Nasdaq Calypso

LME ETD Integration Guide

Version 2.3.0

Revision 2.0
January 2024
Approved

Document History

Revision	Published	Summary of Changes
1.0	September 2023	First edition for version 1.0.0
2.0	January 2024	Second edition for version 2.3.0 (compatibility with version 18)

This document describes the LME ETD Direct Exchange Connectivity 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.

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

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Overview

The LmeETD interface Module allows to connect LME fix account and capture live ETD clearing trades from LME exchange.

LME sends trade details in fix SOH format through drop copy service through internet-based connectivity to Calypso application.

FCM Trade interface is enhanced with new features to support this new module which will now read ETD LME fix SOH syntax-based message and convert into calypso uploader format using data dictionary.

The purpose of this interface is to understand the ETD incoming message from the FIX based message and translate to Uploader XML format and save the trade using the Data Uploader FCM Trade Interface framework.

1.1 Scope

Currently New Future and Option trade capturing are supported.

1.2 Out of Scope

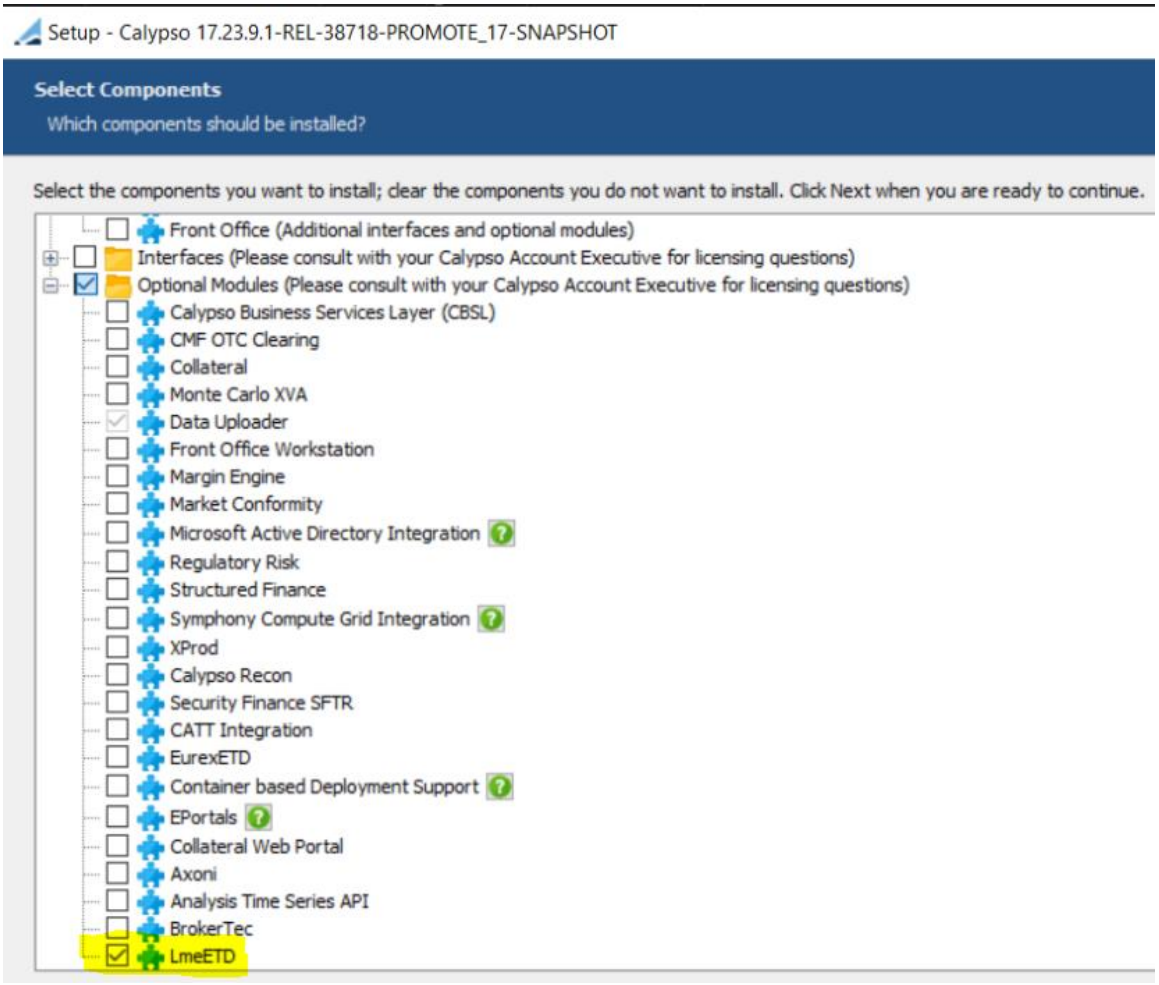
- Exercise/ assignment
- Give-up and take-up
- Amendment

