in the FlexNet domain (that is, not LDAP users). An email using this template is triggered when a producer user is created in the Producer Portal or via web services (**createUser**). Only the default variation of this template is used by FlexNet Operations, and the default variation of this template must be active to support basic functionality of FlexNet Operations.

About Email Template Status Settings

Each email template variation can have one or more versions. There are three possible status settings for an email template version:

- **Active**—This version is used by the application to send an email. Only one version (per variation) can be active at any given time.
- **Draft**—This version is in the process of edit and review. Changes have been made but it is not ready to be used as the active version yet. Only one version (per variation) can be in draft status at any given time.
- **Archived**—These versions were once the active or draft version of an email template variation but have been replaced by newer versions. The system keeps these archived versions of your email template variations, and you can always revert to an old version if necessary.

Email template versions are set to Active or Draft status, depending on how they are saved on the Edit Email Template page. There is no separate status-setting control in the Producer Portal.

When you create or edit an email template, you can choose to save it as the Active version or the Draft version of that template variation. If version of the same template variation already exists in the same state, its state becomes Archived. To return an archived email template version to Draft or Active status, open its Edit Email Template page and save it as the Active or Draft template according to your needs.

Email Template Attributes

An email templates consist of

- Email Address:
  - **From**: Whom the email is sent from. The application uses an email alias specific to your site for this.
  - **TO**: The email address that appears as the addressee in the To field of the actual email message.
  - **Reply To**: Typically the same as the From. When the user replies to the email sent out by the system, this is the email address to which the email is sent.
  - **CC**: Who is copied on outgoing emails. Typically used for all people who want to monitor the correct working of your site.
  - **BCC**: Same as CC, except that the recipients are not visible to each other.
- Email Template Content:
  - **Subject**: The subject of the email, you can change this field.
  - **Text Content** and **HTML Content**: The message content of the email. The body of the email can be HTML content or text content. Depending on your preferences, you can use one or the other, or both. When you use HTML, make sure you enter valid HTML. (You can write this content with an external HTML editor and then copy it into the body field). If you choose to fill out both types of content, the recipient, your customer, receives both types of content as well.

More About Email Template Content

The text of the email template body (Text Content and HTML Content) and the Subject can be of two types:

- **Fixed text**: Text that is the same for all the receivers of the email; this is text that you can change.
- **Merge tags for user-dependent information**: Information that is different for each receiver of the email, such as first and last name, company name, and order number. In an email template, this information is shown as a *merge tag*. You can place the merge tags in the body and the subject of the email. Before an email is sent, these merge tags are replaced with the data specific to the recipient of the email. When you edit an email template, the Producer Portal shows the merge tags that are available for the current email template in the **Merge Tags List**. (Some email templates require specific merge tags, meaning that you must use the tag at least once in the body of the email.) Not all merge tags are available for all email templates. The list varies by template.

Tip ▪ *To avoid errors, copy the merge tag from the Merge Tag List and paste it in the body or subject area. Merge tags must be opened and closed with double square brackets, like this:* `[[MERGE_TAG]]`.

Note ▪ *The merge tags* `[[AcctId]]` *and* `[[FOR-EACH TAG=”SoldToAcct”]]` *and* `[[OrgName]]` *and* `[[FOR-EACH TAG=”SoldToOrg”]]` *tags are functional duplicates.* `[[AcctId]]` *and* `[[FOR-EACH TAG=”SoldToAcct”]]` *are the preferred tags.* `[[OrgName]]` *and* `[[FOR-EACH TAG=”SoldToOrg”]]` *are deprecated tags that have been retained for backward compatibility.*

See the merge tag examples in the following sections.

Merge Tag Example: Repeating Blocks

The Producer Portal allows you to set up repeating blocks of content to, for example, display an order with multiple order lines. To do this, start by creating the content that you need for one order line. Then put the `[[for-each]]` tag at the beginning of this block and the `[[end for-each]]` at the end of the block.

```
[[FOR-EACH TAG="EntitlementLineItem"]]
           [[OrderID]]
           Activation ID: [[ActivationID]]
           Quantity: [[SeatCount]]
           Start Date: [[StartDate]]
           Expiration: [[ExpirationDate]]
[[END FOR-EACH]]
```

