Nasdaq Calypso

ETD Initial Margin Replication

Version 17 – Version 18

Revision 5.0
April 2025
Approved

Document History

Revision	Published	Summary of Changes
1.0	February 2024	First edition for version 18
2.0	November 2024	CME SPAN2 Process modified JSCC VaR API Process section added
3.0	February 2025	Squid Proxy Setup in Windows section added.
4.0	March 2025	Setup at Contract specific for KRX & CFFEX and BVMF API Process added.
5.0	April 2025	JSCC API and CME SPAN2 Process sections updated.

This document describes how to calculate and monitor ETD Clearing margins.

Table of Contents

Calypso Code and Risk Files

1.1 Calypso Code

User needs to install:

- V18 including the Clearing Member module.

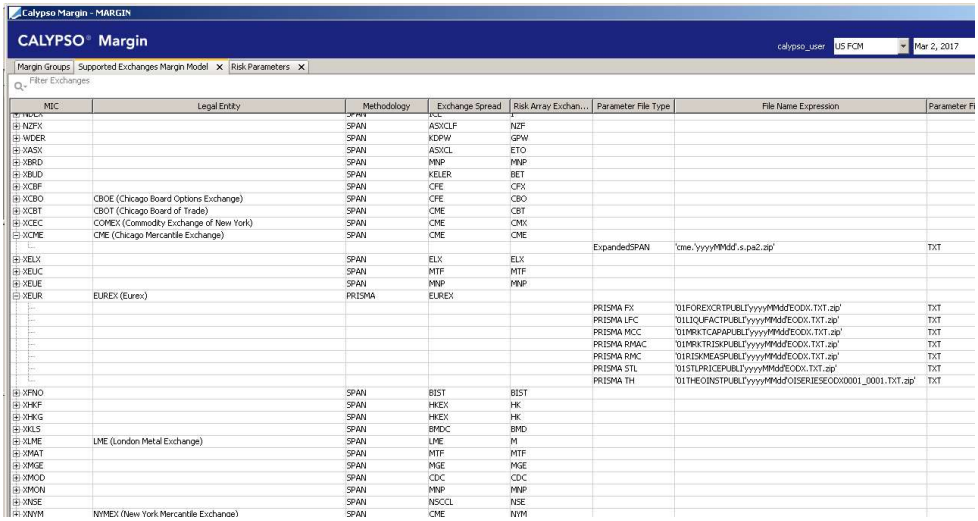
Refer to the Calypso ETD Clearing Setup Guide for information on setting up Calypso for ETD Clearing.

1.2 Risk Files

1.2.1 Required Risk Files

- For each initial margin methodologies, risk files are required for the margin calculation.

  The required risk files are documented in the Calypso Margin Dashboard:



The detailed list of files and ftp addresses is included in the ETDExchangeFileInfo.xlsx spreadsheet available from the documentation portal.

For example, for the SPAN methodologies, one single risk file is required (risk array file). For EUREX PRISMA, 7 risk files are required.

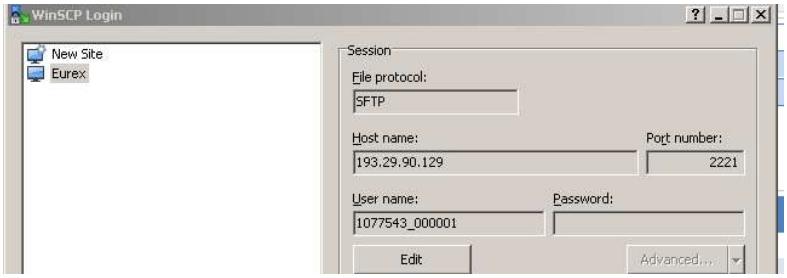
The risk files are posted by the exchanges:

- SPAN Risk Array files (for all methodologies currently supported, except PRISMA):

ftp://ftp.cmegroup.com/pub/span/data/cme/

Note: For selected exchanges, the SPAN files are downloaded directly from the exchange website. Please refer to the ETDExchangeFileInfo spreadsheet for details.

- PRISMA risk and market data files:



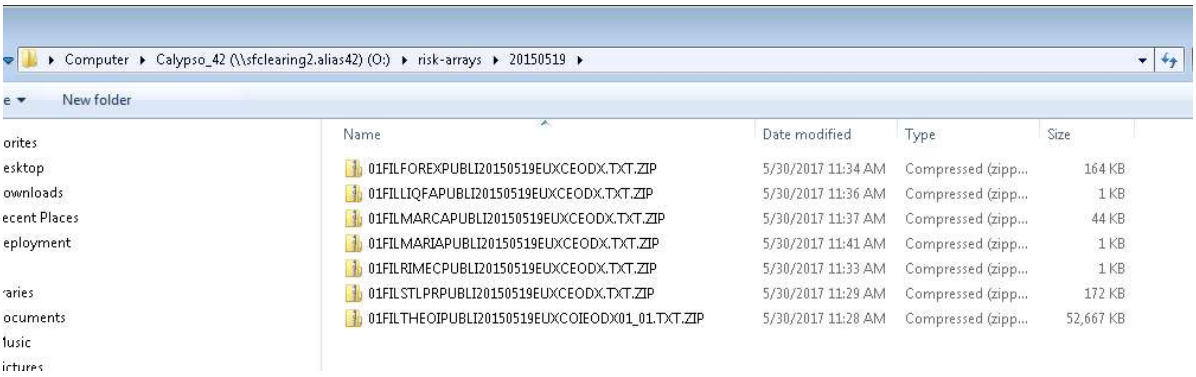
PRISMA files descriptions:

File Name	Abbreviation	Purpose
Theoretical Prices and Instrument Configuration	File TH	VaR for market risk component Compression error adjustment Correlation break adjustment Liquidity risk component
Settlement Prices	File SP	VaR for market risk component
Risk Measure Aggregation Configuration	File RMAC	Aggregation of VaRs for market risk component Aggregation of market risk components Aggregation of VaRs for liquidity risk component
Risk Measure Configuration	File RMC	VaR for market risk component VaR for liquidity risk component Correlation break adjustment
FX Rates Configuration	File FX	VaR for market risk component VaR for liquidity risk component Correlation break adjustment Liquidity risk component
Market Capacity Configuration	File MCC	Liquidity risk component
Liquidity Factor Configuration	File LFC	Liquidity risk component

	Current values / conventions	**Future values / conventions**
File short name	THEOINST	THEOI

		Current values / conventions	Future values / conventions
File short name	Risk Measure Configuration	RISKMEAS	RIMEC
	Risk Measure Aggregation	MRKTRISK	MARIA
	FX Rates	FOREXCRT	FOREX
	Market Capacity	MRKTCAPA	MARCA
	Liquidity Factor	LIQUFACT	LIQFA
	Settlement Price	STLPRICE	STLPR
	Materiality Parameter	MTRLPARM	MATPA
	FI & MM Priority	FIMMPRIO	FIMMP
	Maturity Bucket	MATRTBKT	MATBU

Example:



- OCC: OCC files structure and location is the following:

```
 *   RBH / CPM Parameters File (Non-Proprietary):  Contains all defaults, all portfolio groups, all product groups, all class groups, and all basket IDs

 *   File Name:  RBHParameters_yyyy-MM-DD . xml

 *   Compressed:  RBHParameters_yyyy-MM-DD . xml . Z

 *   RBH / CPM Theoreticals File (Non Proprietary): Contains theoreticals for all RBH / CPM eligible products and series / contracts, excluding FMS products and series / contracts

  *   File Name:  RBHTheoreticals_yyyy-MM-DD . xml

  *   Compressed:  RBHTheoreticals_yyyy-MM-DD . xml . Z
```

For additional documents, please refer to: http://www.theocc.com/membership/dds/dds-reference.jsp

Other exchanges (IDEM, MEFF, MEXDER), please refer to the ETDExchangeFileInfo spreadsheet.

- ICE IRM 2.0: Ice IRM 2.0 requires the following files:

```
* GSPD File: This contains the list of products at ICE and which margin method will be used

* File name: GSPD_yyyyMMDD.csv
```

```
* IRM 2.0 Risk File: This contains the information required to calculate IRM 2.0
* File name: IRM2.0_IM%MarginGroup%_InputData_yyyyMMDD.xml
* LRC 2.0 Risk File: This contains the information required to calculate LRC 2.0.
* File name: IRM2.0_LRC_%MarginGroup%_InputData_yyyyMMDD.xml
```

1.2.2 Risk Files Location

- The risk array files should be stored in a risk file folder, using the following syntax:

<Calypso user folder>/risk-arrays/yyyymmdd

<Calypso user folder>/clearing/yyyymmdd

Risk files will be organized by risk file dates, ie risk file as of "yyyymmdd" should be stored in the corresponding date folder.

The default behavior is to use:
<Calypso user folder>/risk-arrays

<Calypso user folder>/clearing as caching folder

- When running margin from the CLEARING_IM_CALC_ST, this Calypso user folder should be defined on the machine where the scheduler is running.
- When running the margin dashboard, or the clearing dashboard trying to obtain FOW files, the Calypso user folder will be defined on the users' machine.

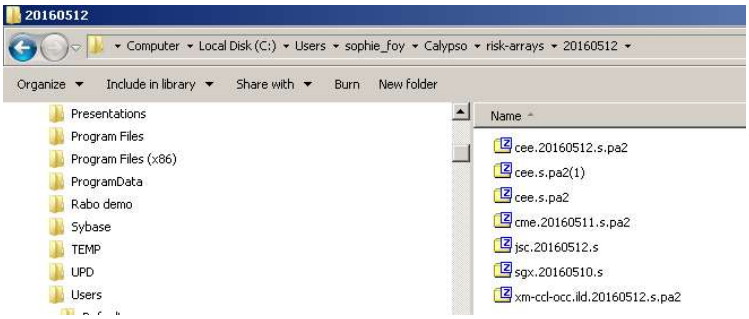
To change the default behavior, the configuration file can be updated in: client/resources/clearing-data-manager.yml file.

Sample file below:

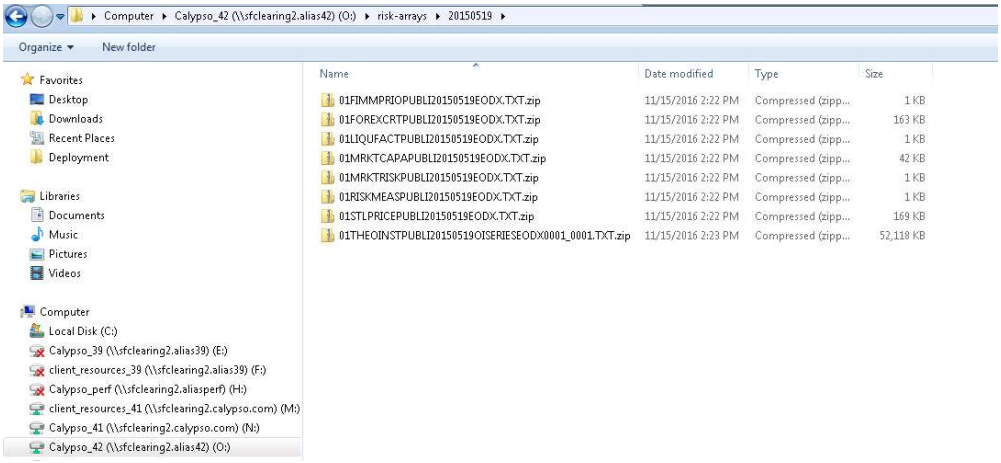
```
#
# Clearing External Data Manager configuration
# This is a YAML file: http://yaml.org/
#
# Unused properties can be safely removed or commented out: default values will apply
#
# The --- marks the end of YAML directives
---
# Local cache: where the downloaded files are placed, and where to check before attempting
# download
localCacheBaseFolder: '/path/to/cache/folder'


# Data locations: a list of local or remote resource URLs where to attempt to gather data from
```

```
# Order is relevant
locations:
  # Each list element begins with hyphen

  # Only url is mandatory when using local
- url: 'file:/local/folder/to/be/used/first'

  # Secondary fallback remote location, with SSL keystore provided
- url: 'https://remote.location/url'
  keyAlias: 'alias'
  keyPass: 'pasphrase'
  keyStorePass: 'thePassword'
  keyStoreUrl: 'classpath:/class/path/to/keystore'
  # Trust store is optional: only required if the CA is not already one
  # of the trusted ones (e.g. included in Java's cacerts)
  trustStorePass: 'thePassword'
  trustStoreUrl: 'file:/path/to/truststore'

# Global number of retries (across all locations) before giving up on a resource
maxDownloadAttempts: 50

# Global timeout for downloads, in milliseconds
# To disable the clearing data manager's own timeout, set to zero
# JVM/OS/network timeouts may still apply
downloadTimeoutMillis: 3600000
```

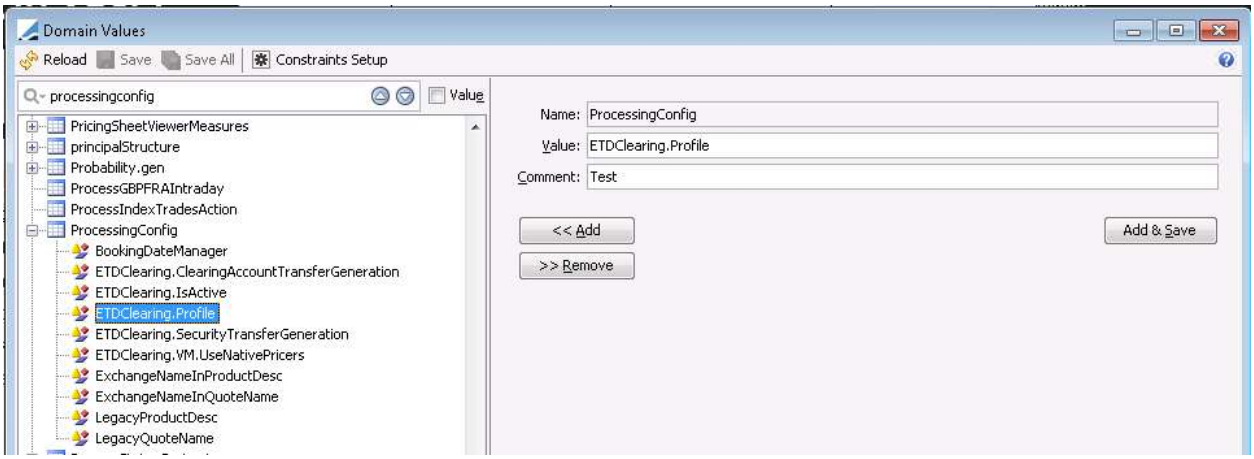
Example of SPAN risk file storage：



Example of EUREX PRISMA file storage:

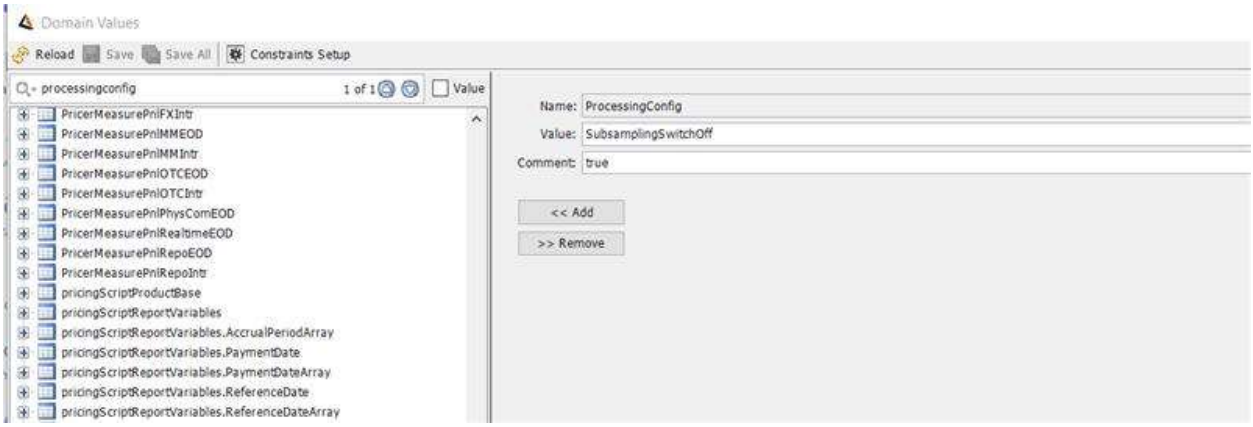


Note: for testing purposes, it is possible to switch from the EUREX PRISMA production files to the test files. To use the test files, the following Domain Value needs to be created and set to Test. No Domain Value is required to use the production files.



As per regulatory changes we need to switch off the subsampling and to handle this we need to make changes in domain values as shown below.

Set up this domain as True to switch off subsampling.



1.3 Risk Files Import Setup

To improve performance of the risk files download, you can use the parameter persistInputData.

This parameter **prevents us from saving the downloaded data in DB**. The loading from DB is still attempted, but, if there's a DB miss, the process control will be returned to the invoking code once the file has been cached locally. The default behavior is still to persist the data in DB.

1.3.1 Setup in "clearing-data-manager.yml"

Configuring the parameter in the YAML file to false makes all processes to skip the DB save by default,

```
1 persistInputData: false
2 locations:
3         - url: file:${user.home}/Calypso
4         - url: http://example.com:8080/file-repo
```

Illustration 2: Disabled DB persistance via clearing-data-manager.yml configuration

> Note: Configuring the parameter in the YAML file makes all processes skip the DB save by default, unless overridden by the process configuration (detailed below).

1.3.2 Setup at Scheduled Task Level

The parameter can also be set as a scheduled task **attribute** on scheduled tasks that rely on the Clearing Data Manager. If the attribute is missing, the configuration in clearing-data-manager.yml applies. If configured, it overrides the former.

Examples:

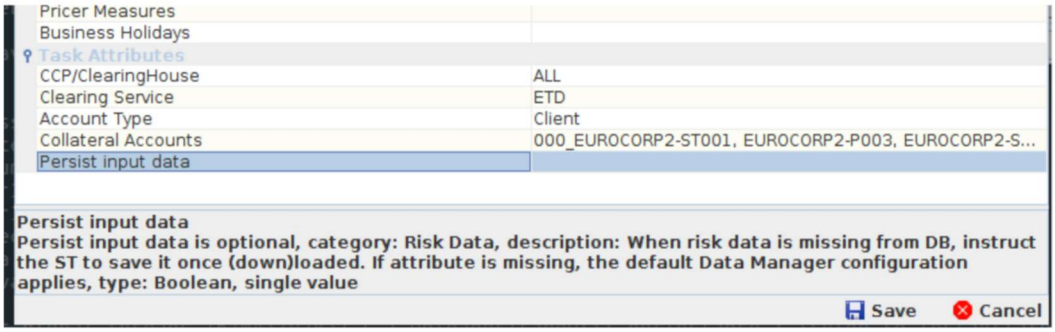


Illustration 3: Detail of CLEARING_IM_CALC task attributes, with the new parameter, unconfigured

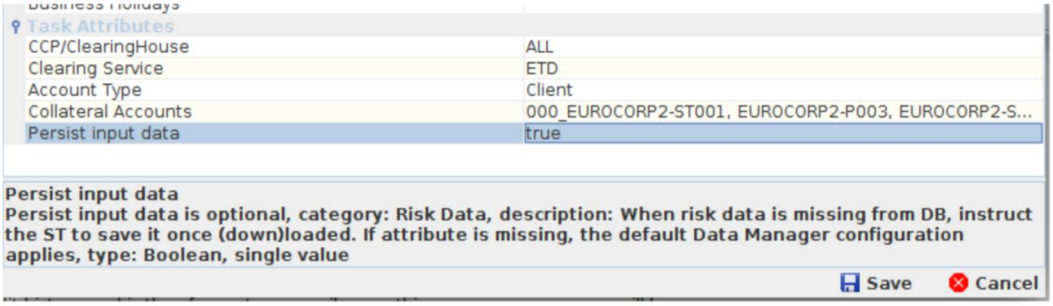


Illustration 4: The task attribute overrides the global clearing-data-manager.yml configuration

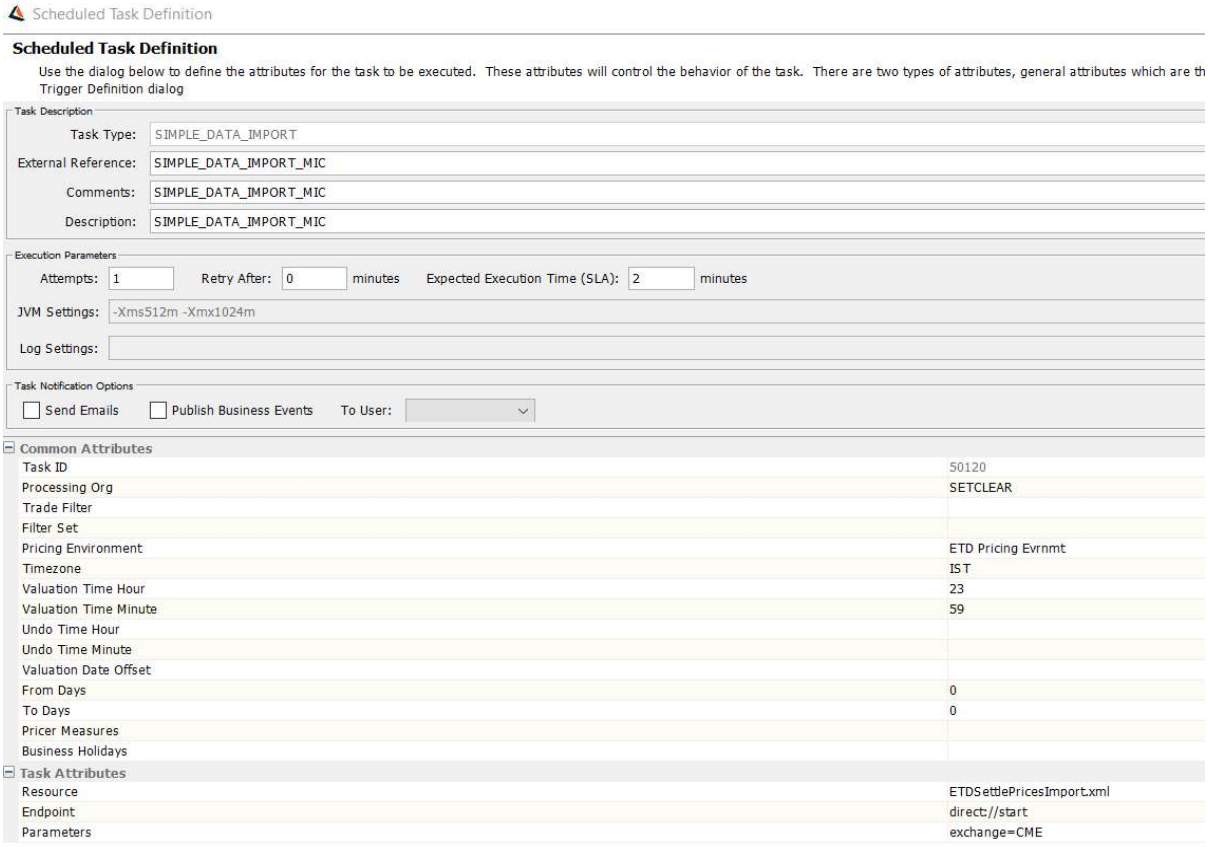
1.3.3 Setup for Simple Data Import/Closing Prices (Quotes)

Scheduled task named "SIMPLE_DATA_IMPORT" is to be used to upload closing quotes/prices for different markets.

Attributes to be used in ST.

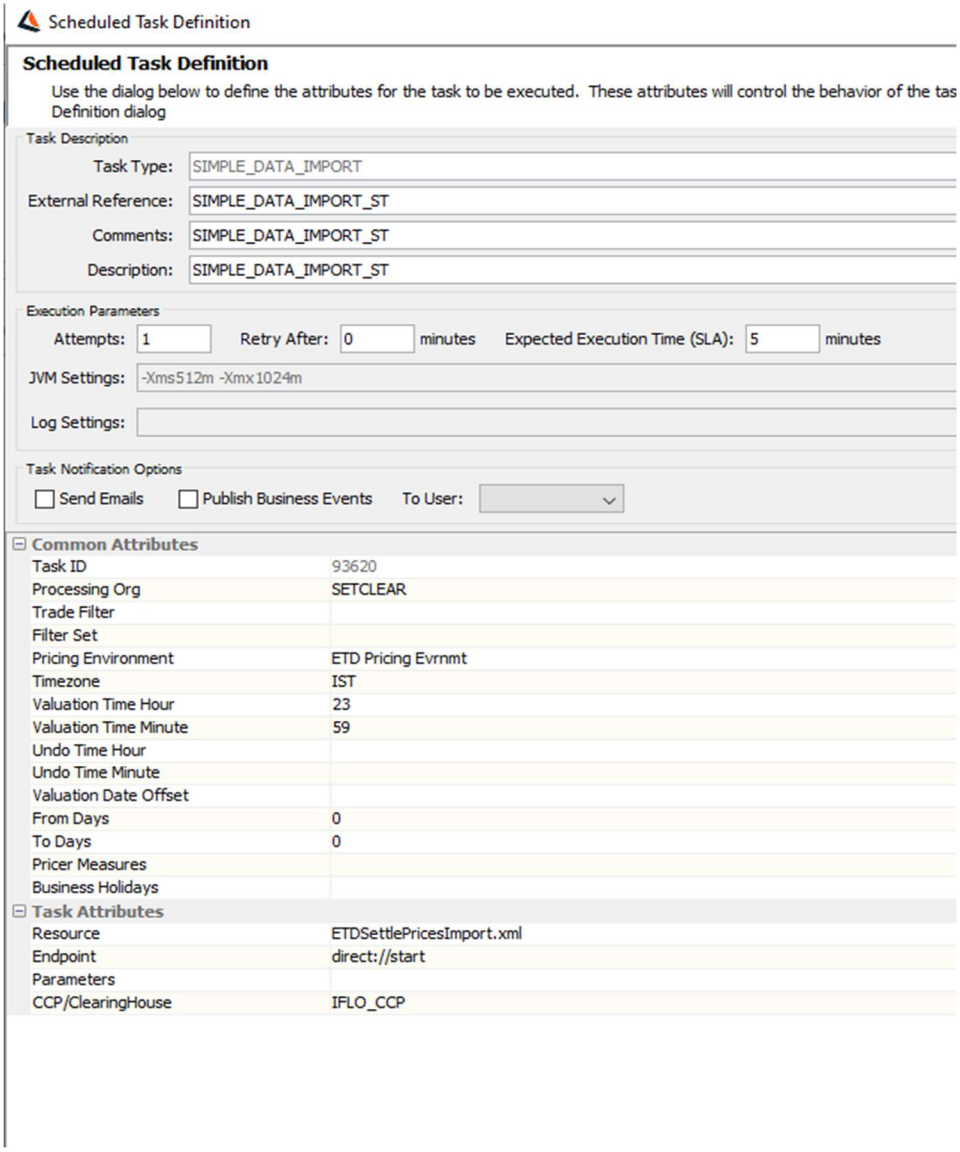
- Resource: ETDSettlePricesImport.xml
- Endpoint: direct://start
- Parameters: exchange=CME (add exchange name in parameter) or In case of multiple markets requirement, run without parameters.

