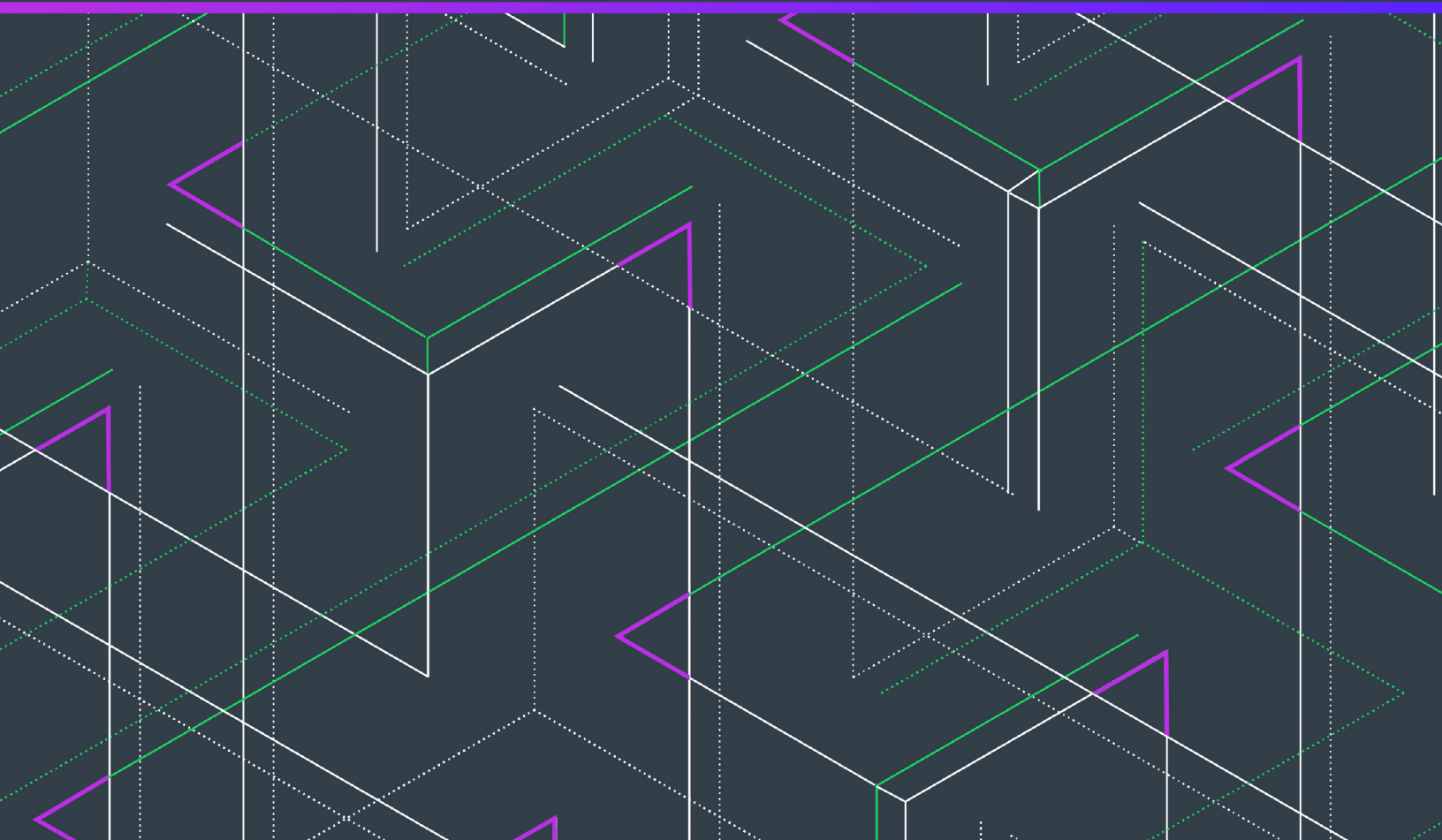


Usage Intelligence 5.5.2

.NET SDK Developer Guide



Legal Information

Book Name: Usage Intelligence 5.5.2 .NET SDK Developer Guide
Part Number: FUI-0552-NETUG
Product Release Date: 16 March 2020

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Contents

1	Usage Intelligence 5.5.2 .NET SDK Developer Guide.	5
	Product Support Resources	6
	Contact Us.....	7
2	Getting Started with the Usage Intelligence .NET SDK	9
	System Requirements	9
	Registering Your Product	9
	API Overview.....	9
	Importing the SDK Files.....	10
	Basic Integration Steps	10
	Next Steps.....	13
	Advanced Features	13
3	SDK Configuration.....	15
	SDK Object Initialization.....	15
	Getting SDK Version Information.....	16
	Getting the Client ID	16
	Initializing the Configuration.....	17
	Single vs. Multiple Session Modes	19
	Opt-Out Mechanism.....	20
	Providing Product Data.....	21
	Product Details.....	21
	Setting Product Data	21
	Setting Product Edition.....	22
	Setting Product Language	24
	Setting Product Version	25
	Setting Product Build Number	26
	License Management	27

Changing ReachOut on Autosync Setting	30
Proxy Support	31
4 Basic SDK Controls	35
Starting the SDK	35
Stopping the SDK	36
Starting a Session	38
Stopping a Session	40
Caching and Synchronizing	41
Forced Synchronization	42
5 Feature / Event Tracking	45
Tracking an Event	46
Logging a Normal Event with a Numeric Field	48
Logging a Normal Event with a String Field	50
Logging a Custom Event	53
6 ReachOut Direct-to-Desktop Messaging Service	57
Automated Message Retrieval	58
Manual Message Retrieval	59
Checking for Manual ReachOut Messages of Any Type	60
Checking for Manual ReachOut Messages of a Specified Type	61
7 Exception Tracking	65
8 License Management	69
Client vs. Server Managed Licensing	69
Checking the License Data of the Supplied License Key	70
Setting the Current License to the Supplied License Key	73
9 Custom Properties	79
Setting Custom Property Data	79
10 SDK Status Checks	81
Getting the State of the Usage Intelligence Instance	81
Testing the Connection Between the SDK and the Server	82
11 Common Function Return Values	85

Usage Intelligence 5.5.2 .NET SDK Developer Guide

Usage Intelligence 5.5.2—a software usage analytics solution designed for distributed C/C++, .NET, Obj-C and native Java applications on Windows, Macintosh, and Linux—provides deep insight into application usage. It enables you to see which of your application’s features are used most and least often. Advanced reporting lets you filter by properties including region, version, OS platform, and architecture to focus your roadmap development.

The Usage Intelligence 5.5.2 .NET SDK Developer Guide explains how to implement the .NET SDK.

Table 1-1 • Usage Intelligence 5.5.2 .NET SDK Developer Guide

Section	Description
Getting Started with the Usage Intelligence .NET SDK	Explains how to get started using Usage Intelligence .NET SDK.
SDK Configuration	Explains how to create the Usage Intelligence SDK instance, initialize the configuration, and other configuration tasks.
Basic SDK Controls	Describes how to start and stop the SDK, and start and stop a session.
Feature / Event Tracking	Explains how to track and log events.
ReachOut Direct-to-Desktop Messaging Service	Explains how to create ReachOut messaging campaigns to deliver messages or surveys directly to the desktop of users who are running your software.
Exception Tracking	Describes how to collect runtime exceptions from your application.
License Management	Explains how to maintain a license key registry on the Usage Intelligence server in order to track license key usage and verify the status/validity of license keys used on your clients.
Custom Properties	Explains how to collect any custom value that is relevant to your specific application.

Table 1-1 • Usage Intelligence 5.5.2 .NET SDK Developer Guide (cont.)

Section	Description
SDK Status Checks	Describes how to collect custom values that are relevant to your specific application.
Common Function Return Values	Lists common return values for Usage Intelligence functions.

Product Support Resources

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

- [Reverera Product Documentation](#)
- [Reverera Community](#)
- [Reverera Learning Center](#)
- [Reverera Support](#)

Reverera Product Documentation

You can find documentation for all Reverera products on the [Reverera Product Documentation](#) site:

<https://docs.reverera.com>

Reverera Community

On the [Reverera 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 Reverera's product solutions, you can access forums, blog posts, and knowledge base articles.

<https://community.reverera.com>

Reverera Learning Center

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<https://learning.reverera.com>

Reverera Support

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<https://community.reverera.com>

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>

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- [LinkedIn](#)
- [YouTube](#)
- [Instagram](#)

Getting Started with the Usage Intelligence .NET SDK

This section explains how to get started using Usage Intelligence .NET SDK:

- [System Requirements](#)
- [Registering Your Product](#)
- [Importing the SDK Files](#)
- [Basic Integration Steps](#)
- [Next Steps](#)

System Requirements

The Usage Intelligence .NET SDK can be used with .NET Framework versions 2.0 and newer including Client Profile editions.

Registering Your Product

Before you can use the Usage Intelligence Software Analytics service or integrate the Usage Intelligence SDK with your software, you must first create an account by visiting <https://info.revenera.com/SWM-EVAL-Usage-Intelligence>.

Once you have a user name and register a new product account for tracking your application, you can get your Product ID, CallHome URL, and AES Key from the Administration page (within the Usage Intelligence dashboard). From here you can also download the latest version of the SDK.

API Overview

When using the Usage Intelligence API, there is one main class that you will have to integrate with RUISDK. You need to instantiate this class in the application. All Usage Intelligence methods use this class.

Importing the SDK Files

Upon downloading the .NET SDK, you find 3 DLL files as follows:

Table 2-1 • DLL Files

File	Description
ruisDKDotNet_<version>.dll	The shared library supporting .NET
ruisDK_<version>.x64.dll	Native 64-bit DLL imported automatically by the .NET DLL
ruisDK_<version>.x86.dll	Native 32-bit DLL imported automatically by the .NET DLL

In the filenames listed above, <version> is the RUI SDK release version number in form N.N.N where N is a number.

You do not need to worry if your application will run on x86 or x64 platforms. If you do not target any specific platform, you should include both x64 and x86 DLLs with your application, and the Usage Intelligence .NET DLL will import the correct one automatically. If, however, you choose to target a specific platform, you may include only the corresponding native DLL in order to make the installation size smaller.

In order to download the Usage Intelligence SDK, go to the following page in the Reverera Community:

[Usage Intelligence SDK Download Links and API Documentation](#)

Basic Integration Steps

The most basic Usage Intelligence integration can be accomplished by following the steps below. It is however recommended to read the more advanced documentation as Usage Intelligence can do much more than the basic functionality that can be achieved by following these steps.



Task

To perform basic integration:

1. Download the latest SDK from the following page in the Reverera Community, and extract it to your preferred project location.

[Usage Intelligence SDK Download Links and API Documentation](#)

2. Add a reference to ruisDKDotNet_<version>.dll in your project.
3. Add the directive using RUISDK_<VERSION> to the source files where you will be calling the .NET SDK. <VERSION> is the current version number in the form N_N_N where N is a number.
4. Create an instance of the RUISDK object.

```
bool registerDefaultReachOut = true;  
String ruisDKDLLPath = "<path to Usage Intelligence core DLLs>";  
RUISDK mySDK = new RUISDK(registerDefaultReachOut, ruisDKDLLPath);
```

5. Create the configuration point to the directory where the Usage Intelligence SDK will create and update files. The application using Usage Intelligence will need read and write access rights to this directory.

```
String myPath = "<path to directory for SDK logging>";
String myProductId = "<Product ID>";
String myAppName = "<Your App Name>";
String myURL = "<CallHome URL without protocol prefix>";
String myKey = "<Your AES HEX Key>";
Int32 myProtocol = (Int32)RUIProtocolType.httpPlusEncryption;
bool myMultiSessionSetting = false;
bool myReachOutAutoSyncSetting = true;

mySDK.CreateConfig(myPath, myProductId, myAppName, myURL, myProtocol, myKey, myMultiSessionSetting,
myReachOutAutoSyncSetting);
```

Note the following:

- The Call Home URL, the Product ID and the AES Key can be retrieved from the Administration page (within the Usage Intelligence dashboard)
- The protocol choice is based on the application and environment needs. Normally, HTTP protocol (port 80) will give applications the greatest chance of success in most environments.
- The Multiple Session flag is a boolean value where you specify whether your application can have multiple user sessions per runtime session. This is normally false.



Note • For further details, refer to [Single vs. Multiple Session Modes](#).

- The ReachOut Auto Sync flag indicates whether or not a ReachOut should be requested as part of each SDK Automatic Sync. A ReachOut request will be made only if a ReachOut handler has been set by registering the default graphical handler ([RUISDK](#)) or a custom handler, [RUISDK.SetReachOutHandler](#).
6. Initialize the SDK with your product information. This is most conveniently done via the [RUISDK.SetProductData](#) call. This must be done BEFORE calling [RUISDK.StartSDK](#).

```
String myProductEdition = "Professional";
String myLanguage = "US English";
String myVersion = "5.0.0";
String myBuildNumber = "17393";
```

```
mySDK.SetProductData(myProductEdition, myLanguage, myVersion, myBuildNumber);
```

7. Initialize the SDK with any optional custom properties by calling the method [RUISDK.SetCustomProperty](#).
8. Call the method [RUISDK.StartSDK](#).



Note • You must set all known values for product data and custom properties BEFORE calling [RUISDK.StartSDK](#) otherwise you risk having null values for fields not specified. Once these calls are completed, you can safely call [RUISDK.StartSDK](#).

Before making any other RUI API tracking calls, you MUST call [RUISDK.StartSDK](#). It is recommended that you place this call at the entry point of your application so the Usage Intelligence SDK knows exactly at what time your application runtime session was started.