Merge Tag Example: Selected Contact

The SelectedContact merge tag enables users to include additional criteria when defining contact information for an entitlement.

```
[[FOR-EACH TAG="Entitlement" child-only="true"]]
   [[FOR-EACH TAG="ChannelPartners" child-only="true"]]
         [[FOR-EACH TAG="ChannelPartner"]]
              Partner Tier Name: [[PartnerTierName]]
              Acct Display Name: [[Name]]
              Acct Name : [[AcctId]]
              [[FOR-EACH TAG="SelectedContact" child-only="true"]]
                   Contact Name: [[ContactName]]
                   Firstname: [[Firstname]]
                   Lastname: [[Lastname]]
                   Country: [[Country]]
                   Email: [[Email]]
              [[END FOR-EACH]]
         [[END FOR-EACH]]
    [[END FOR-EACH]]
[[END FOR-EACH]]
```

Merge Tag Example: Maintenance Line Items

The LinkedMaintenanceLineItems and MaintenanceLineItem merge tags enable users to iterate through maintenance line items.

```
[[FOR-EACH TAG="Entitlement" child-only="true"]]
```

```
    [[FOR-EACH TAG="ChannelPartners" child-only="true"]]
        [[FOR-EACH TAG="ChannelPartner"]]
            Partner Tier Name: [[PartnerTierName]]
            Acct Display Name: [[Name]]
            Acct Name : [[AcctId]]
            [[FOR-EACH TAG="SelectedContact" child-only="true"]]
                Contact Name: [[ContactName]]
                Firstname: [[Firstname]]
                Lastname: [[Lastname]]
                Country: [[Country]]
                Email: [[Email]]
            [[END FOR-EACH]]
        [[END FOR-EACH]]
    [[END FOR-EACH]]
    [[FOR-EACH TAG="EntitlementLineItems" child-only="true"]]
        [[FOR-EACH TAG="EntitlementLineItem" child-only="true"]]
            ActivationID: [[ActivationID]]
            Order ID: [[OrderID]]
            Quantity: [[SeatCount]]
            Start Date: [[StartDate]]
            Expiration Date: [[ExpirationDate]]
            Permanent: [[Permanent]]
            Duration :
            Length: [[Length]]
            Units: [[Units]]
            [[FOR-EACH TAG="LinkedMaintenanceLineItems" child-only="true"]]
                [[FOR-EACH TAG="MaintenanceLineItem" child-only="true"]]
                    Maintenance Activation Id: [[ActivationID]]
                    Order ID: [[OrderID]]
                    Quantity: [[SeatCount]]
                    Start Date: [[StartDate]]
                    Expiration Date: [[ExpirationDate]]
                    Permanent: [[Permanent]]
                    State: [[Status]]
                    [[FOR-EACH tag="Product"]]
                        Maintenance Product: [[Name]]
                    [[END FOR-EACH]]
                [[END FOR-EACH]]
            [[END FOR-EACH]]
        [[END FOR-EACH]]
    [[END FOR-EACH]]
[[END FOR-EACH]]
```

Merge Tag Example: Using IF to Display Conditional Text

You can make some email content conditional with the use of IF tags.

```
[[IF TAG="OrgType" value="PUBLISHER"]]
You can now login to your FlexNet Producer account by clicking this link: https://<siteID>-fno-
uat.flexnetoperations.com/flexnet/operations/logon.do
 [[ELSE]]
You can now login to your FlexNet End User Portal account by clicking this link: https://<siteID>-fno-
uat.flexnetoperations.com/flexnet/operationsportal/logon.do
[[END ELSE]]
After your initial login, you will be prompted to change this password.
If you have problems with your account, please contact your Administrator.
```

```
Best Regards,
Administrator

[[END IF]]
```

Using the "no value" clause:

```
[[IF TAG="ServerIDs" VALUENOT=""]]
                Server Ids : [[ServerIDs]]
[[END IF]]
[[IF TAG="NodeLockedIDs" VALUENOT=""]]
                Node Locked Ids : [[NodeLockedIDs]]
[[END IF]
```

Merge Tag Example: Custom Attributes

If you use custom attributes, you can also use them in your email templates.

Look in the list of Merge Tags and see if you find a tag like this "[[ENT_CA]]". If that tag is in the list of allowed tags, you can add any custom attribute (CA) that is defined on that level in your Email Template (in the example, that would mean you can use Entitlement CAs but not Member CAs).