ST With parameter



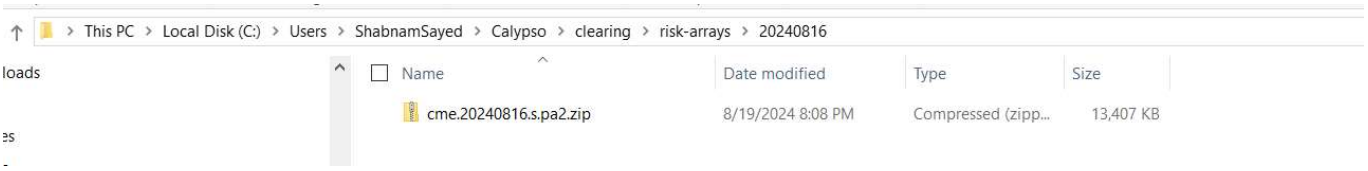
Attributes to be used in ST with specified and multiple CCP's as per user requirements.

- Resource: ETDSettlePricesImport.xml
- Endpoint: direct://start
- CCP/Clearing House (add CCP name in CCP/Clearing House) user need able to select CCP/ClearingHouse for which to update the closing prices.



Steps to run SIMPLE_DATA_IMPORT ST

1. Risk Parameter file to be store in appropriate folder as shown in the screenshot below.
   Path to store Risk parameter file: (Local Disk(C)>Users> Username>Calypso>clearing>risk-arrays>yyyyMMDD)



2. Run the scheduled Task for appropriate date
3. Go to Market data >Market Quotes>Quotes (To check updated quotes)

Note: Refer ETDExchangeFileInfo.xlsx to understand the coverage supported for Simple_Data_Import/Closing Quotes (Price).

1.3.4 Configure the Number of Historical Days to retrieve Risk Files

The behavior of this maxFallbackDays is the following:

- The default value is 10 natural days
- The max value is 30 natural days
- A value of <=0 disables the fallback (if a risk parameter is missing on a given date, we don't go back in time and fail immediately.

The set up will be done in the clearing-data-manager.yml file.

Clearing-data-manager.yml configuration:

```
49    # Hint for the data manager to go back a certain number of natural days when
50    # a risk parameter is missing
51    # Set the -1 to disable
52    # Maximum is 30 days
53    maxFallbackDays: 5
54
```

1.3.5 Configure cacheDaysToKeep property in Clearing-Data-Manager.yml

This parameter can be configured to specify how long it takes to keep data in the cache.

```
# Global number of (natural) days worth of cached files
# to keep. After each download request, a cache sweep is
# requested, and this parameter will govern how many days
# worth of cached data are kept locally. A negative value
# disables the sweeping
cacheDaysToKeep: 5
```

1.4 Scheduled Task CLEARING_ETD_INPUT_DATA_IMPORT

This Scheduled Task downloads the Risk Files as follows:

- Gather all exchanges on which the configured Collateral Accounts have positions, as of the Scheduled Task valuation date
- Identify the Risk Files needed given the exchange methodology
- Attempt to down/load the Risk Files to the local cache as of the ST valuation date
- Persist the data in DB based on “Persist Input Data” setting
- If Risk Files are missing, publish an EX_CLEARING_MISSING_RPF Exception Task

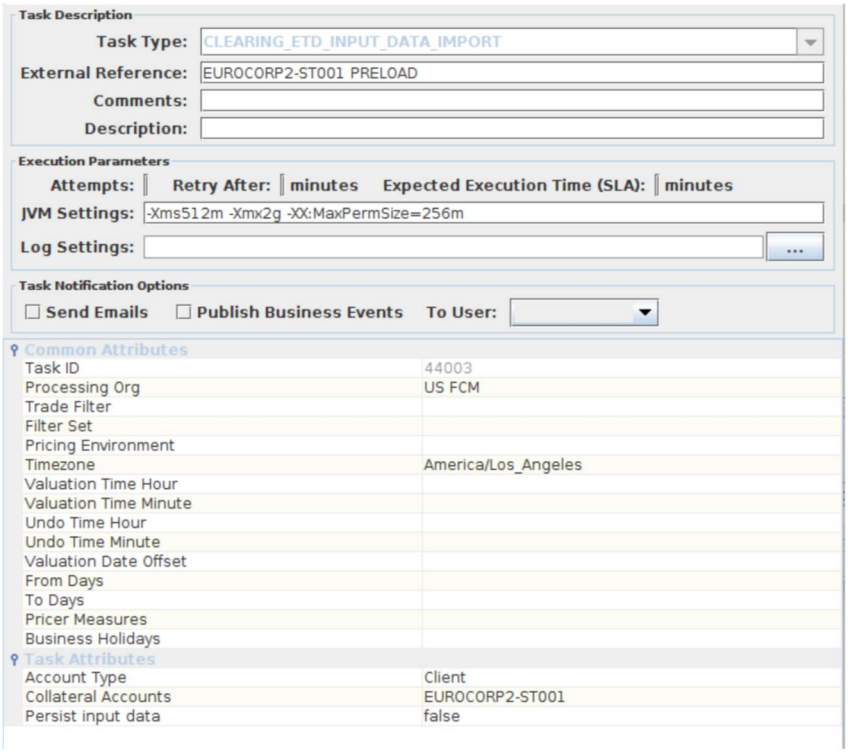


Illustration 5: Sample CLEARING_ETD_INPUT_DATA_IMPORT ST instance, configured to run from a single account

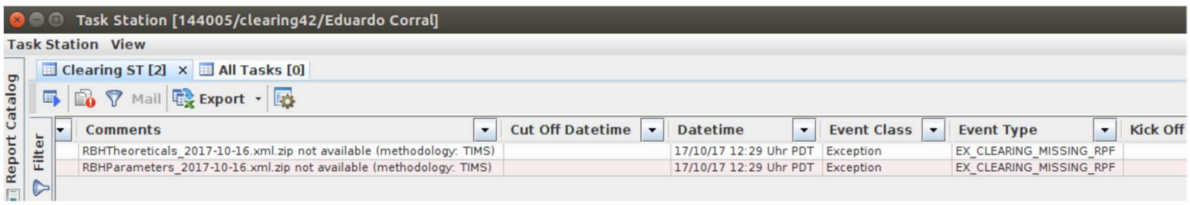


Illustration 6: Task Station detail, showing two missing RA files

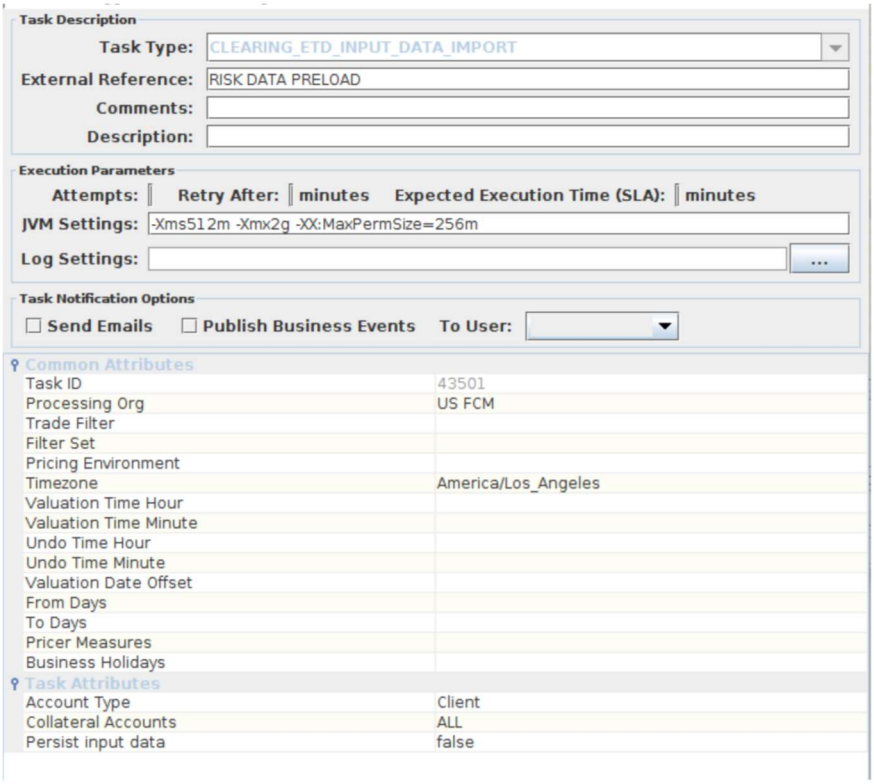


Illustration 7: ST instance detail, with no account filtering: all active exchanges in the US FCM PO will be considered

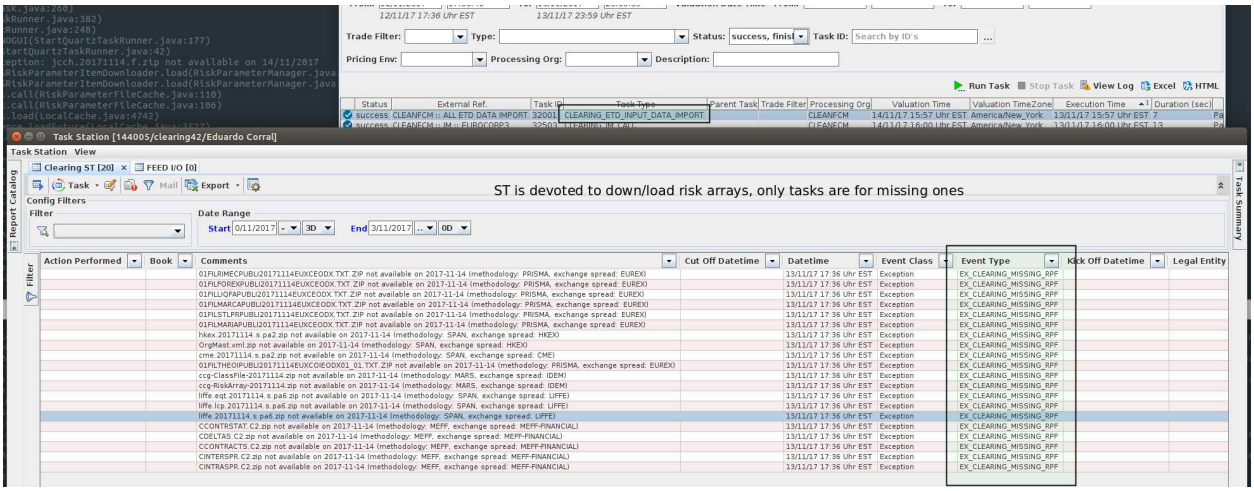
1.5 Risk Files Validation

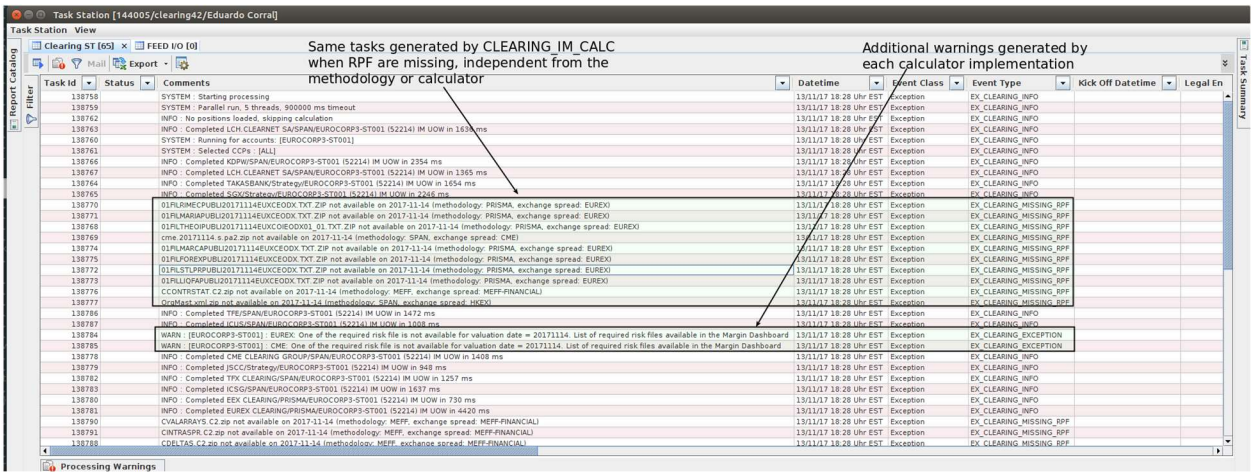
When running the CLEARING_IM_CALC scheduled task, the user can monitor the following exceptions in the task station:

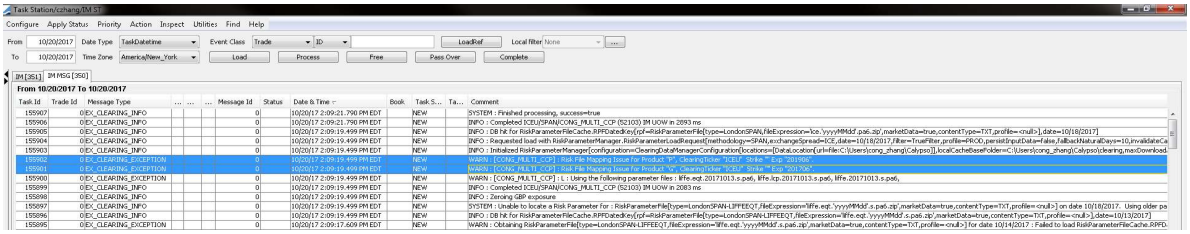
- Missing Risk Files for the selected exchanges
- Missing risk data for a selected product
- Risk files from a previous valuation date has been used

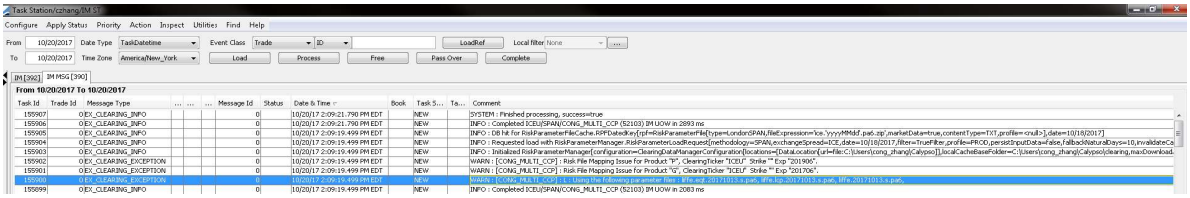
The exceptions will be reported in the EX_CLEARING_EXCEPTION category.

Examples:



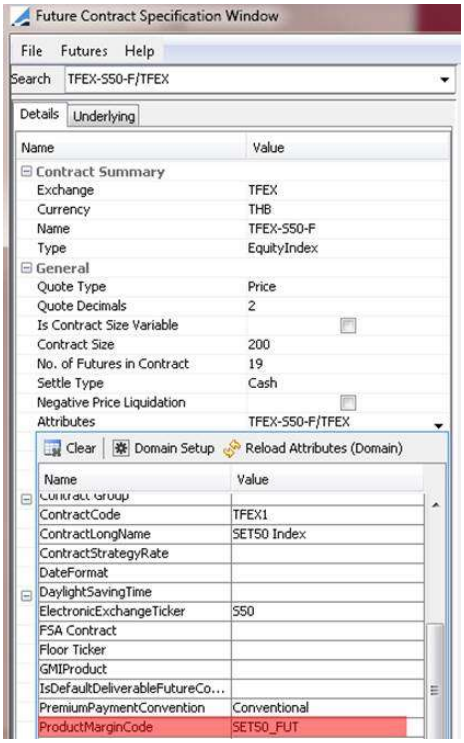






1.6 ProductMarginCode Product Attribute

For selected exchanges, the product need to be enriched with another product attribute: “ProductMarginCode”:



List of the required ProductMarginCode attributes for the current scope of exchanges in ProductMarginCodeEnrichment.xlsx spreadsheet available on the documentation portal.

1.7 Strategy Margin

1.7.1 Setup at Legal Entity Level (Exchange and CCP)

By default, the margin methodology is mapped to the exchange MIC code. For example, XSIM is mapped to SPAN margin.

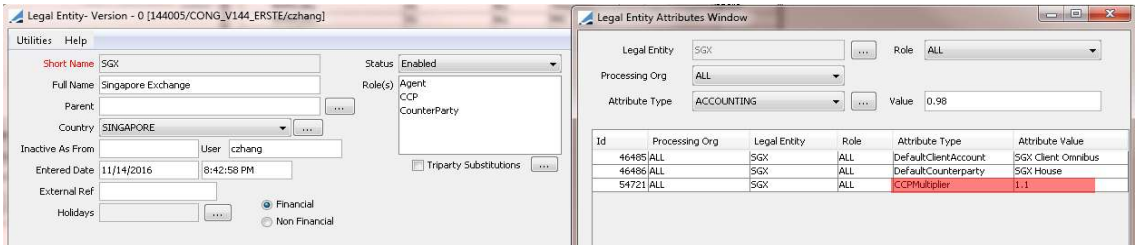
To select a strategy rate methodology, at the exchange level, 3 additional attributes need to be added:

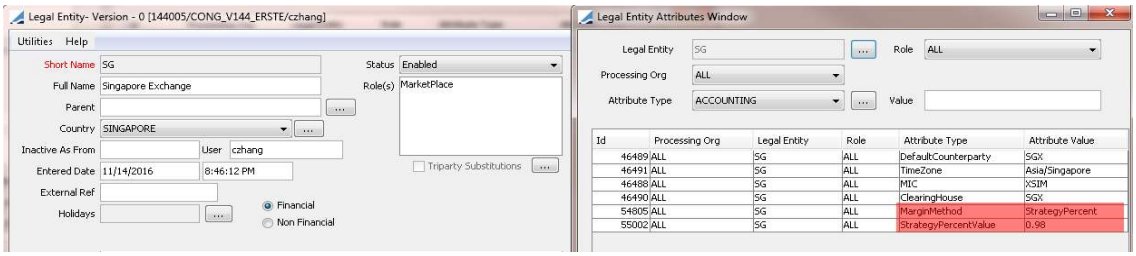
- MarginMethod
- StrategyPercentValue
- CCPMultiplier

Strategy Margin algorithm:

- Maintenance margin = % * FixedAmount * Closing Price * Quantity
- Initial Margin = % Maintenance Margin, where % is a CCP Multiplier

Example of setup:





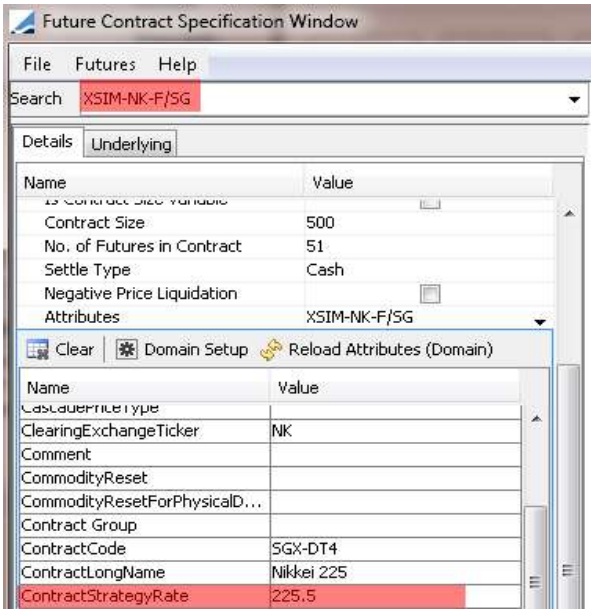
1.7.2 Setup at Contract Level

> Note: This setup is optional. The strategy rate will default to 1000 if not configured.

To define a different rate:

- Open the contract in the Contract Definition Window
- Select->Attribute->ContractStrategyRate.
- Update with the strategy rate

Example:

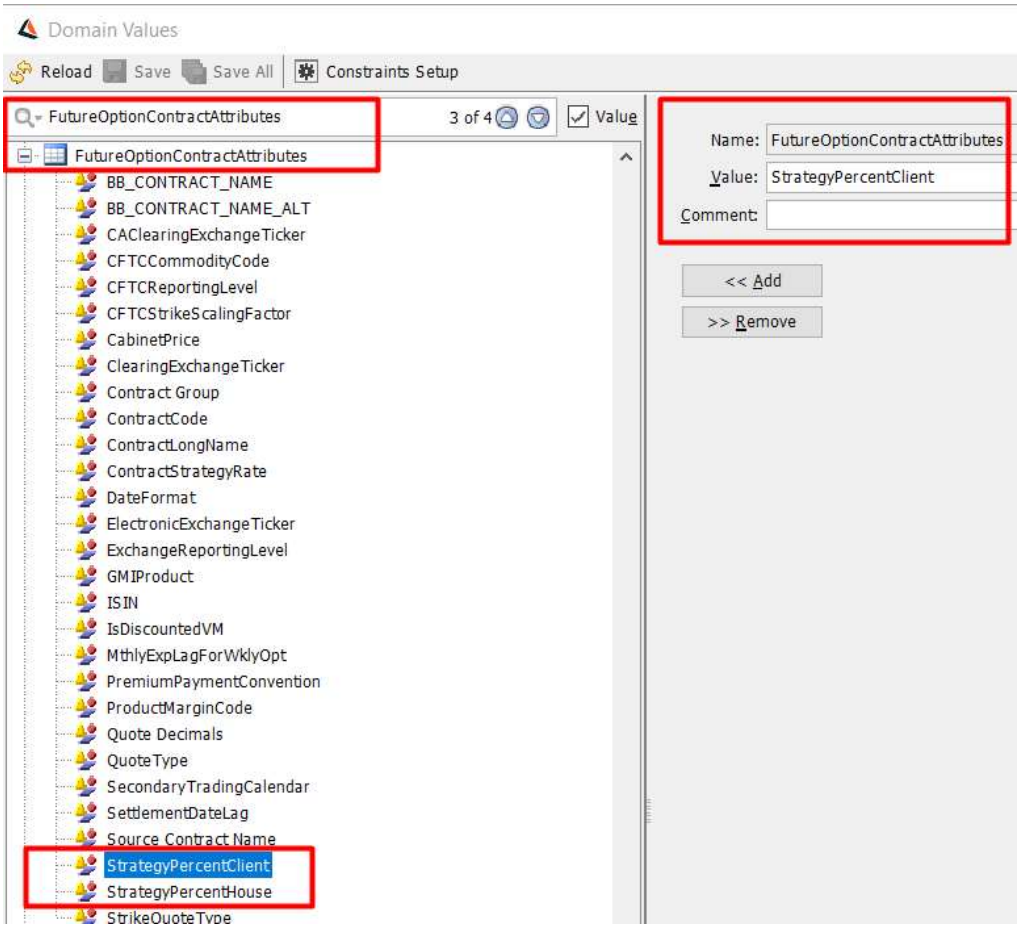

Future Contract Specification Window
File
Futures
Help
Search
XSIM-NK-F/SG
Details
Underlying
Name
Value
Contract Size
500
No. of Futures in Contract
51
Settle Type
Cash
Negative Price Liquidation
Attributes
XSIM-NK-F/SG
Clear
Domain Setup
Reload Attributes (Domain)
Name
Value
ClearingExchangeTicker
NK
Comment
CommodityReset
CommodityResetForPhysicalD...
Contract Group
ContractCode
SGX-DT4
ContractLongName
Nikkei 225
ContractStrategyRate
225.5

1.7.3 Setup at Contract specific for KRX & CFFEX

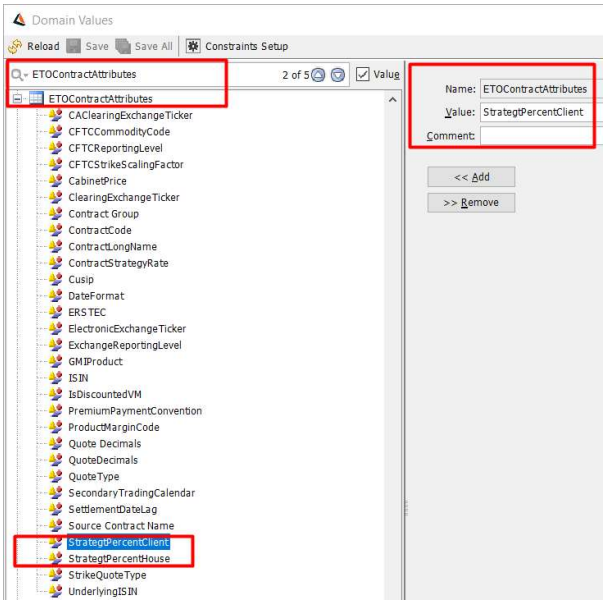
Configure in Domain Value as shown below

(Configuration>System>Domainvalues)

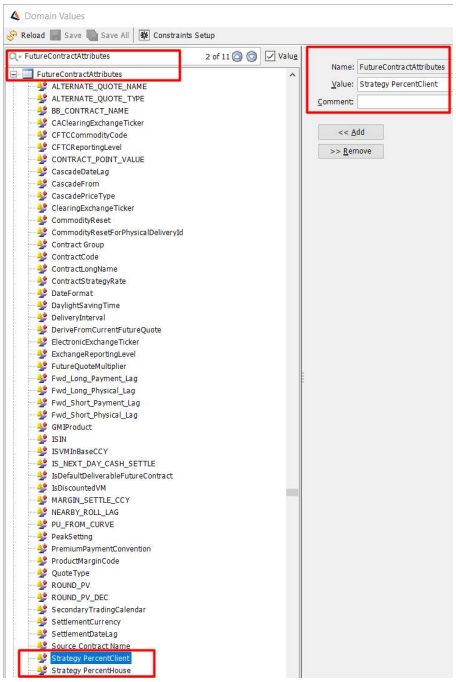
1. Go to Domainvalues. Search – FutureOptionContractAttributes >Add StrategyPercentClient/StrategyPercentHouse



2. Go to Domainvalues. Search – ETOContractAttributes >Add- StrategyPercentClient/StrategyPercentHouse.



3. Go to Domainvalues. Search – FutureContractAttributes >Add- StrategyPercentClient/StrategyPercentHouse



Run Simple Data Import ST to update Margin Rates in the attributes StrategyPercentageClient/StrategyPercentageHouse

4. File to be placed in risk-arrays folder monthly date of format "yyyyMM" as shown below:

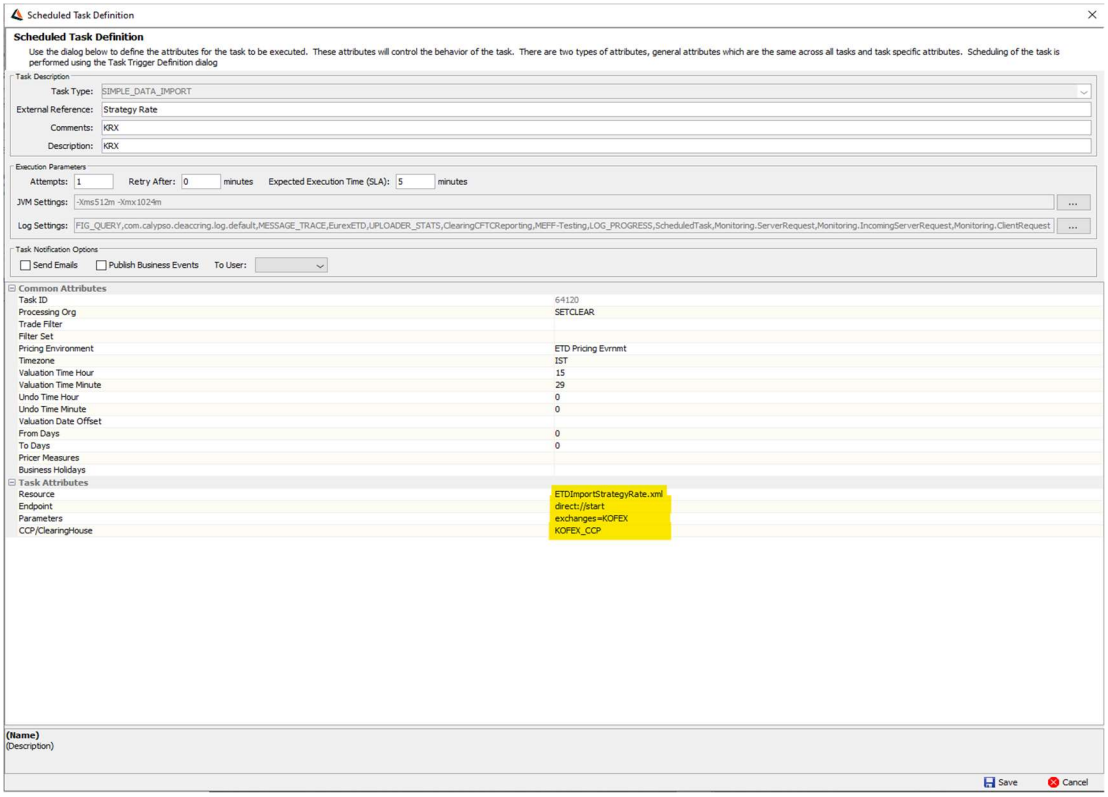
C:\Users\ShabnamSayed\Calypso\clearing\risk-arrays\yyyyMM)

Note: Margin Data Changes every month user needs to download the file from the below link and place the file risk-arrays folder monthly date of format "yyyyMM ". Margin Rate Data - https://global.krx.co.kr/contents/GLB/06/0608/0608030700/GLB0608030700.jsp.

