Nasdaq Calypso

Bloomberg VCON Integration Guide

Version 3.4.0

Revision 7.0
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Approved

Document History

Revision	Published	Summary of Changes
1.0	February 2015	First edition for version 1.0.0.
2.0	September 2016	Second edition – Updates for Calypso version.
3.0	September 2016	Third edition – Updates for Incoming Message.
4.0	January 2018	Fourth edition – Added Nominal Mapping section.
5.0	October 2019	Fifth edition – Updates for Bloomberg-FIT version 2.6.9.
6.0	November 2020	Sixth edition – Updates for Bloomberg-FIT version 3.4.0.
7.0	November 2022	Seventh edition – Updates for Missing bonds

This document describes how to integrate Calypso with Bloomberg VCON Interface.

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.

NOTE: The Bloomberg VCON interface is distributed as part of the Bloomberg-FIT module, which may support other Bloomberg interfaces that must be licensed separately.

IMPORTANT NOTE: For Cloud deployments please contact your application management team as the deployment procedure for Cap Cloud is different.

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Introduction

Bloomberg VCON is a matching and affirmation platform based on FIX protocol. All the communication between Calypso and VCON happens via the FIX Engine and the messages that are exchanged are FIX messages. BloombergFIT VCON supports Bi-directional mode.

The following features are supported.

FIX Sessions

Calypso's Bloomberg-SEF integration supports following FIX sessions:

- Single Asset Protocol
- Multi Asset Protocol (MAP)

Workflows

Calypso's Bloomberg-SEF Order integration supports trade messages for the following workflows:

- Pre-Allocation

Product Types

The Bloomberg VCON interface supports the following product types:

- Bond
- Repo

FIX Messages

For Inbound VCON trade (Book trade via Bloomberg SXT or BXT window), the following messages are supported:

- Trade Capture Report (35=AE)
- Cancel/Reject (35=AE with 150=4)
- ALLOCATION (35=J)

For Outbound VCON trade, the following messages are supported:

- Trade Capture Report (35=AE)
- Trade Capture Report Ack (35=AR)
- Ability to ALLEGE (NEW/AMEND/CANCEL)

- Ability to ALLOCATE (35=J)
- Retrieve (REJECT/CONFIRM/UNMATCH) Messages

Life Cycles

- Ability to ALLEGE a NEW trade.
- Ability to ALLEGE an AMEND before the trade is CONFIRMED.
- Ability to REJECT before the trade is CONFIRMED.
- Ability to Handle Counterparty Rejection before the trade is CONFIRMED.
- Once the Trade is MATCHED (Confirmed) the Trade must be UNMATCHED to AMEND or REJECT the trade.
- Ability to UNMATCH trade after it's Confirmed.
- Ability to handle UNMATCH initiated by Counterparty.

Setup

For setup and configuration related information such as legal entities, and engine configuration, please refer to Calypso Bloomberg-FIT Integration Guide (Generic) for Bloomberg VCON related setup.

2.1 Execute SQL

Refer to the “Setup Config Data using Execute SQL” section of the Calypso Bloomberg-FIT Integration Guide (Generic).

2.2 Task Station Configuration

Users can view exceptions in the Task Station for exceptions related to the integration of UPLOADSOURCEMSG / GATEWAYMSG / PLATFORMMSG messages.

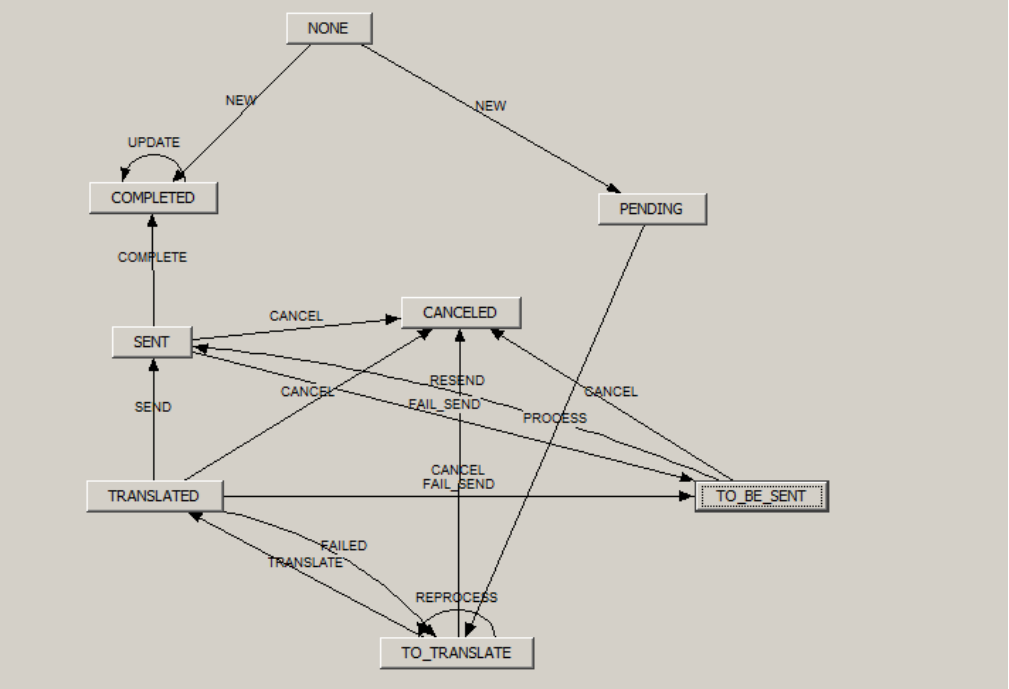
- EX_UPLOADSOURCEMSG_ERROR
- EX_UPLOADSOURCEMSG_REJECT
- EX_UPLOADSOURCEMSG_WARNING
- EX_PLATFORMMSG_ERROR
- EX_PLATFORMMSG_REJECT
- EX_PLATFORMMSG_WARNING
- EX_GATEWAYMSG_ERROR
- EX_GATEWAYMSG_REJECT
- EX_GATEWAYMSG_WARNING

2.3 Workflow Setup

Refer to the “Workflow Setup” section of the Calypso Bloomberg-FIT Integration Guide (Generic).

