



Nasdaq Calypso

Reuters RFA Integration Guide

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Approved

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Document History

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1.0	January 2014	First edition for Core Calypso Version 14 Suite.
2.0	February 2014	Second edition - Updates.
3.0	June 2014	Third edition - Added troubleshooting information.
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9.0	February 2018	Ninth edition – Update for Proxy support.
10.0	September 2018	Tenth edition – Update for version 5.3.4.
11.0	September 2020	Edition 11 – Added details about Reuters fields.
12.0	April 2021	Edition 12 – Added support for Reuters RFA 8.2.0.
13.0	February 2022	Edition 13 - First edition for version 6.0.0, 6.0.1 – Technical release only – Version 17.0 compatibility.
14.0	July 2022	Edition 14 – Added details about Range field to Feed Address Window
15.0	January 2024	Edition 15 – Compatibility with version 18

NOTE: The Calypso License to use this Calypso Integration Module does not include a license for any third-party data services to which this module can interface. Clients are responsible for contracting with the appropriate third-party data service(s) prior to using this Calypso Integration Module

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Introduction

The Calypso Reuters RFA Module serves as a connector component which integrates Calypso with Reuters Market Data Server (RMDS), so that Calypso can capture market data sending from RMDS.

The module also supports entitlement check by Reuters Open DACS Entitlement when user subscribes market data from RMDS.

This user guide covers the installation and configuration of the Calypso Reuters RFA Module.

Reuters Components Setup

1.1 Reuters Market Data Server (RMDS)

Please ensure that the RMDS is installed and configured properly. Refer to the corresponding document for Reuters installation details.

Calypso will connect to the Advanced Distribution Server (ADS) in the RMDS, at `rmds_rssl_sink` port, via a Reuters Source Sink Library (RSSL) connection.

1.2 DACS Server

For users who require Open DACS Entitlement, please ensure that the DACS Server is installed and configured properly. Refer to the corresponding document for Reuters installation details.

Calypso will connect to the DACS Server at `dacs_lib` port.

1.3 RFA Java Edition

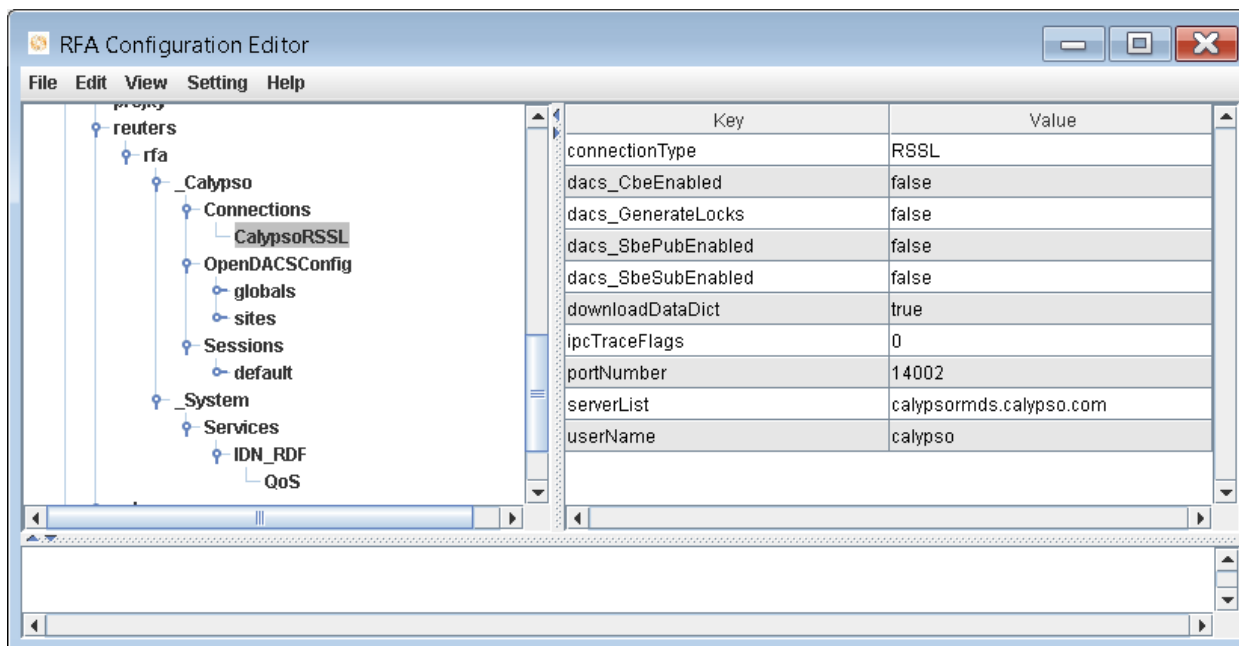
Calypso Reuters RFA interface supports Reuters RFA 8.0.x and RFA 8.1.x on Calypso v14.x and 15.x, and RFA 8.0.x, RFA 8.1.x and RFA 8.2.x (Calypso Reuters RFA version 5.5.0 onwards) on Calypso v16.1 and above.

 **Note that on Windows, you need read-write permissions for the Windows registry.**

Download the RFA 8.0.x zip file (`rfaj8.0.x*.zip`) from the Thomson Reuters Customer Zone. Decompress the zip file to a temporary directory (as `<temp_dir>` below). The RFA 8.0.x Java library file is located at `<temp_dir>/setup/rfaj8.0.x*.rrg/Libs/rfa.jar`.

Reuters supplies a configuration program with their RFA product that allows you to create an RFA configuration. It will be in the `<temp_dir>/setup/rfaj8.0.x*.rrg/Tools` directory.

[NOTE: This is a sample screenshot of the configuration program]



Once defined, the RFA configuration can be saved as an XML file. It will look like the sample file `<calypso_dir>/client/resources/samples/calypso_reuters_rfa_sample.xml`.

You may also create the RFA configuration starting from this sample file.

For more details on the RFA Configuration, please refer to the Reuters documentation (Robust Foundation API v8.0.x/v8.1.x/v8.2.x Java Edition - Configuration and Logging Guide).

Store the RFA 8.0.x/8.1.x/8.2.x Java library file and the RFA configuration file in a folder. They will be needed during Calypso installation.

Calypso Setup

2.1 Installing Calypso Reuters RFA Module and Reuters Libraries

The Calypso Installer contains Calypso's calypso-reuters-rfa-xxx.jar. At the Select Components step of the Calypso Installer, check Interfaces > Reuters Foundation API (RFA) Interface and continue the installation as detailed in the Calypso Installation and Upgrade Guide.

At the Common Third-Party Libraries and Extension step of the Calypso Installer, add the RFA 8.0.x Java library file (prepared in section 2.3) to the Libraries (Jar files) section and the RFA configuration file (prepared in section 2.3) to the Resources section. Continue the Calypso Installation according to the procedures detailed in the Calypso Installation and Upgrade guide.

If you are upgrading with a Calypso Upgrade Package, the instructions are also in the Calypso Installation Guide.

Update Calypso database by running Execute SQL. When you run Execute SQL as part of your installation, the Reuters RFA schema file (ReutersRFASchemaData.xml) is already loaded.