If using multi-session mode, you also need to call [RUISDK.StartSession](#) when a user session is started, and also provide a unique user session ID which you will then also use for closing the session or for [Feature / Event Tracking](#).

9. Call `RUISDK.StopSDK` in the closing event of your application so the Revulytics Usage Intelligence SDK knows when your application runtime session has been closed.



Note • You must allow at least 5 seconds of application runtime to allow event data to be written to the log file and synchronized with the Usage Intelligence Server. If necessary, add a sleep of 5 seconds before calling `RUISDK.StopSDK`.

If using multi-session mode, when user sessions are closed, you should call `RUISDK.StopSession` and send the ID of the session that is being closed as a parameter.

10. Before running your application, copy the DLL files `ruisdk_<version>.x64.dll` and `runSDK_<version>.x86.dll` inside the BinDebug path (or BinRelease if you are compiling for release). These files are required by the Usage Intelligence .NET SDK and must be included with your application. If you are building specifically for x64 or x86, you may then choose to include only the corresponding DLL file.

The following is an example of the basic integration outlined below. This example uses single-session mode.

```
RUISDK mySDK;
```

```
public Form1()
{
    //Create instance of RUISDK
    bool registerDefaultReachOut = true;
    String ruiSDKDLLPath = "<path to Revulytics Usage Intelligence SDK .NET library>";
    mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
    //Set the file path and connection information
    String myPath = "<path to directory for RUI SDK logging>";
    String myProductId = "<Product ID>";
    String myAppName = "<Your App Name>";
    String myURL = "<CallHome URL without protocol prefix>";
    String myKey = "<Your AES HEX Key>";
    Int32 myProtocol = (Int32)RUIProtocolType.httpPlusEncryption;
    bool myMultiSessionSetting = false;
    bool myReachOutAutoSyncSetting = true;

    mySDK.CreateConfig(myPath, myProductId, myAppName, myURL, myProtocol, myKey, myMultiSessionSetting,
myReachOutAutoSyncSetting);

    // Set your product information

    String myProductEdition = "Professional";
    String myLanguage = "US English";
    String myVersion = "5.0.0";
    String myBuildNumber = "17393";

    mySDK.SetProductData(myProductEdition, myLanguage, myVersion, myBuildNumber);

    // If you have any custom properties set them here

    //Inform Revulytics Usage Intelligence that the application has been started.
    mySDK.StartSDK();

    //Your program logic...
}

private void Form1_FormClosing(object sender, FormClosingEventArgs e)
```

```
{  
    //Inform Revulytics Usage Intelligence that this runtime session is closing down and sync.  
    //Must allow at least 5 seconds between ruiStartSDK() and this call. If less than that, add a  
    System.Threading.Thread.Sleep()  
    //or other mechanism to provide enough time to send captured events to RUI Server  
  
    mySDK.StopSDK(0);  
  
    //Your program logic...  
}
```

Next Steps

In the above section, we covered the basic integration steps. While these steps would work for most software products, it is recommended to do some further reading in order to get the most of what Usage Intelligence has to offer. It is recommended to go into more detail by reading the pages [SDK Configuration](#) and [Basic SDK Controls](#). Once you are familiar with the SDK, you may look at the advanced features.

Advanced Features

By following the Basic Integration Steps above, the SDK will be able to collect information about how often users run your product, how long they are engaged with your software as well as which versions and builds they are running. The SDK also collects information on what platforms and architectures your software is being run (i.e. OS versions, language, screen resolution, etc.). Once you have implemented the basic features, you may choose to use Usage Intelligence for more advanced features that include:

- [Feature / Event Tracking](#)
- [ReachOut Direct-to-Desktop Messaging Service](#)
- [Exception Tracking](#)
- [License Management](#)
- [Custom Properties](#)

SDK Configuration

Before an application can start reporting usage to the Revulytics Usage Intelligence SDK, it must first provide some basic information such as the location of where the SDK will create and save its working files, the application Product ID and the CallHome URL.

You should always fill in as much accurate and specific detail as possible since this data will be used by the Usage Intelligence Analytics Server to generate the relevant reports. The more (optional) details you fill in about your product and its licensing state, the more filtering and reporting options will be available to you inside the Usage Intelligence dashboard.

- [SDK Object Initialization](#)
- [Getting SDK Version Information](#)
- [Getting the Client ID](#)
- [Initializing the Configuration](#)
- [Single vs. Multiple Session Modes](#)
- [Opt-Out Mechanism](#)
- [Providing Product Data](#)
- [Changing ReachOut on Autosync Setting](#)
- [Proxy Support](#)

SDK Object Initialization

Before beginning any operation, you must first create an instance of the RUISDK object. The constructor is defined below. [RUISDK](#) creates an instance of the SDK. The constructor does not configure the SDK ([RUISDK.CreateConfig](#)) nor start the SDK ([RUISDK.StartSDK](#)).

A typical client will create only a single instance of the SDK. Creating more than one SDK instance is allowed and is used to support clients that are plug-ins or other scenarios whereby multiple independent clients may co-exist in the same executable. Multiple SDK instances perform independently of one another with the potential exception of shared or unshared configuration file ([RUISDK.CreateConfig](#)).

RUISDK

```
RUISDK (Boolean registerDefaultGraphicalReachOutHandler, String sdkDLLPath, String sdkDLLName =  
"ruisdk_<version>")
```

Parameters

RUISDK has the following parameters:

Table 3-1 • RUISDK Parameters

Parameter	Description
registerDefaultGraphicalReachOutHandler (bool)	If set to true, automatically registers the default graphical ReachOut. If false, no default ReachOut is registered.
sdkDLLPath (String)	Path to the core SDK DLL.
sdkDLLName (String)	Optional parameter that defines the stem name for the core SDK DLL. Default is ruisdk_<version> where <version> is the version number in form N.N.N where N is a digit (for example: ruisdk_5.0.1). Should not be modified unless there is a need to do this.

Throws

RUISDK throws a RUISDKCreationException If there is a problem constructing the SDK instance; this is the only SDK method that throws an exception.

Getting SDK Version Information

RUISDK.GetSDKVersion returns the version information for the SDK instance in the supplied string parameter.

RUISDK.GetSDKVersion can be called more than once.

RUISDK.GetSDKVersion is a synchronous function, returning when all functionality is completed.

RUISDK.GetSDKVersion

```
String RUISDK.GetSDKVersion ()
```

Returns

RUISDK.GetSDKVersion returns a formatted string containing the RUISDK version information.

Getting the Client ID

RUISDK.GetClientId returns the client ID for the SDK instance.

RUISDK.GetClientId can be called more than once.

RUISDK.GetClientId is a synchronous function returning when all functionality is completed.

RUISDK.GetClientId

String RUISDK.GetClientId ()

Returns

[RUISDK.GetClientId](#) returns a formatted string containing the RUISDK client ID. It returns a string of “0” if the client ID is not available.

Initializing the Configuration

The [RUISDK.CreateConfig](#) method must be called in order to initialize the configuration. The method signature is below.

[RUISDK.CreateConfig](#) creates a configuration for the SDK instance. A configuration is passed on a file, specified by `configFilePath`, `productID`, and `appName`. If two or more SDK instances, in the same process or in different processes, use the same values for these three parameters, then those SDK instances are bound together through a shared configuration. When multiple different executables are being used, such usage is generally not recommended. Instead, each executable should use a different `appName` value.

The SDK has two communications modes: HTTPS or HTTP + AES-128 encryption. The mode is configured by protocol. When protocol is `RUI_PROTOCOL_HTTP_PLUS_ENCRYPTION` or `RUI_PROTOCOL_HTTPS_WITH_FALLBACK`, the AES key must be supplied as a 128-bit hex-encoded string (`aesKeyHex`). When protocol is `RUI_PROTOCOL_HTTPS`, then `aesKeyHex` must be empty.

On first execution of a client application, no SDK configuration file will exist. This situation is detected by the RUI SDK and will result in a New Registration message to the Usage Intelligence Server at [RUISDK.StartSDK](#). Once the configuration is received from the Server, the SDK writes the configuration file, that is then used for subsequent client application executions.

[RUISDK.CreateConfig](#) must be called before most other APIs and must only be successfully called once.

[RUISDK.CreateConfig](#) is a synchronous function, returning when all functionality is completed.

RUISDK.CreateConfig

`RUIResult RUISDK.CreateConfig (String configFilePath, String productID, String appName, String serverURL, Int32 protocol, String aesKeyHex, Boolean multiSessionEnabled, Boolean reachOutOnAutoSync)`


Parameters

The [RUISDK.CreateConfig](#) function has the following parameters.

Table 3-2 • RUI.CreateConfig Parameters

Parameter	Description
<code>configFilePath (String)</code>	The directory to use for the SDK instance’s configuration file. Cannot be empty; must exist and be writable.
<code>productID (String)</code>	The Revenera-supplied product ID for this client; 10 digits. You obtain this ID after registering with Revenera.

Table 3-2 • RUI.CreateConfig Parameters

Parameter	Description
appName (String)	<p>The customer-supplied application name for this client, to distinguish suites with the same productID. Cannot be empty or contain white space; at most 16 UTF-8 characters. More information about the purpose of the appName parameter can be found in the Knowledge Base article:</p> <p>What is the purpose of the appName parameter when creating config in the SDK?</p>
serverUrl (String)	<p>Every product registered with Usage Intelligence has its own unique CallHome URL usually in the form 'xxxxx.tbnet1.com'. This URL is generated automatically on account creation and is used by the SDK to communicate with the Usage Intelligence server. You can get this URL from the Developer Zone once you login to the Usage Intelligence dashboard.</p> <p>If you have a Premium product account, you may opt to use your own custom CallHome URL (such as <code>http://updates.yourdomain.com</code>) that must be setup as a CNAME DNS entry pointing to your unique Usage Intelligence URL.</p>  <p>Note • Before you can use your own custom URL, you must first inform Usage Intelligence support (support@revenera.com) to register your domain with the Usage Intelligence server. If you fail to do this, the server will automatically reject any incoming calls using <code>yourdomain.com</code> as a CallHome URL. The URL should not contain a protocol prefix.</p>
protocol (int32)	<p>Indicates whether HTTP + AES, HTTPS with fall-back to HTTP + AES, or HTTPS is used to communicate with the server.</p> <p>Valid choices can be found in the <code>RUIProtocolType</code> enum and are: <code>httpPlusEncryption</code> (1), <code>httpsWithFallback</code> (2), or <code>https</code> (3).</p>
aesKeyHex (String)	<p>AES Key to use when protocol includes encryption (<code>httpPlusEncryption</code> or <code>httpsWithFallback</code>); 32 hex chars (128 bit) key.</p>
multiSessionEnabled (bool)	<p>Indicates whether or not the client will explicitly manage sessionIDs via <code>RUISDK.StartSession</code> and <code>RUISDK.StopSession</code>, and supply those sessionIDs to the various event tracking APIs. Refer to Single vs. Multiple Session Modes.</p>
reachOutOnAutoSync (bool)	<p>Indicates whether or not a ReachOut should be requested as part of each SDK Automatic Sync.</p> <p>A ReachOut request will be made only if a ReachOut handler has been set by registering the default graphical handler (<code>RUISDK</code> constructor) or a custom handler (<code>RUISDK.SetReachOutHandler</code>). This value may be changed at runtime using the call <code>SetReachOutOnAutoSync</code>.</p>

Returns

The `RUISDK.CreateConfig` function returns a `RUIResult` enum value with the following possible values:

Table 3-3 • RUI.CreateConfig Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkPermantelyDisabled</code>	The Server has instructed a permanent disable.
<code>configAlreadyCreated</code>	Configuration has already been successfully created.
<code>invalidParameterExpectedNonEmpty</code>	Some API parameter is expected to be non-empty, and is not.
<code>invalidParameterExpectedNoWhitespace</code>	Some API parameter is expected to be free of white space, and is not.
<code>invalidParameterTooLong</code>	Some API parameter violates its allowable maximum length.
<code>invalidConfigPath</code>	The <code>configFilePath</code> is not a well-formed directory name.
<code>invalidConfigPathNonexistentDir</code>	The <code>configFilePath</code> identifies a directory that does not exist.
<code>invalidConfigPathNotWritable</code>	The <code>configFilePath</code> identifies a directory that is not writable.
<code>invalidProductID</code>	The <code>productID</code> is not a well-formed Product ID.
<code>invalidServerURL</code>	The <code>serverURL</code> is not a well-formed URL.
<code>invalidProtocol</code>	The protocol is not a legal value.
<code>invalidAESKeyEpxectedEmpty</code>	The AES Key is expected to be NULL/empty, and it is not.
<code>invalidAESKeyLength</code>	The AES Key is not the expected length of 32 hex chars.
<code>invalidAESKeyFormat</code>	The AES Key is not valid hex encoding.

Single vs. Multiple Session Modes

In desktop software, a single application instance would normally have only one single user session. This means that such an application would only show one window (or set of windows) to a single user and interaction is done with that single user. If the user would like to use two different sessions, two instances of the application would have to be loaded that would not affect each other. In such cases, you should use the single session mode, which handles user sessions automatically and assumes that one process (instance) means one user session.

The multiple session mode needs to be used in multi-user applications, especially applications that have web interfaces. In such applications, a number of users might be using the same application process simultaneously. In such cases, you need to manually tell the Usage Intelligence SDK must be notified when user sessions start and stop, and also how to link events (see [Feature / Event Tracking](#)) to user sessions.

To do this, when starting or stopping a user session, the methods [RUISDK.StartSession](#) and [RUISDK.StopSession](#) should be used, and when tracking events on a per user basis, a session ID needs to be passed as a parameter.