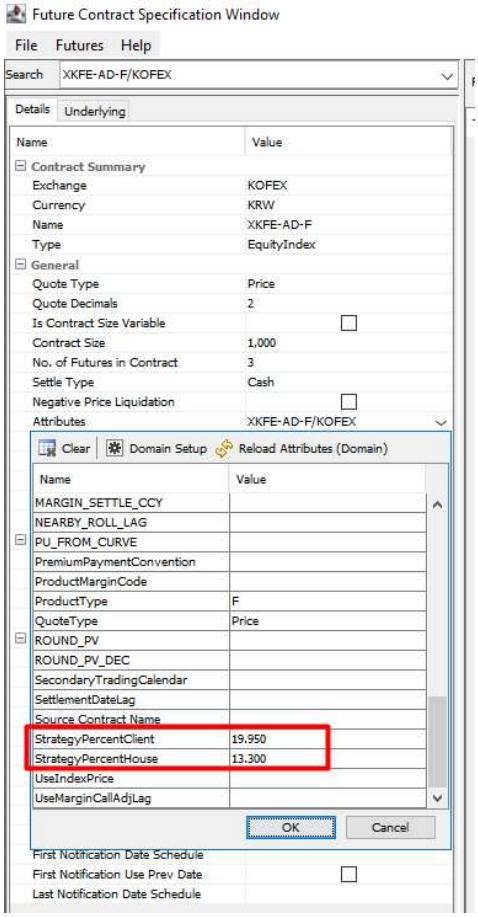
Configure to run the Simple Data Import ST to update the Margin Rates as shown below

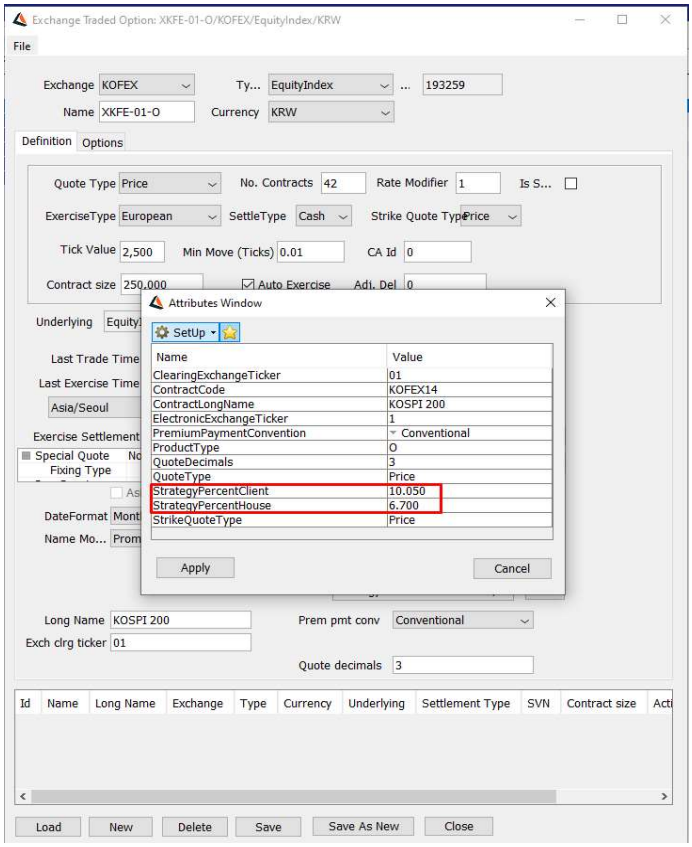
5. Define Task Attributes in ST

- Resource: Select ETDImportStrategyRate.xml
- Endpoint: direct://start
- Parameters: exchanges=KOFEX
- CCP/ClearingHouse: KOFEX_CCP



6. Now attributes gets populated after running the ST successfully.


Future Contract Specification Window
File Futures Help
Search XKFE-AD-F/KOFEX
Details Underlying
Name Value
Contract Summary
Exchange KOFEX
Currency KRW
Name XKFE-AD-F
Type EquityIndex
General
Quote Type Price
Quote Decimals 2
Is Contract Size Variable
Contract Size 1,000
No. of Futures in Contract 3
Settle Type Cash
Negative Price Liquidation
Attributes XKFE-AD-F/KOFEX
Clear Domain Setup Reload Attributes (Domain)
Name Value
MARGIN_SETTLE_CCY
NEARBY_ROLL_LAG
PU_FROM_CURVE
PremiumPaymentConvention
ProductMarginCode
ProductType F
QuoteType Price
ROUND_PV
ROUND_PV_DEC
SecondaryTradingCalendar
SettlementDateLag
Source Contract Name
StrategyPercentClient 19.950
StrategyPercentHouse 13.300
UseIndexPrice
UseMarginCallAdjLag
OK Cancel
First Notification Date Schedule
First Notification Use Prev Date
Last Notification Date Schedule

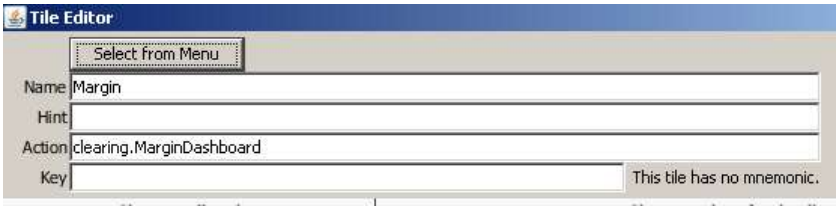

Exchange Traded Option: XKFE-01-O/KOFEX/EquityIndex/KRW
File
Exchange KOFEX Ty... EquityIndex ... 193259
Name XKFE-01-O Currency KRW
Definition Options
Quote Type Price No. Contracts 42 Rate Modifier 1 Is S...
ExerciseType European SettleType Cash Strike Quote Type Price
Tick Value 2,500 Min Move (Ticks) 0.01 CA Id 0
Contract size 250,000 Auto Exercise Adj. Del 0
Underlying
Last Trade Time
Last Exercise Time
Asia/Seoul
Exercise Settlement
Special Quote
Fixing Type
DateFormat
Name Mo...
Attributes Window
SetUp
Name Value
ClearingExchangeTicker 01
ContractCode KOFEX14
ContractLongName KOSPI 200
ElectronicExchangeTicker 1
PremiumPaymentConvention Conventional
ProductType O
QuoteDecimals 3
QuoteType Price
StrategyPercentClient 10.050
StrategyPercentHouse 6.700
StrikeQuoteType Price
Apply Cancel
Long Name KOSPI 200
Exch clrg ticker 01
Prem pmt conv Conventional
Quote decimals 3
Id Name Long Name Exchange Type Currency Underlying Settlement Type SVN Contract size
Load New Delete Save Save As New Close

Margin Calculation Setup

2.1 Navigator

Add the following menu items if they are not already available:

- Margin Dashboard (menu action `clearing.MarginDashboard`)



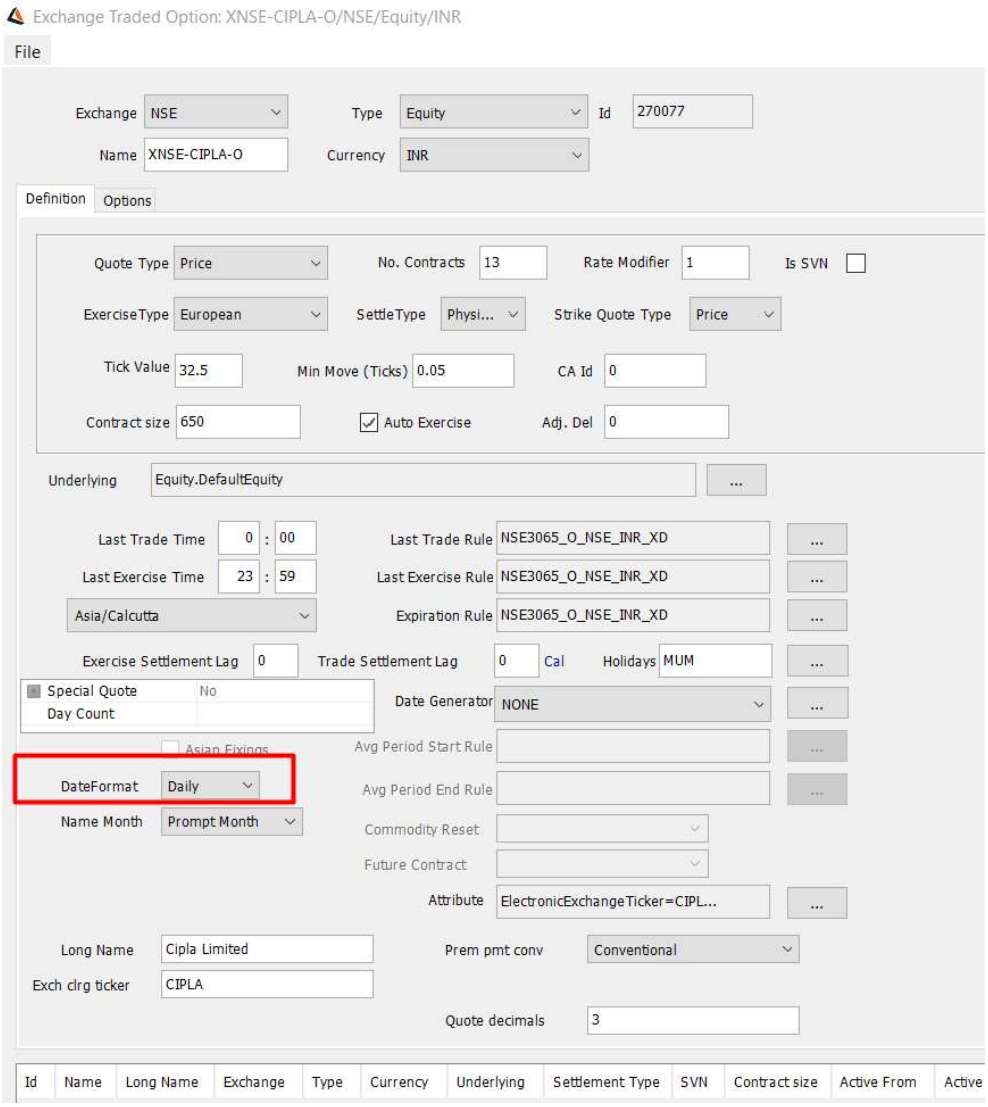
The calculation process is multi-threaded. The number of threads to be created for this process can be set in the domain “Clearing.ETD.MARGIN_DASHBOARD_STATEMENT.numThreads”.

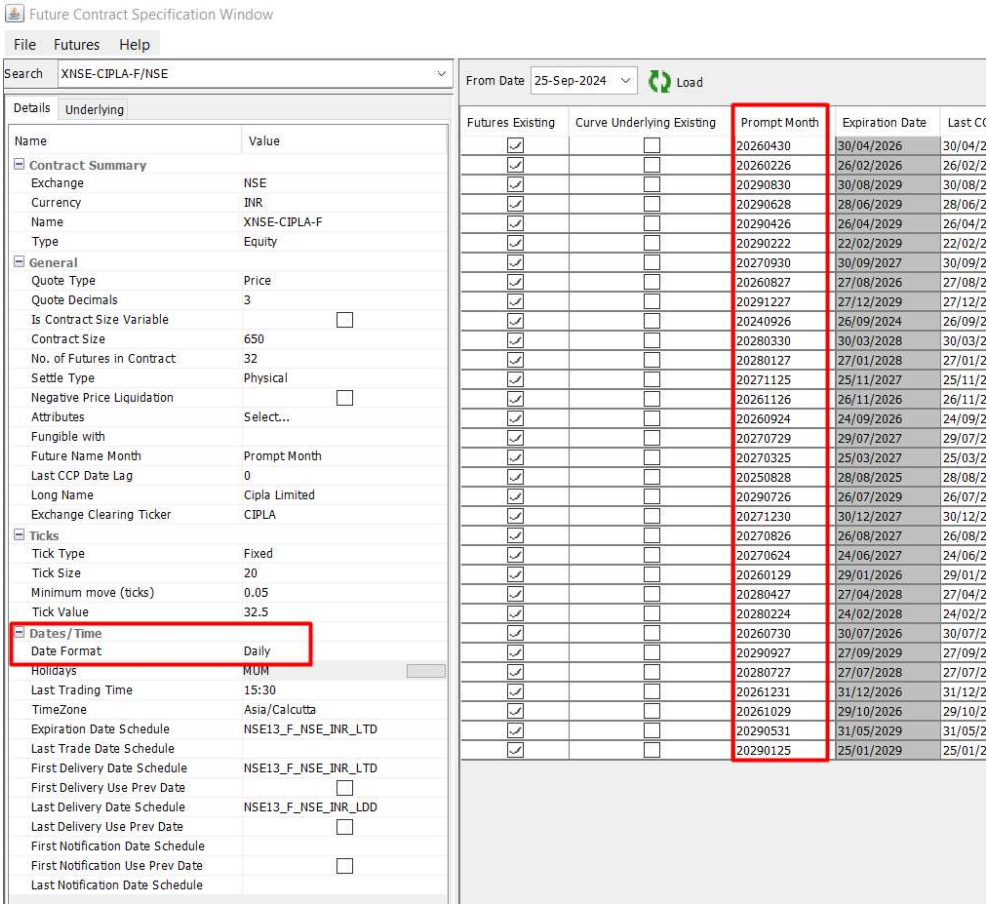
2.2 Contract Setup

Contract Setup for Exchange NSE

The date format for the NSE should be in daily format, and the prompt month must consist of eight digits date to run the initial margin.

The date is equal to the last trading date.


Exchange Traded Option: XNSE-CIPLA-O/NSE/Equity/INR
File
Exchange NSE
Type Equity
Id 270077
Name XNSE-CIPLA-O
Currency INR
Definition
Options
Quote Type Price
No. Contracts 13
Rate Modifier 1
Is SVN
ExerciseType European
SettleType Physi...
Strike Quote Type Price
Tick Value 32.5
Min Move (Ticks) 0.05
CA Id 0
Contract size 650
Auto Exercise
Adj. Del 0
Underlying Equity.DefaultEquity
Last Trade Time 0 : 00
Last Trade Rule NSE3065_O_NSE_INR_XD
Last Exercise Time 23 : 59
Last Exercise Rule NSE3065_O_NSE_INR_XD
Asia/Calcutta
Expiration Rule NSE3065_O_NSE_INR_XD
Exercise Settlement Lag 0
Trade Settlement Lag 0
Cal
Holidays MUM
Special Quote No
Day Count
Date Generator NONE
Asian Fixings
Avg Period Start Rule
DateFormat Daily
Avg Period End Rule
Name Month Prompt Month
Commodity Reset
Future Contract
Attribute ElectronicExchangeTicker=CIPL...
Long Name Cipla Limited
Prem pmt conv Conventional
Exch clrg ticker CIPLA
Quote decimals 3
Id
Name
Long Name
Exchange
Type
Currency
Underlying
Settlement Type
SVN
Contract size
Active From
Active



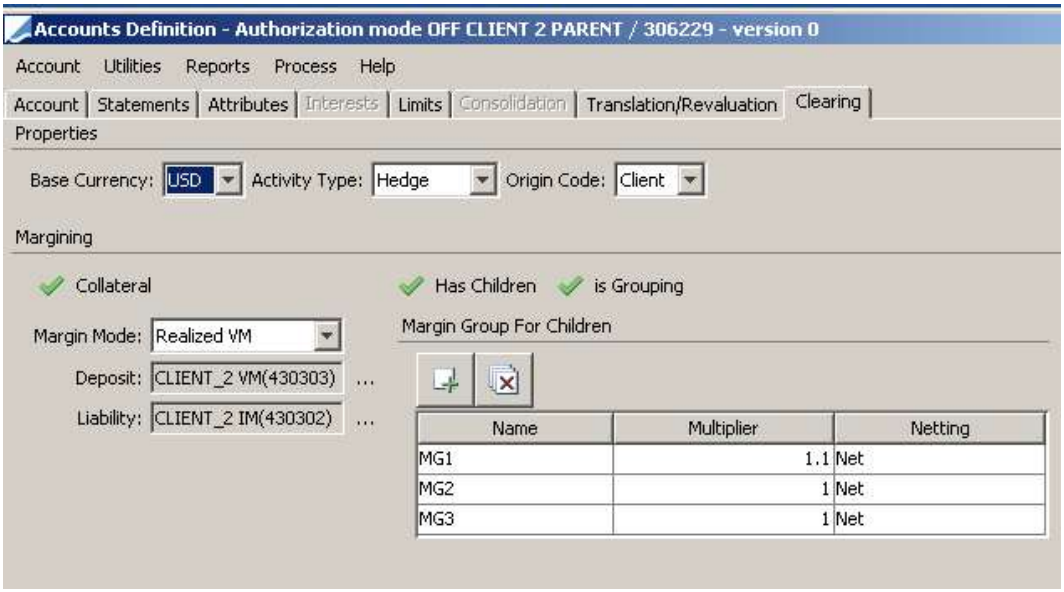
2.3 Account Setup

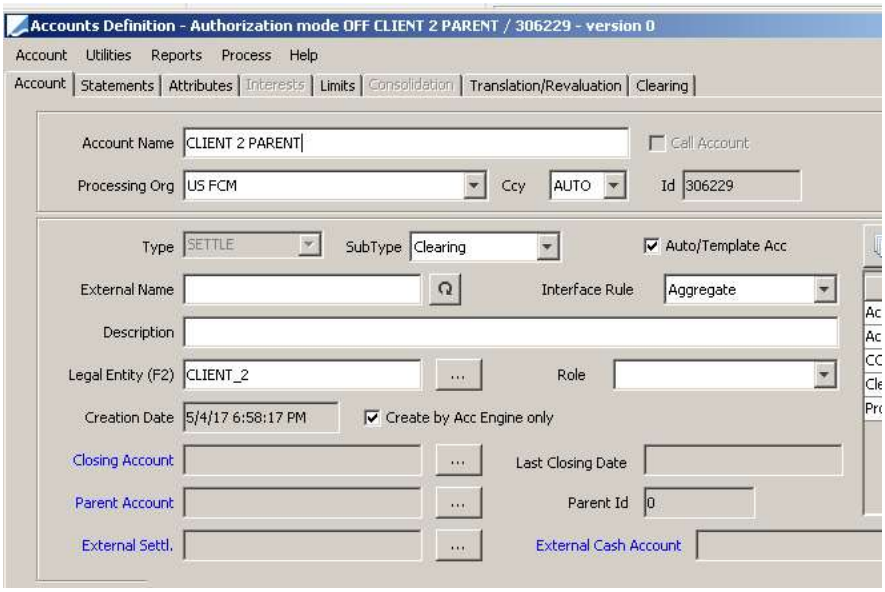
Example of end-to-end account setup (including collateral accounts, clearing account, and margin groups).

Parent Account

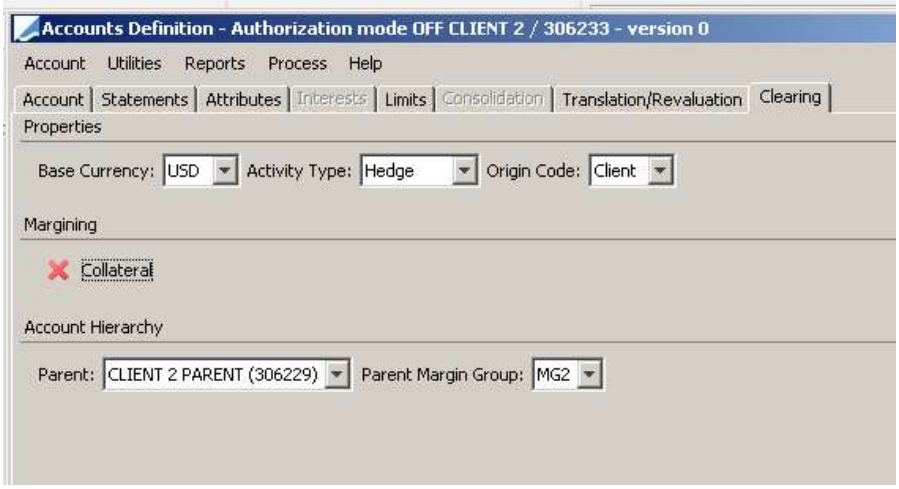
The Parent Account is linked to collateral Bilateral Contracts

Margin Groups are defined at the Parent Account level





Client Accounts are linked to a Parent Account:



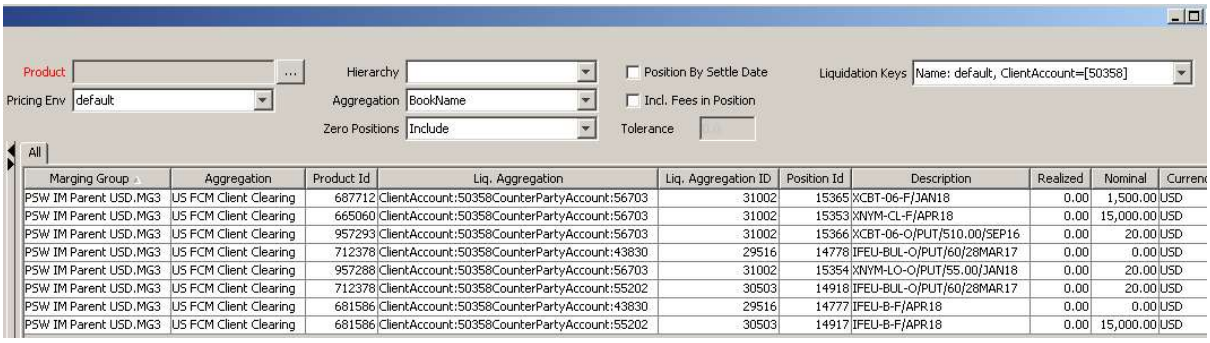
Note: Several clients can be part of the same margin group.

It means that the position aggregation required to calculate margin is done at the margin group level, and not at the client account level.

2.4 Positions

2.4.1 Position Keeper Report

Position by margin groups – used for the Initial Margin calculation- can be viewed in the position keeper.



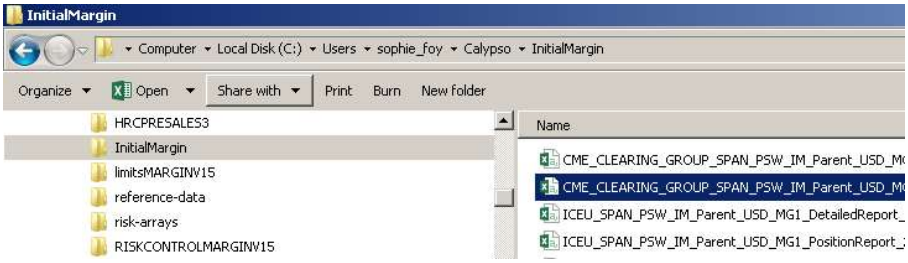
Marging Group	Aggregation	Product Id	Liq. Aggregation	Liq. Aggregation ID	Position Id	Description	Realized	Nominal	Currenc
PSW IM Parent USD.MG3	US FCM Client Clearing	687712	ClientAccount:50358CounterPartyAccount:56703	31002	15365	XCBT-06-F/JAN18	0.00	1,500.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	665060	ClientAccount:50358CounterPartyAccount:56703	31002	15353	XNYM-CL-F/APR18	0.00	15,000.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	957293	ClientAccount:50358CounterPartyAccount:56703	31002	15366	XCBT-06-O/PUT/510.00/SEP16	0.00	20.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	712378	ClientAccount:50358CounterPartyAccount:43830	29516	14778	IFEU-BUL-O/PUT/60/28MAR17	0.00	0.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	957288	ClientAccount:50358CounterPartyAccount:56703	31002	15354	XNYM-LO-O/PUT/55.00/JAN18	0.00	20.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	712378	ClientAccount:50358CounterPartyAccount:55202	30503	14918	IFEU-BUL-O/PUT/60/28MAR17	0.00	20.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	681586	ClientAccount:50358CounterPartyAccount:43830	29516	14777	IFEU-B-F/APR18	0.00	0.00	USD
PSW IM Parent USD.MG3	US FCM Client Clearing	681586	ClientAccount:50358CounterPartyAccount:55202	30503	14917	IFEU-B-F/APR18	0.00	15,000.00	USD

2.4.2 Position CSV File

Position by margin groups – used for the Initial Margin calculation- are exported in a csv file:

A	B	C	D	E	F	G
Exchange	Currency	Product C	Contract T	Strike Pri	Expiry Da	Quantity
I	USD	B	F		201804	15
I	USD	BUL	P	60	201703	20

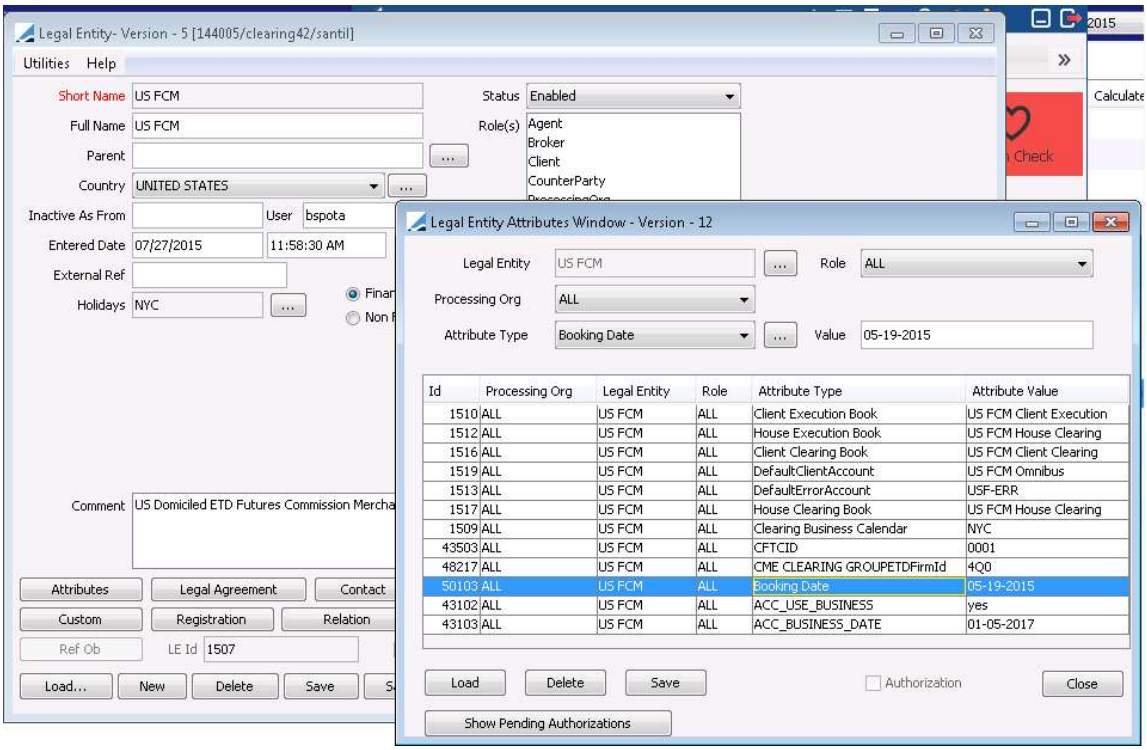
Path to access the position and detailed report files:


InitialMargin
Computer
Local Disk (C:)
Users
sophie_foy
Calypso
InitialMargin
Organize
Open
Share with
Print
Burn
New folder
HRCPRESALES3
InitialMargin
limitsMARGINV15
reference-data
risk-arrays
RISKCONTROLMARGINV15
Name
CME_CLEARING_GROUP_SPAN_PSW_IM_Parent_USD_M
CME_CLEARING_GROUP_SPAN_PSW_IM_Parent_USD_M
ICEU_SPAN_PSW_IM_Parent_USD_MG1_DetailedReport_
ICEU_SPAN_PSW_IM_Parent_USD_MG1_PositionReport_

2.5 Booking Date

Trades are included in the position as long as the trade settlement date is prior or equal to the booking date. The booking date allows for late trade booking.