2.2 Modes of Usage

Calypso provides two modes of accessing market data from an external source, which are direct client access and access through Calypso Market Data Server.

For direct client access, Calypso client applications (e.g. Feed Quotes Window in Navigator) connect directly to RMDS and handle incoming market data items.

For access through Calypso Market Data Server, Calypso client applications (e.g. Trade Window in Navigator) connect to the Calypso Market Data Server for market data. In this mode, the Calypso Market Data Server connects to the RMDS and handles incoming market data items.

Configurations for the two modes will be introduced in the next sections.

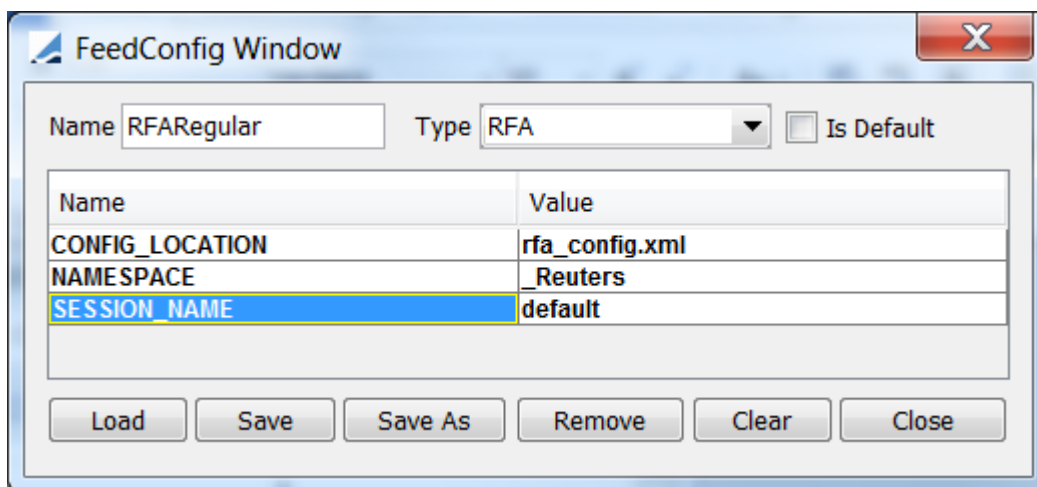
2.3 Direct Client Access

2.3.1 Domain Value (Feed Type)

Ensure that RFA and RFAOpenDACS exist in the "feedType" domain.

2.3.2 Feed Configuration

From the Calypso Navigator, navigate to Configuration > Market Data > Feed Configuration. You can click Load to load existing feed configurations. The image below displays a sample configuration for RFA.

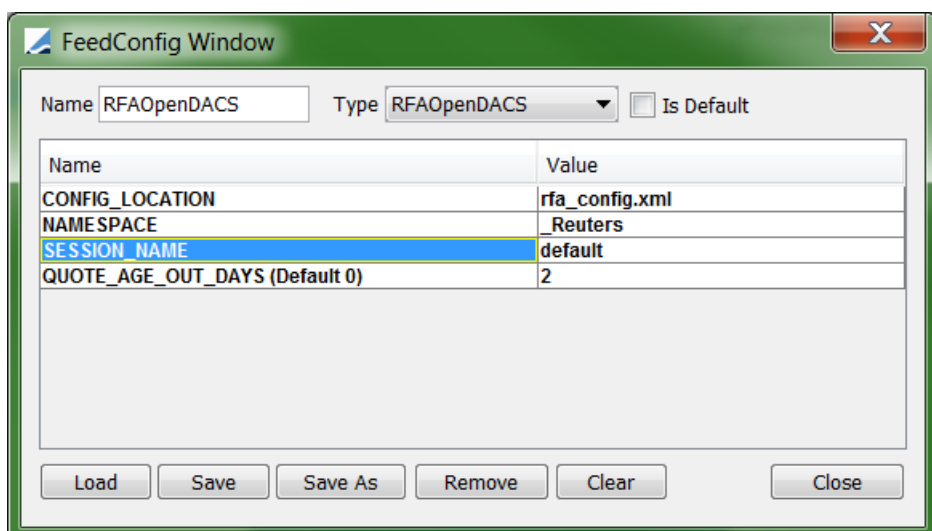


FeedConfig Window

Name: RFARegular Type: RFA ☐ Is Default

Name	Value
CONFIG_LOCATION	rfa_config.xml
NAMESPACE	_Reuters
SESSION_NAME	default

Load Save Save As Remove Clear Close



FeedConfig Window

Name: RFAOpenDACS Type: RFAOpenDACS ☐ Is Default

Name	Value
CONFIG_LOCATION	rfa_config.xml
NAMESPACE	_Reuters
SESSION_NAME	default
QUOTE_AGE_OUT_DAYS (Default 0)	2

Load Save Save As Remove Clear Close

Enter a feed name in the Name field, and select RFA from the Type field (or RFAOpenDACS if you would like to use Open DACS for entitlement check).

The Name is a way to refer to the feed within Calypso and Calypso configuration files.


Tip: If you already had a Reuters Feed configured to use the earlier Calypso Reuters feed type, load it and select RFA from the Type field to replace the Reuters type to avoid the necessity of re-configuring the feed addresses.

- Set the parameters as applicable.
- CONFIG_LOCATION: The location of the RFA configuration file previously created. This location is with respect to the CLASSPATH as it will be retrieved using the Java ClassLoader. For example, if the RFA configuration file path is <calypso_dir>/client/resources/rfa_config.xml, fill rfa_config.xml in the field.
- NAMESPACE: The name of one of the namespaces defined in the RFA configuration file. This is used by RFA to determine the session definition to use for this particular client. Please refer to the sample RFA configuration file for tags storing the namespaces values in the configuration file.

- **SESSION_NAME:** The name of one of the sessions defined for the namespace in the RFA configuration file. Please refer to the sample RFA configuration file for tags storing the session values in the configuration file.
- **QUOTE_AGE_OUT_DAYS:** The number of days for a particular quote stored in Calypso to be "aged out" (the default value is 0). If the stored quote has lasted longer than the number specified in this field, the entitlement check will be bypassed and it will be available to every Calypso user (applicable to RFAOpenDACS feed only).

You can check the "Is Default" checkbox to make this feed your default feed source. Click Save to save the changes.

To enable Open DACS Entitlement for the feed, please also add the feed name to the domain "EntitlementCheckFeed".