Opt-Out Mechanism

Starting from version 5.1.0, a new opt-out mechanism was introduced. Using this mechanism, if a user does not want to send tracking information to Revenera, the function [RUISDK.OptOut](#) must be called after calling [RUISDK.CreateConfig](#) and before [RUISDK.StartSDK](#).

[RUISDK.OptOut](#) instructs the SDK to send a message to the server to indicate that this user is opting-out (if not already sent in previous sessions) and disables all further functionality and communication with the server.

When [RUISDK.OptOut](#) is called, the SDK sends a message to the Server after startup ([RUISDK.StartSDK](#)). This message informs the Server that this client has opted-out and the Server will register the opt-out. This message is only sent to the Server once. The opt-out flag on the Server will be used for reporting opt-out statistics only.

If [RUISDK.OptOut](#) is called before a new registration, the Server will never have any data about that installation. If [RUISDK.OptOut](#) is called for an installation that was already being tracked, the Server will still contain the data that had been collected in the past and no past data is deleted.

The SDK will send no further information to the server as long as the user is opted-out. The application **must** keep calling [RUISDK.OptOut](#) before every startup as long as the user wants to stay opted-out. If this function is not called, then the SDK assumes that the user is opting-in again and will start tracking normally.



Note • When an installation is not opted-out, it communicates with the Server immediately on calling [RUISDK.StartSDK](#). At this point, the SDK attempts to sync data regarding past application and event usage that had not been synced yet, and also system and product information such as OS version, CPU, GPU, product version, product edition, etc.

RUISDK.OptOut

RUIRESULT RUISDK.OptOut ()

Returns

The [RUISDK.OptOut](#) function returns a [RUIResult](#) enum value with the following possible values:

Table 3-4 • RUISDK.OptOut Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.

Table 3-4 • RUISDK.OptOut Returns

Return	Description
sdkPermanentlyDisabled	The Server has instructed a permanent disable.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStarted	SDK has already been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.

Providing Product Data

The Usage Intelligence SDK V5 requires that the application provide product data every time the SDK instance is run. In addition you can optionally set License data for the application. Finally, if you are using proxies to access the Internet, there is a function to set up the required information for connecting through that proxy.

- [Product Details](#)
- [License Management](#)

Product Details

The following functions are available to set product data:

- [Setting Product Data](#)
- [Setting Product Edition](#)
- [Setting Product Language](#)
- [Setting Product Version](#)
- [Setting Product Build Number](#)

Setting Product Data

The `RUISDK.SetProductData` function sets or clears the product data.



Note • The product data must be set every time the SDK instance is run. This is different than V4 of the Usage Intelligence (Trackerbird) SDK where the supplied product data was stored in the SDK configuration file and if it was not supplied, the values in the configuration file were used.

`RUISDK.SetProductData` can be called between `RUISDK.CreateConfig` and `RUISDK.StopSDK` and can be called zero or more times.

`RUISDK.SetProductData` is a synchronous function returning when all functionality is completed.

RUISDK.SetProductData

`RUIResult RUISDK.SetProductData (String productEdition, String productLanguage, String productVersion, String productBuildNum)`

Parameters

The `RUISDK.SetProductData` function has the following parameters.

Table 3-5 • RUISDK.SetProductData Parameters

Parameter	Description
<code>productEdition (String)</code>	The product edition that is to be set. Maximum length of 128 characters.
<code>productLanguage (String)</code>	The product language that is to be set. Maximum length of 128 characters.
<code>productVersion (String)</code>	The product version that is to be set. Maximum length of 128 characters.
<code>productBuildNumber (String)</code>	The product build number that is to be set. Maximum length of 128 characters.

Returns

The `RUISDK.SetProductData` function returns a `RUIResult` enum value with the following possible values:

Table 3-6 • RUISDK.SetProductData Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and <code>RUISDK</code> destructor are possible.
<code>sdkSuspended</code>	The Server has instructed a temporary back-off.
<code>sdkPermantlyDisabled</code>	The Server has instructed a permanent disable.
<code>sdkOptedOut</code>	nstance has been instructed by the application to opt-out.
<code>configNotCreated</code>	Configuration has not been successfully created.
<code>sdkAlreadyStopped</code>	SDK has already been successfully stopped.

Setting Product Edition

The `RUISDK.SetProductEdition` function allows you to set the edition of your product. An example of this would be when a single product can be licensed/run in different modes such as “Home” and “Business”.



Note • The product data must be set every time the SDK instance is run. This is different than V4 of the Usage Intelligence (Trackerbird) SDK where the supplied product data was stored in the SDK configuration file and if it was not supplied, the values in the configuration file were used.

`RUISDK.SetProductEdition` can be called between `RUISDK.CreateConfig` and `RUISDK.StopSDK` and can be called zero or more times.

`RUISDK.SetProductEdition` is a synchronous function returning when all functionality is completed.

RUISDK.SetProductEdition

```
RUIResult RUISDK.SetProductEdition (String productEdition)
```

Parameters

The `RUISDK.SetProductEdition` function has the following parameters.

Table 3-7 • RUISDK.SetProductEdition Parameters

Parameter	Description
productEdition (String)	The product edition that is to be set. Maximum length of 128 characters.

Returns

The `RUISDK.SetProductEdition` function returns a `RUIResult` enum value with the following possible values:

Table 3-8 • RUISDK.SetProductEdition Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. <code>RUISDK.StopSDK</code> and <code>RUISDK</code> destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermanentlyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.

Setting Product Language

The `RUISDK.SetProductLanguage` function allows you to set the language that the client is viewing your product. This is useful for products that have been internationalized, so you can determine how many installations are running your software in a particular language.



Note • The product data must be set every time the SDK instance is run. This is different than V4 of the Usage Intelligence (Trackerbird) SDK where the supplied product data was stored in the SDK configuration file and if it was not supplied, the values in the configuration file were used.

`RUISDK.SetProductLanguage` can be called between `RUISDK.CreateConfig` and `RUISDK.StopSDK` and can be called zero or more times.

`RUISDK.SetProductLanguage` is a synchronous function returning when all functionality is completed.

RUISDK.SetProductLanguage

`RUIResult RUISDK.SetProductLanguage (String productLanguage)`

Parameters

The `RUISDK.SetProductLanguage` function has the following parameters.

Table 3-9 • RUISDK.SetProductLanguage Parameters

Parameter	Description
<code>productLanguage (String)</code>	The product language that is to be set. Maximum length of 128 characters.

Returns

The `RUISDK.SetProductLanguage` function returns a `RUIResult` enum value with the following possible values:

Table 3-10 • RUISDK.SetProductLanguage Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
<code>sdkSuspended</code>	The Server has instructed a temporary back-off.
<code>sdkPermantelyDisabled</code>	The Server has instructed a permanent disable.
<code>sdkOptedOut</code>	Instance has been instructed by the application to opt-out.
<code>configNotCreated</code>	Configuration has not been successfully created.

Table 3-10 • RUISDK.SetProductLanguage Returns

Return	Description
sdkAlreadyStopped	SDK has already been successfully stopped.

Setting Product Version

The [RUISDK.SetProductVersion](#) function is used to set the version of the application being run.



Note • The product data must be set every time the SDK instance is run. This is different than V4 of the Usage Intelligence (Trackerbird) SDK where the supplied product data was stored in the SDK configuration file and if it was not supplied, the values in the configuration file were used.

[RUISDK.SetProductVersion](#) can be called between [RUISDK.CreateConfig](#) and [RUISDK.StopSDK](#) and can be called zero or more times.

[RUISDK.SetProductVersion](#) is a synchronous function returning when all functionality is completed.

RUISDK.SetProductVersion

RUIResult RUISDK.SetProductVersion (String productVersion)

Parameters

The [RUISDK.SetProductVersion](#) function has the following parameters.

Table 3-11 • RUISDK.SetProduct Version Parameters

Parameter	Description
productVersion (String)	The product version that is to be set. Maximum length of 128 characters.

Returns

The [RUISDK.SetProductVersion](#) function returns a [RUIResult](#) enum value with the following possible values:

Table 3-12 • RUISDK.SetProductVersion Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.

Table 3-12 • RUISDK.SetProductVersion Returns

Return	Description
sdkPermantelyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.

Setting Product Build Number

The `RUISDK.SetProductBuildNumber` function is used to set the build number of the application being run.



Note • The product data must be set every time the SDK instance is run. This is different than V4 of the Usage Intelligence (Trackerbird) SDK where the supplied product data was stored in the SDK configuration file and if it was not supplied, the values in the configuration file were used.

`RUISDK.SetProductBuildNumber` can be called between `RUISDK.CreateConfig` and `RUISDK.StopSDK` and can be called zero or more times.

`RUISDK.SetProductBuildNumber` is a synchronous function returning when all functionality is completed.

RUISDK.SetProductBuildNumber

`RUIResult RUISDK.SetProductBuildNumber (String productBuildNum)`

Parameters

The `RUISDK.SetProductBuildNumber` function has the following parameters.

Table 3-13 • RUISDK.SetProductBuildNumber Parameters

Parameter	Description
productBuildNumber (String)	The product build number that is to be set. Maximum length of 128 characters.

Returns

The `RUISDK.SetProductBuildNumber` function returns a `RUIResult` enum value with the following possible values:

Table 3-14 • RUISDK.SetProductBuildNumber Returns

Return	Description
ok	Function successful.

Table 3-14 • RUISDK.SetProductBuildNumber Returns

Return	Description
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermantelyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.

License Management

The [RUI.SetLicenseData](#) function sets or clears the license data. The legal parameter values include unchanged (-1).



Note • Different from the V4 of the Usage Intelligence SDK, a *sessionId* parameter can be supplied.

The [RUI.SetLicenseData](#) function can be called between [RUISDK.CreateConfig](#) and [RUISDK.StopSDK](#) and can be called zero or more times. However, the usage requirements of the *sessionId* parameter are different if [RUI.SetLicenseData](#) is called before [RUISDK.StartSDK](#) or called after [RUISDK.StartSDK](#). See [sessionId](#) for more information.

The [RUI.SetLicenseData](#) function can be called while a New Registration is being performed ([RUISDK.CreateConfig](#), [RUISDK.StartSDK](#)). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

The [RUI.SetLicenseData](#) function is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

RUI.SetLicenseData

`RUIResult RUISDK.SetLicenseData (Int32 keyType, Int32 keyExpired, Int32 keyActivated, Int32 keyBlacklisted, Int32 keyWhitelisted, String sessionId = "")`

Parameters

The [RUI.SetLicenseData](#) function has the following parameters.

Table 3-15 • RUI.SetLicenseData Parameters

Parameter	Description
keyType (Int32)	One of the key types from the RUILicenseKeyType enum. Note that custom types can be used for application specific license types: unchanged (-1) evaluation (0) purchased (1) freeware (2) unknown (3) nfr (4) // Not For Resale custom1 (5) custom2 (6) custom3 (7)
keyExpired (Int32)	Indicates whether the client license has expired. Use one of the RUILicenseKeyStatus enum choices for the values: unchanged (-1) no (0) yes (1)
keyActivated (Int32)	Indicates whether the client license has been activated. Use one of the RUILicenseKeyStatus enum choices for the values: unchanged (-1) no (0) yes (1)
keyBlacklisted (Int32)	Indicates whether the client license key has been blacklisted. Use one of the RUILicenseKeyStatus enum choices for the values: unchanged (-1) no (0) yes (1)
keyWhitelisted (Int32)	Indicates whether the client license key has been whitelisted. Use one of the RUILicenseKeyStatus enum choices for the values: unchanged (-1) no (0) yes (1)

Table 3-15 • RUI.SetLicenseData Parameters

Parameter	Description
sessionId (String)	<p>Optional session ID complying with the following usage content conditioning and validation) rules in RUISDK.StartSession).</p> <p>The usage requirements of the sessionId parameter are different if RUI.SetLicenseData is called before RUISDK.StartSDK or called after RUISDK.StartSDK.</p> <ul style="list-style-type: none">● Called before startSDK (regardless of multiSessionEnabled)—sessionId must be empty.● Called after startSDK and multiSessionEnabled is set to false—sessionId must be empty. This is similar to event tracking APIs.● Called after startSDK and multiSessionEnabled is set to true—sessionId must be a current valid value used in RUISDK.StartSession, or it can be empty. This is different than normal event tracking APIs, whereby a empty value is not allowed.

Returns

The [RUI.SetLicenseData](#) function returns a RUIResult enum value with the following possible values:

Table 3-16 • RUI.SetLicenseData Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermantelyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionId is expected to be empty, and it was not.
invalidSessionIDExpectedNonEmpty	The sessionId is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionId violates its allowable minimum length. Minimum length is 10.

Table 3-16 • RUI.SetLicenseData Returns

Return	Description
invalidSessionIDTooLong	The sessionID violates its allowable maximum length. Maximum length is 64.
invalidSessionIDNotActive	The sessionID is not currently in use.

Changing ReachOut on Autosync Setting

The flag to determine whether or not a ReachOut should be requested as part of each SDK Automatic Sync is initially set in the `RUISDK.CreateConfig` call. There may be certain cases when the application wants to either enable or disable this functionality during the application lifetime.

The `SetReachOutOnAutoSync` function allows the application to enable or disable this capability after `RUISDK.CreateConfig` has been called.

The `SetReachOutOnAutoSync` function enables (true) or disables (false) the ReachOut on Autosync capability. Note if the call does not change the existing setting, the API will still return OK.

The `SetReachOutOnAutoSync` function can be called between `RUISDK.CreateConfig` and `RUISDK.StopSDK` and can be called zero or more times.