1.3 Dependent Module

The Lme ETD Interface is dependent on the Calypso Data Uploader with FCM Trade Interface framework, Fix Data Dictionary, Fix Module and Calypso Clearing Member Module.

Installation and Configuration

The LME ETD interface is installed as part of the Calypso Installer when you select LmeETD in Optional Modules:



▶ Please refer to the Calypso Installation Guide for complete details on the Calypso Installer.

2.1 Property Files

Remove the ".sample" extension from the file name provided below and copy to `<calypso home>/tools/calypso-templates/resources/`.

- lmeetd-datauploader-gui.properties.sample to lmeetd-datauploader-gui.properties
- LMESmart-fix.properties.sample to LMESmart-fix.properties

2.1.1 Trace Incoming Messages and Connectivity Logs

Incoming Messages and connectivity logs are traced automatically on the default or user defined path.

Incoming Messages

Default path is C:\<user home>\Calypso\FIXEngine\Log\FIX.4.4-ZSAFIX1-FGW.messages.log

User-defined path can be specified in LMESmart-fix.properties.

```
FileStorePath=/home/Calypso/LME-connectivity/store
```

Connectivity Logs

Default path is C:\<user home>\Calypso\FIXEngine\Log\FIX.4.4-ZSAFIX1-FGW.messages.log

User-defined path can be specified in LMESmart-fix.properties.

```
FileLogPath=/home/Calypso/LME-connectivity/logs
```

Uncomment and update the user-defined path where user wants to store connection and incoming message logs.

2.1.2 LMEsmart FIX Server Connection and Configuration

Update the connectivity details to the property file LMESmart-fix.properties.

```
SenderCompID=User name
TargetCompID = Mnemonic
UserName= User name
Password= LME password
FaxKey= LME fax key
SocketConnectHost= (LME IP address)
SocketConnectPort= LME port
```

2.1.3 Sender and send Comp ID

LME will provide FIX username and Mnemonic which need to be used as a send Comp ID and TargetCompId in resource property file.

Example: Username = BGBFIX2

Example: BGW

Through connectivity, fix message and fields will not be in sequence, however, to support that, the following elements needs to be uncommented from property file.

```
ValidateFieldsOutOfOrder=N

ValidateUnorderedGroupFields=N

AllowUnknownMsgFields=Y

ValidateUserDefinedFields=N
```

2.1.4 Connection Host and Port:

LME have two environments in UAT region MTA and MTB for which connection host and port details are provided as shown in the example below.

Service type	Host	LME Address	Port
MTA: LMEsmart - FIX	000.000.00.000	fix.lmesmart.mta.lmexgw.com	00000
MTB: LMEsmart - FIX	000.000.00.000	fix.lmesmart.mta.lmexgw.com	00000

Note: LME shares the real connection host and port information etc. to feed into Calypso app properties files to execute the connection successfully.