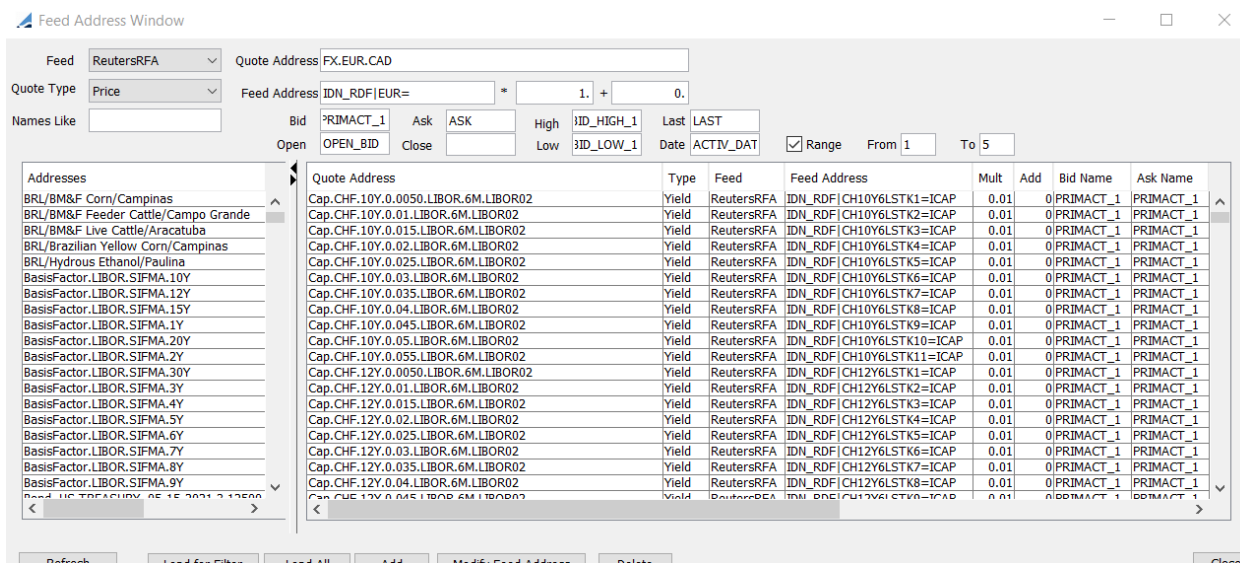
 **[NOTE: This only applies to feeds of type RFAOpenDACS]**

2.3.3 Feed Addresses

The Feed Address Window allows mapping Calypso quote names to Reuters RFA quote names.

From the Calypso Navigator, navigate to Configuration > Market Data > Feed Address Mapping to bring up the Feed Address window.

The following images show examples for feed address mapping (applicable to both feed type RFA and RFAOpenDACS):



The screenshot shows the "Feed Address Window" with the following fields and data:

- Feed:** ReutersRFA
- Quote Address:** FX.EUR.CAD
- Quote Type:** Price
- Feed Address:** IDN_RDF|EUR= * 1. + 0.
- Names Like:** (empty)
- Table Headers:** Bid, Ask, High, Low, ID_HIGH_1, ID_LOW_1, Last, Date, ACTIV_DAT, Range, From, To
- Table Data:**

Quote Address	Type	Feed	Feed Address	Mult	Add	Bid Name	Ask Name
Cap.CHF.10Y.0.0050.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK1=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.01.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK2=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.015.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK3=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.02.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK4=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.025.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK5=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.03.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK6=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.035.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK7=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.04.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK8=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.045.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK9=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.05.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK10=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.10Y.0.055.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH10Y6LSTK11=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.0050.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK1=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.01.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK2=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.015.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK3=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.02.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK4=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.025.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK5=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.03.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK6=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.035.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK7=ICAP	0.01	0	PRIMACT_1	PRIMACT_1
Cap.CHF.12Y.0.04.LIBOR.6M.LIBOR02	Yield	ReutersRFA	IDN_RDF CH12Y6LSTK8=ICAP	0.01	0	PRIMACT_1	PRIMACT_1

Select the Feed Configuration that you have defined for Reuters RFA or Reuters RFA Open DACS from the Feed field.

Click Load All to display existing mappings (if you are using an existing Reuters feed source).

Click Refresh to load the list of Calypso quote names.

You can filter the list by selecting a quote type from the Quote Type field and entering a search string in the Names Like field (MM.USD.LIBOR for example).

To add a new mapping:

- Select a Calypso quote name from the Addresses list.
- Enter the corresponding Reuters RFA quote name in the Feed Address field. Enter a multiplier value and spread value as applicable.
- The quote name can be in the format of either [Service Name][Item Name] (e.g. IDN_RDF|EUR=) or Reuters Subject Name (e.g. IDN_RDF.REC.EUR=).
- Enter Reuters RFA instance names as applicable.

[NOTE: The date that the system saves with the quote defaults to today's date. However, you may want to save a different date with the quote, such as yesterday's date. You can map the date to a DATE field used by the Reuters Market Data Feed. For example, ACTIVE_DATE, VALUE_DT1, VALUE_DT2, etc. When Range field is checked, you can enter the From and To numbers representing the number of quotes you want to load. For example, if Bid = PRIMACT_1 and Range is From 1 To 5, the quotes PRIMACT_1, PRIMACT_2, PRIMACT_3, PRIMACT_4, PRIMACT_5 are loaded. Here the max range will be 5 that can be loaded.]

[NOTE: Map Calypso price fields (Bid, Ask, Low, High, Open, Close, Last) to the PRICE field used by the Reuters Market Data Feed.]

See below for details.

- Click **Add**.

Repeat for other quote names.

Here is a field mapping example:

Calypso Field	Reuters Field	Description
Bid	PRIMACT_1	Latest bid price
Ask	ASK	Latest ask price
Low	LOW_1	Today's lowest trade price
High	HIGH_1	Today's highest trade price
Open	OPEN_PRC	Today's opening price
Close	HST_CLOS	Most recent non-zero closing price
Last	PRV_LAST	The previous trading day's or session's last value.
Date	ACTIV_DATE	The date when the time in TIMACT was updated.

ACTIV_DATE - Date when time in TIMEACT was updated. TIMEACT - Time when a certain field or fields in the record were updated.

Bid FIDs: PRIMACT_1 (FID 393) - Most recent Bid. PRIMACT_2 (FID 394) - Second most recent Bid. PRIMACT_3 (FID 395) - Third most recent Bid.

Ask FIDs: SEC_ACT_1 (FID 275) - Most recent Ask. SEC_ACT_2 (FID 276) - Second most recent Ask. SEC_ACT_3 (FID 277) - Third most recent Ask.

Date FIDs: VALUE_DT1 - Date for FID 393 and 275. VALUE_DT2 - Date for FID 394 and 276. VALUE_DT3 - Date for FID 395 and 277.

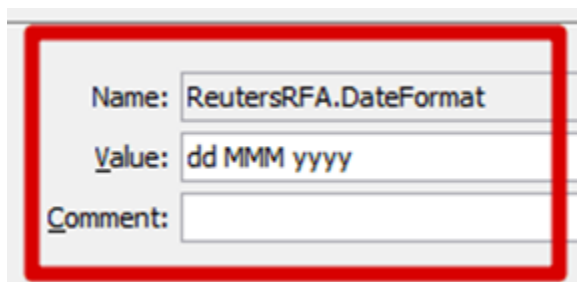
Time FIDs: VALUE_TS1 - Timestamp in seconds for FID 393 and 275. VALUE_TS2 - Timestamp in seconds for FID 394 and 276. VALUE_TS3 - Timestamp in seconds for FID 395 and 277.

Example: For a rate index that is published once a day - ACTIV_DATE requests today's quote. VALUE_DT1 requests yesterday's quote. VALUE_DT2 requests the day before yesterday's quote. **You have to use the corresponding FIDs for BID/ASK: VALUE_DT1, PRIMACT_1, SEC_ACT_1.**

Please refer to Reuters FIDs documentation for complete details.