SetReachOutOnAutoSync

`RUIResult SetReachOutOnAutoSync (Boolean reachOutOnAutoSyncSetting)`

Parameters

The `SetReachOutOnAutoSync` function has the following parameters.

Table 3-17 • SetReachOutOnAutoSync Parameters

Parameter	Description
reachOutOnAutoSyncSetting (bool)	Enable (true) or disable (false) the ReachOut on Autosync capability.

Returns

The `SetReachOutOnAutoSync` function returns a `RUIResult` enum value with the following possible values:

Table 3-18 • SetReachOutOnAutoSync Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. <code>RUISDK.StopSDK</code> and <code>RUISDK</code> destructor are possible.

Table 3-18 • SetReachOutOnAutoSync Returns

Return	Description
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermantelyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.

Proxy Support

The Usage Intelligence SDK V5 library supports communications through HTTP proxy servers on all major operating system types: Windows, Linux, and macOS. Application developers are responsible for obtaining proxy credentials (if the proxy requires it) and setting those credentials in the SDK so communications can use the credentials for the proxy. The function [RUISDK.SetProxy](#) handles setting and clearing the proxy related information.

The [RUISDK.SetProxy](#) function sets or clears the data to be used with a proxy. If there is no proxy between the SDK and the Server, there is no need to use this function. The address can be either empty (for transparent proxy servers) or non-empty. The username and password must both be empty (non-authenticating proxy) or both be non-empty (authenticating proxy). The port is only used for non-transparent proxy servers, hence port must be zero if address is empty, otherwise port must be non-zero.

[RUISDK.SetProxy](#) can be called between [RUISDK.CreateConfig](#) and [RUISDK.StopSDK](#), and can be called zero or more times.

[RUISDK.SetProxy](#) is a synchronous function, returning when all functionality is completed.

RUISDK.SetProxy

RUIResult RUISDK.SetProxy (String address, UInt16 port, String username, String password)

Permitted Parameter Combinations

The SDK uses the proxy data in multiple ways to attempt to communicate via a proxy. The allowed parameter combinations and their usage are as follows:

Table 3-19 • RUISDK.SetProxy Permitted Parameter Combinations

address	port	username	password	Description
empty	0	empty	empty	Resets the proxy data to its initial state, no proxy server is used, and the Server is contacted directly.
non-empty	not 0	empty	empty	Identifies a non-authenticating non-transparent proxy that will be used unless communications fails, then falling back to using no proxy.

Table 3-19 • RUISDK.SetProxy Permitted Parameter Combinations

address	port	username	password	Description
empty	0	non-empty	non-empty	Identifies an authenticating transparent proxy that will be used unless communications fails, then falling back to using no proxy.
non-empty	not 0	non-empty	non-empty	Identifies an non-transparent authenticating proxy that will be used unless communications fails, then falling back to using an authenticating transparent proxy, then falling back to using no proxy.

Parameters

The [RUISDK.SetProxy](#) function has the following parameters.

Table 3-20 • RUISDK.SetProxy Parameters

Parameter	Description
address (String)	The server name or IP address (dot notation) for the proxy server.
port (UInt16)	The port for the proxy server; only used with non-transparent proxy, port != 0 if and only if address non-empty.
username (String)	The proxy username; username and password must both be empty or both be non-empty.
password (String)	The proxy password; username and password must both be empty or both be non-empty.

Returns

The [RUISDK.SetProxy](#) function returns a [RUIResult](#) enum value with the following possible values:

Table 3-21 • RUISDK.SetProxy Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermantelyDisabled	The Server has instructed a permanent disable.

Table 3-21 • RUISDK.SetProxy Returns

Return	Description
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.

4

Basic SDK Controls

Once the required configuration is initialized (explained in [SDK Configuration](#)) and set according to the needs of your application, you may inform the SDK that the application has started. This will allow you to use further functions that expect the application to be running such as [RUISDK.CheckLicenseKey](#) and [RUISDK.CheckForReachOut](#).

- [Starting the SDK](#)
- [Stopping the SDK](#)
- [Starting a Session](#)
- [Stopping a Session](#)
- [Caching and Synchronizing](#)

Starting the SDK

The [RUISDK.StartSDK](#) function starts the SDK. [RUISDK.StartSDK](#) must be paired with a call to [RUISDK.StopSDK](#).

After the SDK is started, the various event tracking APIs are available to be used. If [RUISDK.CreateConfig](#) did not detect a configuration file, [RUISDK.StartSDK](#) will perform a New Registration with the Server. Until a New Registration is complete, the SDK will not be able to save event data to a log file or perform synchronization with the Server. A successful New Registration (or presence of a configuration file) will put the SDK into a normal running state, whereby events are saved to a log file, automatic and manual synchronizations with the Server are possible, and getting ReachOut campaigns from the Server are possible. A failed New Registration will put the SDK into an aborted state, not allowing further activity.

[RUISDK.StartSDK](#) must be called after [RUISDK.CreateConfig](#), and must be called only once.

[RUISDK.StartSDK](#) is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

If [RUISDK.OptOut](#) is called before a new registration has been done for a user, the SDK will not sync any system and product information and no data is recorded for the user. The SDK will inform the server once that there is an opted out user for reporting opt-out statistics only.

RUISDK.StartSDK

RUIResult RUISDK.StartSDK ()

Returns

The [RUISDK.StartSDK](#) function returns a [RUIResult](#) enum value with the following possible values.

Table 4-1 • RUISDK.StartSDK Returns

Return	Description
ok	Synchronous functionality successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkPermanentlyDisabled	The Server has instructed a permanent disable.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStarted	SDK has already been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.

Stopping the SDK

The [RUISDK.StopSDK](#) function stops the SDK that was started with [RUISDK.StartSDK](#). If explicit sessions are allowed (`multiSessionsEnabled = true` in [RUISDK.CreateConfig](#)), then any sessions that have been started with [RUISDK.StartSession](#) that have not been stopped with [RUISDK.StopSession](#) are automatically stopped. A manual synchronization with the RUI Server, [RUISDK.Sync](#), will be performed at stop depending on the value of `doSync` (as described in [Parameters](#))

[RUISDK.StopSDK](#) must be called after [RUISDK.StartSDK](#) and must be called only once. After [RUISDK.StopSDK](#) is called, the various event tracking APIs are no longer available. The only API available is [RUISDK.GetState](#). The SDK cannot be re-started with a subsequent call to [RUISDK.StartSDK](#).

[RUISDK.StopSDK](#) is a synchronous function, including the manual synchronization with the Server (if requested), returning when all functionality is completed.

RUISDK.StopSDK

RUIResult RUISDK.StopSDK (Int32 doSync)¶

Parameters

The `RUISDK.StopSDK` function has the following parameters.

Table 4-2 • RUISDK.StopSDK Parameters

Parameter	Description
<code>doSync</code> (Int32)	<p>Indicates whether to do a manual synchronization as part of the stop, and if so, the wait limit.</p> <p>A manual synchronization with the Server, <code>RUISDK.Sync</code>, will be performed at stop depending on the value of <code>doSync</code>:</p> <ul style="list-style-type: none">● 1—Do not perform a manual synchronization with the Server as part of the stop.● 0—Perform a manual synchronization with the Server as part of the stop; wait indefinitely for completion.● >0—Perform a manual synchronization with the Server as part of the stop; wait only <code>doSync</code> seconds for completion.

Returns

The `RUISDK.StopSDK` function returns a `RUIResult` enum value with the following possible values.

Table 4-3 • RUISDK.StopSDK Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. <code>RUISDK.StopSDK</code> and <code>RUISDK</code> destructor are possible.
<code>sdkPermanentlyDisabled</code>	The Server has instructed a permanent disable.
<code>configNotCreated</code>	Configuration has not been successfully created.
<code>sdkAlreadyStarted</code>	SDK has already been successfully started.
<code>sdkAlreadyStopped</code>	SDK has already been successfully stopped.
<code>invalidDoSyncValue</code>	The <code>doSync</code> manual sync flag/limit violates its allowable range.

Code Example

This example shows `RUISDK.StopSDK` being called in the closing event of a form.

```
// Create instance
bool registerDefaultReachOut = true;
```

```
String ruiSDKDLLPath = "<path to Revulytics Usage Intelligence SDK .NET library>";
mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
// Other initialization.....
```

```
private void Form1_FormClosing(object sender, FormClosingEventArgs e)
{
    mySDK.StopSDK(5);
}
```

Recommendation

If you are using a Windows forms application, the best location to place the [RUISDK.StopSDK](#) call would be inside of the entry point method of your application, on the line immediately following the `Application.Run` call that creates your main form, as seen below. This will allow the Usage Intelligence SDK to execute its final server synchronization procedure AFTER your form has been closed.

Although [RUISDK.StopSDK](#) usually takes just a few milliseconds to execute, in case of a slow network connection, the user could experience a small lag from when they hit your application close button until the time the form actually closes. By placing [RUISDK.StopSDK](#) in the location below, this delay is completely invisible to the user since the form would have been already closed.

```
// Create instance
bool registerDefaultReachOut = true;
String ruiSDKDLLPath = "<path to Revulytics Usage Intelligence SDK .NET library>";
mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
// Other initialization.....
```

```
[STAThread]
static void Main()
{
    Application.EnableVisualStyles();
    Application.SetCompatibleTextRenderingDefault(false);
    Application.Run(new Form1());
    mySDK.Stop(5);
}
```

Starting a Session

The [RUISDK.StartSession](#) function starts an explicit session for event tracking in the SDK. It must be paired with a call to [RUISDK.StopSession](#).

Explicit sessions are allowed only if [RUISDK.CreateConfig](#) was called with `multiSessionEnabled = true`. When explicit sessions are enabled, a valid `sessionID` becomes a required parameter to the event tracking APIs, as described in [Parameters](#).

[RUISDK.StartSession](#) can be called between [RUISDK.StartSDK](#) and [RUISDK.StopSDK](#), and can be called zero or more times.

[RUISDK.StartSession](#) is a synchronous function, returning when all functionality is completed.


RUISDK.StartSession

```
RUIResult RUISDK.StartSession (String sessionID)
```

Parameters

The `RUISDK.StartSession` function has the following parameters.

Table 4-4 • RUISDK.StartSession Parameters

Parameter	Description
<code>sessionId</code> (String)	<p>This parameter should contain a unique ID that refers to the user session that is being started. This same ID should later be used for event tracking.</p> <p>The content of a <code>sessionId</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none">● Conditioning—All leading white space is removed.● Conditioning—All trailing white space is removed.● Conditioning—All internal white spaces other than space characters (' ') are removed.● Validation—Cannot be shorter than 10 UTF-8 characters.● Validation—Cannot be longer than 64 UTF-8 characters. <p>The resulting conditioned and validated <code>sessionId</code> must be unique (i.e. not already in use).</p>  <p>Note • With the above conditioning, two <code>sessionIDs</code> that differ only by white space or after the 64th character, will not be unique. A <code>sessionId</code> should not be re-used for different sessions.</p>

Returns

The `RUISDK.StartSession` function returns a `RUIResult` enum value with the following possible values.

Table 4-5 • RUISDK.StartSession Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
<code>suspended</code>	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
<code>permanentlyDisabled</code>	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.

Table 4-5 • RUISDK.StartSession Returns

Return	Description
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
functionNotAvail	Function is not available.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedNonEmpty	The sessionID is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDAlreadyActive	The sessionID is already currently in use.

Stopping a Session

The [RUISDK.StopSession](#) function stops an explicit session started with [RUISDK.StartSession](#).

Explicit sessions are allowed only if [RUISDK.CreateConfig](#) was called with `multiSessionEnabled = true`. Any explicit sessions not ended with a call to [RUISDK.StopSession](#) are automatically ended when [RUISDK.StopSDK](#) is called. In case this method is never called, eventually this session will be considered as “timed-out”, and the time of the last recorded event will be assumed to be the time when the last event was recorded.

[RUISDK.StopSession](#) can be called between [RUISDK.StartSDK](#) and [RUISDK.StopSDK](#), and can be called zero or more times.

[RUISDK.StopSession](#) is a synchronous function, returning when all functionality is completed.

RUISDK.StopSession

`RUIResult RUISDK.StopSession (String sessionID)`

Parameters

The [RUISDK.StopSession](#) function has the following parameters.

Table 4-6 • RUISDK.StopSession Parameters

Parameter	Description
sessionID (String)	This parameter should contain a unique ID that refers to the user session that is being stopped. This must be the same ID that was used earlier when calling RUISDK.StartSession .

Returns

The `RUISDK.StopSession` function returns a `GenericReturn` enum value with the following possible values.

Table 4-7 • RUISDK.StopSession Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
functionNotAvail	Function is not available.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedNonEmpty	The sessionID is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDAlreadyActive	The sessionID is already currently in use.

Caching and Synchronizing

The Usage Intelligence SDK was designed to minimize network traffic and load on the end user's machine. In order to do this, all the collected architecture info and runtime tracking data is cached locally and then compressed and sent to the Usage Intelligence server in batches at various intervals whenever appropriate. Log data is usually sent at least once for every runtime session (during `RUISDK.StartSDK`), however this may vary based on the type of application and usage activity.

Data may be sent via HTTP (port 80) or HTTPS (port 443) depending on application preference. When data is sent over HTTP, AES encryption is used to encrypt the data payload. When data is sent on HTTPS, normal HTTPS security measures are used. The application may also choose to start with HTTPS communication and if blocked or unsuccessful the SDK will fall back to using encrypted HTTP.