2.2 Data Dictionary

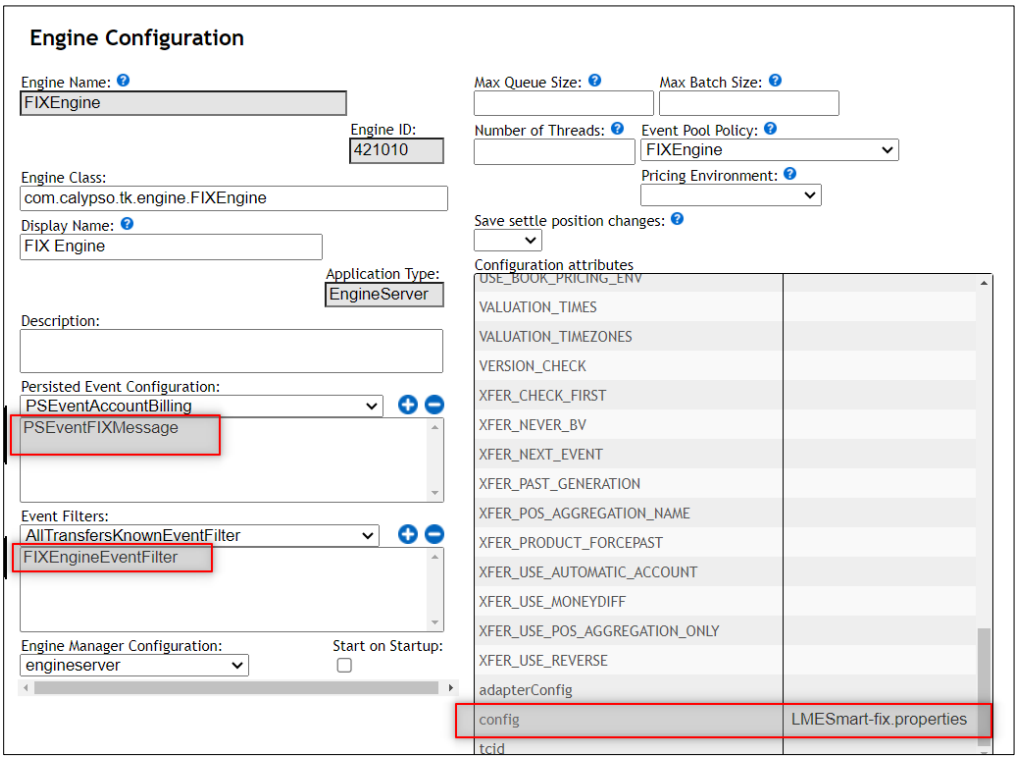
The fields of the fix message are expressed with the Tag number which is converted and read through the Data Dictionary for system-readable format.

The Data Dictionary can be found under the resource folder with the file name DD_LMDEED_FIX.xml. If any changes are made to the field name, then they need to be added in the Data Dictionary and all servers to restart the changes to affect this module.

Note: LME do not provide a data dictionary for the fix message. Therefore, we have reused another module data dictionary and added LME additional field mappings in it.

2.3 Fix Engine Configuration

To process fix messages, the fix engine needs to be configured and stared.



Configure engine attribute “Config” = LMESmart-fix.properties

2.4 Workflows

From the resource folder import GatewayMSG and UploaderSourceMSG workflows.

2.5 Calypso Mappings

When you select Optional Module “LmeETD”, Execute SQL will contain the schema file that will be used to define the interface name as LMETD and all related Calypso mapping.

INTERFACE_NAME	TYPE_NAME	INTERFACE_VALUE	CALYPSO_VALUE	Description
LmeETD	FieldMapping	637	PricePremium	Trade Price
LmeETD	FieldMapping	624	BuySellDirection	Direction
LmeETD	FieldMapping	17	ExecID	Keyword
LmeETD	FieldMapping	5179	TS_Trade_Datetime	Trade Time
LmeETD	FieldMapping	150	Action	Action whether to create new trade, Amend and cancel

INTERFACE_NAME	TYPE_NAME	INTERFACE_VALUE	CALYPSO_VALUE	Description
LmeETD	FieldMapping	541	Expiration_Date	Expiry date
LmeETD	FieldMapping	5940	SelectTradeNumber	store as an additional detail in Keyword
LmeETD	FieldMapping	167	TradeType	whether it is future or Option
LmeETD	FieldMapping	1301	Exchange	Exchange short code
LmeETD	FieldMapping	55	ClearingExchangeTicker	Symbol
LmeETD	FieldMapping	11	ClOrdID	store as an additional detail in Keyword
LmeETD	FieldMapping	5442	MatchingSlipID	store as an additional detail in Keyword
LmeETD	FieldMapping	1	ClientRef	Client Account
LmeETD	FieldMapping	75	TS_Trade_Date	Trade Date
LmeETD	FieldMapping	60	TransactTime	store as an additional detail in Keyword
LmeETD	FieldMapping	202	StrikePrice	Option Strike Price
LmeETD	FieldMapping	7931	VenueID	store as an additional detail in Keyword
LmeETD	FieldMapping	453-[447=D AND 452=1]-448	Account	Counterparty Account
LmeETD	FieldMapping	10003	Quantity	Quantity
LmeETD	FieldMapping	461	CFICode,OptionType	store as an additional detail in Keyword and also lookup Option as Put or Call
LmeETD	FieldMapping	453-[447=P AND 452=301]-448	ExecutingBroker	Executing Broker LE short Name, LME allows to enter Executing broker in numerical value, Abbreviate that numerical value to LE short name
LmeETD	FieldMapping	10000	MaturityRollingPrompt	store as a additional detail in Keyword