Date format for Market Data from Reuters TREP-RT

The date format must be specified in the domain "ReutersRFA.DateFormat":



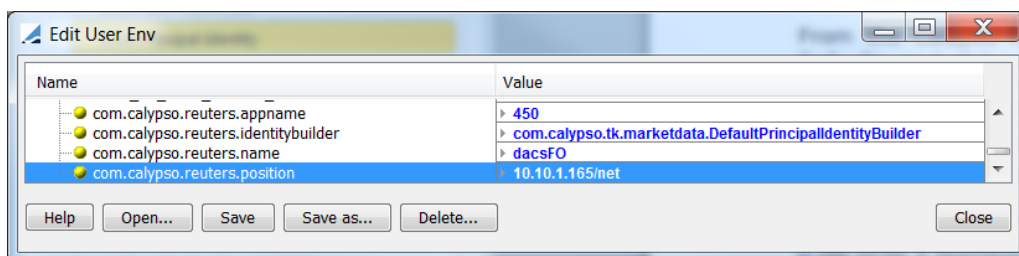
Name:	ReutersRFA.DateFormat
Value:	dd MMM yyyy
Comment:	

2.3.4 Principal Identity

Some users may require entitlement check which is handled by the RFA library (native DACS)

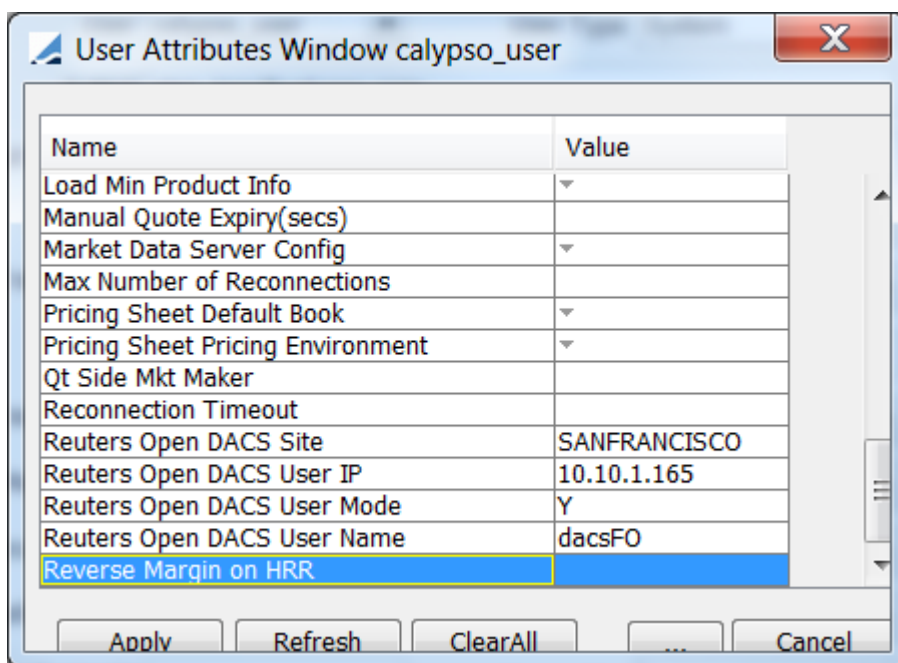
(If you are using native DACS for authentication then the DACS shared library must also be available on the application path or by using -Djava.library.path. Please refer to corresponding documentations from Reuters for details. Note that Calypso does not directly make any call on native DACS and the process is solely within the Reuters components.)

This could be enabled by providing a principal identity builder (the builder must be implementing the com.reuters.rfa.common.StandardPrincipalIdentity interface in RFA Java.) and corresponding information (i.e. application ID, DACS user name and user position) to the module through Calypso user properties. The screenshot below shows a configuration example.



2.3.5 Define Calypso User Attributes for Open DACS

For users who require Open DACS Entitlement, navigate to **Configuration > User Access Control > User Defaults** from the Calypso Navigator, and click on **Attributes**. The screenshot below shows a configuration example.



Specify the following attributes.

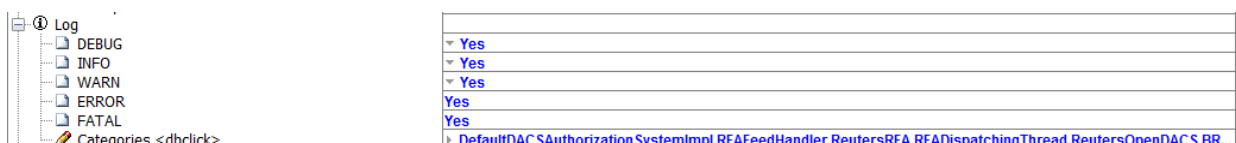
Attribute Name	Value
Reuters Open DACS Site	<p>Mandatory, alphanumeric.</p> <p>Enter the name of site used by this Calypso user. The site name can be any of those defined in the RFA configuration file.</p> <p>Please refer to the sample RFA configuration file for the tags storing site names.</p>
Reuters Open DACS User IP	<p>Optional, IP address format.</p> <p>The IP address of the machine used by the Calypso user. If this field is left blank, the system will fetch user position</p>

Attribute Name	Value
	defined in principal identity. If it is also not defined, the local host IP address will be picked up.
Reuters Open DACS User Mode	<p>Mandatory. Accepts values of Y or N.</p> <p>Y: This Calypso user is using the Reuters RFA in User Mode.</p> <p>User Mode is used when the Reuters RFA Feed Handler server acts as a client and connects to the feed directly. For example, from the Feed Window in Main Entry.</p> <p>N: This user is using the Reuters RFA in Server Mode.</p> <p>Server Mode is when the RFA Feed Handler acts as a server to provide access for multiple clients who need access to the feed. For example, the Market Data Server.</p>
Reuters Open DACS User Name	<p>Optional, alphanumeric.</p> <p>The DACS user name of this Calypso user.</p> <p>If this field is left empty, the corresponding Calypso user name will be used for DACS authentication</p> <p>If the Calypso user is not authorized for any subscription to Reuters data items, it is suggested that a DACS user with no item permitted is created first. Then set the DACS user name in this field. This setting can help avoid known performance issue.</p>

Debug Logging

To switch on debug logging for tracing issues, in Calypso user properties, set Yes for DEBUG, and add the following categories (separated by comma):

- ReutersRFA
- ReutersOpenDACS
- ReutersRFAEventItem
- ReutersRFAEventItemDetails



To avoid flooding log files with market data logs, the module supports writing market data log to the file at a certain interval. Add REUTERS_RFA_LOG_INTERVAL to the Calypso user properties and give an integer value for the

logging interval (in seconds). Zero, negative, non-integer or empty value will disable this feature and all market data logs will be written to the log file once they comes in.

● REMOVE_LINKED_MSG_ON_ACK	▶ true
● REUTERS_RFA_LOG_INTERVAL	▶ 20
● RISKSERVER_NAMING_PROVIDER_URL	▶ remote://localhost:4647

2.4 Access through Calypso Market Data Server

The entitlement service in Calypso system is responsible for entitlement check in this mode of usage.