- Forced Synchronization

Forced Synchronization

Under normal conditions, you do not need to instruct the Usage Intelligence SDK when to synchronize with the cloud server, since this happens automatically and is triggered by application interaction with the API. In a typical runtime session, the SDK will always attempt to synchronize with the server at least once whenever the application calls `RUISDK.StartSDK`. For long running applications, the SDK will periodically sync with the server every 20 minutes.

For applications that require a more customized synchronization, the API also provides an option to request manual synchronization of all cached data. This is done by calling the `RUISDK.Sync` function.

The `RUISDK.Sync` function performs a manual synchronization with the Server. In normal operation, the SDK periodically performs automatic synchronizations with the Server. `RUISDK.Sync` provides the client an ability to explicitly synchronize with the Server on demand. The manual synchronization can request a ReachOut with `getReachOut`.



Note • Similar to the parameter `reachOutOnAutoSync` (on function `RUISDK.CreateConfig`), the ReachOut will not be requested if there is no registered handler (`RUISDK` and `RUISDK.SetReachOutHandler`).

`RUISDK.Sync` can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK` and can be called zero or more times.



Note • `RUISDK.Sync` will not be successful if a New Registration is in progress (i.e. `RUISDK.CreateConfig` and `RUISDK.StartSDK`). A manual synchronization with the Server can be associated with `RUISDK.StopSDK`.

`RUISDK.Sync` is an asynchronous function returning immediately with further functionality executed on separate thread(s).

RUISDK.Sync

`RUIResult` `RUISDK.Sync` (Boolean `getReachOut`)

Parameters

The `RUISDK.Sync` function has the following parameters.

Table 4-8 • RUISDK.Sync Parameters

Parameter	Description
<code>getReachout</code> (bool)	This optional parameter instructs the server whether to send a ReachOut message during this particular sync if available.

Returns

The `RUISDK.Sync` function returns a `RUIResult` enum value with the following possible values.

Table 4-9 • RUISDK.Sync Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
<code>suspended</code>	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
<code>permanentlyDisabled</code>	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
<code>sdkOptedOut</code>	Instance has been instructed by the application to opt-out.
<code>configNotCreated</code>	Configuration has not been successfully created.
<code>sdkNotStarted</code>	SDK has not been successfully started.
<code>syncAlreadyRunning</code>	A sync with the Server is already running.
<code>sdkAlreadyStopped</code>	SDK has already been successfully stopped.
<code>invalidDoSyncValue</code>	The <code>doSync</code> manual sync flag/limit violates its allowable range.
<code>timeThresholdNotReached</code>	The API call frequency threshold (set by the Server) has not been reached.

Feature / Event Tracking

Through event tracking, Usage Intelligence allows you keep track of how your clients are interacting with the various features within your application, potentially identifying how often every single feature is being used by various user groups. Apart from monitoring feature usage, you can also keep track of how often an event happens - such as how often an auto save has been made on average for every hour your application was running. This is accomplished through [RUISDK.TrackEvent](#).

You may also keep a numeric value, a text value, or a collection of name/value String pairs every time an event is reported. This can be used, for example in the case of [RUISDK.TrackEventNumeric](#), to keep track of the length of time it took to save a file, or the file size that was saved, etc. These events can be recorded using the functions [RUISDK.TrackEventNumeric](#), [RUISDK.TrackEventText](#), and [RUISDK.TrackEventCustom](#) respectively.

Once event-related data has been collected, you will be able to identify trends of the features that are most used during evaluation and whether this trend changes once users switch to a freeware or purchased license or once they update to a different version/product build. You will also be able to compare whether any UI tweaks in a particular version or build number had any effect on exposing a particular feature or whether changes in the actual functionality make a feature more or less popular with users. This tool provides excellent insight for A/B testing whereas you can compare the outcome from different builds to improve the end user experience.

- [Tracking an Event](#)
- [Logging a Normal Event with a Numeric Field](#)
- [Logging a Normal Event with a String Field](#)
- [Logging a Custom Event](#)



Note • Event Tracking should NOT be used to track the occurrence of exceptions since there is another specific API call for this purpose. If you need to track exceptions, refer to [Exception Tracking](#).

Tracking an Event

The `RUISDK.TrackEvent` feature enables you keep track of how your clients are interacting with the various features within your application, potentially identifying how often every single feature is being used by various user groups. Apart from monitoring feature usage, you can also keep track of how often an event happens - such as how often an auto save has been made on average for every hour your application was running.

The `RUISDK.TrackEvent` feature logs a normal event with the supplied data.

`RUISDK.TrackEvent` can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

`RUISDK.TrackEvent` can be called while a New Registration is being performed (`RUISDK.CreateConfig`, `RUISDK.StartSDK`). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

`RUISDK.TrackEvent` is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

RUISDK.TrackEvent

```
RUIResult RUISDK.TrackEvent (String eventCategory, String eventName, String sessionId = "")
```

Parameters

The `RUISDK.TrackEvent` function has the following parameters.

Table 5-1 • `ruiTrackEvent()` Parameters

Parameter	Description
<code>eventCategory</code> (String)	<p>The name of the category of this event. This parameter is optional (set to <code>string.Empty</code> or <code>null</code> if not required).</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none">● Conditioning—All leading white space is removed.● Conditioning—All trailing white space is removed.● Conditioning—All internal white spaces other than space characters (' ') are removed.● Conditioning—Trimmed to a maximum of 128 UTF-8 characters.● Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.

Table 5-1 • `ruiTrackEvent()` Parameters

Parameter	Description
<code>eventName</code> (String)	<p>The name of the event to be tracked.</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none">● Conditioning—All leading white space is removed.● Conditioning—All trailing white space is removed.● Conditioning—All internal white spaces other than space characters (' ') are removed.● Conditioning—Trimmed to a maximum of 128 UTF-8 characters.● Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.
<code>sessionId</code> (String)	<p>If multiple user sessions are supported within the application (<code>multiSessionEnabled = true</code>), this should contain the unique ID that refers to the user session in which the event occurred. It must be a current valid value used in RUISDK.StartSession.</p> <p>If the application supports only a single session (<code>multiSessionEnabled = false</code>), then this value should be empty.</p>

Returns

The [RUISDK.TrackEvent](#) function returns a `RUIResult` enum value with the following possible values.

Table 5-2 • `RUISDK.TrackEvent` Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and <code>RUISDK</code> destructor are possible.
<code>suspended</code>	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
<code>permanentlyDisabled</code>	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
<code>sdkOptedOut</code>	Instance has been instructed by the application to opt-out.
<code>configNotCreated</code>	Configuration has not been successfully created.

Table 5-2 • RUISDK.TrackEvent Returns

Return	Description
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionID is expected to be empty, and it was not.
invalidSessionIDExpectedNonEmpty	The sessionID is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDAlreadyActive	The sessionID is already currently in use.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.

Logging a Normal Event with a Numeric Field

The `RUISDK.TrackEventNumeric` function logs a normal event with the supplied data, including a custom numeric field.

The `RUISDK.TrackEventNumeric` function can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

The `RUISDK.TrackEventNumeric` function can be called while a New Registration is being performed (`RUISDK.CreateConfig`, `RUISDK.StartSDK`). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

The `RUISDK.TrackEventNumeric` function is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

RUISDK.TrackEventNumeric

`RUIResult RUISDK.TrackEventNumeric (String eventCategory, String eventName, Double customValue, String sessionID = "")`

Parameters

The [RUISDK.TrackEventNumeric](#) function has the following parameters.

Table 5-3 • RUISDK.TrackEventNumeric Parameters

Parameter	Description
eventCategory (String)	<p>The name of the category of this event. This parameter is optional (set to <code>string.Empty</code> or <code>null</code> if not required).</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none"> • Conditioning—All leading white space is removed. • Conditioning—All trailing white space is removed. • Conditioning—All internal white spaces other than space characters (' ') are removed. • Conditioning—Trimmed to a maximum of 128 UTF-8 characters. • Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.
eventName (String)	<p>The name of the event to be tracked.</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none"> • Conditioning—All leading white space is removed. • Conditioning—All trailing white space is removed. • Conditioning—All internal white spaces other than space characters (' ') are removed. • Conditioning—Trimmed to a maximum of 128 UTF-8 characters. • Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.
customValue (double)	A numeric custom value related to this particular event.
sessionId (String)	<p>If multiple user sessions are supported within the application (<code>multiSessionEnabled = true</code>), this should contain the unique ID that refers to the user session in which the event occurred. It must be a current valid value used RUISDK.StartSession.</p> <p>If the application supports only a single session (<code>multiSessionEnabled = false</code>), then this value should be empty.</p>

Returns

The `RUISDK.TrackEventNumeric` function returns a `RUIResult` enum value with the following possible values.

Table 5-4 • RUISDK.TrackEventNumeric Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionID is expected to be empty, and it was not.
invalidSessionIDExpectedNonEmpty	The sessionID is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDAlreadyActive	The sessionID is already currently in use.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.

Logging a Normal Event with a String Field

The `RUISDK.TrackEventText` function logs a normal event with the supplied data, including a custom string field.

The `RUISDK.TrackEventText` function can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

The `RUISDK.TrackEventText` function can be called while a New Registration is being performed (`RUISDK.CreateConfig`, `RUISDK.StartSDK`). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

The `RUISDK.TrackEventText` function is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

RUISDK.TrackEventText

```
RUIResult RUISDK.TrackEventText (String eventCategory, String eventName, String customValue, String
sessionID = "")
```

Parameters

The `RUISDK.TrackEventText` function has the following parameters.

Table 5-5 • RUISDK.TrackEventText Parameters

Parameter	Description
eventCategory (String)	<p>The name of the category of this event. This parameter is optional (set to <code>string.Empty</code> or null if not required).</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none"> ● Conditioning—All leading white space is removed. ● Conditioning—All trailing white space is removed. ● Conditioning—All internal white spaces other than space characters (' ') are removed. ● Conditioning—Trimmed to a maximum of 128 UTF-8 characters. ● Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.
eventName (String)	<p>The name of the event to be tracked.</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none"> ● Conditioning—All leading white space is removed. ● Conditioning—All trailing white space is removed. ● Conditioning—All internal white spaces other than space characters (' ') are removed. ● Conditioning—Trimmed to a maximum of 128 UTF-8 characters. ● Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.
customValue (String)	<p>A text custom value related to this particular event. Trimmed to a maximum length determined by the Server. Current default maximum is 4096 UTF-8 characters.</p>

Table 5-5 • RUISDK.TrackEventText Parameters

Parameter	Description
sessionId (String)	If multiple user sessions are supported within the application (<code>multiSessionEnabled = true</code>), this should contain the unique ID that refers to the user session in which the event occurred. It must be a current valid value used in RUISDK.StartSession . If the application supports only a single session (<code>multiSessionEnabled = false</code>), then this value should be empty.

Returns

The [RUISDK.TrackEventText](#) function returns a `RUIResult` enum value with the following possible values.

Table 5-6 • RUISDK.TrackEventText Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionId is expected to be empty, and it was not.
invalidSessionIDExpectedNonEmpty	The sessionId is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionId violates its allowable minimum length.
invalidSessionIDTooLong	The sessionId violates its allowable maximum length.
invalidSessionIDAlreadyActive	The sessionId is already currently in use.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.

Logging a Custom Event

The `RUISDK.TrackEventCustom` function logs a normal event with the supplied data, including an array of custom name/value pairs.

The `RUISDK.TrackEventCustom` function can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

The `RUISDK.TrackEventCustom` function can be called while a New Registration is being performed (`RUISDK.CreateConfig`, `RUISDK.StartSDK`). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

The `RUISDK.TrackEventCustom` function is an asynchronous function, returning immediately with further functionality executed on separate thread(s).



Note • Custom data will be logged in the format `(Key1, Value1)&&(Key2, Value2)...&&(KeyN, ValueN)`.

RUISDK.TrackEventCustom

```
RUIResult RUISDK.TrackEventCustom (String eventCategory, String eventName, List<RUINameValuePair>  
customValues, String sessionId = "")
```

Parameters

The `RUISDK.TrackEventCustom` function has the following parameters.

Table 5-7 • RUISDK.TrackEventCustom Parameters

Parameter	Description
eventCategory (String)	<p>The name of the category of this event. This parameter is optional (set to <code>string.Empty</code> or <code>null</code> if not required).</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for <code>eventCategory</code> and <code>eventName</code>). The content of <code>eventCategory</code> and <code>eventName</code> is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none">● Conditioning—All leading white space is removed.● Conditioning—All trailing white space is removed.● Conditioning—All internal white spaces other than space characters (' ') are removed.● Conditioning—Trimmed to a maximum of 128 UTF-8 characters.● Validation—<code>eventCategory</code> can be empty; <code>eventName</code> cannot be empty.

Table 5-7 • RUISDK.TrackEventCustom Parameters

Parameter	Description
eventName (String)	<p>The name of the event to be tracked.</p> <p>Unlike V4 of the Usage Intelligence SDK, there is no concept of extended names (for eventCategory and eventName). The content of eventCategory and eventName is conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none">● Conditioning—All leading white space is removed.● Conditioning—All trailing white space is removed.● Conditioning—All internal white spaces other than space characters (' ') are removed.● Conditioning—Trimmed to a maximum of 128 UTF-8 characters.● Validation—eventCategory can be empty; eventName cannot be empty.
customValues (List<RUINameValuePair)	<p>A list of name/value String pairs related to this particular event. The RUINameValuePair class has two members:</p> <ul style="list-style-type: none">● public String name—Custom data associated with the event. A given name and/or value can be empty. A given name cannot contain white space. All names and values are trimmed to a maximum length configured on the Server. Both names and values have a default maximum of 128 UTF-8 characters.● public String value—Custom text data associated with the event, cannot be empty. Trimmed to a maximum length determined by the Server. Both names and values have a default maximum of 128 UTF-8 characters.
sessionId (String)	<p>If multiple user sessions are supported within the application (multiSessionEnabled = true), this should contain the unique ID that refers to the user session in which the event occurred. It must be a current valid value used in ruiStartSession.</p> <p>If the application supports only a single session (multiSessionEnabled = false), then this value should be empty.</p>

Returns

The `RUISDK.TrackEventCustom` function returns a `RUIResult` enum value with the following possible values.