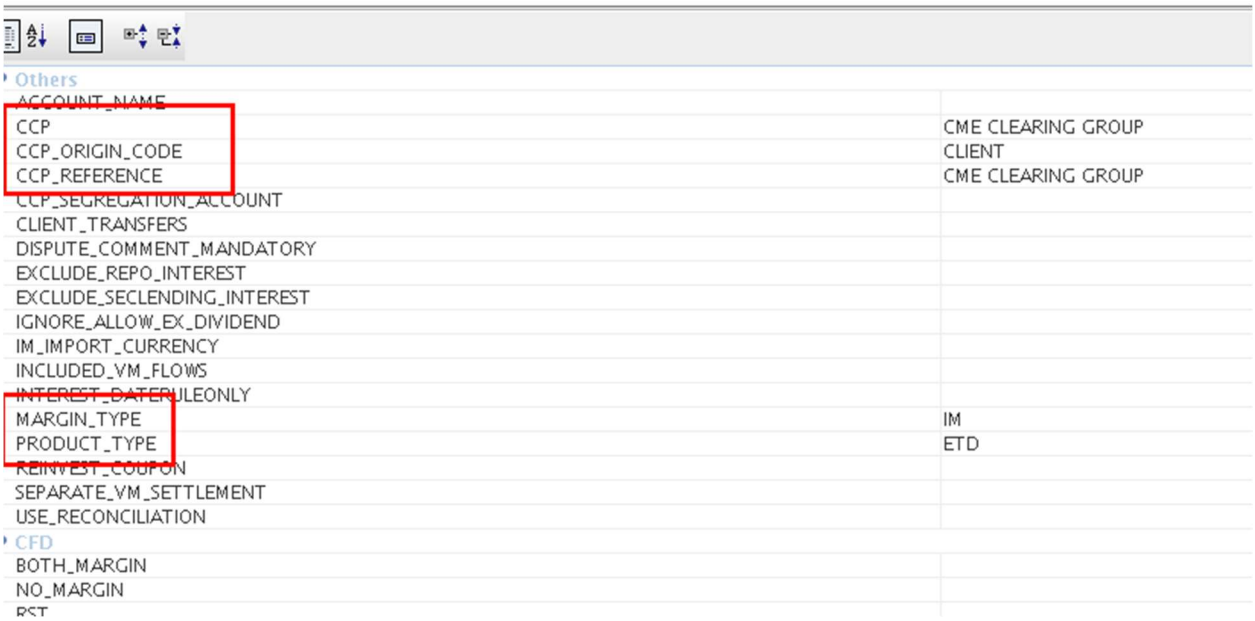
The booking date needs to be updated once all trades have been booked for a selected business date. It is controlled by the following Legal Entity Attribute:



2.6 Collateral Contracts

Please ensure that your Collateral Contracts are defined as described in the Calypso ETD Clearing Setup Guide.

Example of bilateral CCP Facing Contract:



IM Calculation

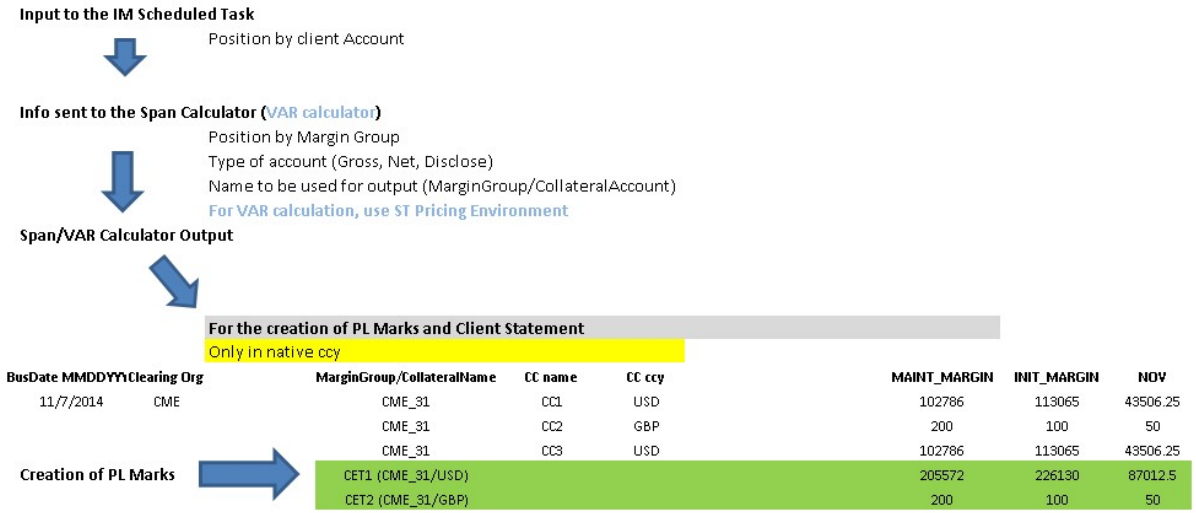
3.1 IM Calculation and Reporting

The margin can be run using the scheduled task CLEARING_IM_CALC, or from the Margin Dashboard.

The margin output will be available:

- In the margin dashboard
- In a csv file
- In the form of PL Mark to be used by the collateral manager
- In the client statement

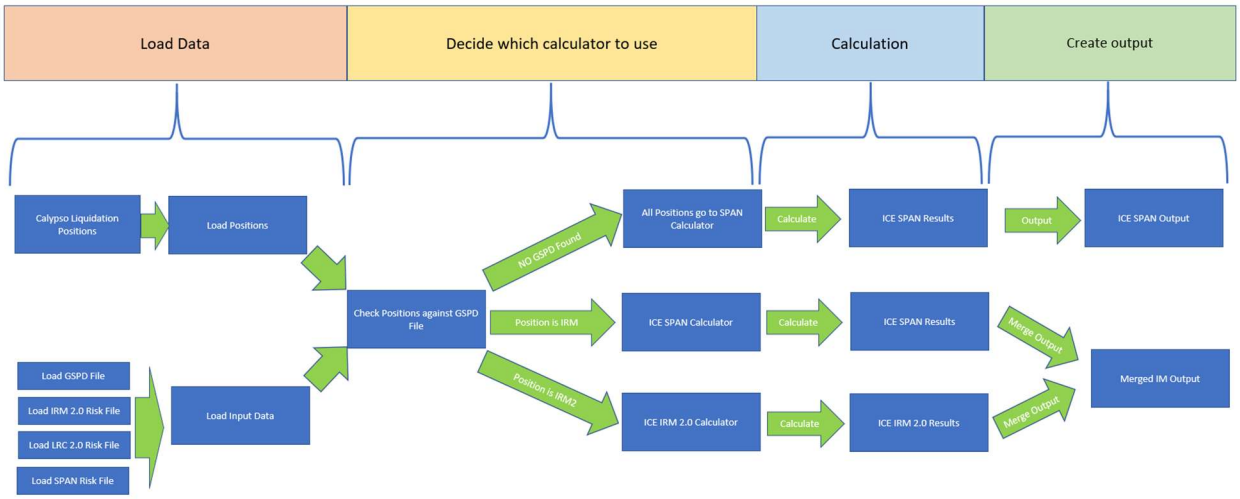
3.2 Process from Positions to Initial Margin



3.2.1 ICE IRM 2.0 Process

Because ICE is progressively moving positions to the IRM 2.0 margin methodology, the Calypso ICE margin calculator will allocate each ICE product to the corresponding margin calculator (ICE SPAN or ICE IRM 2.0)

The system will load positions normally, and then split positions into the SPAN or IRM 2.0 calculation depending on the GSPD file provided by ICE. If no GSPD file is provided, all positions will go to the SPAN calculation. This is done automatically, there is no change to the process by the user other than adding additional files in the directory.



Example of ICE IRM 2.0 merged output:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1				Clearing H	Margin Gr	Account ty	MIC Code	CC CCY	CC Code	CalypsoCc	O/F	Strike	Put/Call	Expiry Dat	Quantity	TOTAL_RE	MAINT_M	INIT_MAR	NOV	Active Sce	Scan Risk	IA Charge	Delivery C	IE Credit	SOM						
2				ICEU	[ETD_LIFFI	H		CHF									2077	2077	0													
3				ICEU	[ETD_LIFFI	H		EUR									39629	9303	0													
4				ICEU	[ETD_LIFFI	H		GBP									16429	14441	-239220													
5				ICEU	[ETD_LIFFI	H	IFLL	EUR	CCI								18446	18446	0	13	56394	0	0	37948	0							
6				ICEU	[ETD_LIFFI	H	IFLL			IFLL-ZCC-F	F			201806	20					13	56394.4											
7				ICEU	[ETD_LIFFI	H	IFLX	EUR	EC								11880	11880	0	13	11880	0	0	0	0							
8				ICEU	[ETD_LIFFI	H	IFLX			IFLX-EC-F	F			201709	9					13	11880											
9	SPAN			ICEU	[ETD_LIFFI	H	IFLO	EUR	EDA								9303	9303	0	13	9303	0	0	0	0							
10				ICEU	[ETD_LIFFI	H	IFLO			IFLO-EAS-	F			201802	16					13	9302.56											
11				ICEU	[ETD_LIFFI	H	IFLL	CHF	S								2077	2077	0	13	950	1127	0	0	0							
12				ICEU	[ETD_LIFFI	H	IFLL			IFLL-S-F	F			201706	15					13	4500											
13				ICEU	[ETD_LIFFI	H	IFLL			IFLL-S-F	F			201803	-10					11	3550											
14				ICEU	[ETD_LIFFI	H	IFLO	GBP	UKX								14441	14441	-239220	11	44820	0	0	30379	120							
15				ICEU	[ETD_LIFFI	H	IFLO			IFLO-ESX-(	O	5200	C	201706	-12					11	44820											
16				ICEU	[ETD_LIFFI	H	IFLL	GBP	YZ								1988	1988	0	13	1988	0	0	0	0							
17				ICEU	[ETD_LIFFI	H	IFLL			IFLL-YZ-F	F			202212	20					13	1987.6											
18				Clearing H	Margin Gr	Account T	MIC Code	Base Ccy	local Ccy	Margin Ac	Margin Mo	Calypso C	TOTAL_MA	MAINT_M	INIT_MAR	BASE_IM(	CS_IM(Ba	DB_IM(Ba	IRM2.0	OUTRIGHT	MARGIN_	TOTAL_IM	Quantity	Contract T	Put/Call	Strike	Expiry Dat	Concentra	Bid Ask Cl	Liquidity	Risk Charge	
19				ICEU	Rates			EUR		[ETD_LIFFI	IRM2.0		-688.391			-688.391	-688.391	-688.391	-688.391	0	0	-688.391						0	0	0		
20									EUR							0	0	0	0	0	0	-688.391						0	0	0		
21	IRM 2.0			ICEU	Rates		L	EUR	EUR	[ETD_LIFFI	IRM2.0	TWS				0	-688.391	0	0	0	0	0	-10	FUT			20170918	0	0	0		
22																																

3.2.2 CME SPAN2 Process

Standard Portfolio Analysis of Risk 2 (SPAN 2) is the new initial margining (IM) framework developed by CME to replace the existing SPAN framework for exchange traded futures and options.

The SPAN 2 framework is based on a Value at Risk (HVaR) framework, using historical data to model how a position or portfolio may gain or lose value under various risk scenarios.

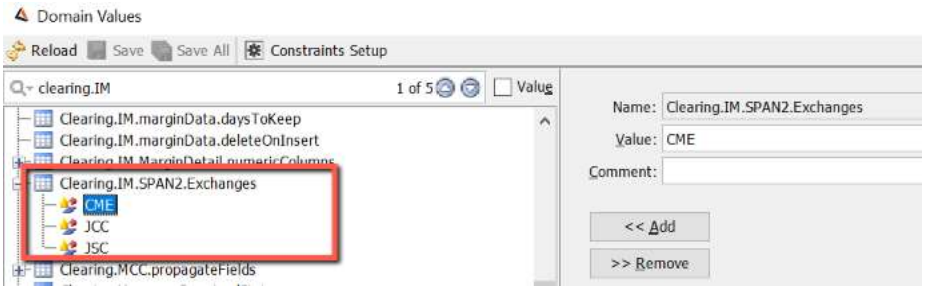
The scope of the products is provided and updated directly by CME.

Calypso implemented SPAN2 framework using the CME CORE API. This consists in sending the correct request payload to CME API margin calculation service and receiving the response and processing the same to create our margin results (PL MARKS and Collateral Exposure trades).

In the current implementation all the positions (both SPAN and SPAN2) are sent to the CME CORE Calculator for Margin calculation.

To activate the SPAN2 framework:

- Add Clearing.IM.SPAN2.Exchanges ('Exchange Spread') value of the exchange to the domain value section to setup this domain to calculate the IM using SPAN 2 method.

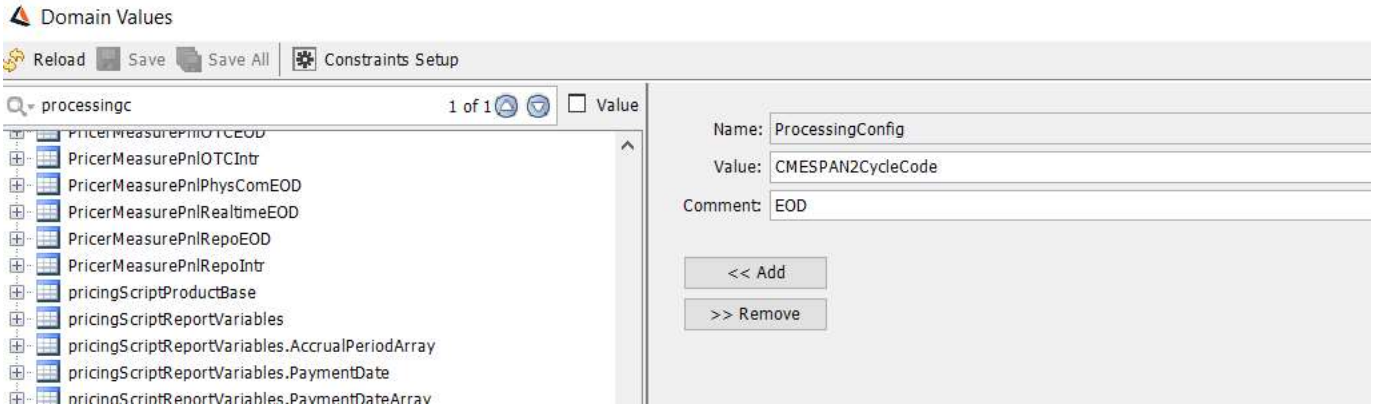


CMESPAN2CycleCode Domain Value

Set up the new domain value to provide an option to the user to generate Initial Margin using “FINAL” or “EOD” cycle count.

If the cycle count is **FINAL, the user can generate IM at 05:45 PM CT.**

If the cycle count is **EOD, the user can generate IM at 10:00 PM CT.**



JSCC API application v2.0 is now developed with Error Position Skip Mode to continue the calculation skipping for any errors encountered over invalid positions so that the IM do not get stopped and returns the margin results for the remaining valid positions.

The domain values UseSPAN2ForCME and UseSPAN2ForJSCC" has been removed from the ProcessingConfig domain. You need to use the domain value Clearing.IM.SPAN2.Exchanges in the ProcessingConfig domain and set the comment to CME, JCC, JSC as applicable for CME SPAN2 Margin Calculation and JSCC VaR-based Margin calculation.

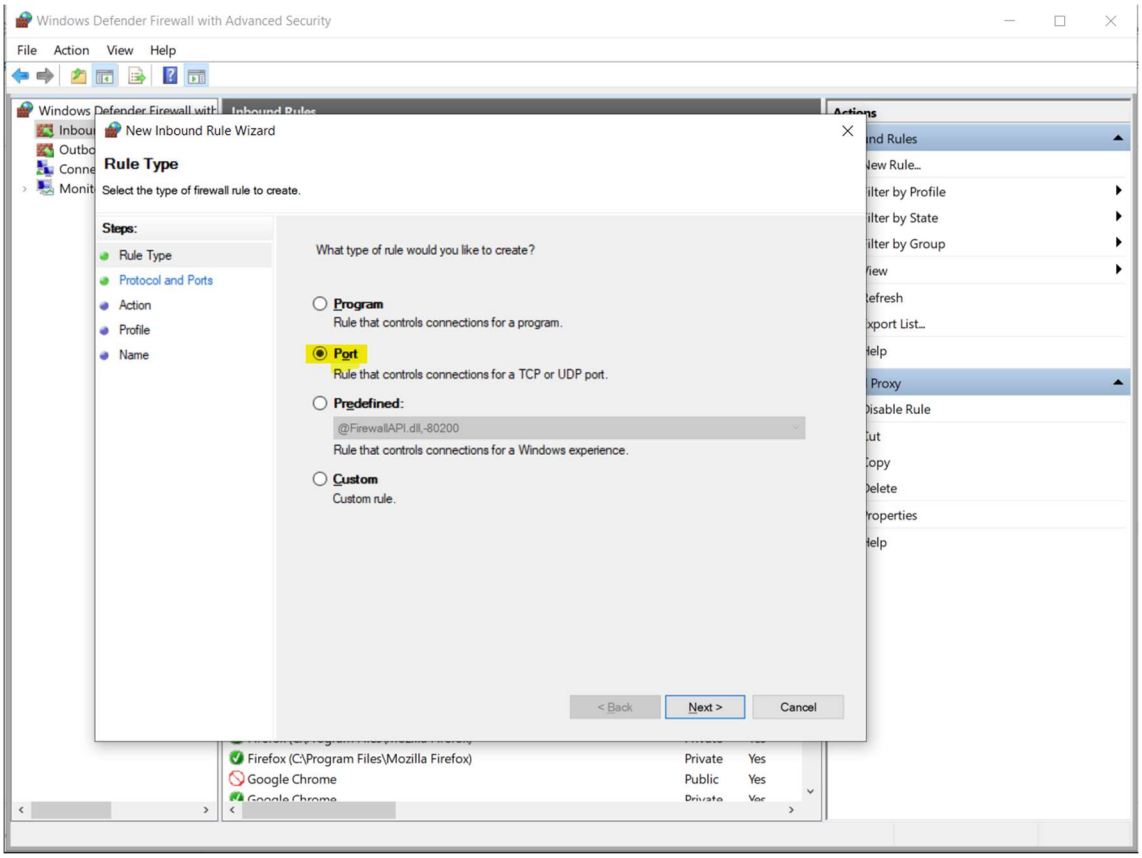
If the user is looking to connect to an API connection (for MarginServicesAPI) via proxy server then the setup below is required.

3.2.2.1 Squid Proxy Setup in Windows

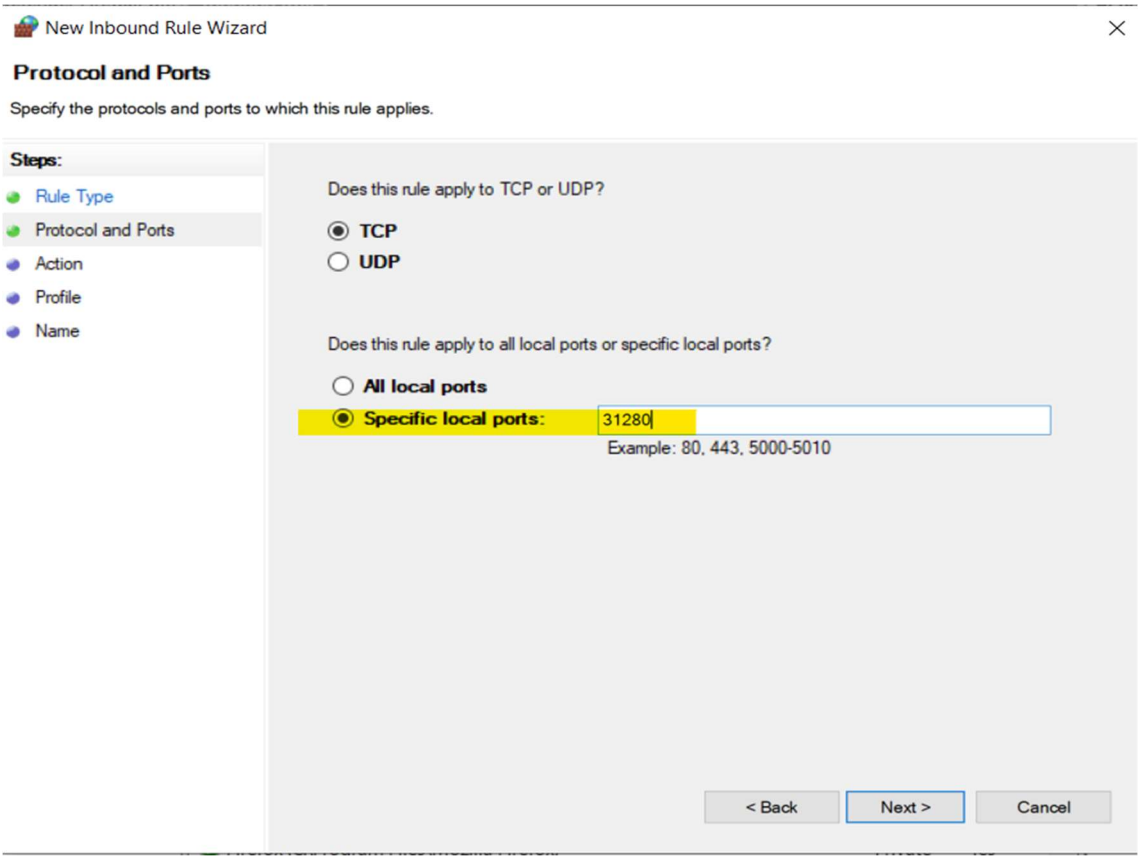
1. Installed Squid Proxy locally and updated http_port in squid.conf file to 31280

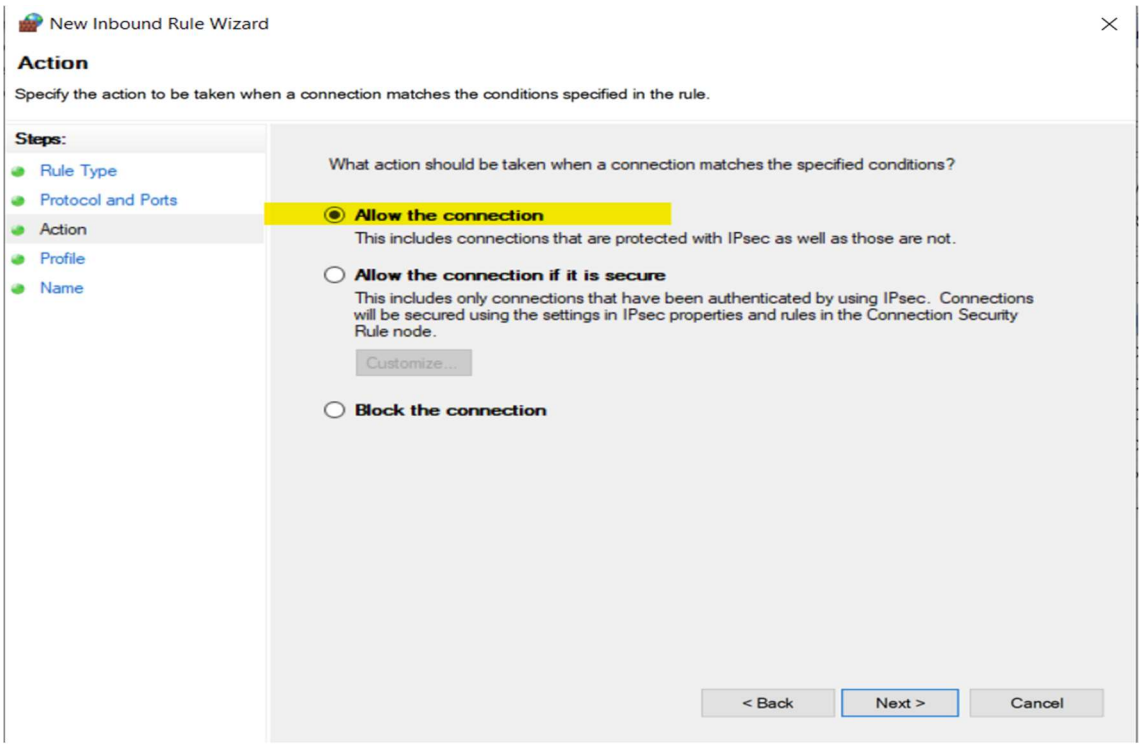
```
1604    #
1605    #   If you run Squid on a dual-homed machine with an internal
1606    #   and an external interface we recommend you to specify the
1607    #   internal address:port in http_port. This way Squid will only be
1608    #   visible on the internal address.
1609    #
1610    #
1611
1612    # Squid normally listens to port 3128
1613    http_port 31280
1614
```

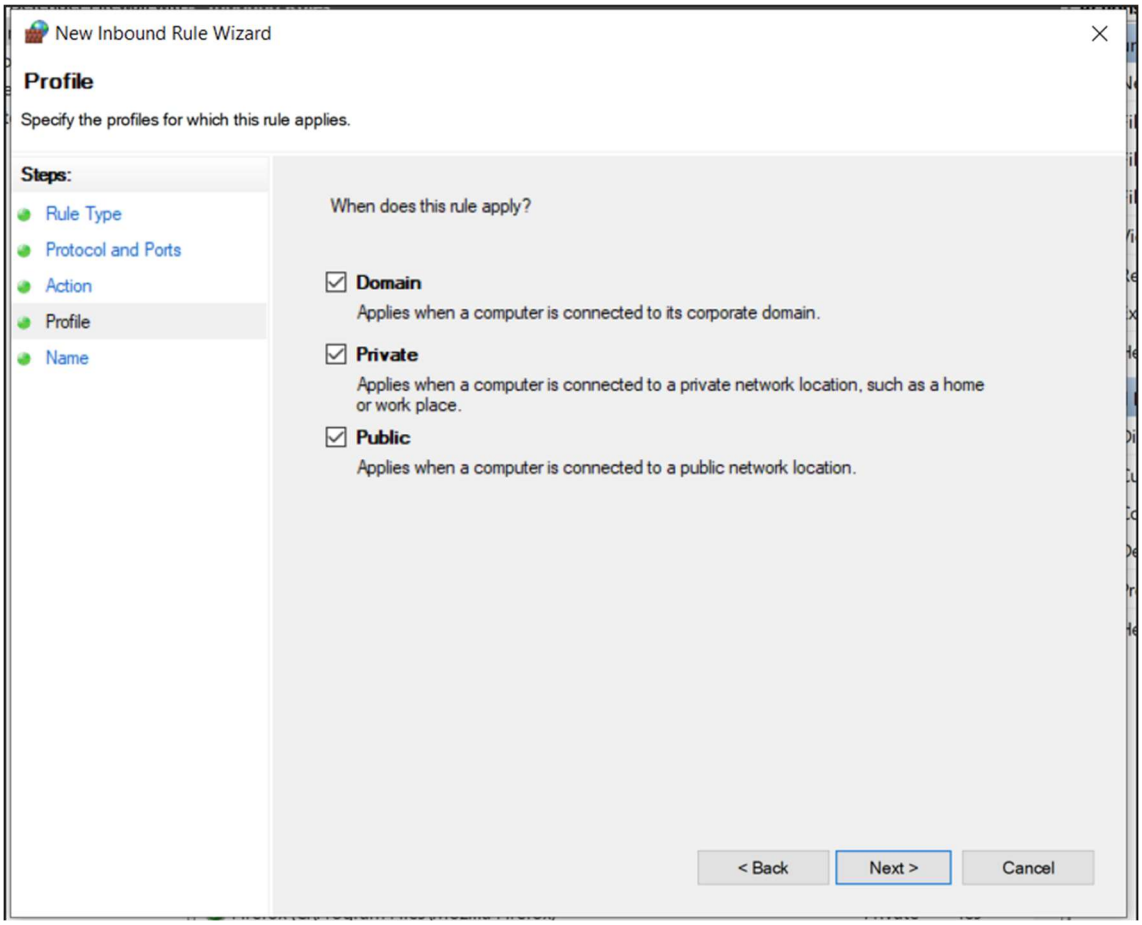
2. Create a rule that would allow the connection on 31280 port number.