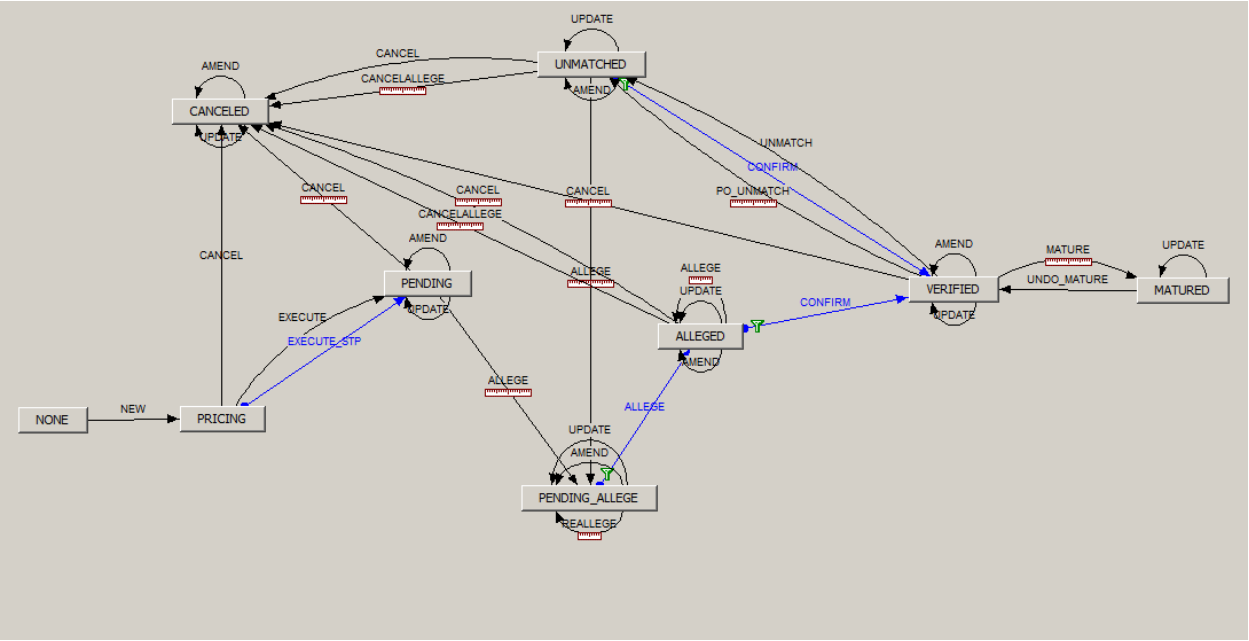
Import all the workflows mentioned in the generic guide. Apart from that please include the below workflows.

The PLATFORMMSG workflow:



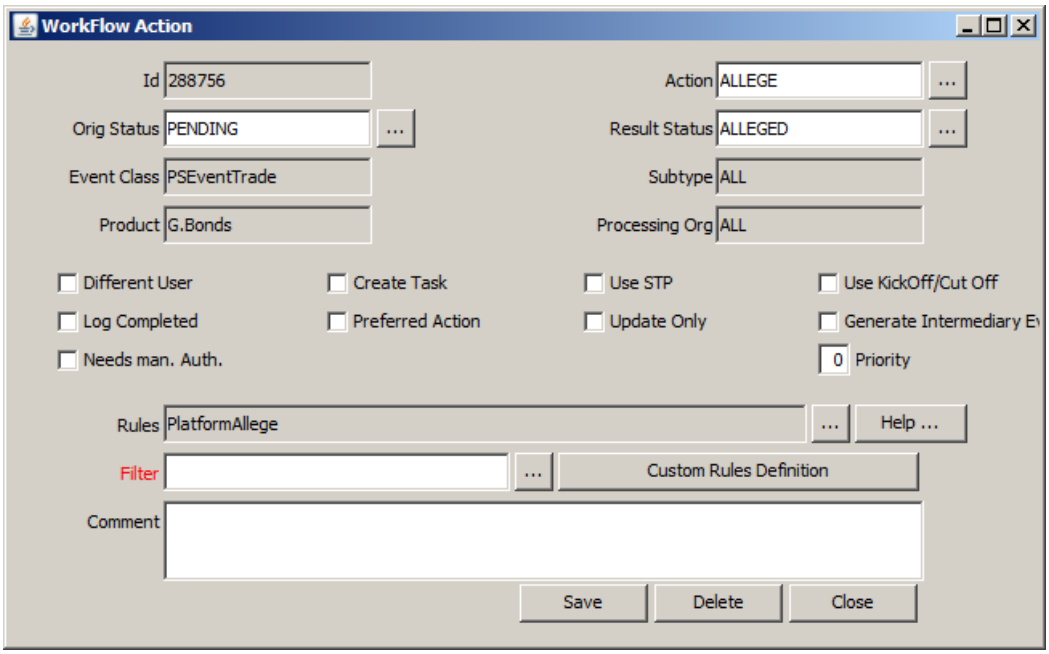
PLATFORMMSG is generated for each outgoing message from Calypso to Bloomberg. Like alleging a NEW / AMEND / CANCEL / UNMATCH.

The Trade_Bond_VCON workflow:



All the trades that are created to be sent to Bloomberg VCON should follow this workflow. Certain actions contain workflow rules which create events which the FIX Engine listens to and acts upon accordingly.

The actions ALLEGE / CANCELALLEGE / PO_UNMATCH should contain the workflow rule to be able to ALLEGE the action to VCON.



When a trade is alleged to the counterparty by applying ALLEGE action the trade moves to PENDING_ALLEGE status in Calypso and a BO Message with message type PLATFORMMSG is created. If the trade was successfully sent to the platform, the message will be moved to SENT status, otherwise to TO_BE_SENT and an exception is created in the Task Station. Once the acknowledgement is sent by the platform the trade is updated and then moved to ALLEGED status.

2.4 Required Processes

Trades are first entered into Calypso using the Trade window or the Bond Pricing Sheet, or via some interface like Data Uploader. The trades are then enriched with the platform specific information like the following:

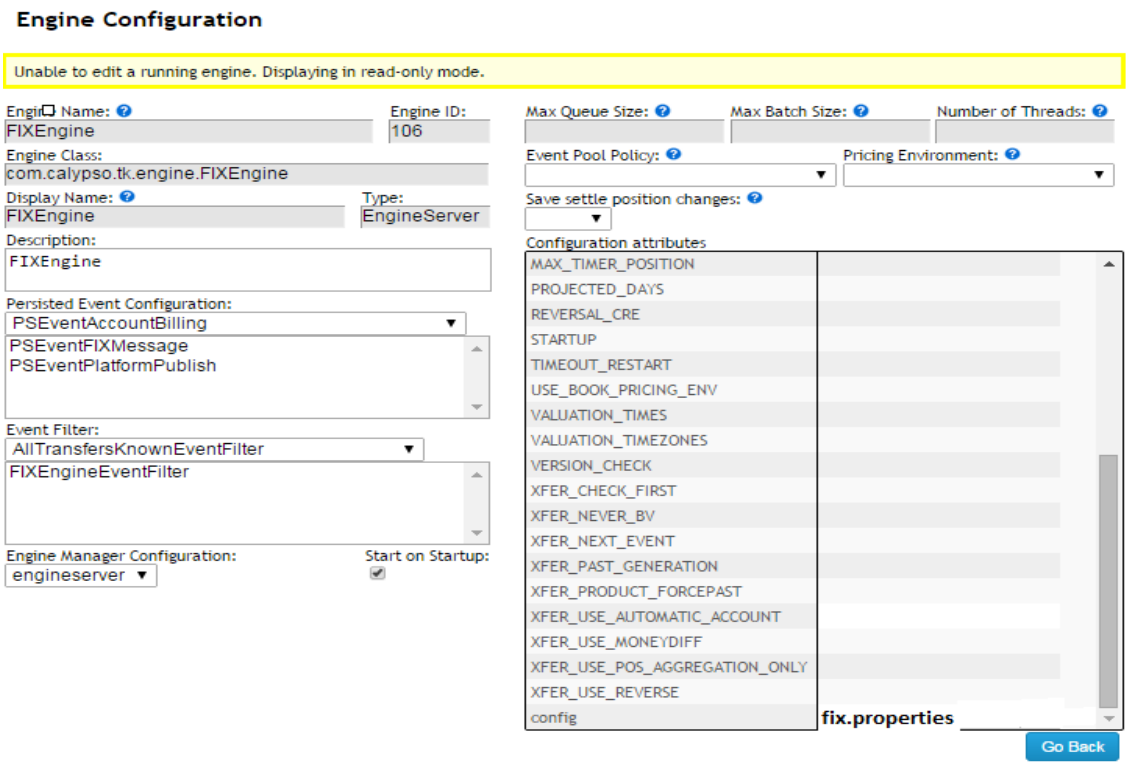
- Counterparty (executing firm)
- Processing Org (Book) (originating firm)
- Executing Firm User (CounterpartyTrader trade keyword should be used to populate the Executing Firm User)
- Originating Firm User (Trader on the trade should be used to populate the Originating Firm User)
- TradeSource keyword to be set to 'BloombergFIT'

Once the trade is ready to be ALLEGED, the trade should be saved with ALLEGE action. The FIX Engine will listen to this and will create a message by calling the translator based on the platform translator framework and the message will be sent to Bloomberg VCON via FIX API. All the communication between Bloomberg and Calypso happens via this engine.

Please use the following configuration instructions to set up and start the FIX Engine.

FIX Engine Configuration

The FIX engine is configured in the Engine Manager of Web Admin.



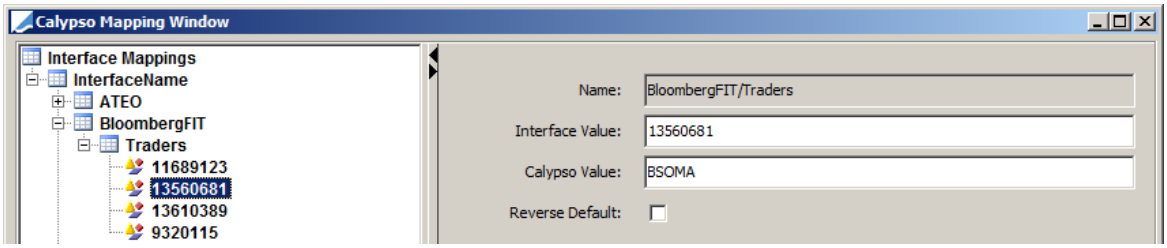
Starting the FIX Engine

The FIX engine will be started as part of the Engine Server.

2.5 Trader and Counterparty Trader

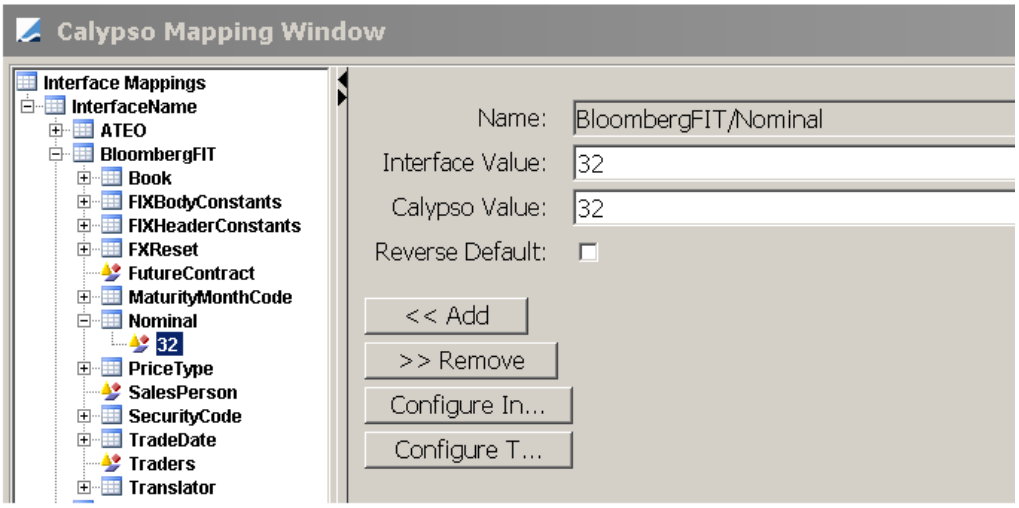
The following mapping needs to be added.

- Interface value: The Bloomberg Id associated with the user created for Bloomberg Terminal
- Calypso value: The name that needs to be mapped to the Bloomberg user.



2.6 Nominal Mapping

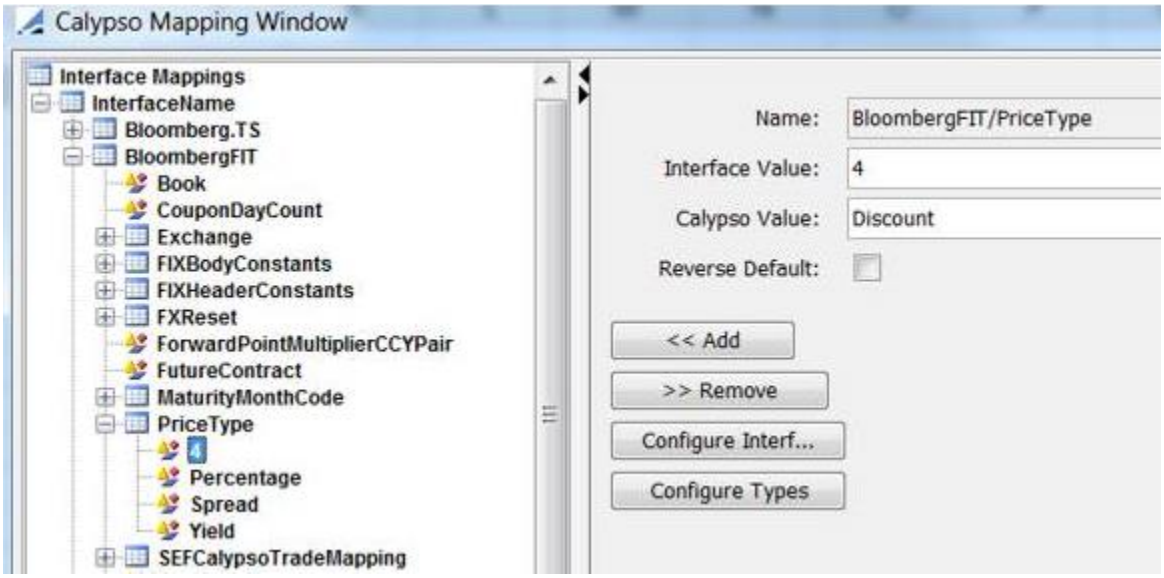
In Bloomberg VCON interface, the user can map Quantity (tag 32) (tag 32 represents Quantity when tag 854=1; else it represents Nominal when tag 854=2) to trade Nominal. By default, tag 32 is mapped to Quantity when tag 854=1.But if user wants to change it, they can add a CalypsoMapping as shown below.