2.4.1 Engine Configuration for Open DACS

The Reuters Open DACS Engine is configured in the Engine Manager of Engine Server Web Admin, under Manage > Engines.

- The engine subscribes to PSEventDomainChange and PSEventSecurity events.

Persisted Event Configuration:

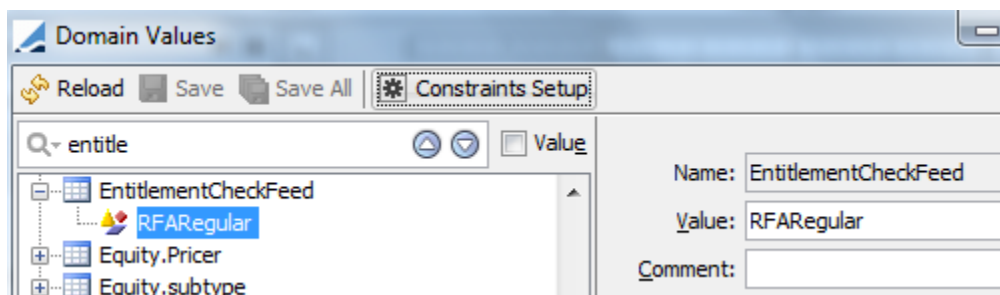
PSEventAccountBilling	+	-
PSEventDomainChange		
PSEventSecurity		

You may need to add this engine if it is not registered to the Engine Manager.

- Create a new engine called ReutersOpenDACSEngine with class name com.calypso.engine.reuters.rfa.ReutersOpenDACSEngine.

Please refer to Calypso Web Admin documentation for complete details.

For feeds of type RFAOpenDACS, add the feed name to the domain "EntitlementCheckFeed", and the entitlement service for the particular feed will be registered to the Entitlement Server.



2.4.2 Adding and Launching the Reuters Open DACS Engine

In the Engine Manager of Engine Server Web Admin, add a parameter called config to the Reuters Open DACS Engine if it does not exist (under engineParam in Domain Values). The parameter value of config corresponds to the Feed Name defined in Feed Configuration.

Configuration attributes

MIGRATION_DATE	
XFER_USE_POS_AGGREGATION_ONLY	
XFER_USE_REVERSE	
config	ReutersRFA
feedname	

Cancel Save

Then the Reuters Open DACS engine can be started from the Engine Manager of Engine Server Web Admin.

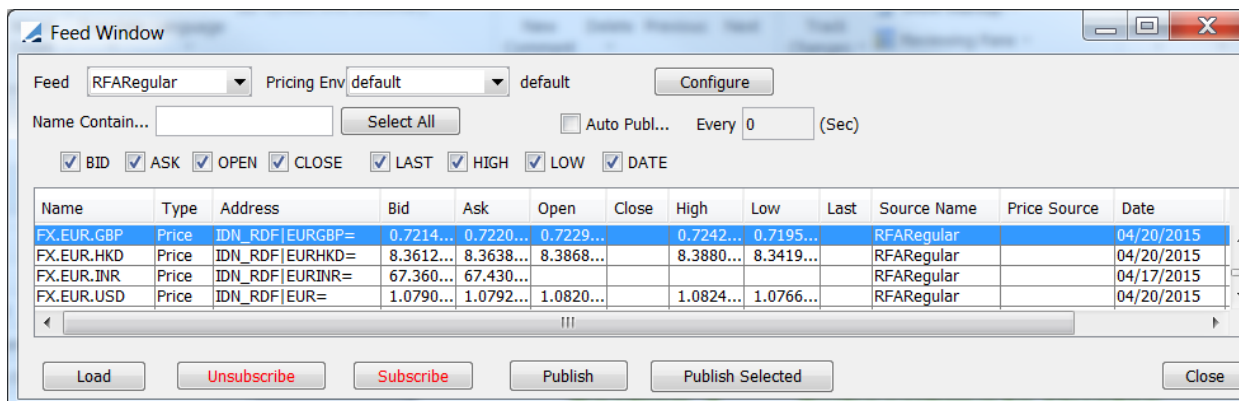
Please refer to Calypso Web Admin documentation for complete details.

The Entitlement server is started using "<calypso
home>/deploylocal/<Environment>/entitlementServer.bat\.sh" or from the Calypso DevOps Center.

Subscribing to Quotes

3.1 Direct Client Access

You can use the Feed Window to check that you are receiving quotes from the feed source.



The screenshot shows the 'Feed Window' interface. At the top, there are dropdown menus for 'Feed' (set to 'RFARegular') and 'Pricing Env' (set to 'default'). Below these are fields for 'Name Contain...' and 'Auto Publ...' with a 'Select All' button. A row of checkboxes includes BID, ASK, OPEN, CLOSE, LAST, HIGH, LOW, and DATE, all of which are checked. The main area is a table with the following data:

Name	Type	Address	Bid	Ask	Open	Close	High	Low	Last	Source Name	Price Source	Date
FX.EUR.GBP	Price	IDN_RDF EURGBP=	0.7214...	0.7220...	0.7229...		0.7242...	0.7195...		RFARegular		04/20/2015
FX.EUR.HKD	Price	IDN_RDF EURHKD=	8.3612...	8.3638...	8.3668...		8.3880...	8.3419...		RFARegular		04/20/2015
FX.EUR.INR	Price	IDN_RDF EURINR=	67.360...	67.430...						RFARegular		04/17/2015
FX.EUR.USD	Price	IDN_RDF EUR=	1.0790...	1.0792...	1.0820...		1.0824...	1.0766...		RFARegular		04/20/2015

At the bottom of the window are buttons for 'Load', 'Unsubscribe', 'Subscribe', 'Publish', 'Publish Selected', and 'Close'.

From the Calypso Navigator, navigate to Market Data > Market Quotes > Feed Quotes to subscribe to quotes from the feed source.

- Select the Feed and Pricing Environment.
- Click Load to load the feed addresses previously configured.
- You can filter the list by typing a search string in the Name Contains field (MM.USD.LIBOR for example).
- Select quote names as applicable (click to select one quote name, Ctrl-click to select multiple quote names). You can also click Select All to select all the quote names.
- Click Subscribe to subscribe to the quotes for the selected quote names.

The quotes will be populated accordingly if the system is configured properly and if the quotes are entitled to the user.

You can suspend the feed subscription after the number of milliseconds specified in environment property RFA_FEED_SUBSCRIPTION_TIMEOUT. Default is 0, no timeout.

To save quotes to the system, please use the SAVE_QUOTES scheduled task. The screenshot below shows a configuration example of SAVE_QUOTES scheduled task for Reuters RFA Feeds.