- Request type “Margin” is only used to calculate “Top day margin” (Top day means if today is 28th feb then we can only calculate IM for “T-1” i.e., 27th feb. It does not depend on our system ST and booking date).
- Request type “Transaction” is only used to calculate “Historical margin” (Apart from 27th feb, all the dates will be considered as historical).
- If user do not select any request type and by default it will be “Transaction”.


New Inbound Rule Wizard
Protocol and Ports
Specify the protocols and ports to which this rule applies.
Steps:
Rule Type
Protocol and Ports
Action
Profile
Name
Does this rule apply to TCP or UDP?
TCP
UDP
Does this rule apply to all local ports or specific local ports?
All local ports
Specific local ports:
31280
Example: 80, 443, 5000-5010
< Back
Next >
Cancel


New Inbound Rule Wizard
Action
Specify the action to be taken when a connection matches the conditions specified in the rule.
Steps:
Rule Type
Protocol and Ports
Action
Profile
Name
What action should be taken when a connection matches the specified conditions?
Allow the connection
This includes connections that are protected with IPsec as well as those are not.
Allow the connection if it is secure
This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.
Customize...
Block the connection
< Back
Next >
Cancel



3. Create a file named **.htpasswd** in **<Squid_Folder>/etc/** with username:<encrypted_password>
4. Add the following properties to squid.conf

```
7983  auth_param basic program C:/Squid/lib/squid/basic_ncsa_auth.exe c:/Squid/etc/.htpasswd
7984  auth_param basic realm proxy
7985  acl authenticated proxy_auth REQUIRED
7986  #acl network src 10.17.35.108
7987  #http_access allow network
7988  http_access allow authenticated
7989  #http_access allow network
```

5. Add the following property to squid.conf, ***dns_nameservers 8.8.8.8.*** To resolve the DNS name server here we're using Google public DNS Services)

Note: To use the squid web proxy without authentication comment on the properties mentioned in (4) and add the following,

http_access allow all. After this we need to add the following properties along with existing properties in the users' calypso environment.

```
263    CME_PROXY_HOST_IP=10.39.40.109
264    CME_PROXY_HOST_PORT=31280
265    CME_PROXY_AUTH_USER=admin
266    CME_PROXY_AUTH_PASSWORD=1234
```

Note: Authentication properties (AUTH_USER and AUTH_PASSWORD) are optional, and user will be able to access proxy even without authentication. Whereas PROXY_HOST_IP and PROXY_HOST_PORT are mandatory to use this Proxy service. However, without these proxy properties, CME SPAN2 will work as usual without any impact.

- Add the below properties in the Environment file:

  CME_SERVER_URL=https\:/posttrade.api.cmegroup.com/MarginServiceApi

  CME_USERNAME=*'username of the API Id'*

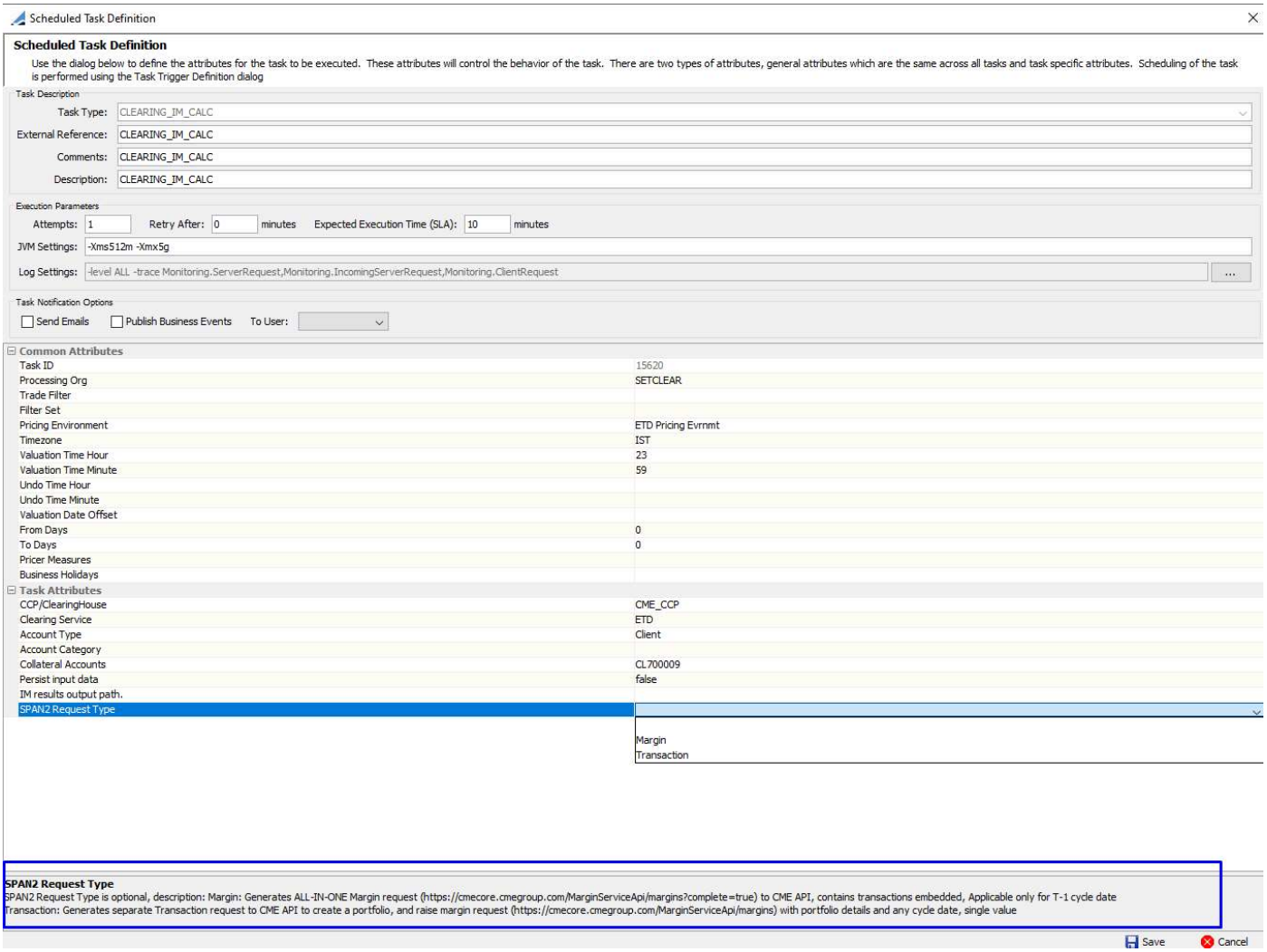
  CME_PASSWORD=*'password for the API Id'*

  CME_HTTP_CONNECT_TIMEOUT=1200000

  CME_HTTP_READ_TIMEOUT=1200000

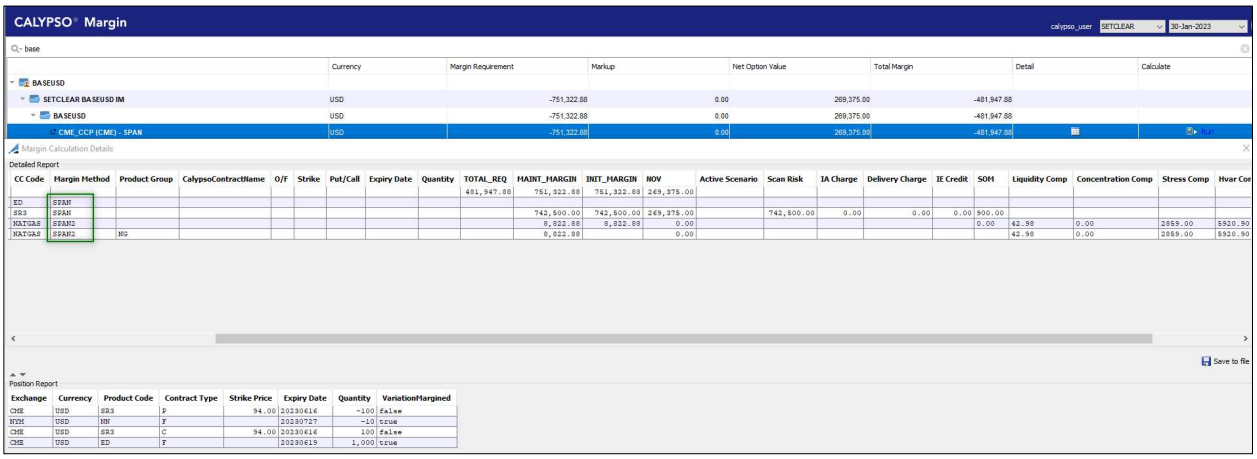
Note: Username and Password are confidential information and must be filled in for each new API ID.

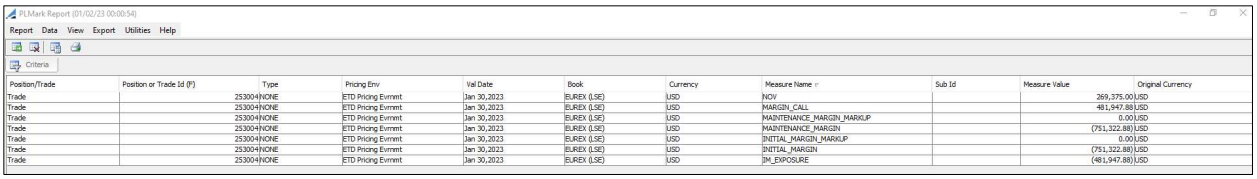
Scheduled task setup for CME SPAN 2



SPAN 2 Request Type is optional :

- Request type “Margin” is only used to calculate “Top day margin” (User can only calculate IM for “T-1”. It does not depend on our system ST and booking date, It considers CME calendar date).
- Request type “Transaction” is only used to calculate “Historical margin” (Apart from “T-1”).





Level	Currency	FX Rate	Risk Maintenance Margin	Risk Initial Margin	Total Maintenance Margin	Total Initial Margin	Net Option Value	Cross Model Offsets
Portfolio	USD		751,322.88	751,322.88	481,947.88	481,947.88	269,375	0

Level	Clearing Organization ID	Currency	FX Rate	Risk Maintenance Margin	Risk Initial Margin	Total Maintenance Margin	Total Initial M
CCP	CME	USD	1	751,322.88	751,322.88	481,947.88	

Level	Pod ID	Currency	Margin Method	Risk Maintenance Margin	Risk Initial Margin	Long Option Value	Short Option Value	Naked Long Component	Naked Short Component	Short Option Minimum	Full Value Component	Scan Risk	Intra Comm
Pod	ED	USD	SPAN	0	0	0	0						
Pod	SR3	USD	SPAN	742,500	742,500	270,000	625			900	0	742,500	

Level	Pod ID	Currency	Margin Method	Risk Maintenance Margin	Risk Initial Margin	Long Option Value	Short Option Value	Liquidity Component	Concentration Component	Stress Component	Hvar Component	Implied Offset	Naked
Pod	NATGAS	USD	SPAN2	8,822.88	8,822.88	0	0	42.97	0	2,858.99	5,920.90	0	

Note: CME SPAN 2 IM generation Time Details:

The earliest IM can be generated for "T" is 10pm CT for EOD i.e. On 3 July 2024 all EOD IM requests up before 10pm CT will return as of 2 July 2024, after 10pm EOD IM requests will pull 3 July 2024.

On weekends, there may be downtime because of deployments. If there are no deployments over the weekend and if CORE API is up, it will return results as of Friday(last active day).

3.2.3 JSCC VaR API Process

Japan Securities Clearing Corporation (JSCC) has migrated its Initial Margin calculation method from SPAN method to new Margin calculation method called VaR method.

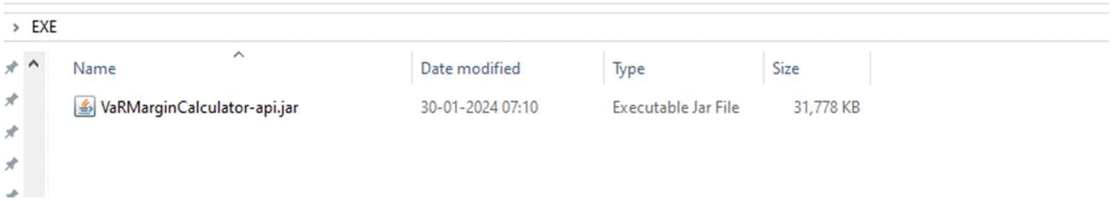
Due to these changes, the following three Markets/MIC codes gets impacted:

Sr. No.	MIC Code	Exchange Name
1	XOSE	Osaka Securities Exchange
2	XTKT	Tokyo Commodity Exchange
3	XKAC	Osaka Dojima Commodities Exchange

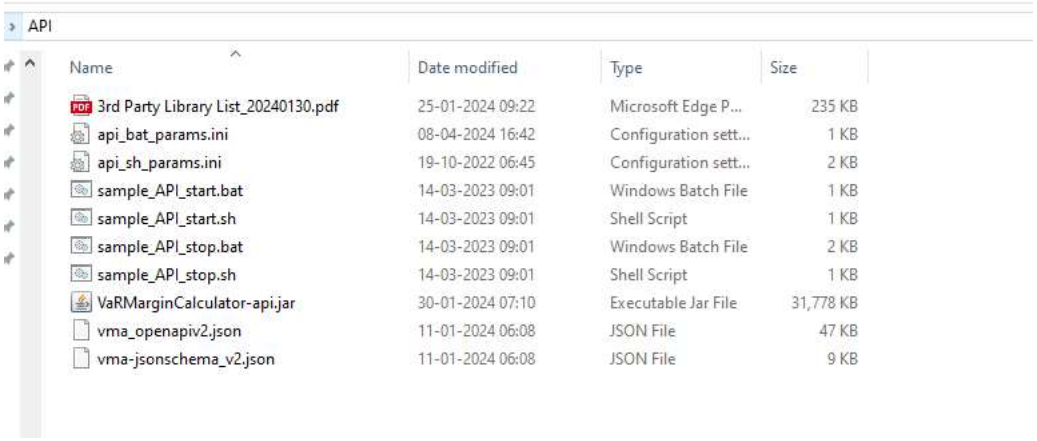
API Software Configuration

To connect with JSCC portal, we need to configure below setup:

1. Download and unzip JSCC API V2 software
2. Link to download software : https://www.jpx.co.jp/jscc/en/cash/futures/marginsystem/vmaapid6rs7u8z.html
3. User may need password to open this file.
4. Unzip downloaded file and then Create exe folder as shown and save api jar in below folder.



5. Update port in api_bat_params.ini file.



api_bat_params.ini

```
-Dvar.log.path=C:\etd\log
-Dvar.log.rotate=yyyyMMdd
-Dvar.log.rotate.file.size=100MB
-Dvar.log.rotate.total.size.cap=100GB
-Dvar.log.rotate.max.history=30
-Dvar.log.apl.level=INFO
-Dvar.log.spring.level=INFO
-Dvar.log.apache.level=INFO
-Dvar.log.access.level=INFO
-Dvar.pool.size.core=200
-Dvar.pool.size.max=200
-Dvar.pool.size.queue=0
-Dvar.pool.threshold=50
-Dvar.pool.idle.timeout=60
-Dvar.timeout=60
-Dvar.timeout.initialize.waitfor=1000
-Dvar.timeout.calculate.waitfor=1000
-Dserver.port=8101
-Dserver.tomcat.accept-count=100
-Dserver.tomcat.max-connections=8192
-Dserver.tomcat.max-keep-alive-request
-Dserver.tomcat.threads.max=200
-Dserver.tomcat.threads.min-spare=10
-Dserver.tomcat.processor-cache=200
```

6. Give path where the jar file is stored.

sample_API_start.bat

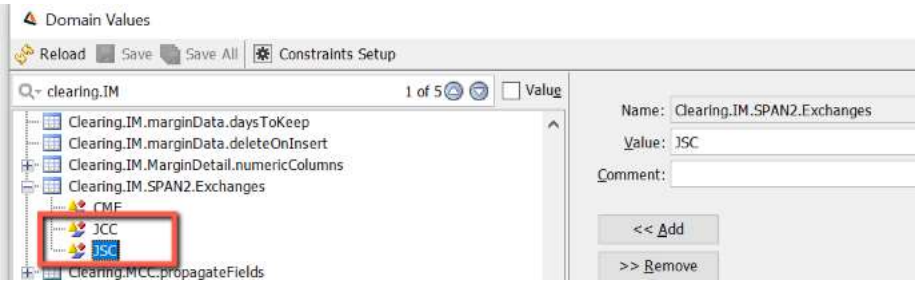
```
@echo off
setlocal ENABLEDELAYEDEXPANSION

set sts=0

::The value can be modified
set -path=C:\etd\exe\

for /f "delims=" %%a in (api_bat_params.ini) do (

    set param=!param! %%a
)

if not exist %-path%VaRMarginCalculator-api.jar (
    echo [%-path%VaRMarginCalculator-api.jar] does not exist.
    goto failed
) else (
    start javaw %param% -jar %-path%VaRMarginCalculator-api.jar && (goto succeed) || goto failed
)

:succeed

    echo The process was completed normally.
    set sts=0
    goto end

:failed
```

7. Start sample_API_start.bat file.

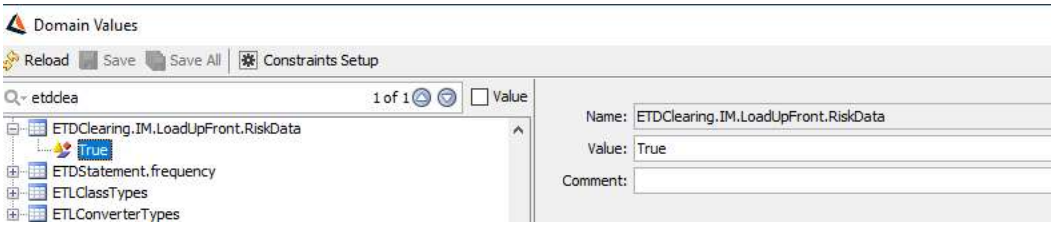
```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4239]
(c) Microsoft Corporation. All rights reserved.

C:\etd\API>C:\etd\API\sample_API_start.sh

C:\etd\API>C:\etd\API\sample_API_start.bat
The process was completed normally.

C:\etd\API>_
```

Domain Value Setup

We need to set up this domain (JSC and JCC) to calculate IM using JSCC API method.



Set up the domain below to load all IM calculation data in system at once. So, the system do not need to look into risk file again and again for multiple portfolios IM calculation.

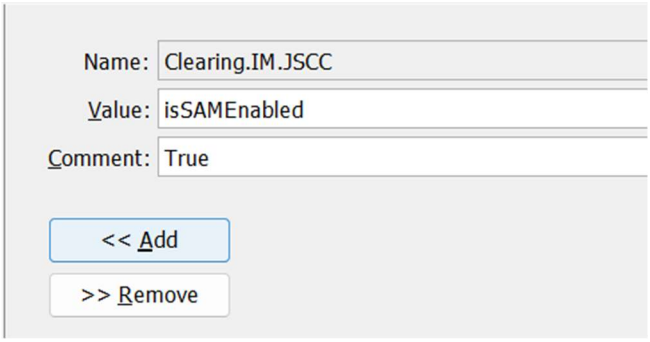


As per regulatory changes it is up to the client to enable SAM or not. SAM represents as (Stress Add on IM)

To handle this, we have introduced the following domain setup as shown below.

Set up the domain Clearing.IM.JSCC as True to include the SAM in the IM calculation.

Note: By default, this will be False



Add below properties in calypso user file.

```
JSCC_SERVER_URL=http\://localhost\:8101/var/api/v1
JSCC_HTTP_CONNECT_TIMEOUT=1000000
JSCC_HTTP_READ_TIMEOUT=1000000
```

In clearing-data-manager.yml file add below properties and add path in output folder. path is where risk files will be downloaded.