The only supported value for 'Nominal' mapping is 32. If user gives any value other than tag 32, it will be ignored and default behavior of tag 32 with tag 854 will be used.

2.7 Discount Price Mapping

In Bloomberg VCON interface, when a bond is of type Discount, the price coming in tag 31 is Discounted Price instead of Clean Price. In order to consider the value of tag 423 to determine if tag 31 is Discounted Price, the following mapping must be set.



2.8 Trade Workflow Setup

This section describes the Bloomberg VCON interface trade workflow. It is important to understand these details so that the Calypso Trade Workflow can be customized accordingly. Please read and follow all setup instructions carefully to ensure a successful installation.

2.8.1 Calypso Trade Workflow Setup

To support all the transitions required by the Bloomberg workflow, the trade workflow setup for processing Bloomberg trades must support the following transitions:

- NEW (for creation of new trades)
- AMEND (for enrichment of trade)
- CANCEL (if a trade is rejected)
- ALLOCATE (for allocation of trade)

2.8.2 Allocation Requirements

This section describes how allocations are handled for Pre-Allocation and Bunched-Order supported by the Bloomberg module, and how each are handled.

In case of Pre-Allocation in Bloomberg, the allocation needs to be performed before submitting the deal to the dealer. The corresponding trade life cycle will be executed in Calypso for Pre-Allocation:

Bloomberg Business	Calypso Action
Book a block trade with allocations	Calypso receives two messages: MsgType '8': New trade is created MsgType 'J': Trade is allocated

Whereas in case of Bunched-Order in Bloomberg, the allocation can only be performed once the trade is submitted and accepted by the dealer. The corresponding trade life cycle will be executed in Calypso for Bunched-Order:

Bloomberg Business	Calypso Action
Book a block trade	Calypso receives a message with MsgType '8': New trade is created
Allocate a trade	Calypso receives a message with MsgType as 'J': Trade is allocated

Message Rule

By default, the Calypso Allocation API will keep the same external reference on the original trade and the generated new allocated fund trade. This will cause an issue if updates are received from Bloomberg for the trade. To avoid this, you **must** add the **UpdateAllocationChild** trade rule to **all** the ALLOCATE transition leading to Allocated status in your trade workflow for Bloomberg trades, so that the fund trade external reference gets updated.

2.8.3 Workflow Keywords

Throughout a trade's lifecycle, trade status keywords will be updated on the trade to reflect its approval state. These keywords can be used together with Static Data Filters to move the trade through any custom workflow / status you create in Calypso.

The pertinent keywords are described below:

- PlatformStatus: This keyword reflects the status of the trade from the Bloomberg platform's perspective.

Incoming Trade (Inbound)

The Calypso Bloomberg-VCON integration connects to Bloomberg VCON using a FIX interface. Once the connectivity is set up, a trader can book a trade through the Bloomberg Terminal, and Bloomberg will send that as a FIX message to the Calypso Bloomberg interface. The message will then flow through the configured Calypso workflows which route the message through the appropriate stages to create a Calypso trade.

When a dealer affirms VCON Bond trade book and submitted via Bloomberg SXT/BXT window, a FIX message (35=AE) flows into Calypso which is routed through the appropriate stages and a Calypso trade is created.

Sample fix message (35=AE) received:

8=FIX.4.4|9=988|35=AE|34=149|49=BLPC|52=20161019-16:26:51|56=CALP|57=14673457|115=i.VCONSRV|22=4|31=97.875|32=50000|48=US9128282A70|55=T|60=20161019-16:21:15|64=20161020|75=20161019|167=TNOTE|228=1|231=1|235=WORST|236=1.7362046|423=1|460=6|487=2|541=20260815|570=N|571=00000003:0519:13da:58079cae|573=0|818=6343211739238367232|854=1|856=0|880=3739:20161019:50023:6|454=4|455=9128282A7|456=1|455=BDH26G7|456=2|455=9128282A|456=A|455=US9128282A70|456=4|552=1|54=1|37=MANUAL|198=3739:20161019:50023:6|453=3|448=COLIN KNOX @ BLOOMBERG/ 731 LEX : 9320115 @ 9001|447=D|452=1|802=8|523=BB|803=1|523=9001|803=4014|523=BLOOMBERG/ 731 LEX|803=4015|523=378583|803=4016|523=NEW YORK|803=34|523=US|803=38|523=RG1|803=4010|523=BB|803=4013|448=SAMSAD KHAN @ CALYPSO TECHNOLOGY, : 14673457 @ 643908|447=D|452=11|802=7|523=643908|803=4005|523=CALYPSO TECHNOLO|803=1|523=643908|803=4014|523=CALYPSO TECHNOLOGY,|803=4015|523=30131511|803=4016|523=NEW YORK|803=34|523=US|803=38|448=SXT|447=D|452=16|15=USD|159=134.51|9503=N|10=146|

If any amendment / cancellation is applied later, FIX message (35=AE with 150=4) is received, and based on the message status, the appropriate action is applied on the trade in Calypso.

Missing Bonds

If a VCON message having the Bond that is not present in the system is uploaded, the Bond will be automatically fetched using the Bloomberg engine, provided all the configuration is done to achieve this.

After the bond is fetched, the VCON message will be processed using the Update Manager engine to create the trade.

Please refer to the Data Uploader Integration Guide to configure this process.

Sending Trades (Outbound)

Trades should be created in Calypso either via the Bond Pricing Sheet or the Trade window, or via an interface like Data Uploader.

Once the trade is created, the trade can be enriched until the following pre-requisites are met.