Task Description	
Task Type:	SAVE_QUOTES
External Reference:	SQ1504201437
Comments:	SAVE_QUOTES SCHEDULED TASK
Description:	SAVE_QUOTES SCHEDULED TASK (Feed: RFARegular)
Execution Parameters	
Attempts:	1
Retry After:	0 minutes
Expected Execution Time (SLA):	
JVM Settings:	-Xms512m -Xmx1024m -XX:MaxPermSize=256m
Log Settings:	
Task Notification Options	
<input type="checkbox"/> Send Emails	<input type="checkbox"/> Publish Business Events
To User:	
Task Attributes	
Feed	RFARegular
Exclude Backdated Quotes	False
Waiting Minutes	
Match Quote Name	
BID	True
ASK	True
OPEN	True
CLOSE	True
HIGH	True
LOW	True
LAST	True
DATE	True

For details on configuring a scheduled task, please refer to the Calypso User Guide for Scheduled Tasks.

In the direct client access mode, Open DACS Entitlement Check will happen in the Calypso component subscribing to the quotes (e.g. Feed Window in Navigator, Scheduled Task).

Before making subscription, Calypso system will check whether the DACS user (defined in section 3.3.5) is entitlement to the quote, based on the subject name of the feed address (Subject Based Entitlement, SBE). Subscription will be submitted only if the user is entitled.

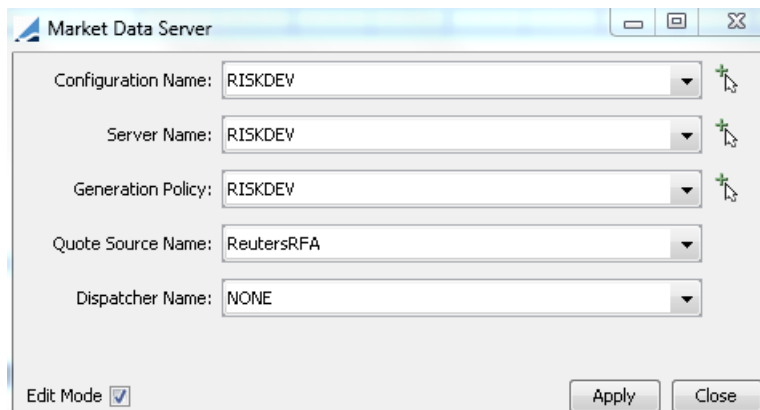
After subscription started, incoming market data items will be preceded by their corresponding entitlement information. Calypso will submit the market data items together with the entitlement information to DACS Server for checking (Content Based Entitlement, CBE). Calypso system will process the item only if the user is entitled. For some cases, in which the entitlement information is not supplied by RMDS, the system will bypass CBE and the item will be available to all users.

3.2 Access through Calypso Market Data Server

You can subscribe to real-time quotes using the Market Data Server.

You need to define a Market Data Server based on the feed that you have setup.

Sample market data server configuration:



You can then select the Market Data Server in the User Defaults attribute "Market Data Server Config", and start the corresponding Risk Server to subscribe to the quotes.

Please refer to the Calypso Installation Guide for details on defining and starting risk servers, and refer to the Market Data Server User Guide for details on using a Market Data Server.

In this mode, the entitlement service in Calypso system (section 3.4) will handle the Open DACS Entitlement Check.

When a market data item reaches the Calypso system (e.g. at Trade Window) through the Calypso Market Data Server, the Calypso component receiving the item (e.g. Trade Window) will submit the item, entitlement information and DACS user (defined in section 3.3.5) to the entitlement service for checking.

CBE, or SBE, or both will be done on the item, depending on the type of entitlement service supported by the Reuters service. (please refer to corresponding Reuters documentations on Open DACS)

Supplying that item. The market data item will only be available for further processing if the user is entitled.

Proxy Support and Configuration

RFA 5.3.0 onwards support proxy. To enable proxy, user needs to provide following properties in RFA configuration file.

```
<!-- Defines type of tunneling for this connection. Possible values are None, http and https -->
<entry key="tunnelingType" value="None" />
<!-- set to true to enable connecting to an HTTP Proxy -->
<entry key="tunnelingHTTPproxy" value="false" />
<!-- Defines the hostname of the HTTP Proxy -->
<entry key="tunnelingHTTPproxyHostName" value="" />
<!-- Defines the port number of the HTTP Proxy -->
<entry key="tunnelingHTTPproxyPort" value="" />
<!-- Defines the user-name of the HTTP Proxy -->
<entry key="tunnelingHTTPproxyUsername" value="" />
<!-- Defines the user password of the HTTP Proxy -->
<entry key="tunnelingHTTPproxyPasswd" value="" />
<!-- Defines the proxy domain of the HTTP Proxy -->
<entry key="tunnelingHTTPproxyDomain" value="" />
<!-- Defines the proxy local host name only supported in case of NTLM -->
<entry key="tunnelingHTTPproxyLocalHostname" value="" />
<!-- Defines the proxy Kerberos config file:-->
<entry key="tunnelingHTTPproxyKRB5configFile" value="" />
```


ProxyUserName and ProxyPassword must be provided in the calypso-environment file as:

- HTTP_PROXY_USER
- HTTP_PROXY_PASSWORD

User can also provide the proxy host and port in the calypso-environment property file, along with domain-name and workstation:

- HTTP_PROXY_HOST
- HTTP_PROXY_PORT
- HTTP_PROXY_DOMAIN
- HTTP_PROXY_WORKSTATIONNAME

Note: 1. For proxy properties, first preference will be given to the Reuters configuration file and then the calypso-environment file.

-  2. For proxy, RFA jar has a dependency on 'httpcore-4.1.1.jar'. Kindly ensure that httpcore-4.1.1.jar is present in the navigator class-path.

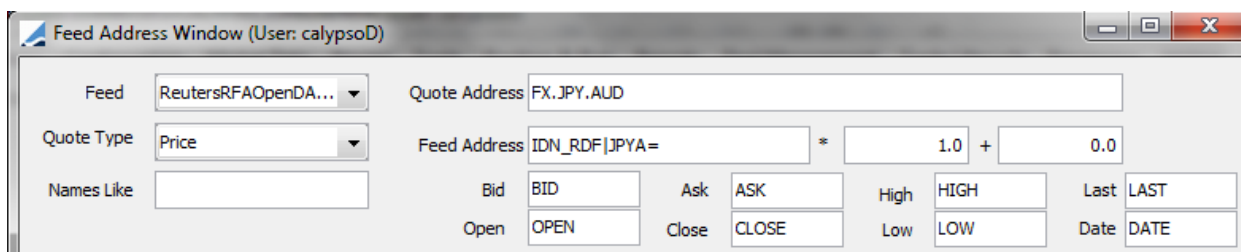
Troubleshooting and FAQ

The log files will be referred in the troubleshooting guidelines in this section. Please ensure that the log level is set as debug and the corresponding log categories is included (see section 3.3.6 for details).