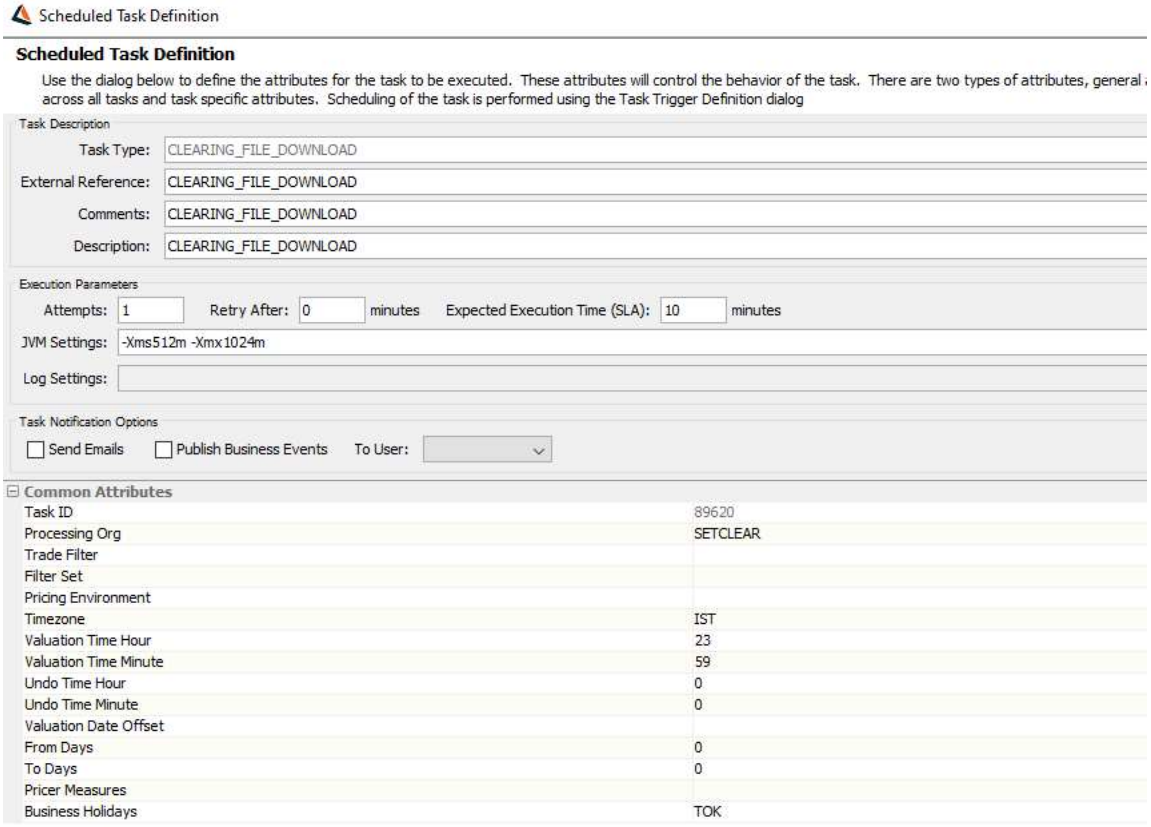
URL to download JSCC risk parameter files : https://jscc-ta.jpx.co.jp/jscc/listed-derivatives/weekday/

After changes, clearing-data-manager.yml file will look like this

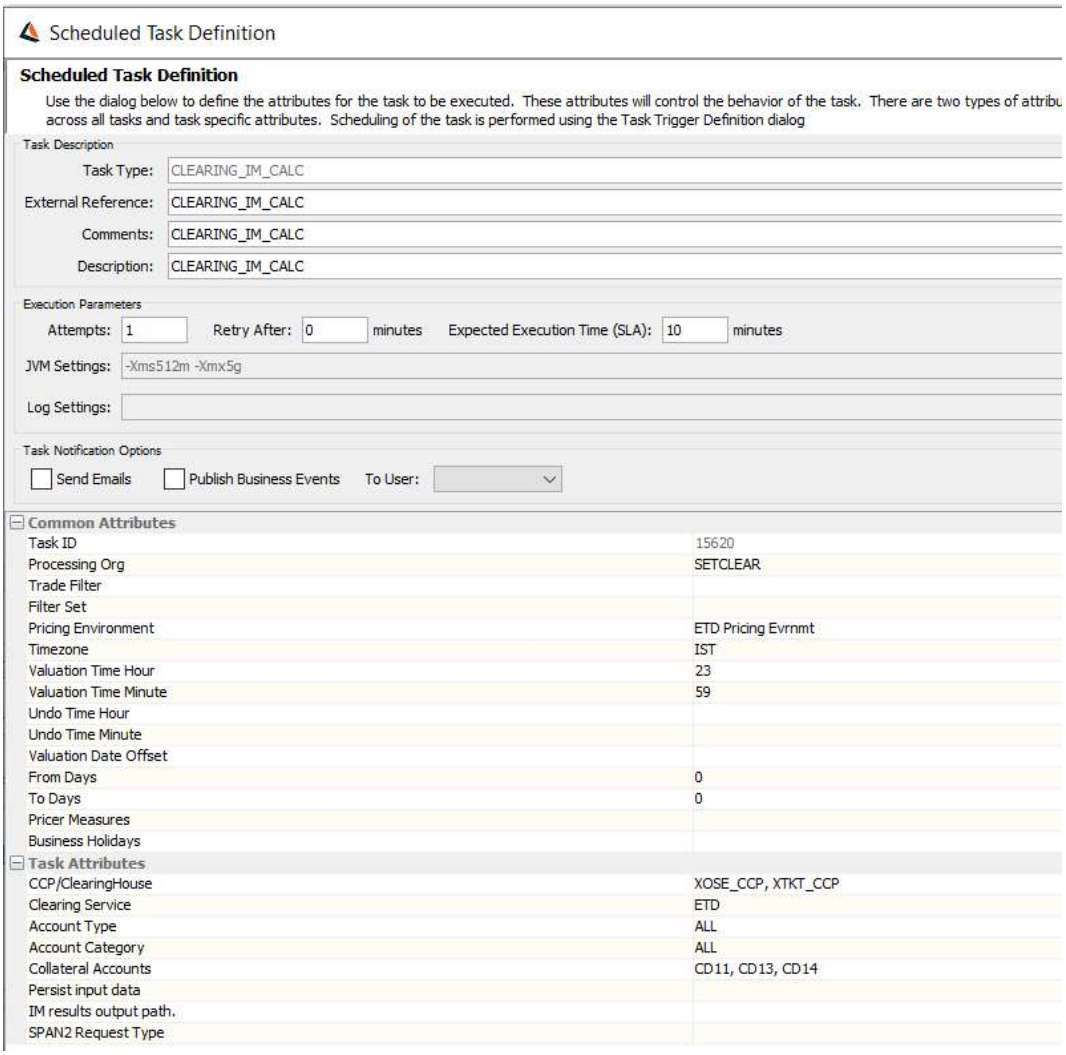
```
downloadRiskFiles:
  - exchanges: [JSC,JCC]
    # outputFolder: Windows: C:\path\to\output\folder, Linux: /path/to/output/folder
    outputFolder: /path/to/output/folder
    downloadFiles: [VaRParameter_'YYYYmmdd'_1100.csv,
        BPF_ODEX_'YYYYmmdd'_1100.zip,
        BPF_SPE_'YYYYmmdd'_1100.zip,
        BPF_COM_'YYYYmmdd'_1100.zip,
        BPF_JGB_'YYYYmmdd'_1100.zip,
        BPF_IDX_'YYYYmmdd'_1100.zip,
        BPF_SSO_'YYYYmmdd'_1100.zip,
        APF_'YYYYmmdd'_1100.csv,
        BPF_ODEX_'YYYYmmdd'_1600.zip,
        VaRParameter_'YYYYmmdd'_1600.csv,
        BPF_JGB_'YYYYmmdd'_1600.zip,
        BPF_COM_'YYYYmmdd'_1600.zip,
        BPF_IDX_'YYYYmmdd'_1600.zip,
        BPF_SSO_'YYYYmmdd'_1600.zip,
        BPF_SPE_'YYYYmmdd'_1600.zip,
        APF_'YYYYmmdd'_1600.csv]
        SPF_'YYYYmmdd'_1700.csv]
    downloadURL: https://jscc-ta.jpx.co.jp/jscc/listed-derivatives/weekday/
```

Schedule task setup

We have created new scheduled task “ CLEARING_FILE_DOWNLOAD” to download JSCC risk parameter files


Scheduled Task Definition
Scheduled Task Definition
Use the dialog below to define the attributes for the task to be executed. These attributes will control the behavior of the task. There are two types of attributes, general
across all tasks and task specific attributes. Scheduling of the task is performed using the Task Trigger Definition dialog
Task Description
Task Type: CLEARING_FILE_DOWNLOAD
External Reference: CLEARING_FILE_DOWNLOAD
Comments: CLEARING_FILE_DOWNLOAD
Description: CLEARING_FILE_DOWNLOAD
Execution Parameters
Attempts: 1
Retry After: 0 minutes
Expected Execution Time (SLA): 10 minutes
JVM Settings: -Xms512m -Xmx1024m
Log Settings:
Task Notification Options
Send Emails
Publish Business Events
To User:
Common Attributes
Task ID 89620
Processing Org SETCLEAR
Trade Filter
Filter Set
Pricing Environment
Timezone IST
Valuation Time Hour 23
Valuation Time Minute 59
Undo Time Hour 0
Undo Time Minute 0
Valuation Date Offset
From Days 0
To Days 0
Pricer Measures
Business Holidays TOK

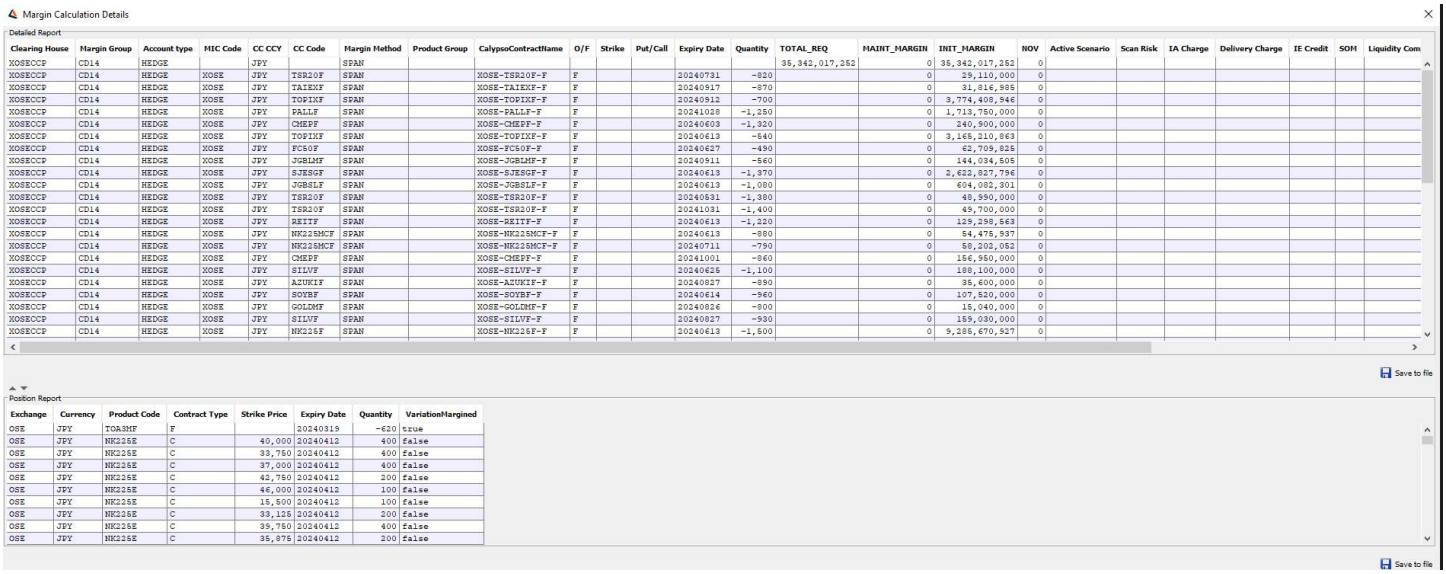
Schedule task setup to generate IM



Initial Margin Results – JSCC

Margin Calculation Log


```
  "id" : "mic:XOSE CC:TSR20F name:XOSE-TSR20F-F strike:NA PC:NA expiry:20240731 type:F qty:-1640",
  "Currency" : "JPY",
  "CustomerAccountType2" : null,
  "OmnibusIndicator" : "NO",
  "CustomerAccountType" : "HEDGE",
  "Memo" : null,
  "ClearingFirmID" : "XOSECCP",
  "AccountName" : null,
  "FundSegregationType" : null,
  "Silo" : "RUB",
  "AccountID" : "2",
  "VaRMargin" : "58220000",
  "Add_onCharge" : "0",
  "MarginRequirement" : "58220000",
  "OriginType" : "Client",
  "Ref_VaRMarginWithSign" : "58220000",
  "Ref_NetOptionValue" : "0",
  "VaRRisk" : "58220000",
  "ParentPortfolioID" : null
}

{
  "id" : "mic:XOSE CC:PALLF name:XOSE-PALLF-F strike:NA PC:NA expiry:20241028 type:F qty:-2500",
  "Currency" : "JPY",
  "CustomerAccountType2" : null,
  "OmnibusIndicator" : "NO",
  "CustomerAccountType" : "HEDGE",
  "Memo" : null,
  "ClearingFirmID" : "XOSECCP",
  "AccountName" : null,
  "FundSegregationType" : null,
  "Silo" : "PME",
  "AccountID" : "2",
  "VaRMargin" : "3427500000",
  "Add_onCharge" : "0",
  "MarginRequirement" : "3427500000",
  "OriginType" : "Client",
  "Ref_VaRMarginWithSign" : "3427500000",
  "Ref_NetOptionValue" : "0",
  "VaRRisk" : "3427500000",
  "ParentPortfolioID" : null
```



In the Domain Value Setup

Users need to set up this domain as True to include SAM in IM calculation.

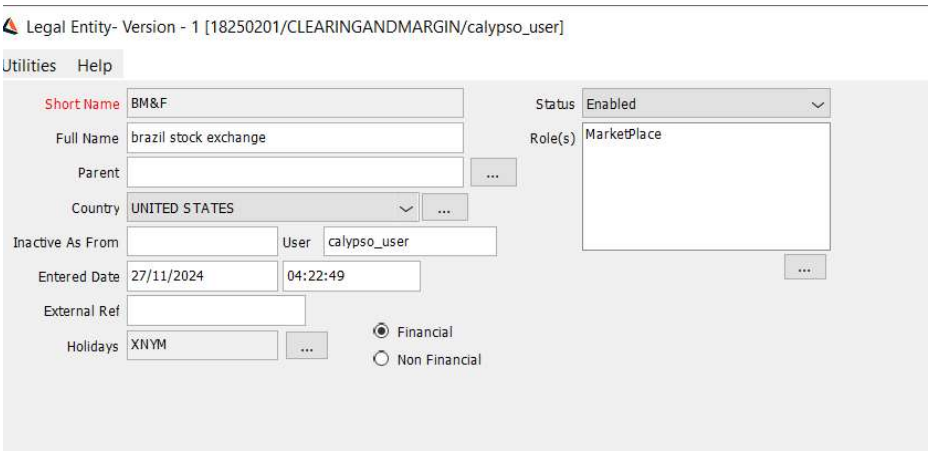
Note - By default, this will be False

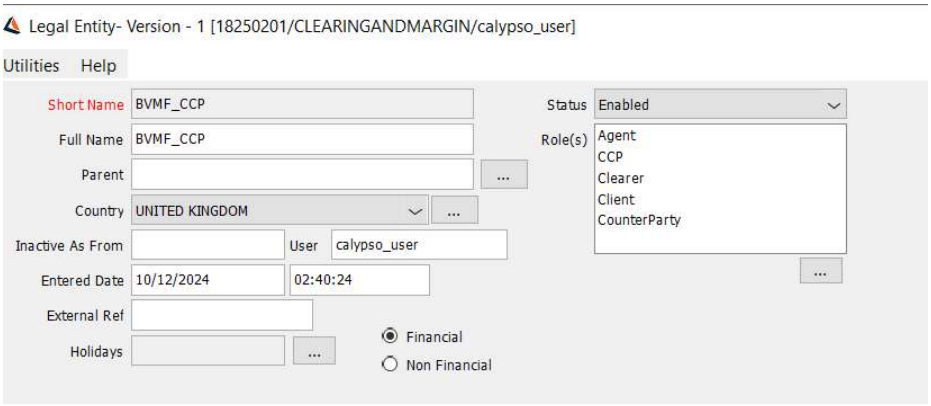
3.2.4 BVMF API Process

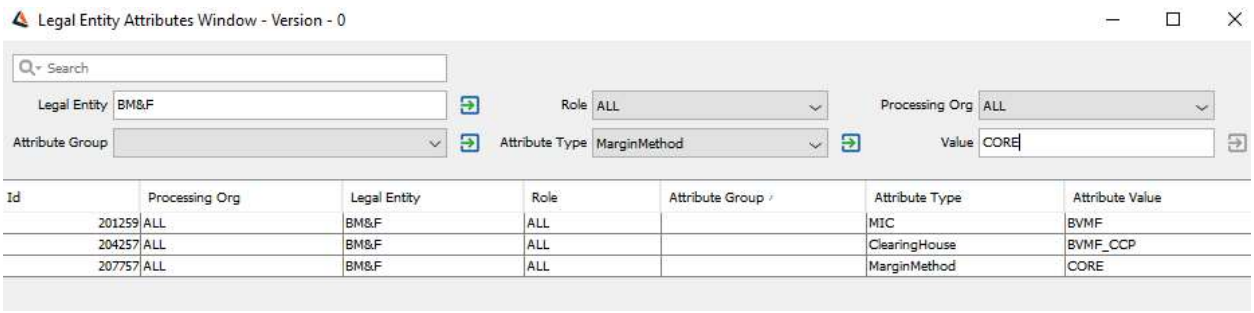
B3 BVMF uses Close-Out Risk Evaluation (CORE) Margin Methodology to calculate Initial Margin.

API Configuration

1. Need to create legal entity and config as mentioned below







2. Step 2 – Add below properties in User Property File

- B3_SERVER_URL=https\://api-listados.b3.com.br/cors-app
- B3_CLIENT_ID=97591532-bb5d-4039-951f-ae916238b6c8
- B3_CLIENT_PASSWORD=BRKFGeY6iANFSHV2zl6owc1PUbb2EB0d+SExEx9tFF9wtH/J/qHf5bPW12lo+CGCOJAdqoT5ytsQr8maNji4q4XPmII+zKF4MT14SqkeliWWNPOg8INgrZFdFy5JARv5dactAI93tVPxiu9cO7yJAHjVcFBx74spG+w8KJL9
- B3_CERTIFICATE_PASSWORD=Bbtn8+mOUd0q5nzdtGFxNt/OQ08M8h5QQAZscTbr5GgZ5CpgODN7D4x5Hd969+dGzNAxYdf7RAh6cwwMI3K4iVASy5BDJyZJqt2NKlVyQ5Pz/9C99RXAj7OgMYPi8OSH.

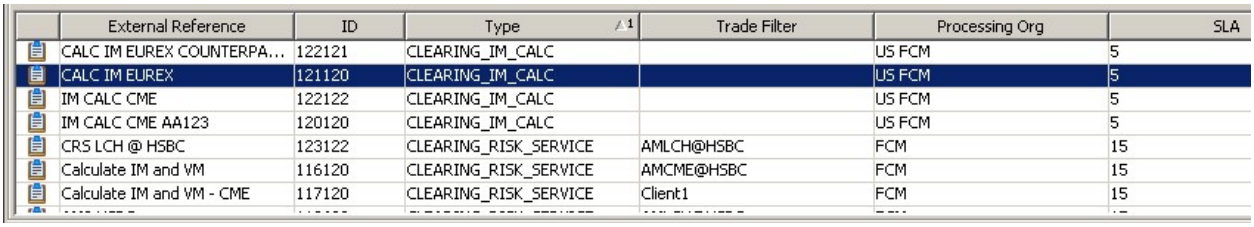
Note:

1.USE_SSL property should always be False in property file.

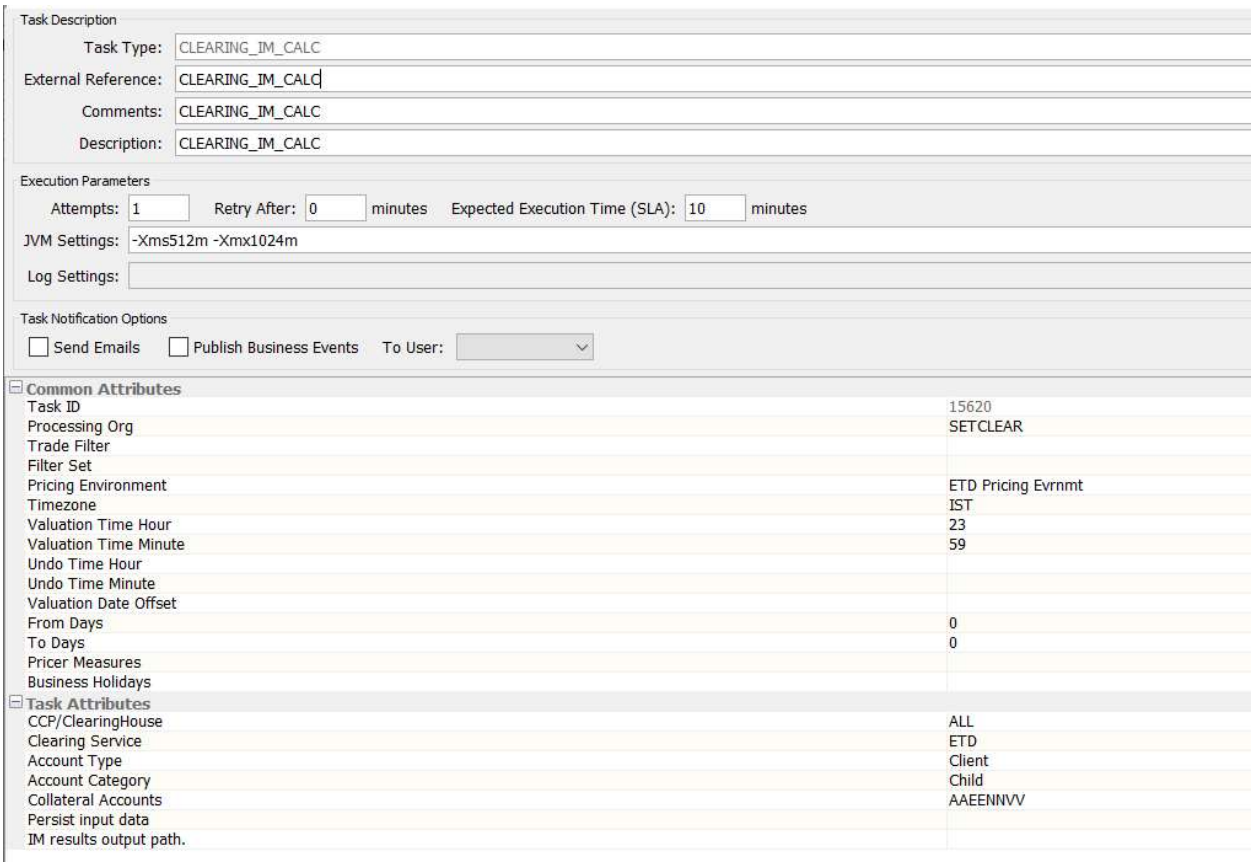
```
QUALITY_CHECK=true
USE_GATEWAY=true
USE_SSL=false
HOSTNAME_VALIDATION
```

2. API Works during this period i.e. 07:00 to 21:30 BRT on trading day only.

3.3 Running the Scheduled Task CLEARING_IM_CALC



External Reference	ID	Type	Trade Filter	Processing Org	SLA
CALC IM EUREX COUNTERPA...	122121	CLEARING_IM_CALC		US FCM	5
CALC IM EUREX	121120	CLEARING_IM_CALC		US FCM	5
IM CALC CME	122122	CLEARING_IM_CALC		US FCM	5
IM CALC CME AA123	120120	CLEARING_IM_CALC		US FCM	5
CRS LCH @ HSBC	123122	CLEARING_RISK_SERVICE	AMLCH@HSBC	FCM	15
Calculate IM and VM	116120	CLEARING_RISK_SERVICE	AMCME@HSBC	FCM	15
Calculate IM and VM - CME	117120	CLEARING_RISK_SERVICE	Client1	FCM	15



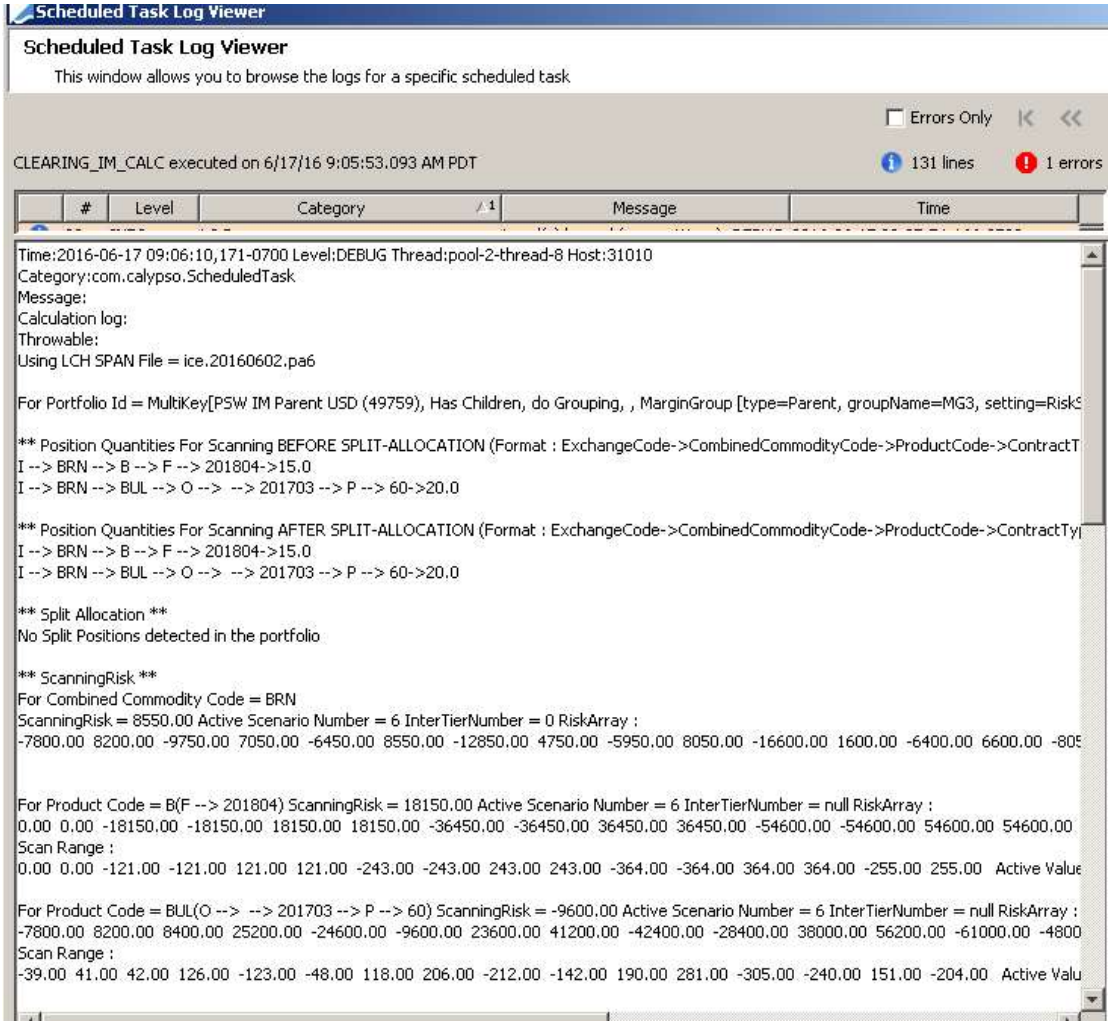
Output Files

The **IM Results Path** field on the scheduled task is optional, and if a user defines a path here, the Detailed output and position files will be stored in this location instead of the default. If there is no value here, the files will be stored in user/calypso/InitialMargin.

3.3.1 Logs to track Possible Errors and Calculation Details

FOR SPAN and EUREX PRISMA CALCULATION:

The following log is available from the Scheduled Task menu, or from the Margin Dashboard (Click on the Icon in the “Detail” column)



3.3.2 Additional Log Info for Eurex Prisma

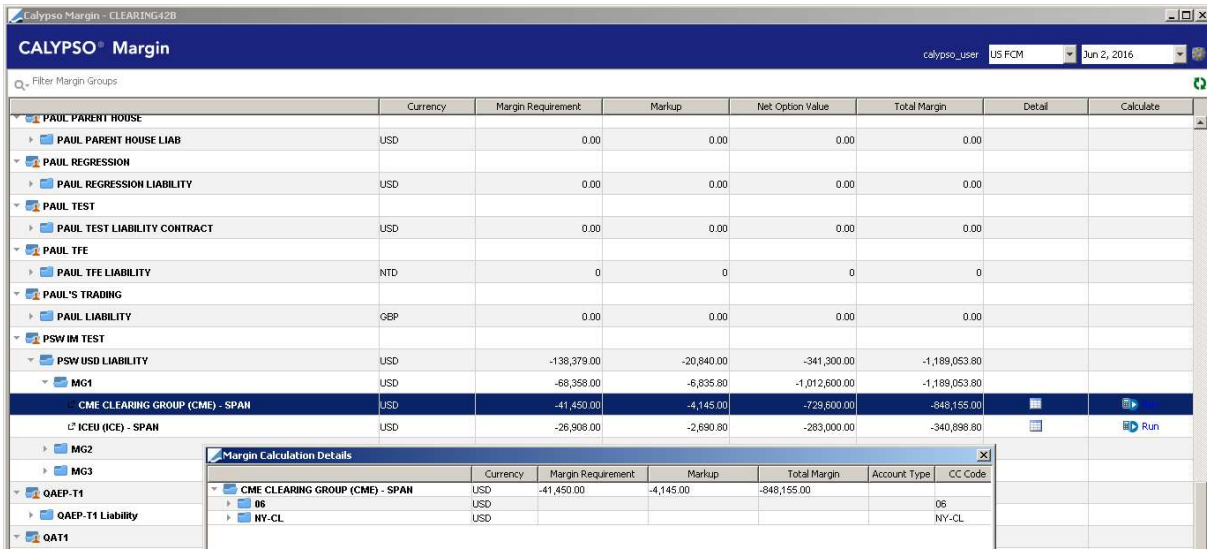
Additional logs are available as CSV files, detailing the PL Vectors used for the calculation of Initial Margin

3.3.3 Multi-threading Setup

This domain value defines the number of threads to be used. By default, the CLEARING_IM_CALC scheduled task runs in multi-threading mode; and the default value of this is set to 5.