INTERFACE_NAME	TYPE_NAME	INTERFACE_VALUE	CALYPSO_VALUE	Description
LmeETD	FieldMapping	37	ExternalReference	Unique External Reference, at this moment order Id is considered as a external reference, as Adenza do not have more information from LME. Once we have further information, the actual ExternalReference field will be configured and added in Schema file
LmeETD	MessageAttributes	MaturityRollingPrompt	MaturityRollingPrompt	If user want to store certain fields in Message report of each message, then add this mapping and also ensure to add the same name in Domain "MsgAttributes"
LmeETD	ExecutingBroker	888	JPM	this is just an example how to abbreviate the right executing broker LE name , this mapping will not be part of schema, user need to add based on their LE short name
LmeETD	BuySellDirection	2	SELL	Direction value mapping
LmeETD	BuySellDirection	1	BUY	Direction value mapping
LmeETD	OptionType	OPEICS	PUT	Whether the message is Put or Call
LmeETD	OptionType	OPXTCS	PUT	
LmeETD	OptionType	OPEFPS	PUT	
LmeETD	OptionType	OCEFPS	CALL	
LmeETD	OptionType	OCAFPS	CALL	
LmeETD	OptionType	OCEICS	CALL	
LmeETD	OptionType	OCXTCS	CALL	
LmeETD	OptionType	OPAFPS	PUT	
LmeETD	TradeAction	8	CANCEL	Action whether to create new trade, Amend and cancel
LmeETD	TradeAction	9	AMEND	
LmeETD	TradeAction	R	AMEND	
LmeETD	TradeAction	4	CANCEL	

INTERFACE_NAME	TYPE_NAME	INTERFACE_VALUE	CALYPSO_VALUE	Description
LmeETD	TradeAction	P	AMEND	
LmeETD	TradeAction	2	AMEND	
LmeETD	TradeAction	I	AMEND	
LmeETD	TradeAction	0	NEW	
LmeETD	TradeAction	S	AMEND	
LmeETD	TradeCutOffTime	CONTRACT	TRUE	Refer FCM Trade Interface user guide for more details
LmeETD	TradeDateTimeAdjustment	Exchange	LME	
LmeETD	TradeKeywords	ExternalReference	CCPRefID	Keywords to populate in Trade attributes
LmeETD	TradeKeywords	VenueID	VenueID	
LmeETD	TradeKeywords	ClOrdID	ClientOrderID	
LmeETD	TradeKeywords	SelectTradeNumber	CCPRptRefID	
LmeETD	TradeKeywords	MatchingSlipID	MatchingSlipID	
LmeETD	TradeKeywords	TransactTime	TransactTime	
LmeETD	TradeKeywords	ExecutingBroker	ExecutingBroker	
LmeETD	TradeKeywords	MaturityRollingPrompt	MaturityRollingPrompt	
LmeETD	TradeKeywords	OrderID	OrderID	
LmeETD	TradeKeywords	ExecID	ExecID	
LmeETD	TradeKeywords	CFICode	CFICode	
LmeETD	TradeType	O	Option	It will indicate the system whether the message is future or Option
LmeETD	TradeType	A	Option	
LmeETD	TradeType	F	Future	
LmeETD	Translator	TS_Trade_Datetime	HH:mm:ss.SSS	Translates the Trade time format
LmeETD	Translator	DateFormat	yyyyMMdd	LME Message generic fields date format
LmeETD	Translator	ClientAccountPOAttribute	LmeETDAccount	if the Client Account is not provided in LME while a new trade, then trade is capture into default clientaccount

INTERFACE_NAME	TYPE_NAME	INTERFACE_VALUE	CALYPSO_VALUE	Description
				which is mentioned on this PO attribute
LmeETD	Translator	ExternalReferencePrefix	LME	External Reference Prefix

Technical mapping to translate the message file.