Table 5-8 • RUISDK.TrackEventCustom Returns

Return	Description
ok	Synchronous functionality successful.

Table 5-8 • RUISDK.TrackEventCustom Returns

Return	Description
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionID is expected to be empty, and it was not.
invalidSessionIDExpectedNonEmpty	The sessionID is expected to be non-empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDNotActive	The sessionID is not currently in use.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.

ReachOut Direct-to-Desktop Messaging Service

From the Usage Intelligence dashboard, you can create ReachOut messaging campaigns that are used to deliver messages or surveys directly to the desktop of users who are running your software. You may choose a specific target audience for your message by defining a set of delivery filters so that each message will be delivered only to those users who match the specified criteria (such as geographical region, edition, version, build, language, OS, license status, runtime duration, days since install, etc.)

When building a ReachOut campaign you can choose between two message delivery options.

- **Automated HTML pop-up messages** (handled entirely by the Usage Intelligence library and requires absolutely NO coding.) Currently this is only available on Windows and macOS. For more information, see [Automated Message Retrieval](#).
- **Manually retrieving the message** (plain text or URL) through code by using the `RUISDK.CheckForReachOut` or `RUISDK.CheckForReachOutOfType` functions. For more information, see [Manual Message Retrieval](#).

Automated Message Retrieval

The Usage Intelligence V5 SDK provides a default, automated ReachOut handler that works on Windows and macOS. Developers can override this handler by implementing the ReachOut handler interface with their own code and providing this handler to the [RUISDK.SetReachOutHandler](#) function after the creation of the RUISDK object. In brief, the `RUIReachOutHandler` class has three abstract methods that must be implemented:

Table 6-1 • Functions Required to Support Custom ReachOut

Function	Description
<code>abstract public void Handle(String width, String height, Int32 position, String message)</code>	<p>Responsible for handling (displaying) the ReachOut message. The parameters are:</p> <ul style="list-style-type: none">● width—Width of the window as configured in the ReachOut campaign. Value will be suffixed by P for pixels or % for percentage.● height—Height of the window as configured in the ReachOut campaign. Value will be suffixed by P for pixels or % for percentage.● position—Position where the window should be displayed (1 = top-left, 2 = top-center, 3 = top-right, 4 = middle-left, 5 = middle-center, 6 = middle right, 7 = bottom-left, 8 = bottom-center, 9 = bottom-right).● message—URL to display.
<code>abstract public int GetReadyForNext()</code>	<p>Called by the SDK to see if the handler is ready for the next ReachOut message. A zero value indicates not ready, non-zero indicates ready.</p>
<code>abstract public void Close()</code>	<p>Called by SDK when stopping or shutting down the SDK.</p>

The [RUISDK.SetReachOutHandler](#) function sets a custom ReachOut handler. Any previously registered handler, including the default graphical ReachOut handler that may have been registered ([RUISDK](#)). Setting a handler to NULL effectively removes the current handler, if any, without setting a new handler.

[RUISDK.SetReachOutHandler](#) can be called more than once.

[RUISDK.SetReachOutHandler](#) is a synchronous function, returning when all functionality is completed.

RUISDK.SetReachOutHandler

`RUIResult RUISDK.SetReachOutHandler (RUIReachOutHandler handler)`

Parameters

The `RUISDK.SetReachOutHandler` function has the following parameters.

Table 6-2 • RUISDK.SetReachOutHandler Parameters

Parameter	Description
handler (RUIReachOutHandler)	An instance implementing the RUIReachOutHandler interface.

Returns

The `RUISDK.SetReachOutHandler` function returns a `RUIResult` enum value with the following possible values.

Table 6-3 • RUISDK.SetReachOutHandler Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermanentlyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
sdkAlreadyStarted	SDK has already been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.

Manual Message Retrieval

When you want full control on when and where in your application to display a ReachOut message to your users, you can define ReachOut messages of the type plain text or URL. From within the application call one of the below functions to check with the Usage Intelligence server whether there are any pending messages (of this type) waiting to be delivered.

You may choose to display plain text messages anywhere in the application such as in a status bar or information box. URL type messages can either be opened in a browser or else rendered it in a HTML previewer embedded within the application.

The difference between `RUISDK.CheckForReachOut` and `RUISDK.CheckForReachOutOfType` is that `RUISDK.CheckForReachOut` takes an 'empty' messageType parameter and fills it with the type of message that is sent by the server. In the case of `RUISDK.CheckForReachOutOfType`, the message type is specified by the developer and the server would then only send messages of that type.

The message type (plain text or URL) can be one of the types from the following `RUIMessageType` enum:

any (0)
text (1)
url (2)

For more information, see the following:

- [Checking for Manual ReachOut Messages of Any Type](#)
- [Checking for Manual ReachOut Messages of a Specified Type](#)

Checking for Manual ReachOut Messages of Any Type

The [RUISDK.CheckForReachOut](#) function explicitly checks for manual ReachOut messages on the Server. [RUISDK.CheckForReachOut](#) will check for any manual ReachOut message type, whereas [RUISDK.CheckForReachOutOfType](#) will check for ReachOut messages of a specified type.

[RUISDK.CheckForReachOut](#) can be called between [RUISDK.StartSDK](#) and [RUISDK.StopSDK](#), and can be called zero or more times.

[RUISDK.CheckForReachOut](#) is a synchronous function, returning when all functionality is completed.

RUISDK.CheckForReachOut

`RUIResult RUISDK.CheckForReachOut (out String message, out Int32 messageCount, out Int32 messageType)`

Parameters

The [RUISDK.CheckForReachOut](#) function has the following parameters.

Table 6-4 • `ruicheckforreachout()` Parameters

Parameter	Description
<code>message (out String)</code>	A string of maximum length 256 that will be filled-in by the SDK with the message that is sent by the Server.
<code>messageCount (out Int32)</code>	Receives the message count (including returned message).
<code>messageType (out Int32)</code>	Receives the type of returned message. Can be either 'text' or 'url' from the <code>ref:RUIMessageType</code> enum.

Returns

The [RUISDK.CheckForReachOut](#) function returns a `RUIResult` enum value with the following possible values.

Table 6-5 • `RUISDK.CheckForReachOut` Returns

Return	Description
<code>ok</code>	Function successful.
<code>sdkInternalErrorFatal</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>sdkAborted</code>	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and <code>RUISDK</code> destructor are possible.
<code>suspended</code>	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.

Table 6-5 • RUISDK.CheckForReachOut Returns

Return	Description
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
timeThresholdNotReached	The API call frequency threshold (set by the Server) has not been reached.
networkConnectionError	Not able to reach the Server.
networkServerError	Error while communicating with the Server.
networkResponseInvalid	Message format error while communicating with the Server.

Code Example

The following example gets all of the messages on the server, checks if it is a text or URL message and displays the appropriate message box.

```
// Create instance
bool registerDefaultReachOut = true;
String ruiSDKDLLPath = "<path to Usage Intelligence SDK .NET library>";
RUISDK mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
// Other initialization.....

string message = "";
Int32 msgType;
Int32 msgCount = 0;

while (mySDK.CheckForReachOut(out message, out msgCount, out msgType) == RUIResult.ok &&
    msgCount > 0) {
    if (msgType == (Int32)RUIMessageType.text) {
        MessageBox.Show("TEXT Message" + message);
    } else if (msgType == (Int32)RUIMessageType.url){
        MessageBox.Show("URL Message" + message);
    }
}
```

Checking for Manual ReachOut Messages of a Specified Type

The [RUISDK.CheckForReachOutOfType](#) function explicitly checks for manual ReachOut messages on the Server. [RUISDK.CheckForReachOutOfType](#) will check for manual ReachOut messages of the specified type, whereas [RUISDK.CheckForReachOut](#) will check for manual ReachOut messages of any type.

`RUISDK.CheckForReachOutOfType` can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

`RUISDK.CheckForReachOutOfType` is a synchronous function, returning when all functionality is completed.

RUISDK.CheckForReachOutOfType

`RUIResult RUISDK.CheckForReachOutOfType (String message, out Int32 messageCount, Int32 messageTypeExpected)`

Parameters

The `RUISDK.CheckForReachOutOfType` function has the following parameters.

Table 6-6 • RUISDK.CheckForReachOutOfType Parameters

Parameter	Description
message (String)	A string of maximum length 256 that will be filled-in by the SDK with the message that is sent by the server.
messageCount (out Int32)	Receives the message count (including returned message).
messageTypeExpected (Int32)	This value is filled by the developer and should contain the type of message that is being requested. This must be one of the <code>RUIMessageType</code> enum values.

Returns

The `RUISDK.CheckForReachOutOfType` function returns a `RUIResult` enum value with the following possible values.

Table 6-7 • RUISDK.CheckForReachOutOfType Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. <code>RUISDK.StopSDK</code> and <code>RUISDK</code> destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.

Table 6-7 • RUISDK.CheckForReachOutOfType Returns

Return	Description
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidMessageType	The messageType is not an allowable value.
timeThresholdNotReached	The API call frequency threshold (set by the Server) has not been reached.
networkConnectionError	Not able to reach the Server.
networkServerError	Error while communicating with the Server.
networkResponseInvalid	Message format error while communicating with the Server.

Code Example

This example gets all text messages from the server and displays them inside of a message box.

```
bool registerDefaultReachOut = true;
String ruiSDKDLLPath = "<path to Revulytics Usage Intelligence SDK .NET library>";
RUISDK mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
// Other initialization.....

String message = "";
Int32 msgCount = 0

while (mySDK.CheckForReachOutOfType(out message, out msgCount, (Int32)RUIMessageType.text) ==
RUIResult.ok &&
    msgCount > 0) {
    MessageBox.Show(message);
}
```


Exception Tracking

Usage Intelligence is able to collect runtime exceptions from your application and then produce reports on the exceptions that were collected. Once an exception is tracked, Usage Intelligence will also save a snapshot of the current machine architecture so that you can later (through the on-line exception browser within the Usage Intelligence dashboard) investigate the exception details and pinpoint any specific OS or architecture related information that are the cause of common exceptions. Collection of exception data is done through the [RUISDK.TrackException](#) method.

The [RUISDK.TrackException](#) function logs an exception event with the supplied data.

[RUISDK.TrackException](#) can be called between [RUISDK.StartSDK](#) and [RUISDK.StopSDK](#), and can be called zero or more times.

[RUISDK.TrackException](#) can be called while a New Registration is being performed ([RUISDK.CreateConfig](#), [RUISDK.StartSDK](#)). However, the event data is not written to the log file until the New Registration completes, and if the New Registration fails, the data will be lost.

[RUISDK.TrackException](#) is an asynchronous function, returning immediately with further functionality executed on separate thread(s).

[RUISDK.TrackException](#)

```
RUIResult RUISDK.TrackException (RUIExceptionEvent exceptionData, String sessionId = "")
```

Parameters

The [RUISDK.TrackException](#) function has the following parameters.

Table 7-1 • RUISDK.TrackException Parameters

Parameter	Description
exceptionData (RUIExceptionEvent)	<p>The exception data to log:</p> <ul style="list-style-type: none"> ● className—Class catching exception. Content conditioning and validation rules above. ● methodName—Method catching exception. Content conditioning and validation rules above. ● message—Exception message. No content restrictions, but trimmed to a maximum length determined by the Server. ● stackTrace—Exception stack trace. No content restrictions, but trimmed to a maximum length determined by the Server. ● sessionId (String)—An optional session ID. <p>The content of <code>exceptionData.className</code> and <code>exceptionData.methodName</code> are conditioned and validated (after conditioning) with the following rules:</p> <ul style="list-style-type: none"> ● Conditioning—All leading white space is removed. ● Conditioning—All trailing white space is removed. ● Conditioning—All internal white spaces other than space characters (' ') are removed. ● Conditioning—Trimmed to a maximum of 128 UTF-8 characters. ● Validation—Cannot be empty.
sessionId (String)	<p>An optional session ID.</p> <p>Different than V4 of the Usage Intelligence (Trackerbird) SDK, RUISDK.TrackException accepts a <code>sessionId</code> parameter. The usage requirements of the <code>sessionId</code> parameter are the following:</p> <ul style="list-style-type: none"> ● If multiple user sessions are supported within the application (<code>multiSessionEnabled = true</code>), <code>sessionId</code> must be a current valid value used in RUISDK.StartSession, or it can be empty. This is different than normal event tracking APIs, whereby an empty value is not allowed. ● If the application supports only a single session (<code>multiSessionEnabled = false</code>), then <code>sessionId</code> must be empty.

Returns

The [RUISDK.TrackException](#) function returns a [RUIResult](#) enum value with the following possible values.

Table 7-2 • RUISDK.TrackException Returns

Return	Description
ok	Synchronous functionality successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidSessionIDExpectedEmpty	The sessionID is expected to be empty, and it was not.
invalidSessionIDTooShort	The sessionID violates its allowable minimum length.
invalidSessionIDTooLong	The sessionID violates its allowable maximum length.
invalidSessionIDNotActive	The sessionID is not currently in use.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.