3.4 Calculating the Initial Margin from the Margin Dashboard

It is also possible to run the margin interactively from the margin dashboard: Select “Run” button on the right side of the screen:



3.5 Definition of PL Marks

The following measures are calculated as defined below:

PL MARK	IM Dashboard	Sign client facing	Sign counterparty facing	Definition
MAINTENANCE_MARGIN	MARGIN	Negative	Negative	**SPAN MARGIN** Core margin computed by calculator= MAX(Commodity Risk Charge; Short Option Minimum) * Risk Maintenance Performance Bond Adjustment Factor where Risk Charge = Scanning Risk + Intra-Commodity Spread Charge + Delivery Month (Spot) Charge – Inter-Commodity Spread Credit **EUREX PRISMA** Total IM = Market Risk IM + Liquidity Adj + Long Option Credit
NOV	NOV	sign of the position	sign of the position	**SPAN MARGIN** Net Option Value **EUREX PRISMA** 0.00
MAINTENANCE_MARGIN_MARKUP	MARK-UP	Negative	Negative	MAINTENANCE_MARGIN * (Multiplier-1)
IM_EXPOSURE	TOTAL MARGIN	Negative	Negative	Min[(MAINTENANCE_MARGIN + NOV) *(Multiplier), 0)]
MARGIN_CALL		Positive	Negative	= IM_EXPOSURE
Multiplier		Positive	Positive	Calypso Multiplier defined at MG for each acct
INITIAL_MARGIN INITIAL_MARGIN_MARKUP	Not available Not available	Negative Negative	Negative Negative	MAINTENANCE_MARGIN * (CCP Default Multiplier) INITIAL_MARGIN * * (Calypso Multiplier-1)
All MARGIN NUMBERS ARE EXPRESSED IN THE MARGIN CURRENCY, WHERE MARGIN CURRENCY IS DEFINED AS: **(1) Combined Commodities currency for SPAN methodologies** **(2) VAR base currency for EUREX** **FOR EACH CURRENCY and EACH MARGIN GROUP, a PL MARK will be saved, in the margin currency**				

Example of output:


PLMark Report (5/31/17 4:01:44 PM)

Report Data View Export Utilities Help

Criteria

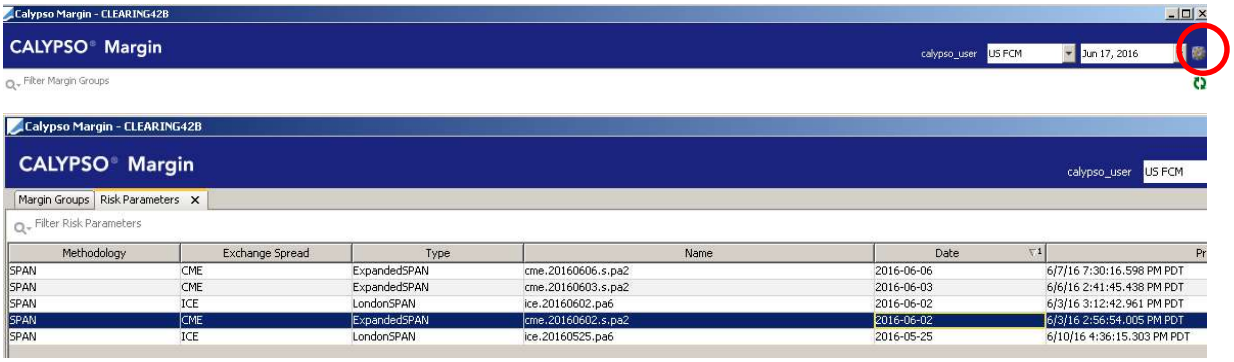
Position/Trade	Position or Trade Id	Type	Pricing Env	Val Date	Book	Currency	Measure Name	Sub Id	Measure Value	C
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	IM_EXPOSURE		(66,500.00)	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	INITIAL_MARGIN		(73,150.00)	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	INITIAL_MARGIN_MARKUP		0.00	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	MAINTENANCE_MARGIN		(66,500.00)	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	MAINTENANCE_MARGIN_MARKUP		0.00	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	MARGIN_CALL		(66,500.00)	USD
Trade	6901	NONE	default	May 31,2017	US FCM Client Clearing	USD	NOV		0.00	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	IM_EXPOSURE		0.00	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	INITIAL_MARGIN		(216,500.00)	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	INITIAL_MARGIN_MARKUP		0.00	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	MAINTENANCE_MARGIN		(216,500.00)	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	MAINTENANCE_MARGIN_MARKUP		0.00	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	MARGIN_CALL		0.00	USD
Trade	7204	NONE	default	May 31,2017	US FCM Client Clearing	USD	NOV		1,806,000.00	USD

3.6 Initial Margin Reporting Tools

3.6.1 Margin Dashboard

Information about supported exchanges and available risk array files:

(*click on the wheel to open the panel*)


Calypso Margin - CLEARING42B

CALYPSO® Margin

calypso_user US FCM Jun 17, 2016

Filter Margin Groups

Calypso Margin - CLEARING42B

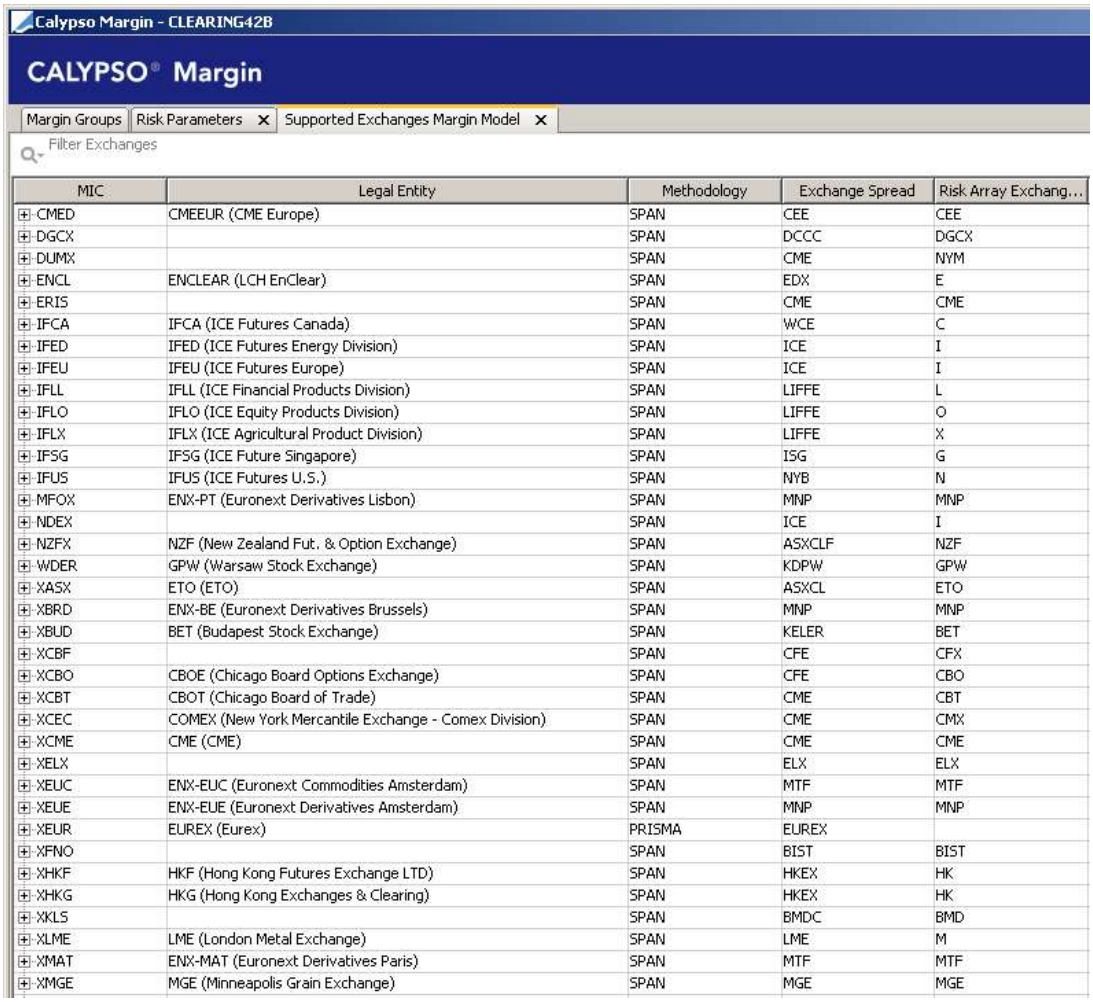
CALYPSO® Margin

calypso_user US FCM

Margin Groups Risk Parameters

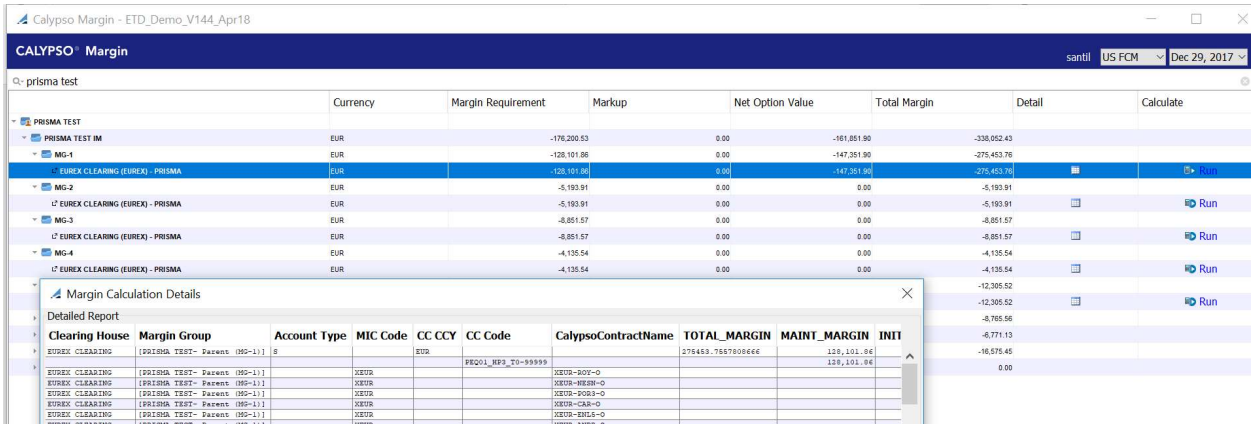
Filter Risk Parameters

Methodology	Exchange Spread	Type	Name	Date	Pr
SPAN	CME	ExpandedSPAN	cme.20160606.s.pa2	2016-06-06	6/7/16 7:30:16.598 PM PDT
SPAN	CME	ExpandedSPAN	cme.20160603.s.pa2	2016-06-03	6/6/16 2:41:45.438 PM PDT
SPAN	ICE	LondonSPAN	ice.20160602.pa6	2016-06-02	6/3/16 3:12:42.961 PM PDT
SPAN	CME	ExpandedSPAN	cme.20160602.s.pa2	2016-06-02	6/3/16 2:56:54.005 PM PDT
SPAN	ICE	LondonSPAN	ice.20160525.pa6	2016-05-25	6/10/16 4:36:15.303 PM PDT

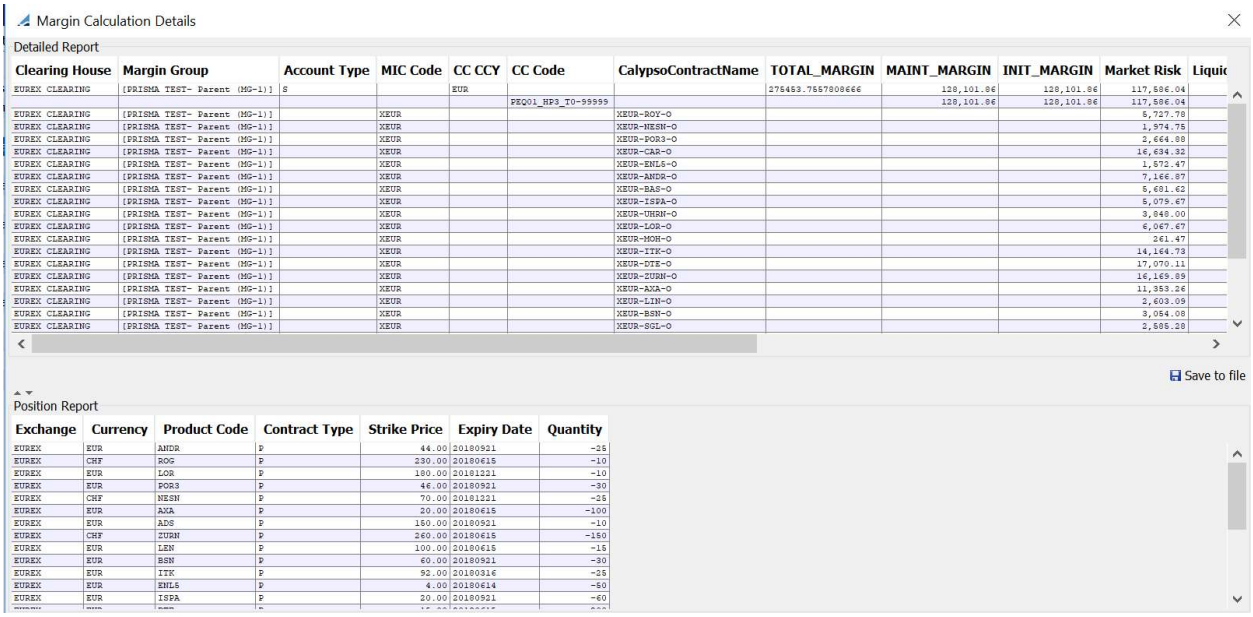


MIC	Legal Entity	Methodology	Exchange Spread	Risk Array Exchang...
CMED	CMEEUR (CME Europe)	SPAN	CEE	CEE
DGCX		SPAN	DCCC	DGCX
DUMX		SPAN	CME	NYM
ENCL	ENCLEAR (LCH EnClear)	SPAN	EDX	E
ERIS		SPAN	CME	CME
IFCA	IFCA (ICE Futures Canada)	SPAN	WCE	C
IFED	IFED (ICE Futures Energy Division)	SPAN	ICE	I
IFEU	IFEU (ICE Futures Europe)	SPAN	ICE	I
IFLL	IFLL (ICE Financial Products Division)	SPAN	LIFFE	L
IFLO	IFLO (ICE Equity Products Division)	SPAN	LIFFE	O
IFLX	IFLX (ICE Agricultural Product Division)	SPAN	LIFFE	X
IFSG	IFSG (ICE Future Singapore)	SPAN	ISG	G
IFUS	IFUS (ICE Futures U.S.)	SPAN	NYB	N
MFOX	ENX-PT (Euronext Derivatives Lisbon)	SPAN	MNP	MNP
NDEX		SPAN	ICE	I
NZFX	NZF (New Zealand Fut. & Option Exchange)	SPAN	ASXCLF	NZF
WDER	GPW (Warsaw Stock Exchange)	SPAN	KDPW	GPW
XASX	ETO (ETO)	SPAN	ASXCL	ETO
XBRD	ENX-BE (Euronext Derivatives Brussels)	SPAN	MNP	MNP
XBUD	BET (Budapest Stock Exchange)	SPAN	KELER	BET
XCBF		SPAN	CFE	CFX
XCBO	CBOE (Chicago Board Options Exchange)	SPAN	CFE	CBO
XCBT	CBOT (Chicago Board of Trade)	SPAN	CME	CBT
XCEC	COMEX (New York Mercantile Exchange - Comex Division)	SPAN	CME	CMX
XCME	CME (CME)	SPAN	CME	CME
XELX		SPAN	ELX	ELX
XEUC	ENX-EUC (Euronext Commodities Amsterdam)	SPAN	MTF	MTF
XEUE	ENX-EUE (Euronext Derivatives Amsterdam)	SPAN	MNP	MNP
XEUR	EUREX (Eurex)	PRISMA	EUREX	
XFNO		SPAN	BIST	BIST
XHKF	HKF (Hong Kong Futures Exchange LTD)	SPAN	HKEX	HK
XHKG	HKG (Hong Kong Exchanges & Clearing)	SPAN	HKEX	HK
XKLS		SPAN	BMDC	BMD
XLME	LME (London Metal Exchange)	SPAN	LME	M
XMAT	ENX-MAT (Euronext Derivatives Paris)	SPAN	MTF	MTF
XMGE	MGE (Minneapolis Grain Exchange)	SPAN	MGE	MGE

Margin Dashboard Main View

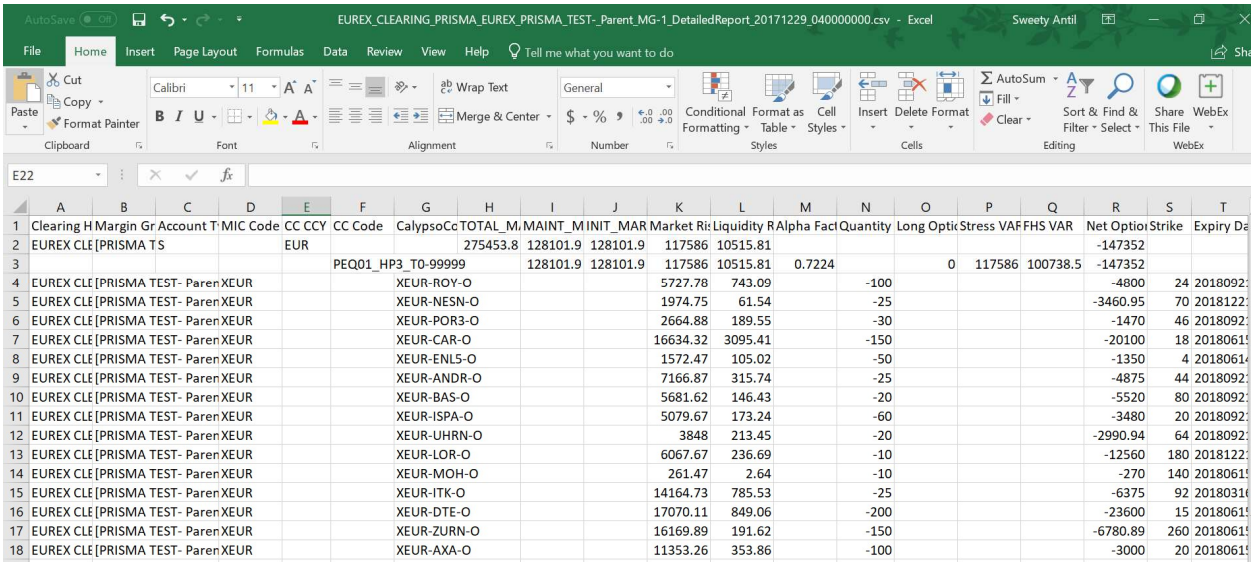


Dashboard drill-down



3.6.2 CSV Output

Available in user/Calypso/InitialMargin



Parent & Child Initial Margin Reporting

Initial Margin reporting is supported for parent and child account structure setup to generate Initial Margin calculation details at both parent and child account level.

In this report, for parent account level, netted initial margin is generated for final settlement in Collateral Manager and for child account level, initial margin details are generated.

The initial margin report is run using the scheduled task CLEARING_IM_REPORTING.

The margin output is available in CSV files for each parent account separately.

The following parent and child account structures are supported to generate the IM report:

- One Legal Entity and multiple accounts with one Margin Group
- Multiple Legal Entities and multiple accounts with one Margin Group

4.1 One Legal Entity and Multiple Accounts with one Margin Group

One LE and multiple Child accounts with one Group, in this structure, IM will be calculated at Parent account level for final settlement and IM will be calculated in each child account level for reporting.

Below is the Parent/child account setup structure.

Parent LE	Parent Account
case 1 - LE6 PARENT GROUPED	LSF322_Parent62
One Group - BaInMG1	
Child LE	Child Accounts
case 1 - LE6 PARENT GROUPED	LS0028_12
case 1 - LE6 PARENT GROUPED	LS3322_12
case 1 - LE6 PARENT GROUPED	LS3323_12
case 1 - LE6 PARENT GROUPED	LS3326_12
case 1 - LE6 PARENT GROUPED	LS3327_12
case 1 - LE6 PARENT GROUPED	LS3328_12
case 1 - LE6 PARENT GROUPED	LS3329_12
case 1 - LE6 PARENT GROUPED	LS3795_12
case 1 - LE6 PARENT GROUPED	LS6461_12
case 1 - LE6 PARENT GROUPED	LS6462_12
case 1 - LE6 PARENT GROUPED	LS6463_12
case 1 - LE6 PARENT GROUPED	LS6473_12
case 1 - LE6 PARENT GROUPED	LS6496_12
case 1 - LE6 PARENT GROUPED	LS6517_12

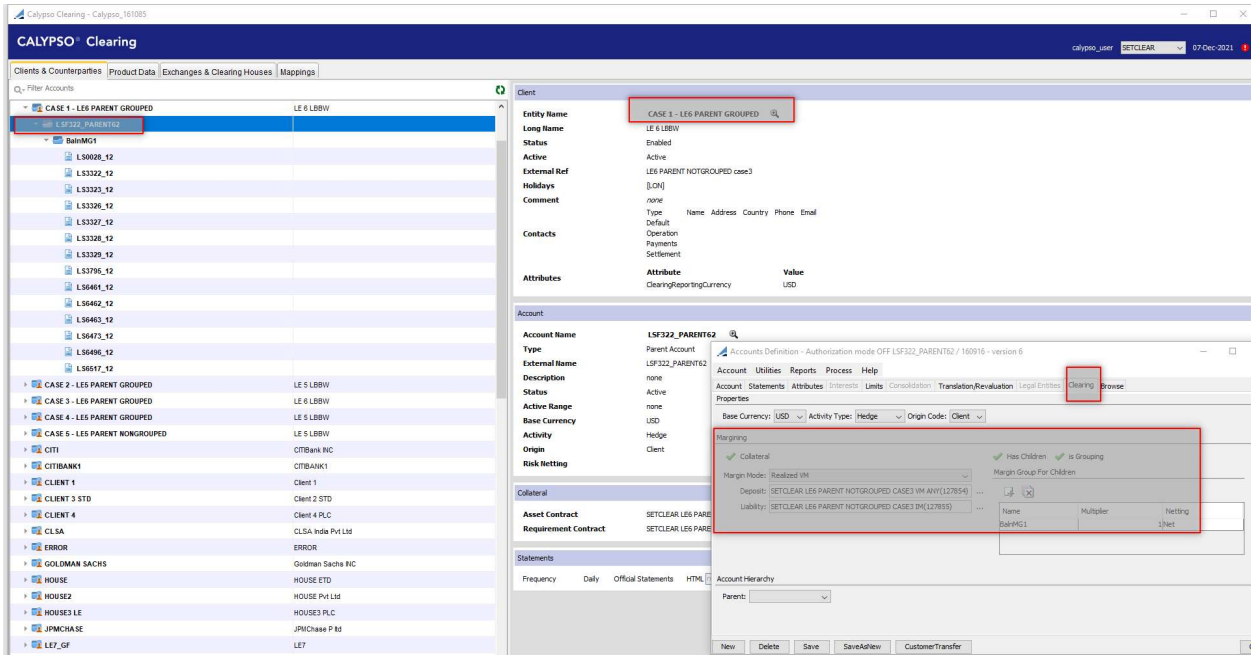
To illustrate the above matrix, this setup has One Legal Entity with Parent account and multiple child accounts.

It has one group defined in parent account

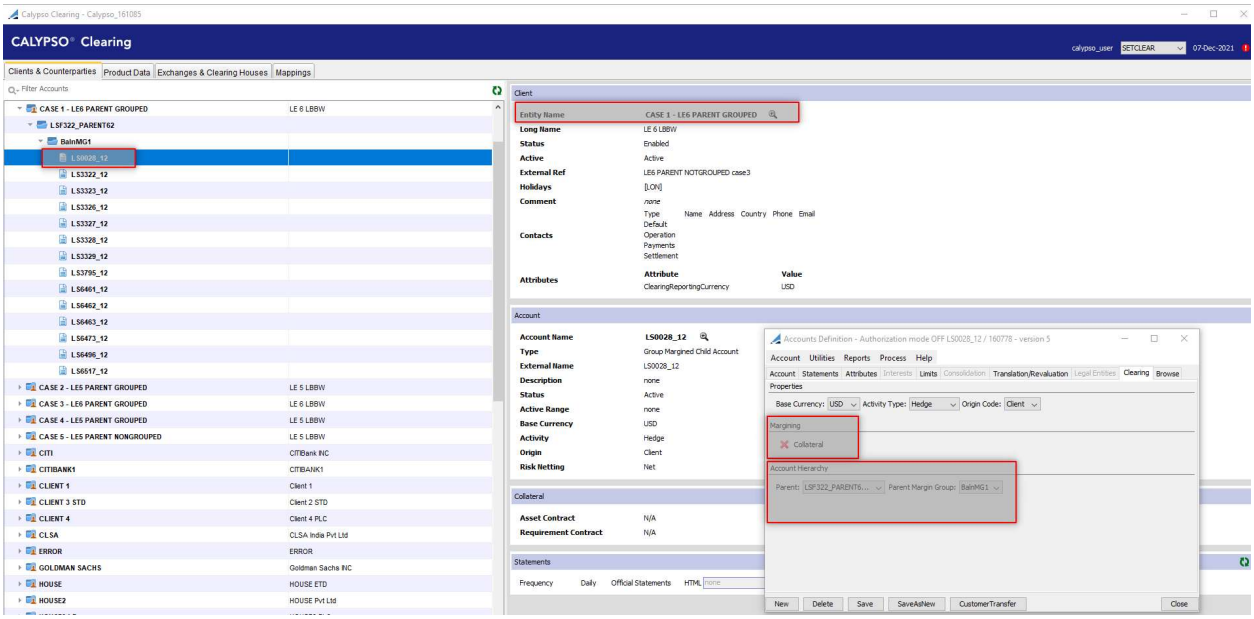
In Account definition, clearing tab, Collateral is tick in parent account and MCC accounts are linked.

Child Accounts are created with Collateral untick and only linked with Parent account.

4.1.1 Parent Account Configuration



4.1.2 Child Account Configuration



Note: For both Child and parent account, the Legal entity is the same on this structure.

4.2 Multiple Legal Entities and Multiple Accounts with one Margin Group

Multiple LE and multiple child accounts with one Group, in this case, IM will be calculated at Parent account level for final settlement and IM will be calculated in each child account level for reporting.