5.1 Feed Window does not show quote values after clicking Subscribe

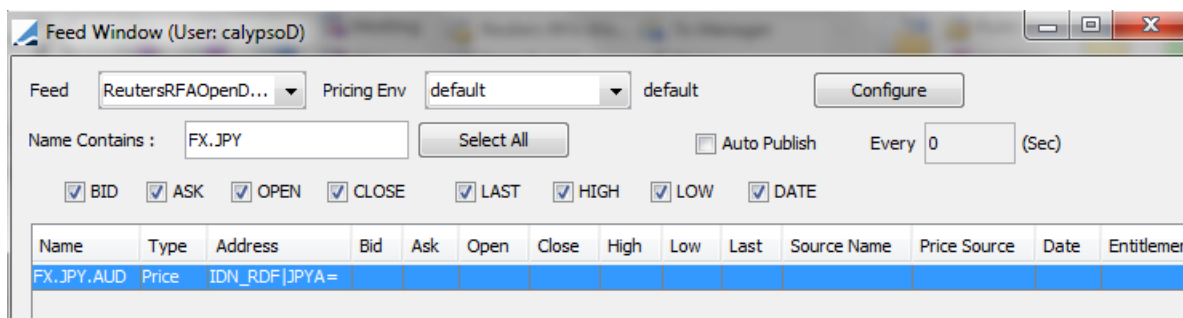
5.1.1 Possible root cause 1: Wrong Feed Address Mapping

In case a non-existing RIC is mapped in Calypso Feed Address Mapping e.g. IDN_RDF|JPYA= for FX.JPY.AUD as shown below.



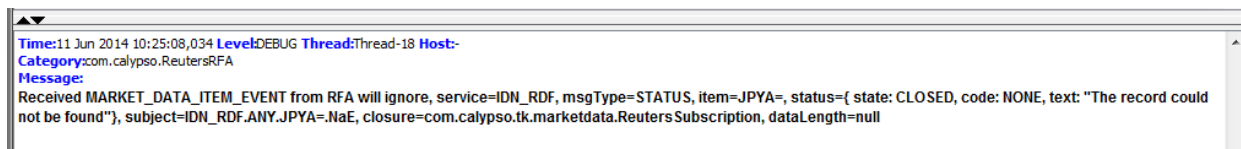
The screenshot shows the 'Feed Address Window' for user 'calypsoD'. It contains several input fields: 'Feed' (ReutersRFAOpenDA...), 'Quote Address' (FX.JPY.AUD), 'Quote Type' (Price), and 'Feed Address' (IDN_RDF|JPYA=). There are also fields for 'Names Like', 'Bid' (BID), 'Ask' (ASK), 'High' (HIGH), 'Last' (LAST), 'Open' (OPEN), 'Close' (CLOSE), 'Low' (LOW), and 'Date' (DATE). The 'Feed Address' field is highlighted with a red border.

Then, there will be no quote shown in the Feed Quote Window after Subscribe



The screenshot shows the 'Feed Window' for user 'calypsoD'. It has a 'Feed' dropdown (ReutersRFAOpenDA...), a 'Pricing Env' dropdown (default), and a 'Configure' button. Below these are fields for 'Name Contains' (FX.JPY), 'Select All', 'Auto Publish', and 'Every' (0 Sec). There are checkboxes for BID, ASK, OPEN, CLOSE, LAST, HIGH, LOW, and DATE, all of which are checked. At the bottom, there is a table with columns: Name, Type, Address, Bid, Ask, Open, Close, High, Low, Last, Source Name, Price Source, Date, and Entitlement. The first row of the table is highlighted in blue and contains the following data: Name: FX.JPY.AUD, Type: Price, Address: IDN_RDF|JPYA=, and the remaining columns are empty.

Also, the debug log contains the wordings "the record could not be found" as shown in the screenshot below.

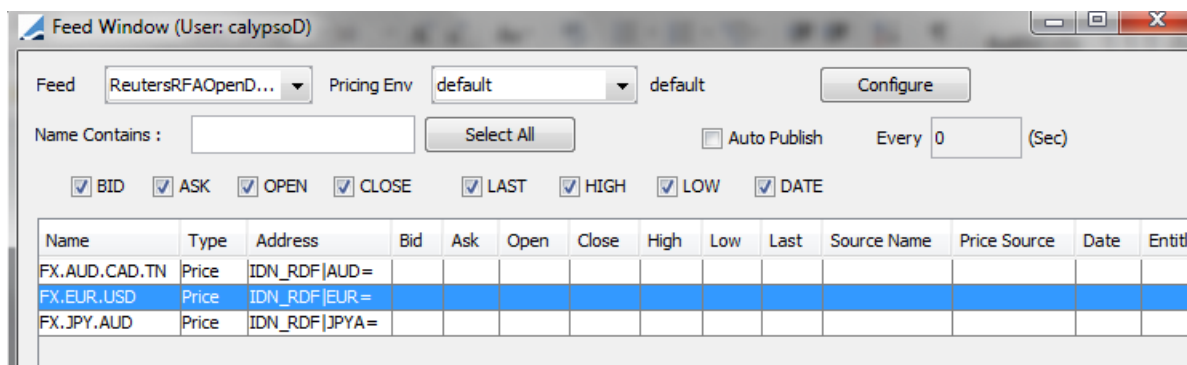


The screenshot shows a debug log window with the following text:

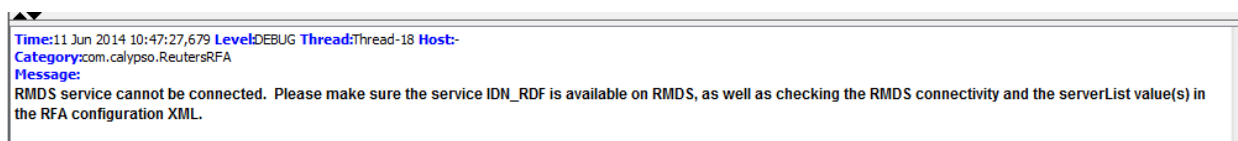

```
Time:11 Jun 2014 10:25:08,034 Level:DEBUG Thread:Thread-18 Host:-
Category:com.calypso.ReutersRFA
Message:
Received MARKET_DATA_ITEM_EVENT from RFA will ignore, service=IDN_RDF, msgType=STATUS, item=JPYA=, status={ state: CLOSED, code: NONE, text: "The record could not be found"}, subject=IDN_RDF.ANY.JPYA=.NaE, closure=com.calypso.tk.marketdata.ReutersSubscription, dataLength=null
```

5.1.2 Possible root cause 2: Cannot connect to the Reuters Market Data Server (RMDS)

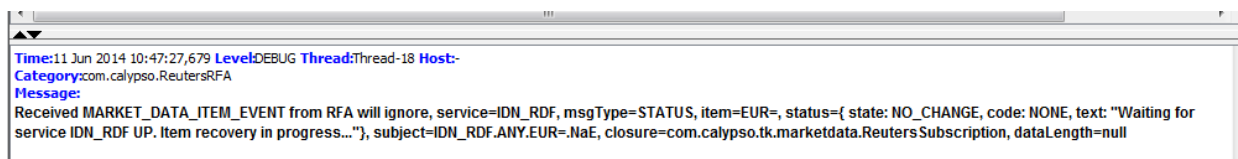
If the server list provided in the RFA configuration file does not point to the proper server or connection is not established with the RMDS (because of network issue, for example), or, the DACS user specified in the RFA configuration file is not valid, then there will be no quote in the Feed Window after Subscribe.



In the debug logs one can see the message “RMDS service cannot be connected”. The probable causes are listed in the log & user is asked to check the RMDS connectivity & the server List in RFA configuration file.