4.1 Pre-requisites

- Counterparty (executing firm) should be set as explained in the "Legal Entity Mapping" section of the Calypso BloombergFIT Integration Guide (Generic)
- Processing Org (Book) (originating firm)
- Executing Firm User (CounterpartyTrader trade keyword should be used to populate the Executing Firm User)
- Originating Firm User (Trader on the trade should be used to populate the Originating Firm User)
- TradeSource and Platform keywords to be set to 'BloombergFIT'

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	PENDING
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	531056
Trade Id	531056
Trade Version	0
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	
@PlatformAPIUser	
@PlatformAllegeType	
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

4.2 ALLEGE NEW Trade

Once all the pre-requisites are met and the trade is ready to be alleged to Bloomberg VCON, apply ALLEGE action on the trade from the Bond Pricing Sheet. The workflow rule that is present in this transition generates an event to the FIX Engine indicating the trade is to be alleged to the platform.

If the trade is successfully received by Bloomberg VCON, VCON sends an acknowledgement containing the VCON Trade Id, which will be updated on the trade as external reference, and the 'Platform Submit Status' keyword is updated accordingly. Otherwise, Bloomberg sends a Negative Acknowledgement with a reason which is updated in the keywords 'Platform Submit Status' and 'Platform Reject Reason'.

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	PENDING
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	531056
Trade Id	531056
Trade Version	0
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	
@PlatformAPIUser	
@PlatformAllegeType	
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

Trade is accepted by Bloomberg VCON and Bloomberg sends the VCON Id which we save as the External Reference and the trade keyword 'PlatformTradeId'.

Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	ALLEGED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_61305561917426...
Trade Id	531056
Trade Version	3
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130556191742623777
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	New Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

4.3 Counterparty Accepts Trade

Once the trade is ALLEGED successfully. the Counterparty has to either accept the trade or reject the trade.

When the Counterparty accepts the trade, the trade is then matched and confirmed. Bloomberg then sends a Confirmation message which will move the trade to VERIFIED status with the 'Platform Submit Status' keyword updated with 'Confirmed'.

When receiving Confirmation messages, we need to make sure that Bloomberg suppresses the tags 381 and 118 in the incoming message, otherwise the data dictionary rejects the message with the following error message.

20150202-17:23:43.287: 8=FIX.4.49=14835=334=17749=CALP50=1361038952=20150202-17:23:43.28756=BLPC128=i.VCONSRV45=18158=Out of order repeating group members371=381372=AE373=1510=065

Bloomberg is informed regarding this and is aware of this change.

Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	VERIFIED
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_61305561917426...
Trade Id	531056
Trade Version	5
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130556191742623777
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Confirmed
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50018:6
@PlatformMatchId	3739:20150326:50018:6
Clean Price	1.0223000000

4.4 Counterparty Rejects Trade

When the Counterparty rejects the trade, the Counterparty enters a Rejection Reason on the platform and Bloomberg sends a message including the Counterparty reject reason. The trade is then moved to CANCELED status and the Counterparty Rejection Reason is updated in the keyword 'Counterparty Reject Reason'.

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	CANCELED
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_613055824903195857...
Trade Id	531058
Trade Version	4
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2.75%
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130558249031958579
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Rejected
@PlatformTransactionId	
@CounterpartyRejectReason	Rejecting Invalid Notional
Yield	0.000
@CounterpartyTradeId	3739:0:0:0
@PlatformMatchId	3739:0:0:0
Clean Price	1.0223000000

4.5 Allege CANCEL on a Trade before the Trade is MATCHED

A Buy Side user can allege an Amendment or a Rejection before the trade is matched. To allege a Rejection / Cancel, apply an action CANCELALLEGE on the trade that is ALLEGED. The CANCELALLEGE transition has a workflow rule 'PlatformAllege' which creates an event to the FIX Engine to allege the Cancel message.

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	ALLEGED
Action	CANCELALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_6130559786630...
Trade Id	531059
Trade Version	3
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130559786630250531
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	New Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

Based on whether the Cancel is accepted or not, the trade keywords 'Platform Submit Status' and 'Platform Reject Reason' are updated accordingly.

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	CANCELED
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_6130559786630250531_53...
Trade Id	531059
Trade Version	6
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2.75%
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130559786630250531
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Cancel Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

4.6 Allege AMEND on a Trade before the Trade is MATCHED

A Buy Side user can allege an Amendment or a Rejection before the trade is matched. To allege an AMEND, amend the trade with the changes that the user wants to make. Then once all the changes are made to the trade, the user applies an action ALLEGE on the trade that is ALLEGED. The ALLEGE transition has a workflow rule 'PlatformAllege' which creates an event to the FIX Engine to allege the Amendment message.

Trade Alleged with Notional 625,000:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	ALLEGED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_613056053395456...
Trade Id	531060
Trade Version	3
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2.7...
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	New Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

Trade is now amended by changing the notional to 1M:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	ALLEGED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_613056053395456...
Trade Id	531060
Trade Version	3
Notional	1,000,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2.7...
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	New Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

Apply ALLEGE action on this trade:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	ALLEGED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_613056053395456...
Trade Id	531060
Trade Version	7
Notional	1,000,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2.7...
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Amend Allege Successful
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	
@PlatformMatchId	
Clean Price	1.0223000000

Note that the keyword ‘Platform Submit Status’ changes to ‘Amend Allege Successful’ if the amendment is accepted, otherwise the ‘Platform Reject Reason’ keyword will be populated with the Reject Reason from the platform.

4.7 Changes After the Trade is CONFIRMED

Once the trade is matched and confirmed, the trade in Calypso is in VERIFIED status. No changes can be performed on the trade either by the Buy Side or the Counterparty unless the trade is UNMATCHED.

In order to amend the trade or to reject the trade, the Buy Side user or the Counterparty user has to unmatch the trade.

4.8 UNMATCH Initiated by Counterparty

If the Counterparty initiates an UNMATCH on an already confirmed trade, Bloomberg will notify the Buy Side by sending the Unmatched message. In this case, the trade that is already confirmed (VERIFIED in Calypso) will be moved to UNMATCHED status with proper updates on the 'Platform Submit Status' keyword.

Trade that is confirmed in the platform and in VERIFIED status in Calypso:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	VERIFIED
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_6130556191742...
Trade Id	531056
Trade Version	5
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2...
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130556191742623777
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Confirmed
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50018:6
@PlatformMatchId	3739:20150326:50018:6
Clean Price	1.0223000000

After Counterparty initiates Unmatch on the confirmed trade:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	UNMATCHED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_6130556191742...
Trade Id	531056
Trade Version	6
Notional	625,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2...
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130556191742623777
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Unmatched
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50018:6
@PlatformMatchId	3739:20150326:50018:6
Clean Price	1.0223000000

4.9 UNMATCH Initiated by Buy Side

A Buy Side user can also initiate an UNMATCH on an already confirmed trade by applying an action PO_UNMATCH on the VERIFIED trade in Calypso. The transition contains a workflow rule 'PlatformAllege' which will generate an event for the FIX Engine to generate an UNMATCH message and send to Bloomberg.

