SYBASE®

CEP Reuters Adapter Guide

Sybase CEP Option R4

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Introduction

The Reuters Consumer adapter allows the Sybase CEP Server to read Reuters market feeds (RMDS).

In Reuters' terminology, this adapter corresponds to a Reuters Consumer. The Sybase CEP Reuters Consumer Adapter:

- Feeds market data to Sybase CEP projects.
- Manages data connections between Sybase CEP and RMDS.
- Enables you to add and delete subscriptions without restarting Sybase CEP applications or adapters.
- Allows multiple adapters to share the same connection, when possible, and allows adapters to be started or stopped in any order.
- Allows multiple adapters attached to multiple sessions.

This adapter reads a file when it starts to determine which RIC symbols to subscribe to. While running, the adapter reads rows from a separate subscriber stream to add or remove subscriptions.

Supported Platforms

The Sybase CEP Reuters Consumer adapter supports Linux and Windows platforms and operating systems.

Supported platforms and Operating systems:

Platform	**Supported OS**
Linux-64(AMD/Intel)	Red Hat 5.0 (AMD/Intel), SUSE 10 (AMD)
Windows (32)	XP Professional (32-bit)

Installing the Reuters Adapter

Steps to install the Reuters adapter.

To install the Reuters adapter:

1. Unzip the adapter into the parent directory of the SybaseC8 folder.
   For example, `C:\CEP_R4\SybaseC8`.
2. Change directory into the directory containing the Reuters adapter.
   For example, `C:\CEP_R4\SybaseC8\addon-installers\reuters`.
3. Run:
   (Windows) **install-studio.bat** and **install-server.bat**
   (Linux) **install-studio.sh** and **install-server.sh**
   to install the adapter.

Installing the Reuters Libraries

Install the Reuters libraries.

The Sybase CEP Reuters Adapter uses the Reuters Wire Format (RWF) with Reuters Sink Source Layer (RSSL) as a transport protocol.

To use the Sybase CEP Reuters adapter:

1. Obtain the appropriate Reuters libraries from Reuters.

   The version of the Reuters libraries that you use with this adapter does not need to match the version you have installed for other purposes.
2. Install the libraries in the `bin` directory under your Sybase CEP Server installation directory.
3. Obtain a subscription to the Reuters service.

Configuration Files

The Sybase CEP Reuters adapter uses three configuration files: the RFA configuration file, the application configuration file, and a symbols file.

Samples of each are installed in the bin directory under the Sybase CEP Server installation.

Modifying the RFA Configuration File

Edit the RFA configuration file to specify application preferences.

The Reuters libraries read the RFA configuration file at startup to set configuration preferences. Use the example configuration file (`ExampleRFA.cfg`) as a base for your own configuration file. This file is a Reuters configuration file, but contains information you need to configure the adapter.

1. Use the example configuration file (`ExampleRFA.cfg`) as a base for your own configuration file.

   This file is a Reuters configuration file, but contains information you need to configure the adapter.
2. Change the port number and host name entries as appropriate for your site.

   This extract from the file shows the entries used with the Sybase CEP Reuters adapter:

   ```
   \Connections\Connection_OMM\connectionType = "RSSL"
   \Connections\Connection_OMM\rsslPort = "8101"
   \Connections\Connection_OMM\hostName = "localhost"
   ```

   On UNIX-like operating systems, an entry typically exists in `/etc/services` that reserves a Reuters port. Ensure that the port number you specify in the configuration file corresponds to the Reuters port number in the `/etc/services` file.

   Connection_OMM is the name of the connection, as specified in the session entry later in the RFA configuration file:

   ```
   \Sessions\SessionOMM\connectionList     = "Connection_OMM"
   ```

   The value of *Connection_OMM* corresponds to the node names that specify connection information earlier in the file. The node name here, *SessionOMM*, is the name of the session, as specified in the `RDMConsumer.cfg` file. This naming scheme associates connection information with a named session, and an instance of the adapter with a named session. Multiple adapter instances can use the same session.
3. Modify the remaining entries related to logging as appropriate.
4. Configure and start the appropriate RDM provider on the specified host using the specified port.

The adapter attempts to connect to a provider on startup and, if unsuccessful, every 10 seconds thereafter. See the Reuters documentation for information about configuring RDM providers.

Application Configuration File

A Sybase CEP Reuters adapter instance reads an application configuration file at startup in order to set configuration preferences.

An example configuration file is installed as RDMConsumer.cfg. Use that file as a base for your own configuration files.