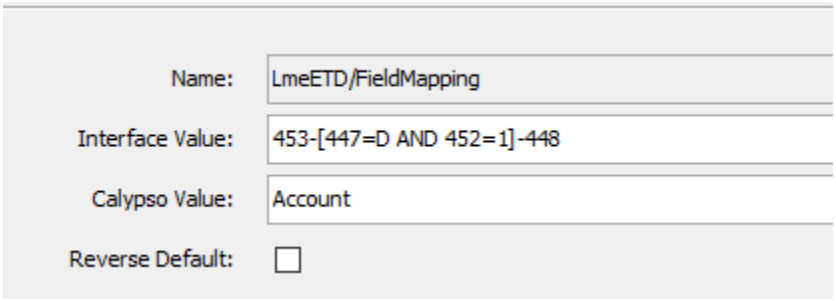
Uploader	LmeETDFieldMapping	data	XML
Uploader	LmeETDFieldMapping	dataType	FIX
Uploader	LmeETDFieldMapping	templateRootElement	LME
Uploader	LmeETDFieldMapping	templateRowElement	Row

Note: all the above Calypso Mappings except executingbroker abbreviation, are shipped in executeSql schema file.

2.6 Client and Counterparty Account Mapping

CounterPartyAccount:

In Calypso Field Mapping, you can see the below Mapping is configured.



In fix message the parties are grouped under tag number 453 with combination of one set as 447, 452 and 448.

Tag number 448 represents the actual value of the Counterparty.

So, the Mapping should be expressed in Calypso Mapping Interface value as 453-[447=D AND 452=1]-448

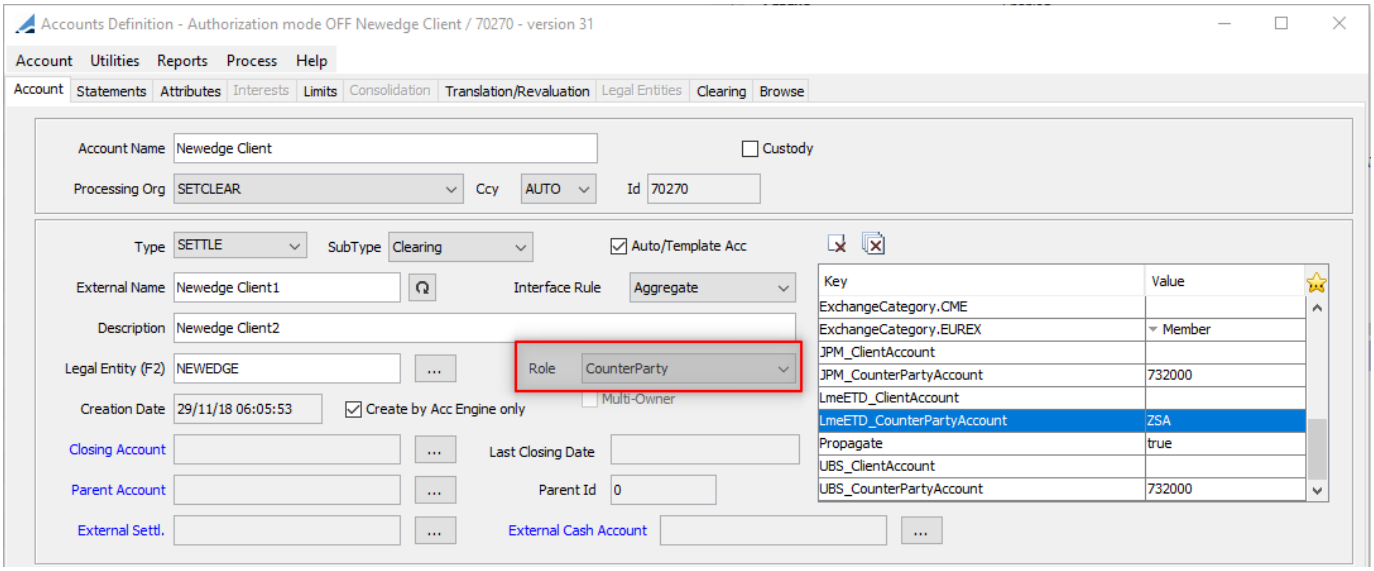
453 = Group

[447=D AND 452=1] = Combination of subgroups

448 = actual value

In technical words:

453	NoPartyIDs
447	PartyIDSource
448	PartyID
452	PartyRole

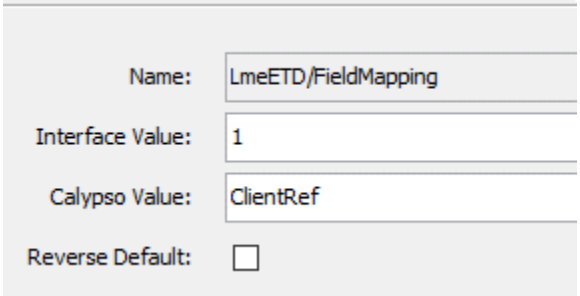


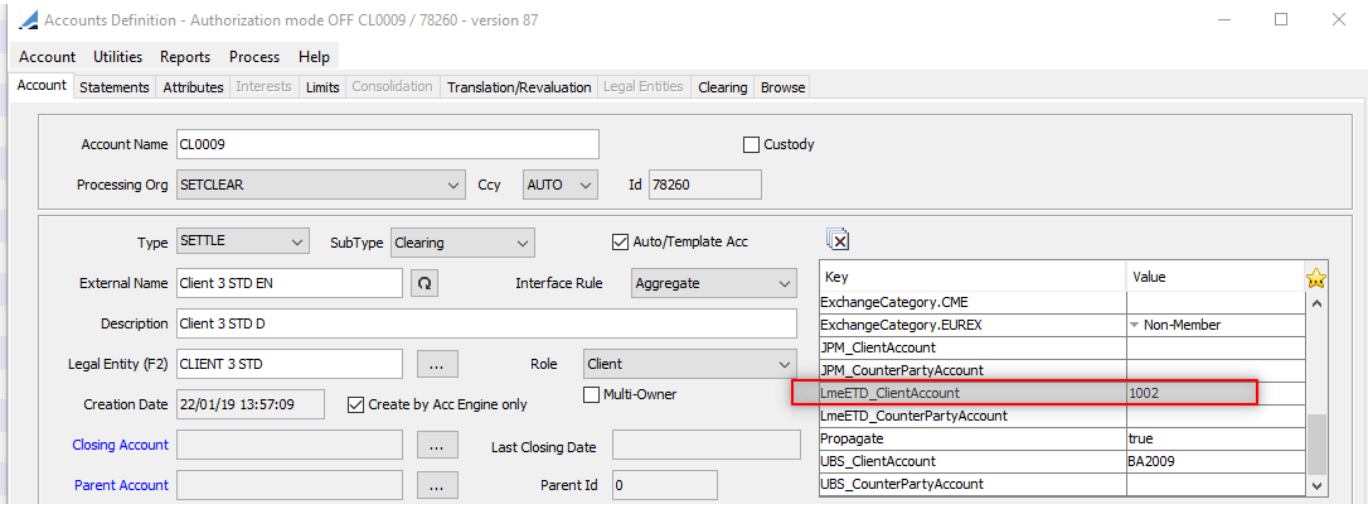
The value in the fix message should be added in the Counterparty account attribute.

The attribute name is created with the combination of InterfaceName which is LmeETD followed by _CounterPartyAccount.

E.g: LmeETD_CounterPartyAccount

Client Account





The value in the fix message should be added in the Client account attribute.