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	VERIFIED
Action	AMEND
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_61305605339545...
Trade Id	531060
Trade Version	9
Notional	1,000,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Confirmed
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50020:6
@PlatformMatchId	3739:20150326:50020:6
Clean Price	1.0223000000

After applying PO_UNMATCH action on the trade:

	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	VERIFIED
Action	PO_UNMATCH
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_61305605339545...
Trade Id	531060
Trade Version	9
Notional	1,000,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Confirmed
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50020:6
@PlatformMatchId	3739:20150326:50020:6
Clean Price	1.0223000000

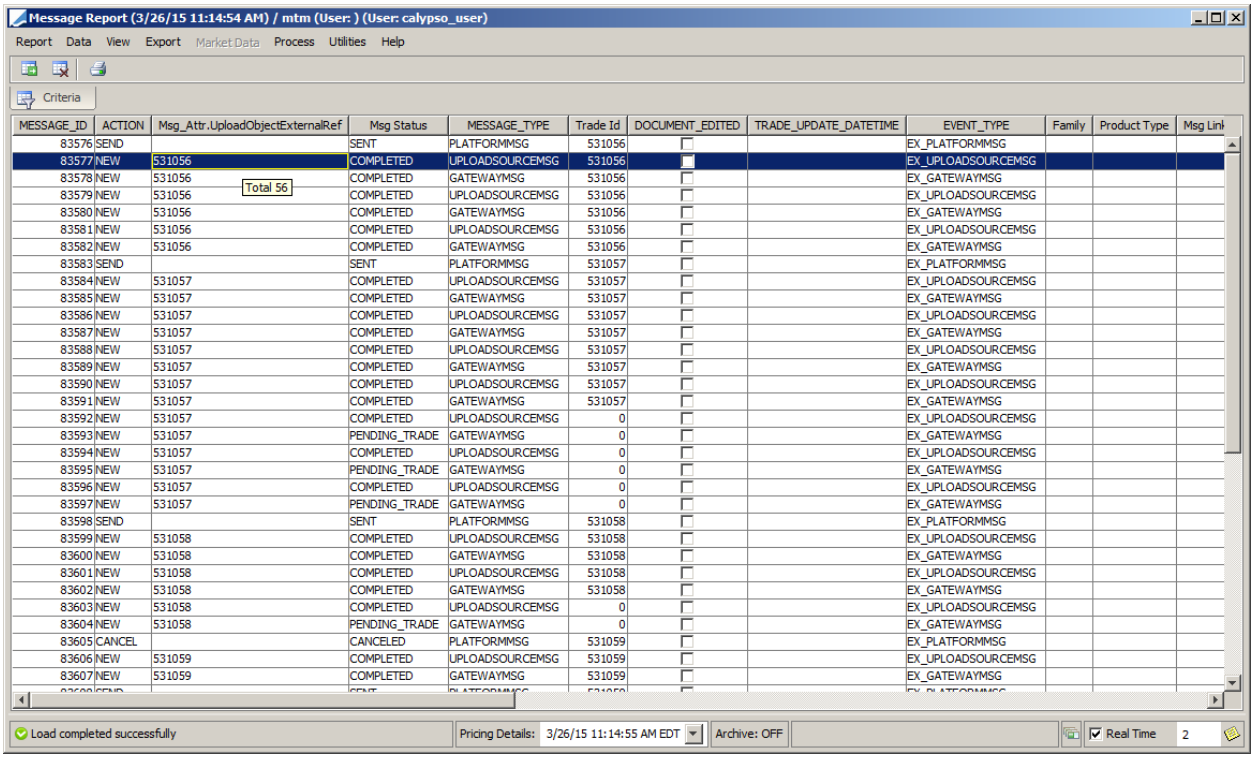
	1
Strategy Name	**Bond**
Price and Save	**Active**
Solve	
Status	UNMATCHED
Action	ALLEGE
Sales Person	NONE
Trader	BSOMA
Book	BookEUFIBO1
Counterpart Role	CounterParty
Counterparty	CALYPSO
External Reference	BloombergFIT_EUFIBO1_61305605339545...
Trade Id	531060
Trade Version	13
Notional	1,000,000.00
Product Type	Bond
Buy/Sell	Buy
Trade Date	03/26/2015
Trade Time	3:00:00 AM
Settlement Date	03/26/2015
Underlying	BondT 2 3/4 02/15/19/10Y/02/15/2019/2....
@CounterpartyTrader	PRALLABANDI
@TradeSource	BloombergFIT
@PlatformTradeId	6130560533954560031
@PlatformAPIUser	
@PlatformAllegeType	Alleged
@PlatformAllegedTime	
@PlatformAllocation	
@PlatformBlockTradeId	
@PlatformCP	
@PlatformLastModifiedTime	
@PlatformPO	
@PlatformRejectCode	
@PlatformRejectReason	
@PlatformSubmitStatus	Unmatched
@PlatformTransactionId	
@CounterpartyRejectReason	
Yield	0.000
@CounterpartyTradeId	3739:20150326:50020:6
@PlatformMatchId	3739:20150326:50020:6
Clean Price	1.0223000000

Once the trade is UNMATCHED, the trade can now be amended or rejected or affirmed again by the Counterparty.

4.10 Viewing the Message Payload (Incoming and Outgoing)

The following BO Messages are created for every trade that is sent and every message that is received.