Because you can have many custom attributes, you must add the CA-ID to properly identify the custom attribute to use. If you do not know the value of the CA-ID, go to the Custom Attributes page in the Producer Portal.

```
Here is the login and password to [[ACCOUNT_NAME]]'s XXXXXXXX Download Center
site:

[[IF TAG="ENT_CA" CODE="SHIP_LANGUAGE" VALUE="US"]]
Dear [[DisplayName]]

Thank you for your order.

Your Activation ID is: [[ActivationID]]

The Activation ID will be required to login. You will also need the Hostid of the computer with which
this license will be associated.

If you have any questions, contact your local XYZ Corporation office.
[[END IF]]


[[IF TAG="ENT_CA" CODE="SHIP_LANGUAGE" VALUE="FR"]]
Cher [[DisplayName]],

Nous vous remercions de votre commande.

Votre code d’activation : [[ActivationID]]

Le code d’activation est nécessaire pour vous connecter. Vous aurez également besoin de l’adresse d’hôte
de l’ordinateur pour lequel la licence sera associée.

Si vous avez des questions, n’hésitez pas à contacter le bureau XYZ corp le plus proche.
[[END IF]]
```

Merge Tag Example: Custom Attributes for Accounts and Users

The Welcome Email templates for end users and producers can also be customized using custom attributes for accounts and users. Look in the Merge Tag List for the tags [[ACCOUNT_CA]] and [[USER_CA]].

The following example shows how to use the FOR-EACH tag to iterate through accounts:

```
Dear [[DisplayName]],

[[FOR-EACH TAG="Accounts"]]
[[FOR-EACH TAG="Account"]]

[[IF TAG="ACCOUNT_CA" CODE="REGION" VALUE="EU"]]

Welcome to XXXXXXXX

[[END IF]]

[[END FOR-EACH]]
[[END FOR-EACH]]

Please note that your FlexNet account UserID: [[UserId]] password has been set to [[Password]].

You can now login to your FlexNet Producer account by clicking this link: https://<siteID>-fno-
uat.flexnetoperations.com/flexnet/operations/logon.do

After your initial login, you will be prompted to change this password.
If you have problems with your account, please contact your Administrator.

Best Regards,
XXXXXXXX
```

Note ▪ *The custom attribute for accounts (tag [[ACCOUNT_CA]]) can also be used with the Reset Password, Entitlement, and Entitlement Certificate templates.*

Merge Tag Example: CHILD-ONLY

Useful when the logical flow of the merge tags in an email template encompasses multiple FlexNet Operations entities (such as entitlements and entitlement line items, accounts and members, and the like) and the same attribute is present in two or more of the entities, `CHILD-ONLY`, allows you to restrict the evaluation of a condition to a particular entity.

For example, the Status tag exists for both entitlements and entitlement line items. In a FOR-EACH loop of entitlement line items, you might want to force the parser to look for the Status tag only in the entitlement line item rather than allowing it to consider the Status tag value in the parent entitlement.

```
[[FOR-EACH TAG="EntitlementLineItem"]]
[[IF TAG="Status" VALUE="Deployed" CHILD-ONLY="true"]]
...
[[END IF]]
[[END FOR-EACH]]
```

Special Handling of Alert Email Templates

Email templates for alerts are managed differently from most other email templates. While the templates for sending license certificates, entitlement certificates, shortcode ASRs, and so forth are managed through the Producer Portal UI, the alert email templates can be customized only by directly accessing the alert email template files.

Alert email templates are located in the *<ops_install_dir>*/webapp/templates directory. The name of an alert email template is usually composed of the following elements:

- The FlexNet module in which the alert is defined, for example, operations
- A name that reflects the purpose of the alert, such as expiringEntitlements or userDeactivationAlertTemplate

For example, the template operations.changedProductsTemplate.xsl is defined in FlexNet Operations to send alert messages when a product's features or feature bundles change (Updated Products alert).

FlexNet Operations enables you to manage each alert email template individually. You can customize one template while leaving the other templates untouched, and FlexNet Operations uses the custom alert email template you provided while employing the default templates for the other alert emails.

Table 20-87 ▪ Alert Email Templates

Template Name	Description
genericAlert.xsl	Used if an alert has no named template of its own. genericAlert.xsl is used in place of the templates listed in the FlexNet Operations user interface for emailing the Info Available and Update Available alerts. These are platform.updates.infoAvailableAlertTemplate.xsl and platform.updates.updateAvailableAlertTemplate.xsl. If you want to customize these alert emails, create files with these names.

operations.changedProduct Template.xsl	Email template for Updated Products alert.
	