Code Example

The following is a code example of [RUISDK.TrackException](#) inside of a try catch statement so that Usage Intelligence can record it.

```
// Create instance
bool registerDefaultReachOut = true;
String ruiSDKDLLPath = "<path to Usage Intelligence SDK .NET library>";
mySDK = new RUISDK(registerDefaultReachOut, ruiSDKDLLPath);
// Other initialization.....

private void btnSave_Click(object sender, EventArgs e)
{
    try
```

```
    {  
        //Save Button Logic  
    }  
    catch (Exception ex)  
    {  
        RUIExceptionEvent myRUIExceptionData = new RUIExceptionEvent("Form1", ex.TargetSite, ex.Message,  
ex.StackTrace);  
        mySDK.TrackException(myRUIExceptionData);  
    }  
}
```

License Management

Usage Intelligence allows you to maintain your own license key registry on the Usage Intelligence server in order to track license key usage and verify the status/validity of license keys used on your clients.

There are multiple ways that the key registry is populated with license keys:

- Keys are collected automatically from your clients whenever you call the [RUISDK.SetLicenseKey](#) function.
- You can add/edit keys manually via the Usage Intelligence dashboard.
- You can add/edit keys directly from your CRM by using the Usage Intelligence Web API.

For more information, see:

- [Client vs. Server Managed Licensing](#)
- [Checking the License Data of the Supplied License Key](#)
- [Setting the Current License to the Supplied License Key](#)

Client vs. Server Managed Licensing

Usage Intelligence gives you the option to choose between managing your license key status (i.e. Blacklisted, Whitelisted, Expired or Activated) and key type on the server (server managed) or managing this status through the application (client managed). Applications can individually set whether each license status or license type is either Server Managed or Client Managed by visiting the **License Key Management Settings** page on the Usage Intelligence dashboard. The major difference is outlined below:

Client Managed

The server licensing mechanism works in reporting-only mode and your application is expected to notify the server that the license status has changed through the use of [RUI.SetLicenseData](#).

When to Use

Use client managed when you have implemented your own licensing module/mechanism within your application that can identify whether the license key used by this client is blacklisted, whitelisted, expired or activated. In this case you do not need to query the Usage Intelligence server to get this license status. However you can simply use this function to passively inform Usage Intelligence about the license status used by the client. In this case:

- Usage Intelligence will use this info to filter and report the different key types and statuses and their activity.
- Usage Intelligence licensing server will operate in passive mode (i.e. reporting only).
- Calling `RUISDK.CheckLicenseKey` will return the license type and flags as Unknown (-1).

Server Managed

You manage the key status on the server side and your application queries the server to determine the status of a particular license key by calling `RUISDK.CheckLicenseKey` or `RUISDK.SetLicenseKey`.

When to Use

Use server managed if you do not have your own licensing module/mechanism within your application and thus you have no way to identify the license status at the client side.

In this mode, whenever a client changes their license key your application can call `RUISDK.SetLicenseKey` to register the new license key. In reply to this API call, the server will check if the license key exists on the key register and in the reply it will specify to your application whether this key is flagged as blacklisted, whitelisted, expired or activated, along with the type of key submitted. If you want to verify a key without actually registering a key change for this client you can use `RUISDK.CheckLicenseKey` which returns the same values but does not register this key with the server. In this case:

- The key register is maintained manually on the server by the software owner
- Usage Intelligence licensing server will operate in active mode so apart from using this key info for filtering and reporting, it will also report back the key status (validity) to the SDK whenever requested through the API.
- Calling `RUISDK.CheckLicenseKey` or `RUISDK.SetLicenseKey` will return the 4 status flags denoting whether a registered key is: Blacklisted, Whitelisted, Expired and Activated and the key type.
- If the key does not exist on the server, all 4 status flags will be returned as false (0).

Checking the License Data of the Supplied License Key

The `RUISDK.CheckLicenseKey` function checks the Server for the license data for the supplied licenseKey. Whereas `RUISDK.CheckLicenseKey` is a passive check, `RUISDK.SetLicenseKey` changes the license key. The license array has size, indexes and values as specified in `RUISDKDefines.h`.



Note • The order of the license array data has changed from the Usage Intelligence (Trackerbird) SDK V4.

The `RUISDK.CheckLicenseKey` function can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

The `RUISDK.CheckLicenseKey` function is a synchronous function returning when all functionality is completed.

RUISDK.CheckLicenseKey

RUIResult RUISDK.CheckLicenseKey (String licenseKey, out List<Int32> licenseArray)

Parameters

The [RUISDK.CheckLicenseKey](#) function has the following parameters.

Table 8-1 • RUISDK.CheckLicenseKey Parameters

Parameter	Description
licenseKey (String)	<p>The license key to be checked. This value cannot be empty.</p> <p>The function accepts a String parameter that is the license key itself and a List<Int32> array of length 5 that it fills with the returned result. You may use the following constants to refer to the required value by its index from the RUILicenseKeyIndex enum:</p> <pre> typeIndex (0) expiredIndex (1) activeIndex (2) blacklistedIndex (3) whitelistedIndex (4) </pre> <p>Each of the values 1 through 5 will be set to either 0 or 1 that refers to false or true respectively. The first value (RUILicenseKeyIndex.typeIndex) will be set to a number between 0 and 7 (inclusive) that refers to the 8 possible license types listed below. The values may also be -1 that means “Unknown”.</p> <p>The following are the possible license types from the RUILicenseKeyType enum:</p> <pre> unchanged (-1) - Key Type is Unchanged (when in parameter) or Unknown (when out parameter) evaluation (0) purchased (1) freeware (2) unknown (3) nfr (4) - Key Type is Not For Resale custom1 (5) custom2 (6) custom3 (7) </pre> <p>The following are the possible key status values from the RUILicenseKeyStatus enum:</p> <ul style="list-style-type: none"> ● unchanged (-1)—Key Status is Unchanged (when in parameter) or Unknown (when out parameter). ● no (0)—Key Status is No. ● yes (1)—Key Status is Yes.
licenseArray (List<Int32> length of 5)	The vector that will be filled to contain the license status flags.

Returns

The `RUISDK.CheckLicenseKey` function returns a `RUIResult` enum value with the following possible values.

Table 8-2 • RUISDK.CheckLicenseKey Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Function validation: Configuration has not been successfully created.
sdkNotStarted	Function validation: SDK has not been successfully started.
sdkAlreadyStopped	Function validation: SDK has already been successfully stopped.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.
timeThresholdNotReached	Function validation: The API call frequency threshold (set by the Server) has not been reached.
networkConnectionError	Not able to reach the Server.
networkServerError	Error while communicating with the Server.
networkResponseInvalid	Message format error while communicating with the Server.

Code Example

```
//Test a license key
mySDK.StartSDK(); //...; //Creation and initialization shown in other snippets.
String myProductKey = "xyz";
List<Int32> licenseResult;

RUIResult rc = mySDK.CheckLicenseKey(myProductKey, out licenseResult);
if(rc == RUIResult.ok)
{
    if (licenseResult[(Int32)RUILicenseKeyIndex.typeIndex] == (Int32)RUILicenseKeyType.unchanged) {
        MessageBox.Show("License Key is unchanged");
    } else {
```



```

        String myType = "License type = " +
        (licenseResult[(Int32)RUILicenseKeyIndex.typeIndex]).ToString();
        MessageBox.Show(myType);
    }
    //Check if the license key is activated
    if (licenseResult[(Int32)RUILicenseKeyIndex.activeIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("License Active");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.activeIndex] == (Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("License Inactive");
    } else {
        MessageBox.Show("License status unknown");
    }

    //check if license key is blacklisted
    if (licenseResult[(Int32)RUILicenseKeyIndex.blacklistedIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is black listed");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.blacklistedIndex] ==
(Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT black listed");
    } else {
        MessageBox.Show("Key blank listed status is unknown");
    }

    //Check if license key is expired
    if (licenseResult[(Int32)RUILicenseKeyIndex.expiredIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is expired");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.expiredIndex] == (Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT expired");
    } else {
        MessageBox.Show("Key expiration status is unknown");
    }

    //Check if license key is white listed
    if (licenseResult[(Int32)RUILicenseKeyIndex.whitelistedIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is white listed");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.whitelistedIndex] ==
(Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT white listed");
    } else {
        MessageBox.Show("Key white listed status is unknown");
    }
} else {
    MessageBox.Show("Failed to invoke function RUISDK.CheckLicenseKey()");
}

```

Setting the Current License to the Supplied License Key

The [RUISDK.SetLicenseKey](#) function checks the Server for the license data for the supplied licenseKey and sets the current license to licenseKey.

Whereas [RUISDK.CheckLicenseKey](#) is a passive check, [RUISDK.CheckLicenseKey](#) changes the license key. The Server always registers the licenseKey even if the Server knows nothing about the licenseKey.

When a new (unknown) `licenseKey` is registered, the Server sets the license data to `RUILicenseKeyType.unknown` and the four status flags (blacklisted, whitelisted, expired, activated) to `RUILicenseKeyStatus.no`. The license array has size, indexes and values as specified in `RUISDKCS.cs`.



Note • The order of the license array data has changed from the Usage Intelligence SDK V4.

The `RUISDK.SetLicenseKey` function can be called between `RUISDK.StartSDK` and `RUISDK.StopSDK`, and can be called zero or more times.

The `RUISDK.SetLicenseKey` function is primarily a synchronous function, returning once the check with Server has completed. Some post- processing functionality is performed asynchronously, executed on separate thread(s).

The `RUISDK.SetLicenseKey` function should be called when an end user is trying to enter a new license key into your application and you would like to confirm that the key is in fact valid (i.e. blacklisted or whitelisted), active, or expired. The function is very similar to the `RUISDK.CheckLicenseKey` function, however rather than just being a passive license check, it also registers the new key with the server and associates it with this particular client installation.

RUISDK.SetLicenseKey

```
RUIResult RUISDK.SetLicenseKey (String newKey, out List<Int32> licenseArray, String sessionID = "")
```

Parameters

The `RUISDK.SetLicenseKey` function has the following parameters.

Table 8-3 • RUISDK.SetLicenseKey Parameters

Parameter	Description
licenseKey (String)	<p>The license key to be checked. This value cannot be empty.</p> <p>The function accepts a String parameter that is the license key itself and a <code>List<Int32></code> array of length 5 that it fills with the returned result. You may use the following constants to refer to the required value by its index from the <code>RUILicenseKeyIndex</code> enum:</p> <pre> typeIndex (0) expiredIndex (1) activeIndex (2) blacklistedIndex (3) whitelistedIndex (4) </pre> <p>Each of the values 1 through 5 will be set to either 0 or 1 that refers to false or true respectively. The first value (<code>RUILicenseKeyIndex.typeIndex</code>) will be set to a number between 0 and 7 (inclusive) that refers to the 8 possible license types listed below. The values may also be -1 that means “Unknown”.</p> <p>The following are the possible license types from the <code>RUILicenseKeyType</code> enum:</p> <pre> unchanged (-1) - Key Type is Unchanged (when in parameter) or Unknown (when out parameter) evaluation (0) purchased (1) freeware (2) unknown (3) nfr (4) - Key Type is Not For Resale custom1 (5) custom2 (6) custom3 (7) </pre> <p>The following are the possible key status values:</p> <ul style="list-style-type: none"> ● unchanged (-1)—Key Status is Unchanged (when in parameter) or Unknown (when out parameter). ● no (0)—Key Status is No. ● yes (1)—Key Status is Yes.
licenseArray (List<Int32> of length 5)	The vector that will be filled to contain the license status flags.

Table 8-3 • RUISDK.SetLicenseKey Parameters

Parameter	Description
sessionID (String)	<p>An optional session ID complying with above usage (content conditioning and validation rules in RUISDK.StartSession).</p> <p>Different from the V4 of the Usage Intelligence SDK, a sessionID parameter can be supplied (based on RUISDK.CreateConfig multi session value):</p> <ul style="list-style-type: none"> ● If multiSessionEnabled is set to false—sessionID must be empty. This is similar to event tracking APIs. ● If multiSessionEnabled is set to true—sessionID must be a current valid value used in RUISDK.StartSession, or it can be empty. This is different than normal event tracking APIs, whereby a empty value is not be allowed.

Returns

The [RUISDK.SetLicenseKey](#) function returns a RUIResult enum value with the following possible values.

Table 8-4 • RUISDK.SetLicenseKey Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Function validation: Configuration has not been successfully created.
sdkNotStarted	Function validation: SDK has not been successfully started.
sdkAlreadyStopped	Function validation: SDK has already been successfully stopped.
invalidParameterExpectedNonEmpty	Some API parameter is expected to be non-empty, and is not.
timeThresholdNotReached	Function validation: The API call frequency threshold (set by the Server) has not been reached.

Table 8-4 • RUISDK.SetLicenseKey Returns

Return	Description
networkConnectionError	Not able to reach the Server.
networkServerError	Error while communicating with the Server.
networkResponseInvalid	Message format error while communicating with the Server.