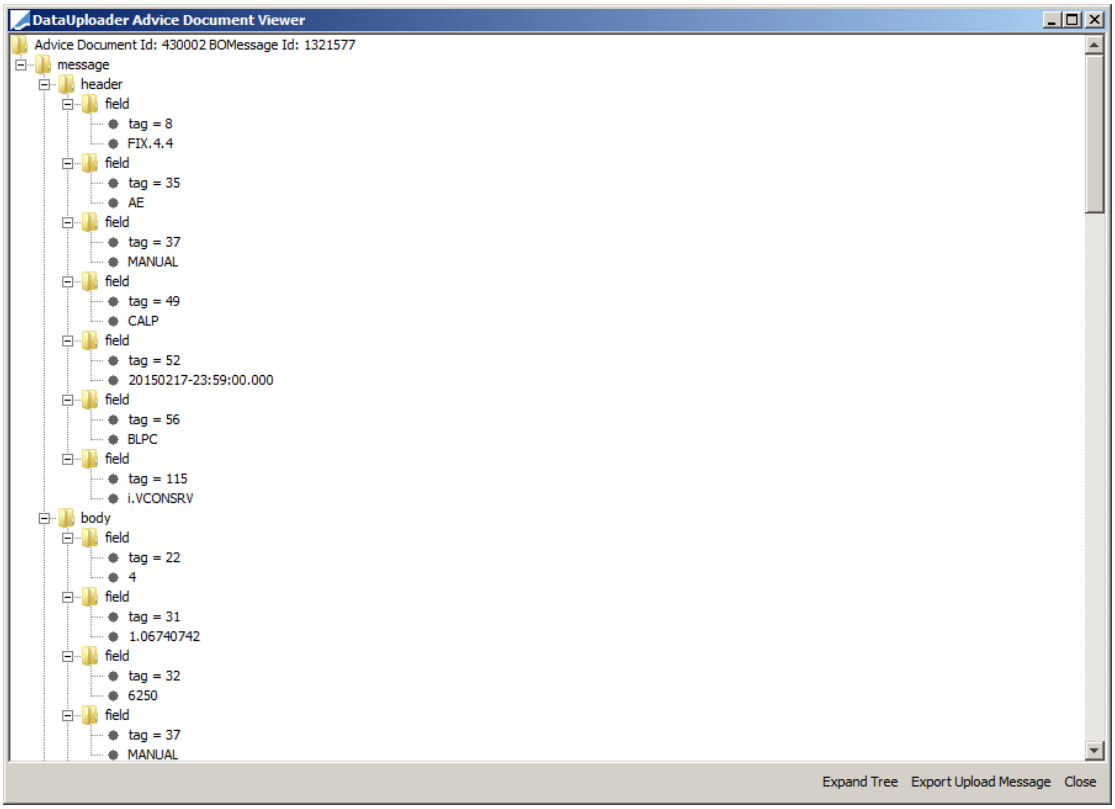
- PLATFORMMSG indicates a message being sent out from Calypso to Bloomberg.
- UPLOADSOURCEMSG indicates a message received from Bloomberg to Calypso.
- GATEWAYMSG is Uploader message that is used to update the trade using Data Uploader framework.



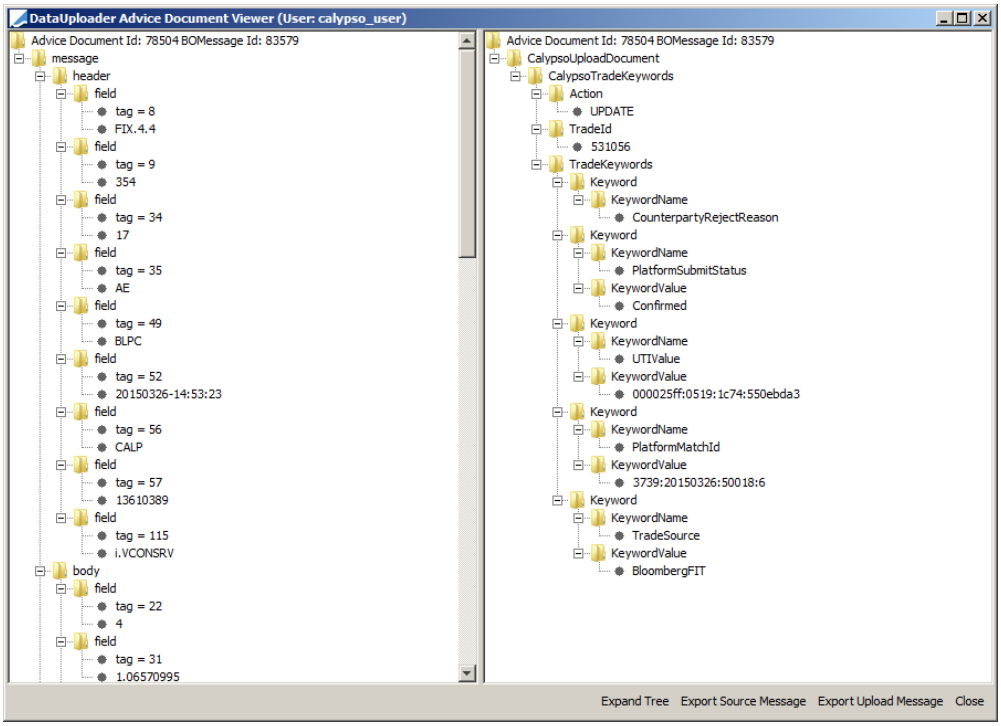
MESSAGE_ID	ACTION	Msg_Attr.UploadObjectExternalRef	Msg Status	MESSAGE_TYPE	Trade Id	DOCUMENT_EDITED	TRADE_UPDATE_DATETIME	EVENT_TYPE	Family	Product Type	Msg Link
83576	SEND		SENT	PLATFORMMSG	531056	☐		EX_PLATFORMMSG			
83577	NEW	531056	COMPLETED	UPLOADSOURCEMSG	531056	☐		EX_UPLOADSOURCEMSG			
83578	NEW	531056	COMPLETED	GATEWAYMSG	531056	☐		EX_GATEWAYMSG			
83579	NEW	531056	COMPLETED	UPLOADSOURCEMSG	531056	☐		EX_UPLOADSOURCEMSG			
83580	NEW	531056	COMPLETED	GATEWAYMSG	531056	☐		EX_GATEWAYMSG			
83581	NEW	531056	COMPLETED	UPLOADSOURCEMSG	531056	☐		EX_UPLOADSOURCEMSG			
83582	NEW	531056	COMPLETED	GATEWAYMSG	531056	☐		EX_GATEWAYMSG			
83583	SEND		SENT	PLATFORMMSG	531057	☐		EX_PLATFORMMSG			
83584	NEW	531057	COMPLETED	UPLOADSOURCEMSG	531057	☐		EX_UPLOADSOURCEMSG			
83585	NEW	531057	COMPLETED	GATEWAYMSG	531057	☐		EX_GATEWAYMSG			
83586	NEW	531057	COMPLETED	UPLOADSOURCEMSG	531057	☐		EX_UPLOADSOURCEMSG			
83587	NEW	531057	COMPLETED	GATEWAYMSG	531057	☐		EX_GATEWAYMSG			
83588	NEW	531057	COMPLETED	UPLOADSOURCEMSG	531057	☐		EX_UPLOADSOURCEMSG			
83589	NEW	531057	COMPLETED	GATEWAYMSG	531057	☐		EX_GATEWAYMSG			
83590	NEW	531057	COMPLETED	UPLOADSOURCEMSG	531057	☐		EX_UPLOADSOURCEMSG			
83591	NEW	531057	COMPLETED	GATEWAYMSG	531057	☐		EX_GATEWAYMSG			
83592	NEW	531057	COMPLETED	UPLOADSOURCEMSG	0	☐		EX_UPLOADSOURCEMSG			
83593	NEW	531057	PENDING_TRADE	GATEWAYMSG	0	☐		EX_GATEWAYMSG			
83594	NEW	531057	COMPLETED	UPLOADSOURCEMSG	0	☐		EX_UPLOADSOURCEMSG			
83595	NEW	531057	PENDING_TRADE	GATEWAYMSG	0	☐		EX_GATEWAYMSG			
83596	NEW	531057	COMPLETED	UPLOADSOURCEMSG	0	☐		EX_UPLOADSOURCEMSG			
83597	NEW	531057	PENDING_TRADE	GATEWAYMSG	0	☐		EX_GATEWAYMSG			
83598	SEND		SENT	PLATFORMMSG	531058	☐		EX_PLATFORMMSG			
83599	NEW	531058	COMPLETED	UPLOADSOURCEMSG	531058	☐		EX_UPLOADSOURCEMSG			
83600	NEW	531058	COMPLETED	GATEWAYMSG	531058	☐		EX_GATEWAYMSG			
83601	NEW	531058	COMPLETED	UPLOADSOURCEMSG	531058	☐		EX_UPLOADSOURCEMSG			
83602	NEW	531058	COMPLETED	GATEWAYMSG	531058	☐		EX_GATEWAYMSG			
83603	NEW	531058	COMPLETED	UPLOADSOURCEMSG	0	☐		EX_UPLOADSOURCEMSG			
83604	NEW	531058	PENDING_TRADE	GATEWAYMSG	0	☐		EX_GATEWAYMSG			
83605	CANCEL		CANCELED	PLATFORMMSG	531059	☐		EX_PLATFORMMSG			
83606	NEW	531059	COMPLETED	UPLOADSOURCEMSG	531059	☐		EX_UPLOADSOURCEMSG			
83607	NEW	531059	COMPLETED	GATEWAYMSG	531059	☐		EX_GATEWAYMSG			