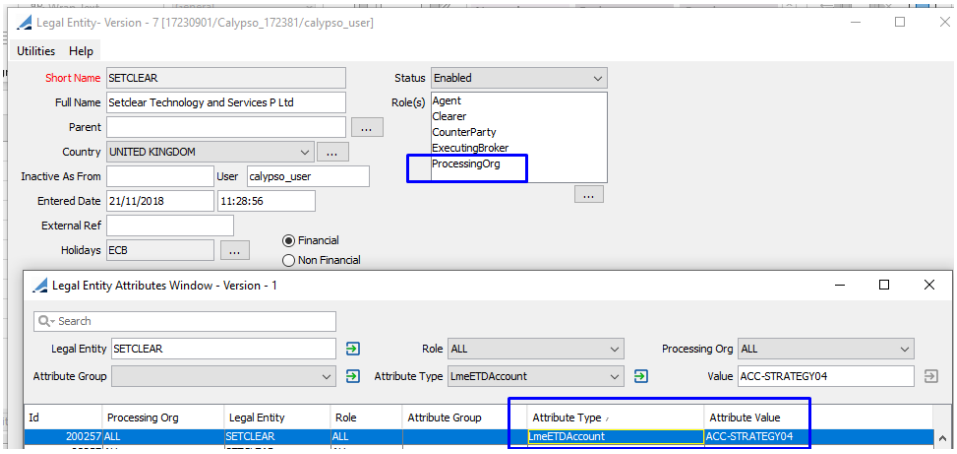
The attribute name is created with the combination of Interface Name which is LmeETD followed by _ClientAccount.

E.x: LmeETD_ClientAccount

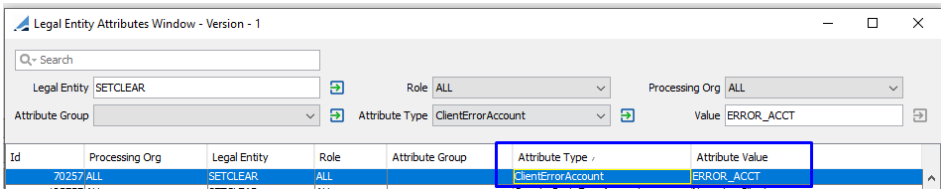
2.7 Default Client Account or Error Account Mapping at PO Level:

If the trade is executed in LME without ClientAccount then the below mapping helps to pick the error account or user defined Account to create the trade object in Calypso.

In Calypso Mapping Translator, if you have defined Attribute name as “LmeETDAccount”(user can change the attribute name based on their requirement) then the client account will be picked from this attribute.



If Calypso Mapping Translator is not defined with PO attributes, then account will be picked from ClientErrorAccount.



Use Case

Execute a trade from LmeSelect with the below identifiers.