	Configurable Properties:
	
	`<alerts>`
	`  <alert>`
	`  <properties>`
	`  <suiteName>`
	`  <suiteVersion>`
	`  <suiteState>`
	`  <lastUpdated>`
	`  <productInfo>`
	`  </properties>`
	`  </alert>`
	`</alerts>`

Table 20-87 ▪ Alert Email Templates

Template Name	Description
operations.expiringEntitlements Template.xsl	Email template for Expiring Entitlements alert. Configurable Properties: <alerts> <alert> <properties> <activationId> <soldToAcct> <soldToOrg> <product> <expireDate> </properties> </alert> </alerts>
operations.importBulkWebRegKeys Template.xsl	Email template for Importing Bulk Entitlement Web Register Keys alert. Configurable Properties: <alerts> <alert> <properties> <importWebRegKeysFailed> // yes or no strings <importWebRegKeysRequestID> ... <numberOfWebRegKeysAdded> ... <importWebRegKeysError> </properties> </alert> </alerts> Note: <importWebRegKeysError> is populated only if you set <importWebRegKeysFailed> to yes.
operations.importSkusTemplate.xsl	Email template for Importing Part Numbers alert. Configurable Properties: <alerts> <alert> <properties> <importPartNumbersRequestID> <numberOfPartNumbersAdded> <numberOfPartNumbersFailed> </properties> </alert> </alerts>
platform.userDeactivationAlert Template.xsl	Email template for the User Deactivated alert.

Common Email Template Questions

Here are some common questions about email template management:

- The extra white space (like returns and extra lines) is not showing. Why?

  You are writing HTML mail and therefore you must use the <br> and <p> tags to create your line breaks and paragraph breaks.

- I want to include an image from my company, how can I do that?

  Use the image tag like you would on an HTML page, but ensure that the SRC parameter is a full path that points to the image on your own web server. There is no need to upload these images to FlexNet Operations.

- Why do I still see a merge tag when I preview email template content? I thought all merge tags would be replaced.

  There is probably an error in the brackets and therefore the application does not consider it a merge tag and, as a result, leaves it unchanged. Merge tags must be opened and closed with a double square bracket like this: **[[MERGE_TAG]]**.

  Read the email carefully and verify that all the merge tags are replaced with preview values. Ensure that the sentences make sense when the merge tags are replaced with real content. If you are satisfied with the result you can save the email template as an Active or as a Draft template.

Listing Email Templates

You can show all email templates by clicking the Email Templates link in the System menu.

Task ***To list all email templates***

- Click **Administer** > **Templates**.

The Producer Portal opens the **Templates** page. From this page, you can click on the ID of an email template variation to view or modify that variation. See About Email Templates for a list of email template types.

Adding Email Templates

You can add email template variations from the Administer menu.

Tip ▪ *FlexNet Operations supports the use of custom email template variations only for license technology emails.*

Before saving an email template variation, you preview the way the final mail message will appear to its recipients. Prior to showing the preview page, the system validates any merge tags included in the email template content. If any invalid merge tags are used, the Producer Portal returns you to the edit page. Otherwise, the preview page shows how the email appears for recipients, replacing the merge tags with preview values.

Task ***To add an email template***

1. Click **Administer** > **Add Email Template**. The Producer Portal opens the Add Email Template Variation page.
2. For **Variation Name**, type a short description (maximum 25 characters) for this email template variation. The original email template has a variation name of DEFAULT.
3. Choose an **Event Type**. The event type reflects the email template type name shown on the List Email Templates page.
4. Click **Add Template**. The Producer Portal opens the Edit Email Template Content page.
5. In Email Template Content, insert a subject line plus text content or HTML content (or both).

   Email template content can make use of merge tags to substitute specific values at the time the email message is generated. For examples of merge tag use, see About Email Templates.

   Tip ▪ *To avoid errors, copy the merge tag from the Merge Tag List and paste it in the body or subject area. Merge tags must be opened and closed with double square brackets, like this:* `[[MERGE_TAG]]`.
6. Click **Validate Template**. The Producer Portal validates the merge tags in the template content and opens the preview page for the email template variation.

   Tip ▪ *When you click Validate Template, the Producer Portal only validates the merge tags in the template content. It does not validate your HTML.*
7. Complete the email creation process by saving the variation or returning to the edit page for additional changes.
   - Click **Save** to save the current version as the Active template for this email template variation.
   - Click **Save Draft** to save the current version as the Draft template for this email template variation.
   - Click **Back to Edit** to return to the edit page.