The Message payload for each message can be viewed by double-clicking the message in the Message Report.

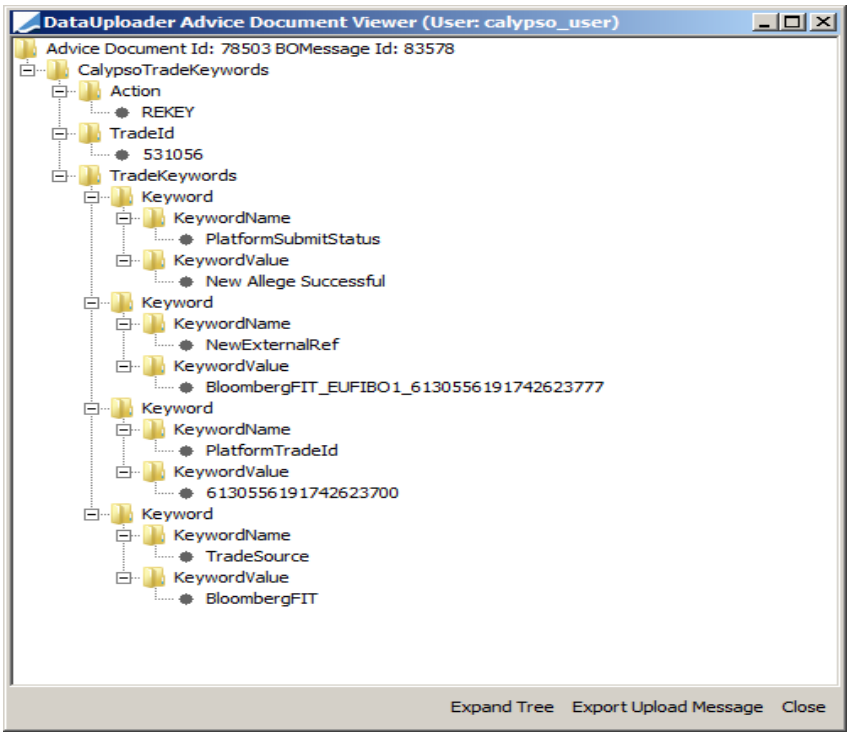
Payload for PLATFORMMSG



Payload for UPLOADSOURCEMSG



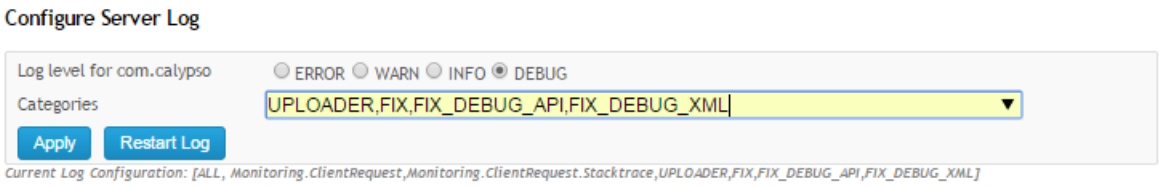
Payload for GATEWAYMSG



Troubleshooting

5.1 Logging

The following categories should be enabled for logging:



5.2 Quick Fix Related Logging

The Quick Fix related logging can be found in the folder: $USER_HOME/Calypso/FIXEngine/Log

The log files in this folder log all the communication between Calypso and Bloomberg via the FIX Engine. All the messages, both incoming and outgoing, including the login and heartbeat messages, are logged as well.

Sample log messages:

35=0 heart beat message

35=AE Trade capture report message

35=AR Trade capture report Ack message

49=CALP -> sent by calypso

56=BLPC -> received by Bloomberg

20150213-23:17:57.935: 8=FIX.4.49=5335=034=31249=CALP52=20150213-23:17:57.93556=BLPC10=130

20150213-23:18:01.797: 8=FIX.4.49=41835=AE34=31337=MANUAL49=CALP52=20150213-23:18:01.78156=BLPC115=i.VCONSRV22=431=0.91943489502932=70.037=MANUAL48=US912828KD1755=N/A60=2015021364=2015021275=20150213128=i.VCONSRV150=0200=20190215202=VCON231=1423=5460=UST487=0570=N571=516939854=1856=0552=154=137=MANUAL453=3448=643908447=D452=13448=13560681447=D452=11448=9320115447=D452=1215=USD381=6436.04159=95.2118=-6531.2410=075

20150213-23:18:02.296: 8=FIX.4.49=019235=AR49=BLPC56=CALP34=350128=i.VCONSRV115=i.VCONSRV52=20150213-23:17:5960=20150213-00:00:00150=F571=516939487=0818=6115472846419656706939=0460=0856=048=US912828KD1722=455=N/A10=172