This table describes the entries in the application configuration file:

Entry	Description
`\msgModelRequest-Type`	The adapter only supports the MarketPrice model, so leave this entry as is.
`\directoryReqFil-ter`	Leave this entry as is.
`\detailTrace`	This entry set to True provides debug output. To eliminate the debug output, set it to False or comment it out.
`\msgModelDefault-Display`	Leave this entry as True to provide a summary of messages.
`\symbolFile`	The name of a file containing symbols for the initial subscription. The file should contain one symbol per line. The default entry is `reutersSymbols.cfg`.
`\loadLocalDicts`	Change to True to load dictionaries locally instead of retrieving them from the provider.
`\fidDictLocation`	The name of the local fid dictionary file. Only meaningful if `\loadLocalDicts` is set to True.
`\enumDictLocation`	The name of the local enumeration dictionary file. Only meaning-ful if `\loadLocalDicts` is set to True.
`\userName`	The name of the user on whose behalf the SSL mount is being performed. Also used to determine permissions.
`\position`	The host name or IP address of the system on which the provider resides.
`\appId`	The application ID for login. The default value from the Reuters distribution.

Entry	Description
`\session`	(Required) The name of a session, which corresponds to a configuration node for session parameters in the RFA configuration file.
`\serviceList`	A comma-separated list of service names. Service names specified in the subscriber stream need to be listed here, or the adapter prints a warning message. The first name in this list is the default. If you omit this list, the default is *DIRECT_FEED*.

Symbols Configuration File

When the adapter starts up, it reads the file specified in the `\symbolFile` entry to determine the symbols to subscribe to. To have a default set of subscriptions, create a file or edit the example file (`reutersSymbols.cfg`) to contain one symbol per line.

The symbol file that specifies the initial subscriptions contains symbol entries composed of four parts. The complete, four-part symbol is in the form `ServiceName.SectorName.SymbolName.Exchange`:

Part	Symbol Associated with Part
`ServiceName`	The symbol associated with the service. List the service name in the `\serviceList` entry of the application configuration file. If omitted, the `ServiceName` defaults to the first service name in the `\serviceList` entry of the application configuration file. If the `\serviceList` entry is missing, this part defaults to `DIRECT_FEED`.
`SectorName`	Always `ANY`.
`SymbolName`	The basic symbol, such as `IBM`. Can be omitted, depending on the type of instrument.
`Exchange`	The exchange. Can be omitted, depending on the type of instrument.

Copying the Configuration Files

Once the configuration files are set up, copy them into the Sybase CEP installation directory.

Prerequisites

The configuration files are set up.

Copy the configuration (RFA, application, and symbols) files from the bin directory into the Sybase CEP Server installation directory.

If you have retained the default names, the three files you copy are: `ExampleRFA.cfg`, `RDMConsumer.cfg`, and `reutersSymbols.cfg`.

If you are using local dictionaries, copy those files into the same directory.

Subscriber Stream

Change which Reuters symbols the adapter subscribes to by passing subscription requests through a subscriber stream.

To specify which Reuters symbols the adapter subscribes to, create an input stream with the schema (all three columns are type String):

- *Sub_Unsub* - this column must contain either *SUB* (to subscribe) or *UNSUB* (to unsubscribe) to the symbol specified in the other columns.
- *Symbol* - a two-part symbol name.
- *Service* - the service name. Define the service name in the `\serviceList` entry of the application configuration file.

The subscriber stream does not need to be in the same project as the stream to which the Sybase CEP Reuters Consumer adapter is attached. However, each instance of the Sybase CEP Reuters adapter must use a different subscriber stream.

A row attempting to unsubscribe with an invalid symbol is ignored. A row subscribing to a symbol that is already subscribed to raises the priority of the subscription.

You can use one of the Sybase CEP SDKs to write a program to publish subscription requests to this subscriber stream. Depending on your application needs, you may be able to use one of the other input adapters to send the requests to this stream.

An example python script that publishes information to a subscriber stream is installed as `c8_reuters_sub.py` in the bin directory under the Sybase CEP Server installation directory. To use this example, copy it to the sdk/python directory under the installation directory and then run it from a command line. The script takes four arguments:

- The URI of the subscriber stream the script should publish to.
- Either *SUB* or *UNSUB*.
- A symbol.
- A service name.

The script sends a row containing the last three arguments and publishes it to the stream identified with the first argument.

Example:

```
python "c8_reuters_sub.py"
   ccl://localhost:6666/Stream/Default/ReutersSubStream/SubStream
   SUB IBM.N DIRECT_FEED
```

Subscriber Stream

Input Stream

Schema to create an input stream for Reuters data.

The schema for an input stream can include the String columns Symbol, which contains the symbol from the Reuters feed, and Service, which contains the service name from the feed. All additional columns should be valid Reuters Field IDs (fids). These additional columns contain the data from the corresponding field in the Reuters data feed. If the Reuters feed does not contain data for a specified fid, the adapter writes Null to that column and prints a warning message.