Code Example

```
//Register a new license key
bool useDefaultReachOutHandler = false;
RUISDK mySDK = new RUISDK(useDefaultReachOutHandler); //...; //Creation and initialization shown in
other snippets.
String myProductKey = "xyz";
List<Int32> licenseResult;

RUIResult rc = mySDK.SetLicenseKey(myProductKey, out licenseResult);
if(rc == RUIResult.ok)
{
    if (licenseResult[(Int32)RUILicenseKeyIndex.typeIndex] == (Int32)RUILicenseKeyType.unchanged) {
        MessageBox.Show("License Key is unchanged");
    } else {
        String myType = "License type = " +
        (licenseResult[(Int32)RUILicenseKeyIndex.typeIndex]).ToString();
        MessageBox.Show(myType);
    }
    //Check if the license key is activated
    if (licenseResult[(Int32)RUILicenseKeyIndex.activeIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("License Active");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.activeIndex] == (Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("License Inactive");
    } else {
        MessageBox.Show("License status unknown");
    }

    //check if license key is blacklisted
    if (licenseResult[(Int32)RUILicenseKeyIndex.blacklistedIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is black listed");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.blacklistedIndex] ==
(Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT black listed");
    } else {
        MessageBox.Show("Key blank listed status is unknown");
    }

    //Check if license key is expired
    if (licenseResult[(Int32)RUILicenseKeyIndex.expiredIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is expired");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.expiredIndex] == (Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT expired");
    } else {
        MessageBox.Show("Key expiration status is unknown");
    }
}
```

```
    }

    //Check if license key is white listed
    if (licenseResult[(Int32)RUILicenseKeyIndex.whitelistedIndex] == (Int32)RUILicenseKeyStatus.yes){
        MessageBox.Show("Key is white listed");
    } else if (licenseResult[(Int32)RUILicenseKeyIndex.whitelistedIndex] ==
(Int32)RUILicenseKeyStatus.no) {
        MessageBox.Show("Key is NOT white listed");
    } else {
        MessageBox.Show("Key white listed status is unknown");
    }
} else {
    MessageBox.Show("Failed to invoke function RUISDK.setLicenseKey()");
}
```

Custom Properties

Apart from the pre-set values that Usage Intelligence collects, such as OS version, product version, edition, language, and license type, you also have the ability to collect any custom value that is relevant to your specific application.

Typical examples where you can benefit from custom properties include storing the download source or marketing campaign from where the user downloaded your software or some other status in your application. These custom properties will then be available inside the filters panel on every report so you may use them as part of your report filtering criteria.

Please note that custom properties are intended to store values that are not very dynamic for a particular installation since the reporting granularity provided by Usage Intelligence is on a daily basis. This means if you use this API to register multiple values inside the same custom property (for the same user), Usage Intelligence will only store the latest known property value for that user on that particular day.

The [RUISDK.SetCustomProperty](#) method is used to set the value of a custom property. For more information, see [Setting Custom Property Data](#).

Setting Custom Property Data

The [RUISDK.SetCustomProperty](#) method is used to set the value of a custom property.

RUISDK.SetCustomProperty

`RUIResult SetCustomProperty (UInt32 customPropertyID, String customValue)`

Parameters

The [RUISDK.SetCustomProperty](#) function has the following parameters.

Table 9-1 • RUISDK.SetCustomProperty Parameters

Parameter	Description
customPropertyId (UInt32)	This is a numeric index between 1 and 20. On the Usage Intelligence dashboard, custom values are given an ID ranging from C01 to C20. This ID is used to identify which of the 20 possible custom value is being set.
customValue (String)	The custom property value to use in Server reports; empty value clears the value.

Returns

The [RUISDK.SetCustomProperty](#) function returns a [RUIResult](#) enum value with the following possible values.

Table 9-2 • RUISDK.SetCustomProperty Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkSuspended	The Server has instructed a temporary back-off.
sdkPermantlyDisabled	The Server has instructed a permanent disable.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkAlreadyStopped	SDK has already been successfully stopped.
invalidCustomPropertyID	The customPropertyID violates its allowable range.

10

SDK Status Checks

You can perform SDK status checks using the `RUISDK.GetState` and `RUISDK.TestConnection` functions.

- [Getting the State of the Usage Intelligence Instance](#)
- [Testing the Connection Between the SDK and the Server](#)

Getting the State of the Usage Intelligence Instance

The `RUISDK.GetState` function returns a `RUISTATE` value that contains the state of the Usage Intelligence instance. The SDK state can change asynchronously.

`RUISDK.GetState` can be called more than once.

`RUISDK.GetState` is a synchronous function, returning when all functionality is completed.

`RUISDK.GetState`

`RUIState` `RUISDK.GetState` ()

Returns

The `RUISDK.GetState` function returns a `RUIResult` enum value with the following possible values.

Table 10-1 • `RUISDK.GetState` Returns

Return	Description
<code>fatalError</code>	Irrecoverable internal fatal error. No further API calls should be made.
<code>uninitialized</code>	Instance successfully created but not yet successfully configured (<code>RUISDK.CreateConfig</code>).

Table 10-1 • RUISDK.GetState Returns

Return	Description
configInitializedNotStarted	Successfully configured (RUISDK.CreateConfig) and not yet started (RUISDK.StartSDK). Will be normal start.
configMissingOrCorruptNotStarted	Successfully configured (RUISDK.CreateConfig) and not yet started (RUISDK.StartSDK). Will be a New Registration start.
startedNewRegRunning	Running (RUISDK.StartSDK) with New Registration in progress, not yet completed.
running	Running (RUISDK.StartSDK) with no need for New Registration or with successfully completed New Registration.
abortedNewRegProxyAuthFailure	Aborted run (RUISDK.StartSDK) due to failed proxy authentication on New Registration (RUISDK.CreateConfig).
abortedNewRegNetworkFailure	Aborted run (RUISDK.StartSDK) due to failed New Registration (RUISDK.CreateConfig).
abortedNewRegFailed	Aborted run (RUISDK.StartSDK) due to failed New Registration (RUISDK.CreateConfig).
suspended	Instance has been instructed by Server to back-off. Will return to Running once back-off cleared.
permanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
optedOut	Instance has been instructed by the application to opt-out.
stoppingNonSync	Stop in progress (RUISDK.StopSDK). Stopping non-Sync-related threads.
stoppingAll	Stop in progress (RUISDK.StopSDK). Stopping Sync-related threads.
stopped	Stop completed (RUISDK.StopSDK).

Testing the Connection Between the SDK and the Server

The [RUISDK.TestConnection](#) method tests the connection between the SDK and the Server. If a valid configuration file exists ([RUISDK.CreateConfig](#)), the URL used for the test will be the one in that file, set by the Server. Otherwise, the URL used for the test will be the one set by the client in the call to [RUISDK.CreateConfig](#). The proxy is used during the test ([RUISDK.SetProxy](#)).

This method allows you to test your application's connectivity with the Usage Intelligence server and to confirm that your CallHome URL is active and operational (for debugging purposes when using a custom CallHome URL). You do NOT need to call this method before other API calls since this would cause unnecessary traffic on your clients' machines. Instead, you should check the return types by each API call since every API call that requires server communication does its own connection status check and returns any connection errors as part of its return type.

[RUISDK.TestConnection](#) can be called between [RUISDK.CreateConfig](#) and [RUISDK.StopSDK](#) and can be called zero or more times.

[RUISDK.TestConnection](#) is a synchronous function, returning when all functionality is completed.

RUISDK.TestConnection

RUIResult RUISDK.TestConnection ()

Returns

The [RUISDK.TestConnection](#) method returns a [RUIResult](#) enum value with the following possible values.

Table 10-2 • RUISDK.TestConnection Returns

Return	Description
ok	Function successful.
sdkInternalErrorFatal	Irrecoverable internal fatal error. No further API calls should be made.
sdkAborted	A required New Registration has failed, and hence the SDK is aborted. RUISDK.StopSDK and RUISDK destructor are possible.
sdkPermanentlyDisabled	Instance has been instructed by Server to disable. This is permanent, irrecoverable state.
sdkOptedOut	Instance has been instructed by the application to opt-out.
configNotCreated	Configuration has not been successfully created.
sdkNotStarted	SDK has not been successfully started.
sdkAlreadyStopped	SDK has already been successfully stopped.
networkConnectionError	Not able to reach the Server.
networkServerError	Error while communicating with the Server.
networkResponseInvalid	Message format error while communicating with the Server.
testConnectionInvalidProductID	Invalid ProductID.
testConnectionMismatch	Mismatch between URL and ProductID.

Common Function Return Values

This section lists common return values for Usage Intelligence functions.

ok(0)

Function (which may be synchronous or asynchronous), fully successful during synchronous functionality.

sdkInternalErrorFatal(-999)

Irrecoverable internal fatal error. No further API calls should be made.

sdkAborted(-998)

A required New Registration has failed, and hence the SDK is aborted. [RUISDK.StopSDK](#) and RUISDK destructor possible.

invalidSDKObject(-100)

SDK Instance parameter is NULL or invalid. Not used in C# interface.

invalidParameterExpectedNonEmpty(-111)

Some API parameter is expected to be non-empty, and is not.

invalidParameterExpectedNoWhitespace(-113)

Some API parameter is expected to be free of white space, and is not.

invalidParameterTooLong(-114)

Some API parameter violates its allowable maximum length.

invalidConfigPath(-120)

The configFilePath is not a well-formed directory name.

invalidConfigPathNonexistentDir(-121)

The configFilePath identifies a directory that does not exist.

invalidConfigPathNotWritable(-122)

The configFilePath identifies a directory that is not writable.

invalidProductID(-130)

The productID is not a well-formed Product ID.

invalidServerURL(-140)

The serverURL is not a well-formed URL.

invalidProtocol(-144)

The protocol is not a legal value. Must be one of the following:

Table 11-1 • Protocol Values

Protocol	Description
httpPlusEncryption (1)	Protocol to the Server is HTTP + AES-128 Encrypted payload.
httpsWithFallback (2)	Protocol to the Server is HTTPS, unless that doesn't work, falling back to HTTP + Encryption.
https (3)	Protocol to the Server is HTTPS with no fall-back.

invalidAESKeyExpectedEmpty(-145)

The AES Key is expected to be NULL/empty, and it is not. This occurs if https is used at the protocol selection and an AES Key is supplied.

invalidAESKeyLength(-146)

The AES Key is not the expected length (32 hex chars). An AES key is required if using httpPlusEncryption or httpsWithFallback as the protocol choice.

invalidAESKeyFormat(-147)

The AES Key is not valid hex encoding. String passed must only include hexadecimal characters.

invalidSessionIDExpectedEmpty(-150)

The sessionID is expected to be empty, and it was not. This occurs if a session ID is passed to functions that accept a session ID but no [RUISDK.StartSession](#) is active.

invalidSessionIDExpectedNonEmpty(-151)

The sessionID is expected to be non-empty, and it was empty.

invalidSessionIDTooShort(-152)

The sessionID violates its allowable minimum length. Minimum length is 10.

invalidSessionIDTooLong(-153)

The sessionID violates its allowable maximum length. Maximum length is 64.

invalidSessionIDAlreadyActive(-154)

The sessionID is already currently in use.

invalidSessionIDNotActive(-155)

The sessionID is not currently in use.

invalidCustomPropertyID(-160)

The customPropertyID violates its allowable range. By default the range is 1 to 20.

invalidDoSyncValue(-170)

The doSync manual sync flag/limit violates its allowable range.

invalidMessageType(-180)

The messageType is not an allowable value.

invalidProxyCredentials(-190)

The proxy username and password failed proxy authentication.

invalidProxyPort(-191)

The proxy port was not valid.

configNotCreated(-200)

Configuration has not been successfully created. The function [RUISDK.CreateConfig](#) must be called before performing this operation.

configAlreadyCreated(-201)

Configuration has already been successfully created. A previous [RUISDK.CreateConfig](#) was successful and the subsequent calls to this function are not allowed.

sdkNotStarted(-210)

SDK has not been successfully started. The function [RUISDK.StartSDK](#) must be called before using this function.

sdkAlreadyStarted(-211)

SDK has already been successfully started. A previous [RUISDK.StartSDK](#) was successful and subsequent calls to this function are not allowed.

sdkAlreadyStopped(-213)

SDK has already been successfully stopped. A previous [RUISDK.StopSDK](#) was successful and subsequent calls to this function are not allowed.

functionNotAvail(-300)

This indicates that this particular API call is not currently available. Possible causes include:

- **This feature is disabled** from the server side. If this is an optional feature you might need to turn it on from the Usage Intelligence dashboard.
- **You have called this function too many times** in quick succession from the same client. In order to prevent abuse the server might impose a minimum interval (time threshold) before you can call this function again. This interval can vary from seconds to minutes.
- **There has been a time out on this request** to the Usage Intelligence server.

syncAlreadyRunning(-310)

A sync with the Server is already running. Only one sync operation may be running at a time.

timeThresholdNotReached(-320)

The API call time frequency threshold (set by the Server) has not been reached. In other words, the application is generating too many requests per time period.

sdkSuspended(-330)

The Server has instructed a temporary back-off. No events are logged but future communication with the Server is possible if the server allows it.

sdkPermanentlyDisabled(-331)

The Server has instructed a permanent disable. No communication with the server is possible and events will not be logged.

sdkOptedOut(-332)**

Instance has been instructed by the application to opt-out.

networkConnectionError(-400)

Communication attempts were not able to reach the Server. This means there was a problem communicating with the Usage Intelligence server due to:

- Network connectivity problems
- Incorrect proxy settings
- HTTP or HTTPS traffic is blocked by a gateway or firewall

In some cases, you can use [RUISDK.TestConnection](#) to help diagnose the issue.

networkServerError(-401)

Error while communicating with the Server. Communication with the server was successful but the server response indicates a Server error.

Login to the Usage Intelligence dashboard to make sure your account is active and there are no critical warnings. Test using [RUISDK.TestConnection](#) function.

networkResponseInvalid(-402)

The response from the Server was returned with a message format error.

testConnectionInvalidProductID(-420)

The [RUI SDK.TestConnection](#) function had an invalid ProductID supplied. Check the Product ID provided to you for accuracy.

testConnectionMismatch(-421)

The [RUI SDK.TestConnection](#) function had a mismatch between URL and Product ID. Check the Product ID and URL provided to you for accuracy.