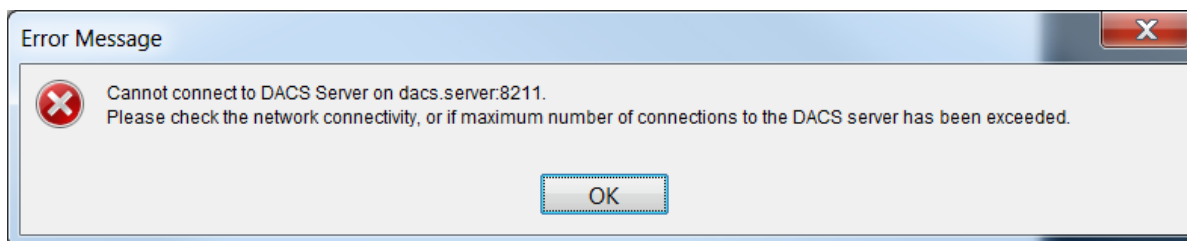


Additionally, there is a log message showing “Waiting for service IDN_RDF UP. Item recovery in progress...”



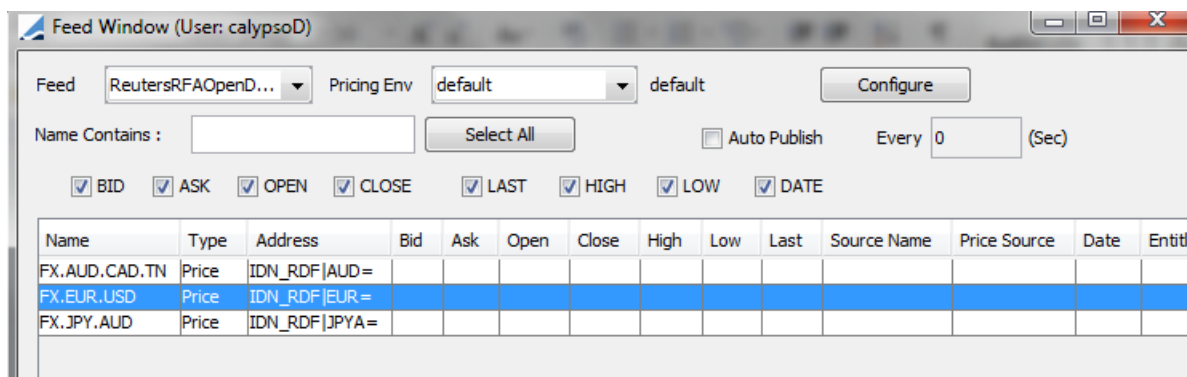
5.1.3 Possible root cause 3: Reuters DACS server cannot be connected

The user tries to load the feed and gets the error as shown in the following screenshot. In such a case, it is suggested that the user check the network connection to the DACS server.

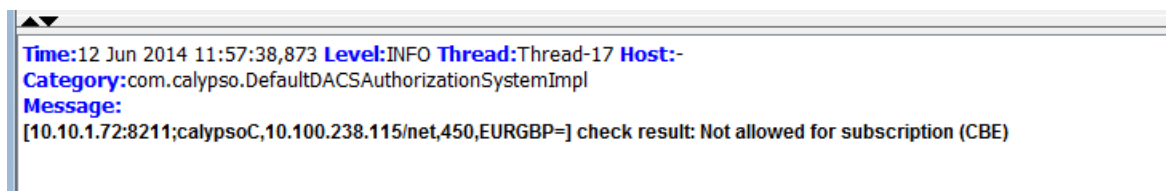


5.1.4 Possible root cause 4: User not allowed to quotes by DACS authentication

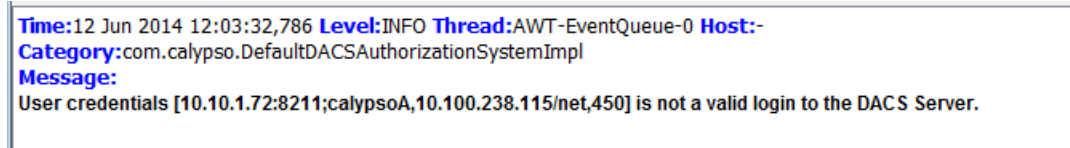
If the Calypso user is not entitled to the subscribed quote, then there will be no quote in the Feed Window after Subscribe.



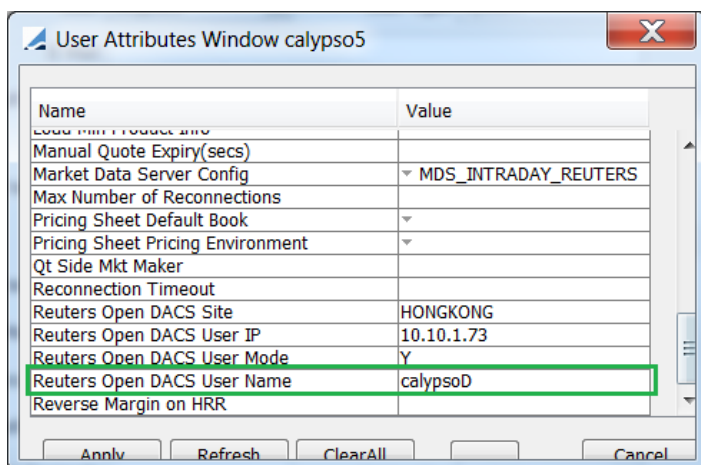
If the DACS user is not entitled to the quote, the following message will be shown in the log (some messages saying that "Not allowed for subscription").



If the DACS user is not allowed access to the DACS server, the following message will be shown in the log.



In such cases, the user could first check the DACS user name linked to the corresponding Calypso user.



Then check if the DACS user is allowed access and is entitled to the subscribed quotes.

For entitlement settings of DACS user, please refer to the corresponding documents from Reuters.

5.2 Can the Reuter Open DACS Engine output some debug logs, and if so, how can we set that up?

One needs to turn on the on debug and info level with these categories:

- ReutersRFA
- ReutersOpenDACS
- ReutersRFAEventItem
- ReutersRFAEventItemDetails

5.3 Is it necessary to provide the Reuters Open DACS IP Address or can it be kept blank if the user mode= Y?

Yes, with the current implementation it is possible for the user to keep the field blank in User Defaults. In such a case, the system will fetch user position defined in principal identity. If it is also not defined, the local host IP address of the machine will be fetched and used in DACS authentication.

Known Issues

6.1 Issue on RFA Java Library 7.2.x

Issue was reported (Subscription fails after Feed Window is closed once) when the module is used on Solaris, SASS3 connection, with native DACS is enabled (DACS entitlement configured in RFA configuration XML).

It is suggested that this is a limitation of the RFA library 7.2.0 and users should avoid such usage on RFA library 7.2.0 or upgrade to RFA library 7.6.0.

6.2 Message written by RFA Java Library to Console

If your application do not use native DACS (section 3.3.4), please ignore the following messages, which are written to console by RFA Java Library.

```
com.reuters.rfa.internal.connection.md.MDConnectionImpl initializeEntitlements  
INFO: com.reuters.rfa.connection.ssl._Calypso.CalypsoSSL  
DACS disabled for connection _Calypso::CalypsoSSL
```