A Sybase CEP CCL column name cannot begin with a number. If your Reuters data includes Field IDs that begin with a number, preface the corresponding column name with *RFA_*. For example, if your data includes a fid of *52WK_HIGH*, you should name the corresponding column in the schema *RFA_52WK_HIGH*.

The Reuters datatypes do not map exactly to Sybase CEP datatypes. Use this table to determine the appropriate datatypes for the additional columns in your input stream schema:

Reuters datatypes	Sybase CEP datatype
Int32, UInt32 Integer	Integer
Int64, UInt64	Long
Float, Double, Real32, Real64	Float
Date, Time, DateTime	Timestamp
Enumeration	Integer
StringASCII, StringUTF8, StringRMTES, Enumeration	String
Quality of Service, RespStatus, Opaque, XML, Buffer, Ansi-Page	Not processed

Input Stream

Adapter Properties

Specify values for four properties when you attach the Reuters Consumer adapter to a stream in Sybase CEP Studio.

Property name (screen)	Property name (attach adapter)	Type	Description
RFA Configuration file	RFAConfigurationFile	String	The name of your RFA Configuration file.
Application Configuration file	ApplicationConfigurationFile	String	The name of an application configuration file.
URI for subscription modification	SubscriptionURI	String	The URI of a subscriber stream, which must be unique—each instance of the adapter must use a different subscriber stream. If the stream does not exist when the adapter starts, the adapter prints a warning message and checks once a minute, repeating the warning message each time until it finds the stream.
Use Last	UseLastNonNull	Boolean	If True, the adapter replaces Null values from the Reuters event with the last non-Null values for the same RIC. If False, the Sybase CEP columns receive the values from the event as delivered, including Nulls. Defaults to True.
Excluded from Use Last Processing	ColsExcludedFromUseLastNonNull	String	A space-separated list of column names. The columns specified here receive the values from the Reuters event as delivered, including Nulls, even though UseLastNonNull is True. Ignored if UseLastNonNull is False.

Note: If you attach the Reuters Consumer adapter to multiple streams (in one or multiple projects), use a different subscriber stream for each instance. You can use (and reuse) multiple configuration files.

Note: If you enable persistence for the project or module containing the stream that the Sybase CEP Reuters adapter is attached to, the adapter persists subscription information. When the

adapter restarts, it restores the subscriptions that were in place before the shutdown rather than reading the symbols file.

Multiple Instances and Sessions

You can attach the Sybase CEP Reuters Consumer adapter to multiple streams across multiple projects, resulting in multiple instances of the adapter running concurrently.

When you specify the property values for the adapter, use a different subscriber stream for each instance. You can use the same or different configuration files for multiple instances. Using different RFA configuration files allows you to have adapter instances connecting to different sessions and therefore different providers. If you use the same application configuration file for two or more instances of the adapter, the only difference between the instances is the subscriber stream. Each instance uses the same property values as specified in the application configuration file, including the same symbol file and the same session.

If you use different application configuration files for multiple adapter instances, you may choose to specify different values for the properties defined in that file, including provider information, dictionary settings, session identification, and the symbol file. Define the session you specify in the application configuration file as a node in the specified RFA configuration file (`\Sessions\session_name\connectionList`).

If you want to use multiple sessions (for example, to access providers on different ports) define connection information for each session, either in multiple RFA configuration files, or in a single RFA configuration file:

```
\Connections\Connection_OMM\connectionType = "RSSL"
\Connections\Connection_OMM\rsslPort = "8101"
\Connections\Connection_OMM\hostName = "localhost"
\Connections\Connection_OMM2\connectionType = "RSSL"
\Connections\Connection_OMM2\rsslPort = "14009"
\Connections\Connection_OMM2\hostName = "localhost"
```

This example shows connection information for two sessions. Later in the same file, define the two sessions and specify the association with the connection information:

```
\Sessions\SessionOMM\connectionList     = "Connection_OMM"
\Sessions\SessionOMM2\connectionList    = "Connection_OMM2"
```

Two sessions using the same connection information results in unpredictable behavior, so verify that each session uses different connection information.

In your application configuration file, you identify the session, and therefore the connection settings, that every adapter instance reading that file uses:

```
\session                = "SessionOMM2"
```

When Sybase CEP Server starts an instance of the Sybase CEP Reuters Consumer adapter, it reads the application configuration file to determine the name of the session to use. If a session with the same name is already running, the adapter uses that session. Otherwise, it creates a new session using the connection parameters specified in the RFA configuration file.