When you save it as a Active template, the Producer Portal uses it for all the email of that variation from then on. If you save it as Draft, you can go back to this version at a later time, change it, and save it as the Active version. If you want to make more changes, click Back to Edit.

Tip ▪ *The name you provide for Variation Name distinguishes your variation from the default variation of that same template type. When you create or edit a license technology, you can specify customized variations of selected template types to use with that license technology by providing their variation names. See Creating a License Technology.*

Viewing Email Templates

You can view an email template in the Producer Portal and, from its View Email Template page, you can also choose to view as an active template, view as draft, or list all versions of that template (archived, active, and draft).

Viewing Active and Viewing Draft

From the List Email Templates page, you can view any of the listed template versions by clicking its template ID.

The Producer Portal clearly identifies whether the email template version you are viewing is in draft status versus active status. Links for opening the View Email Template page also reflect the template's status. When a template is in draft status, its view page is View Draft Email Template and the link in the View menu to return to the basic view page is View Draft.

When working with email templates, you can return to the basic view page by clicking View Active or View Draft in the on-page View menu.

Task ***To view an email template***

- From the View Email Template page, click **View** > **View Active** or **View** > **View Draft**.

The Producer Portal shows the View Email Template page for the current email template.

Listing All Versions

There can be a number of versions for each email template variation. A variation can have one active version, one draft version, and several archived versions.

Task ***To view all versions of an email template***

- On the View Email Template page, click **View** > **List All Versions**.

The Producer Portal opens the List All Versions page. From this page, you can click the status of any listed email template version to open its View Email Template page.

Editing an Email Template

From the View Email Template page, you can edit an email template. Editing is divided into two primary tasks:

- Editing an Email Template Definition
- Editing Email Template Content

Editing an Email Template Definition

An email template's definition includes its email template ID, its email type, its variation name, and its send indicator. Only the variation name and the send indicator are editable on this page.

Task ***To edit an email template definition***

1. On the View Email Template page, click **Edit** > **Edit Definition**. This link opens the Edit Email Template Definition page.
2. Make email template definition changes as necessary:
   - **Variation Name**—Change the name of the email template variation.
   - **Will Email Be Sent**—Choose whether email messages based on this template is sent.
     - Click **Yes** to enable email messages for this template to be sent. When the send indicator is Yes, the Producer Portal's default behavior is to attempt to send the email. (Email can be suppressed on certain transactions or by the preferences of the recipients.)
     - Click **No** to prevent email messages based on this template from being sent.
   - **View Email in Sent history**—Choose whether the content of an email is visible from the **View Sent Email** page of the Producer Portal.
     - Click **Yes** to enable the content to be viewed.
     - Click **No** and only the "To," "CC," and "BCC" fields are visible.

   Note ▪ *The* **Welcome Email** *and* **Reset Password** *templates default to* ***No*** *and, because they contain sensitive password information, are not permitted to be viewed.*
3. Click **Save Template**.

The Producer Portal saves your definition changes to the email template. (No changes occur to the email template's status. Active templates remain active. Draft templates remain in Draft status.)

Editing Email Template Content

Email template content includes the template's subject line, text content, and HTML content.

Task ***To edit email template content***

1. On the View Email Template page, click **Edit** > **Edit Draft Content** or **Edit** > **Edit Active Content**. This link opens the Edit Email Template Content page.
2. In Email Template Content, insert a subject line plus text content or HTML content (or both).

   Email template content can make use of merge tags to substitute specific values at the time the email message is generated. For examples of merge tag use, see About Email Templates.

   Tip ▪ *To avoid errors, copy the merge tag from the Merge Tag List and paste it in the body or subject area. Merge tags must be opened and closed with double square brackets, like this:* `[[MERGE_TAG]]`.
3. Click **Validate Template**. The Producer Portal validates the merge tags in the template content and opens the preview page for the email template variation.

Tip ▪ *When you click Validate Template, the Producer Portal only validates the merge tags in the template content. It does not validate your HTML.*

4. Complete the email creation process by saving the email template or returning to the edit page for additional changes.

   - Click **Save** to save the current template as the Active template for this email template type.
   - Click **Save Draft** to save the current template as the Draft template for this email template type.
   - Click **Back to Edit** to return to the edit page.

When you save it as a Active template the Producer Portal uses it for all the email of that type from then on. If you save it as Draft, you can go back to this version at a later time and change it and save it as the Active template. If you want to make more changes click Back to Edit.