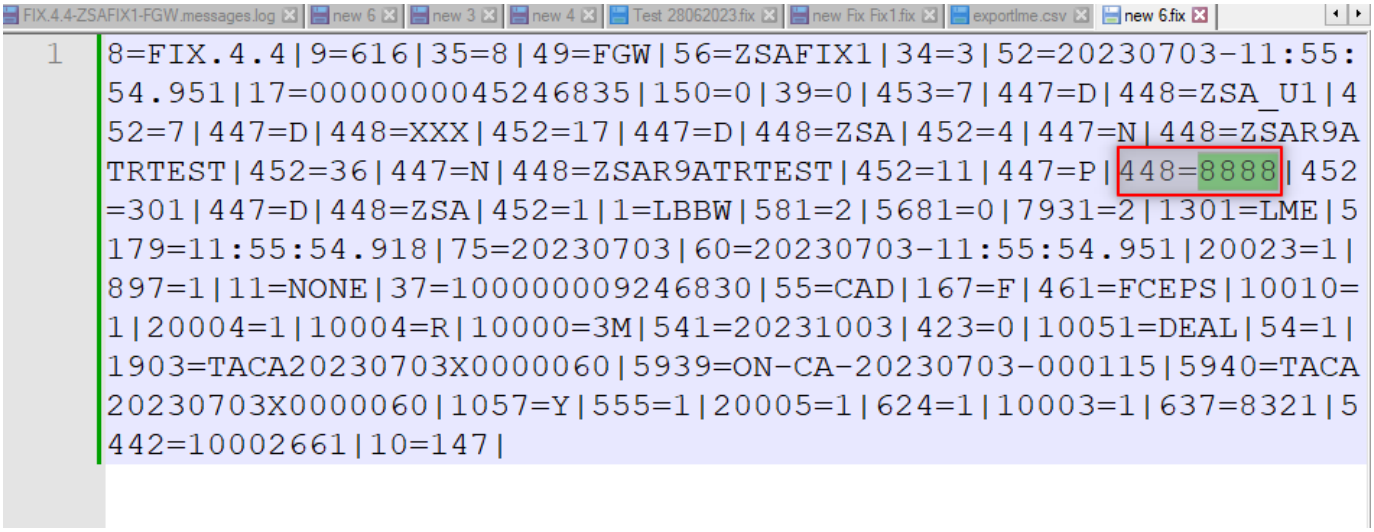
Sub Acc = H

Trading Capacity = Deal

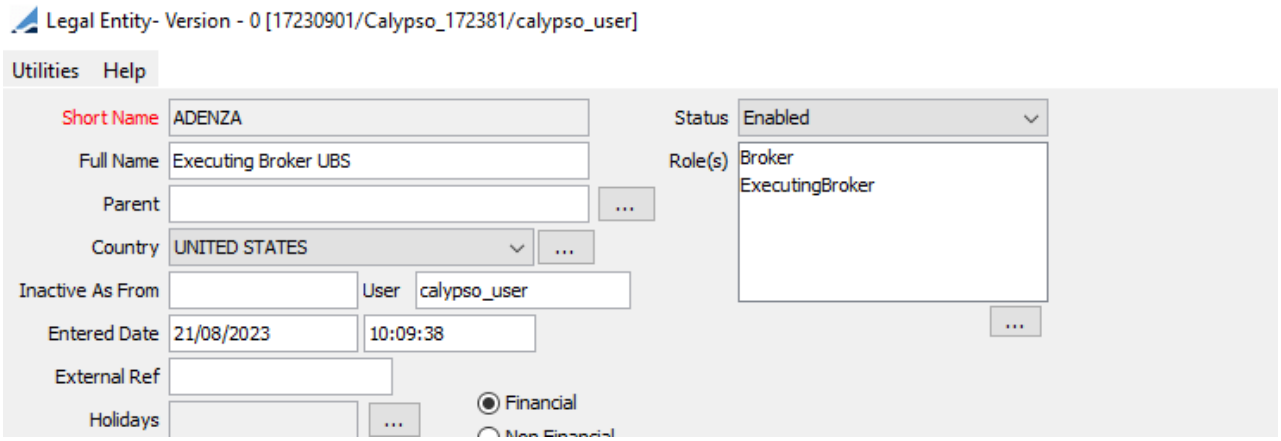
Execution Decision within Firm = 8888 (based on ExecutingBroker abbreviation)

Client Account Code = 1002 (based on ClientAccount definition attribute)

Fix Message will flow into Calypso as below:

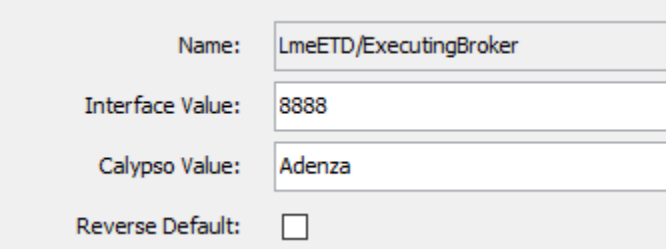


Executing Broker

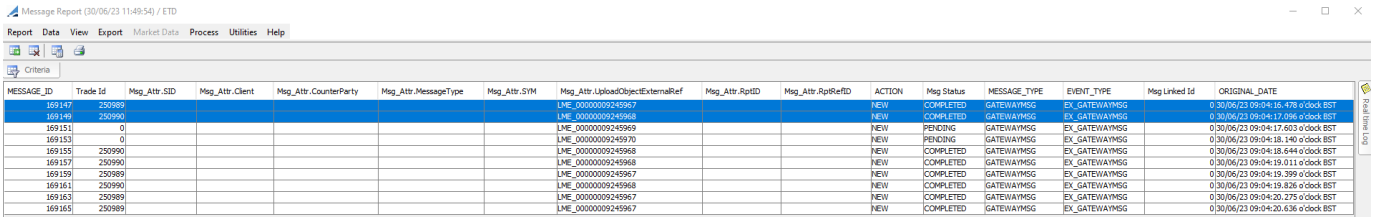


User can abbreviate if the short name of the Legal entity is example: Adenza but in fix message it is mentioned as 8888.

Then abbreviate the value in Calypso Mappings.



Check message report whether the trade message is flown or not and also check logs.



Trades captured.