Parent LE	Parent Account
CASE 2 - LE5 PARENT GROUPED	LSF322_PARENT63
One Group - BalnMGCase2	
Legal Entity	Child Accounts
LE1_CHILD_LE5_Grouped	LS00281
LE2_CHILD_LE5_Grouped	LS33261
	LS33221
	LS33231
	LS33271
	LS33281
	LS33291
LE3_CHILD_LE5_Grouped	LS37951
LE4_CHILD_LE5_Grouped	LS64611
	LS64621
	LS64631
	LS64731
	LS64961
	LS65171

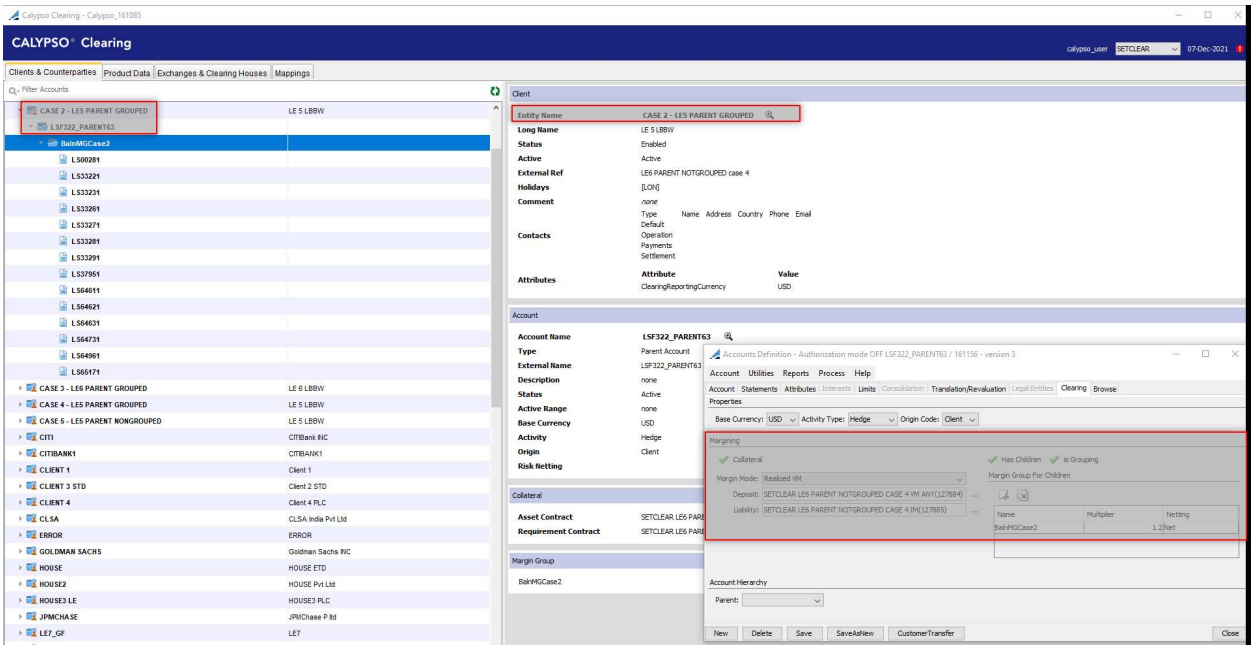
To illustrate the above matrix, this setup has Multiple Legal Entity with Parent account and multiple LE with child accounts.

It has one group defined in parent account

In Account definition, clearing tab, Collateral is tick in parent account and MCC accounts are linked.

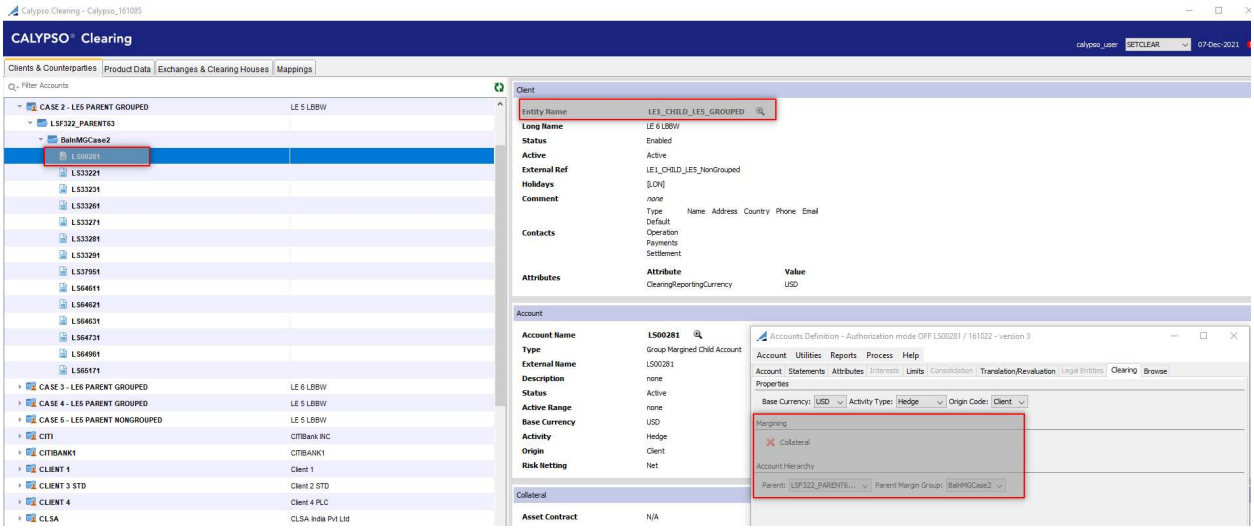
Child Accounts are created with Collateral untick and only linked with Parent account.

4.2.1 Parent Account Configuration



Note: In this setup, Separate LE was created to link the parent account.

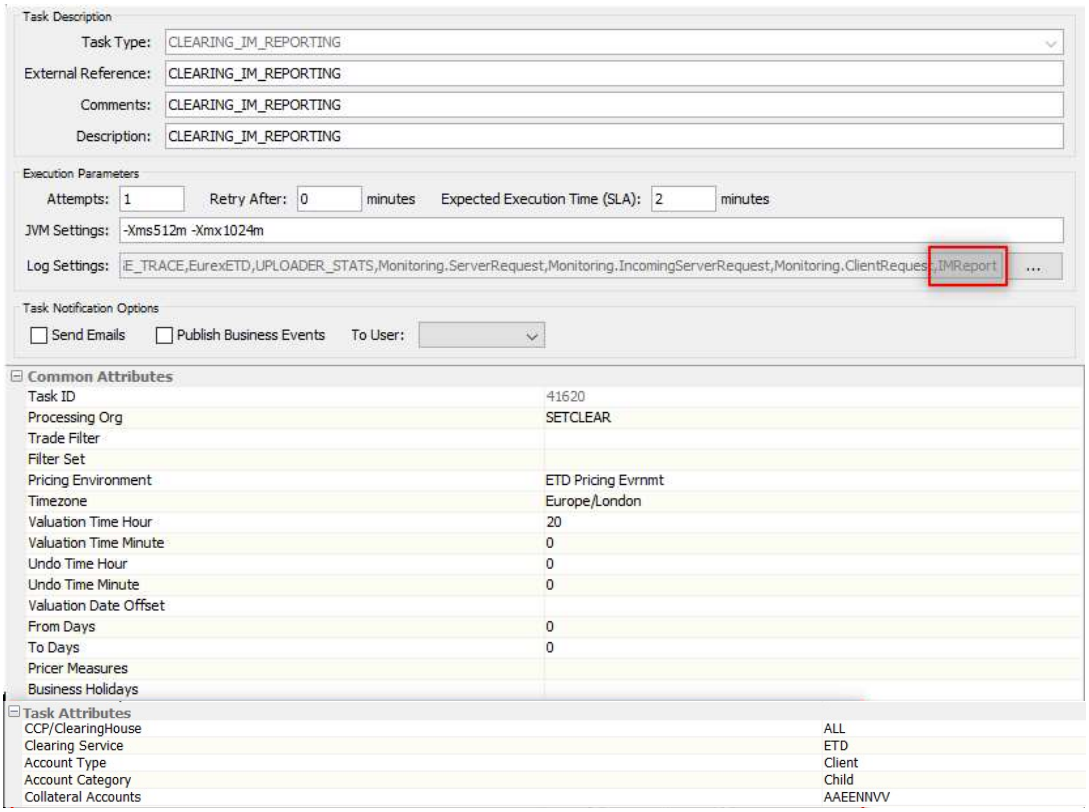
4.2.2 Child Account Configuration



Note: One child LE can have multiple child accounts on this structure.

4.3 Scheduled Task Configuration

Configure the CLEARING_IM_REPORTING scheduled task as in below example.



This scheduled task generates parent and child Initial margin reporting in CSV file format.

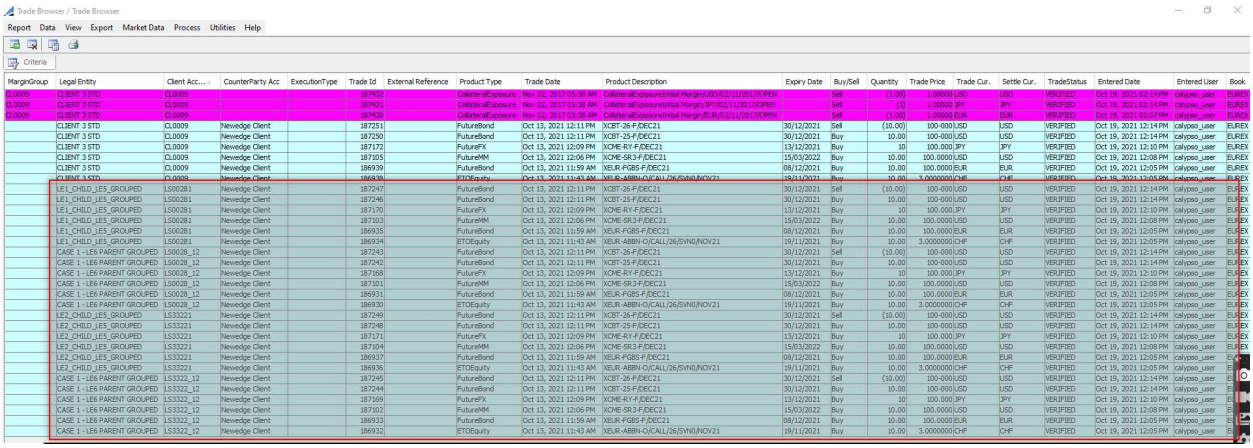
For each parent account a separate CSV file will be generated.

Log settings	Add IMReport to log
CCP/ClearingHouse	This attribute allows you to select which CCP you want to run the Initial Margin report
Clearing Service	ETD
Account Type	Select Client
Account Category	Select a Parent or Child.
Collateral Account	Select only parent accounts, ST will automatically selected child accounts to generate the output in IM reporting files.
IM results Output path	The default path is C:\Users\Username\Calypso\IMReport\yyyyMMdd, but you can also add custom folder location where you want to generate IM reports, in that folder system will automatically create two folders "IMReport" and "yyyyMMdd" inside the given folder.

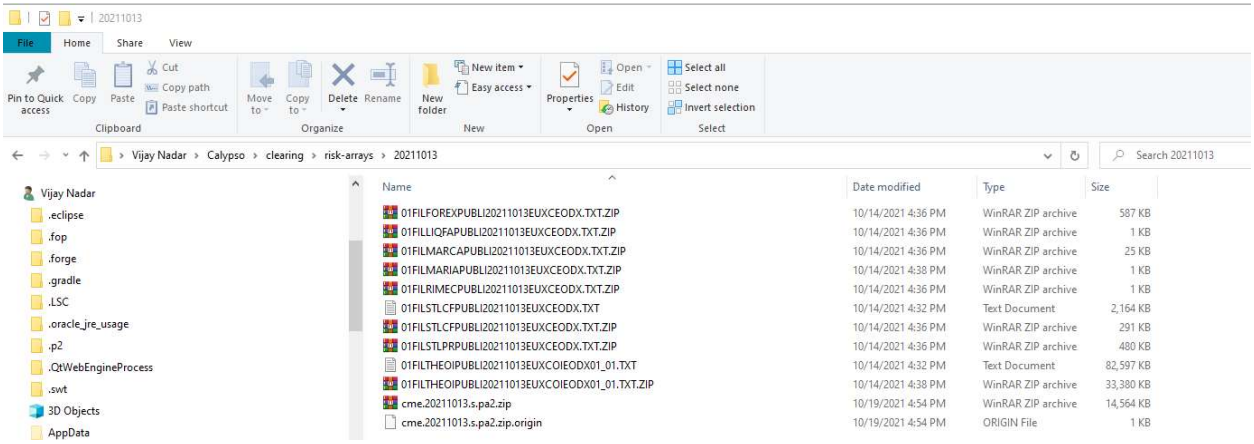
Log settings	Add IMReport to log
	Note: Folder name should be created without space

Use Case

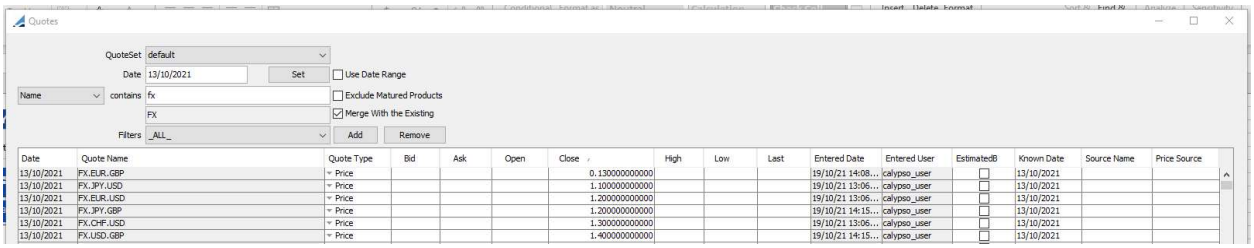
The following highlighted trades are entered on Booking date 13th Oct 2021 across CME, CBOT and EUREX.



Eurex Prisma and CME Initial Margin files are kept in Risk array folder.

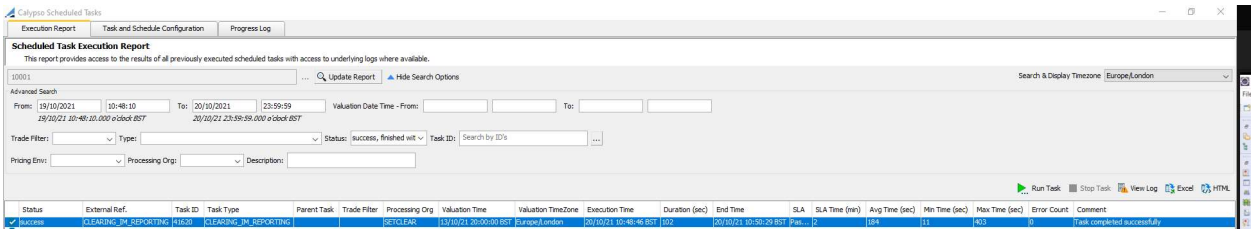


Updated FX rates before running IM reporting ST.

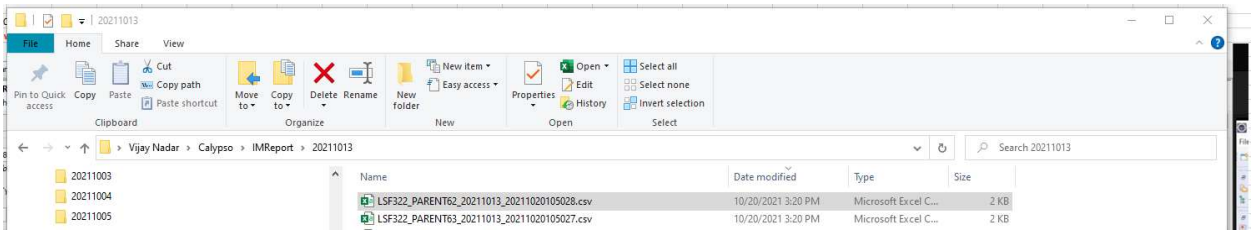


Ran the ST CLEARING_IM _REPORTING

Note: Ensure FX is updated in quotes, otherwise the scheduled task will show the status as Finished with error and report will not be generated.

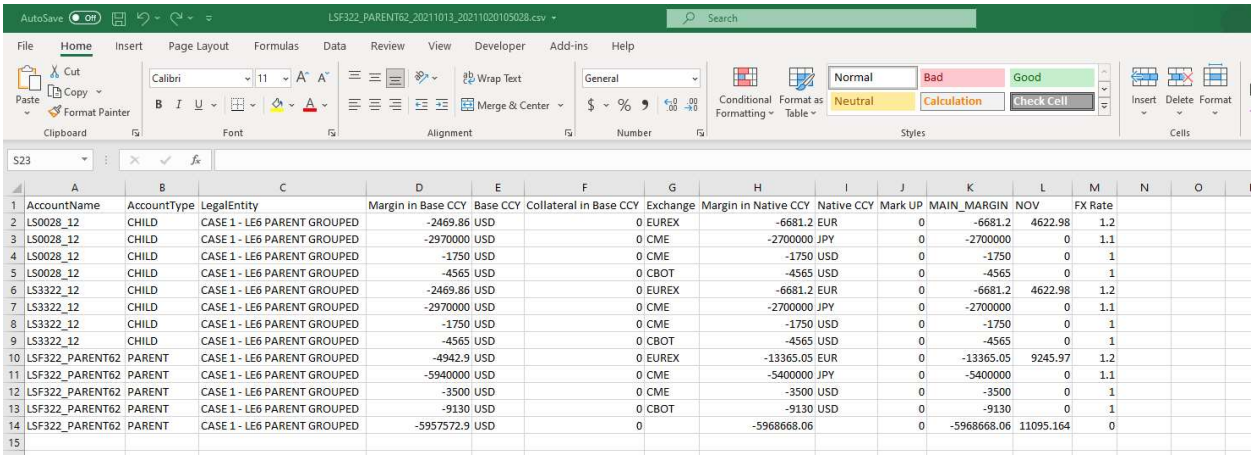


Once the ST status is success, the below output files will be generated with file name convention as below.

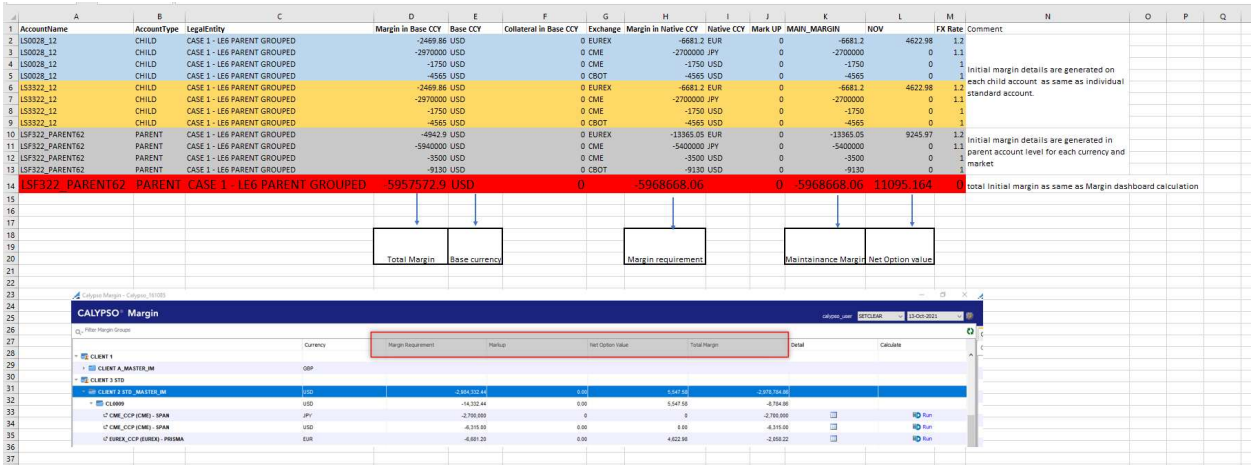


Example: File name is created as **LSF322_PARENT62_20211013_20211020105028.csv**

File Name	Details
LSF322_PARENT62	Parent account
20211013	Valuation date
20211020105028	End date and Time (it will not match same as scheduled task end time, since it records the time based on the file creation time by system)



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	AccountName	AccountType	LegalEntity	Margin in Base CCY	Base CCY	Collateral in Base CCY	Exchange	Margin in Native CCY	Native CCY	Mark UP	MAIN_MARGIN	NOV	FX Rate
2	LS0028_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-2469.86	USD	0	EUREX	-6681.2	EUR	0	-6681.2	4622.98	1.2
3	LS0028_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-2970000	USD	0	CME	-2700000	JPY	0	-2700000	0	1.1
4	LS0028_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-1750	USD	0	CME	-1750	USD	0	-1750	0	1
5	LS0028_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-4565	USD	0	CBOT	-4565	USD	0	-4565	0	1
6	LS3322_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-2469.86	USD	0	EUREX	-6681.2	EUR	0	-6681.2	4622.98	1.2
7	LS3322_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-2970000	USD	0	CME	-2700000	JPY	0	-2700000	0	1.1
8	LS3322_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-1750	USD	0	CME	-1750	USD	0	-1750	0	1
9	LS3322_12	CHILD	CASE 1 - LE6 PARENT GROUPED	-4565	USD	0	CBOT	-4565	USD	0	-4565	0	1
10	LSF322_PARENT62	PARENT	CASE 1 - LE6 PARENT GROUPED	-4942.9	USD	0	EUREX	-13365.05	EUR	0	-13365.05	9245.97	1.2
11	LSF322_PARENT62	PARENT	CASE 1 - LE6 PARENT GROUPED	-5940000	USD	0	CME	-5400000	JPY	0	-5400000	0	1.1
12	LSF322_PARENT62	PARENT	CASE 1 - LE6 PARENT GROUPED	-3500	USD	0	CME	-3500	USD	0	-3500	0	1
13	LSF322_PARENT62	PARENT	CASE 1 - LE6 PARENT GROUPED	-9130	USD	0	CBOT	-9130	USD	0	-9130	0	1
14	LSF322_PARENT62	PARENT	CASE 1 - LE6 PARENT GROUPED	-5957572.9	USD	0		-5968668.06		0	-5968668.06	11095.164	0
15													



Below is the detailed information of each column.

- **AccountName –** Each child and parent account number from Account Definition.
- **AccountType –** "CHILD" or "PARENT".
- **LegalEntity –** Account legal entity
- **Base CCY –** Account base currency
- **Margin in Base CCY –** Margin detail of each child account and parent account in base currency
  - **Child Account –** Margin details of each child account
  - **Parent Account** - parent account net final settlement amount for collateral
- **Collateral in Base CCY** – Blank
- **Exchange** – Marketplace legal entity on each account and for parent account, blank
- **Margin in Native CCY** – Margin requirement of each account in native currency by Marketplace
- **Native CCY** – Currency by marketplace.
- **Mark UP** – Mark up, if margin multiplier is added
- **MAIN_MARGIN** – Maintenance margin
- **NOV** – NOV calculation
- **FX Rate** – FX rate from Quotes

Covered Short Options

Calypso ETD solution will suppress the IM calculated for short equity option trades for a client account when the trades have been flagged as 'Covered'. To flag a trade as 'Covered' the user needs to set the trade attribute 'CoveredETDTrade' to True.

For 'Covered' trades the system will exclude these from the client accounts IM portfolio which is passed to the IM module resulting in zero IM for the client for these trades. The IM for the counterparty (CCP or the Carry Broker) will still be calculated as per the exchange's IM algorithm.

5.1 CoveredETDTrade Trade Keyword attribute

Trade attribute called 'CoveredETDTrade' of type Boolean (true/false).

This attribute can be set manually, via the Pricing Sheet, or by the Data Uploader trade file importer.

5.2 Initial Margining

'Covered' open quantity trades will be excluded from the client accounts portfolio that is passed to the IM module.

IM will be zero for these trades for the client

'Covered' open quantity trades will be included in the counterparty accounts portfolio that is passed on to the IM module.

IM will be calculated for these trades for the counterparty

5.3 Initial Margin Reports & Logs

The IM summary and detailed reports and logs will not include the 'Covered' trade because these will not have been passed to the IM module, which produces the reports.

Margin Data Cleanup

6.1 Margin Data Cleanup Process

The CLEARING_MARGIN_DATA table holds a cached copy of the SPAN/PRISMA and other ancillary files, in DB, for faster access. To avoid DB issues, a cleanup mechanism has been implemented and is activated by default.

The out-of-the-box behavior is the following:

Every time a new insert is performed, any data older than 15 natural days is deleted; the date compared to the current one is equal to Max (margin file date, margin file insertion date).

Additional configurations are available via domain values:

Clearing.IM.marginData.deleteOnInsert = true by default

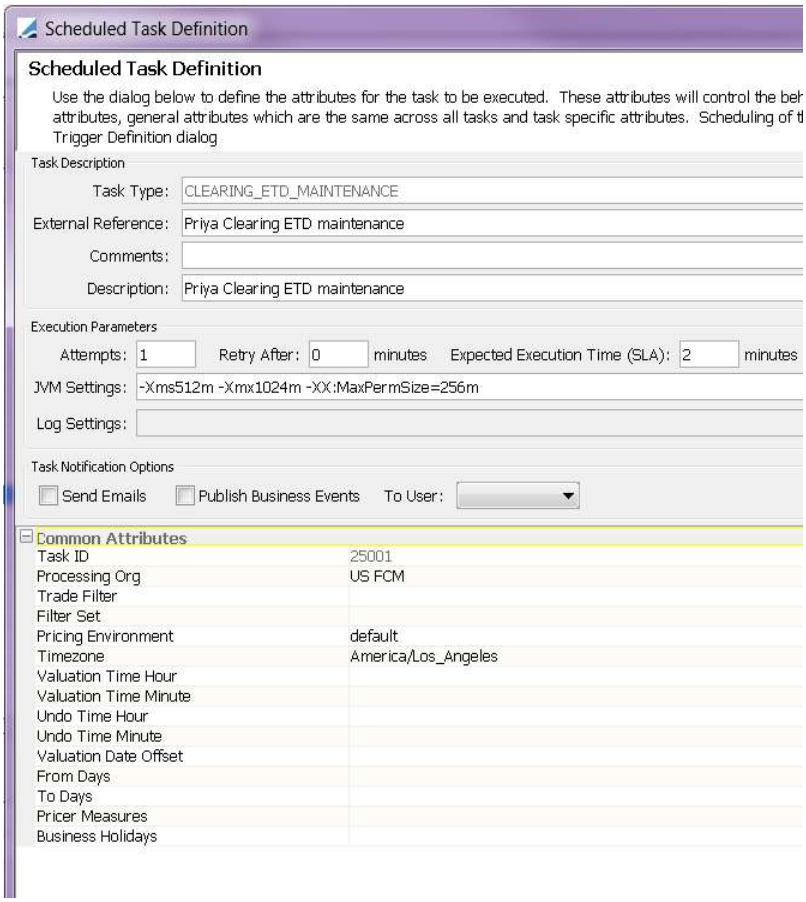
If configured with *false*, the automatic deletion is disabled.

Clearing.IM.marginData.daysToKeep = 15 by default

Number of natural days of data to keep, counting from the current machine date.

6.2 Scheduled Task CLEARING_ETD_MAINTENANCE

The cleanup can be triggered also by running the CLEARING_ETD_MAINTENANCE Scheduled Task. The task takes no attributes: the number of days to keep is sourced from the aforementioned Clearing.IM.marginData.daysToKeep domain.


Scheduled Task Definition
Scheduled Task Definition
Use the dialog below to define the attributes for the task to be executed. These attributes will control the beh
attributes, general attributes which are the same across all tasks and task specific attributes. Scheduling of t
Trigger Definition dialog
Task Description
Task Type: CLEARING_ETD_MAINTENANCE
External Reference: Priya Clearing ETD maintenance
Comments:
Description: Priya Clearing ETD maintenance
Execution Parameters
Attempts: 1
Retry After: 0 minutes
Expected Execution Time (SLA): 2 minutes
JVM Settings: -Xms512m -Xmx1024m -XX:MaxPermSize=256m
Log Settings:
Task Notification Options
Send Emails
Publish Business Events
To User:
Common Attributes
Task ID 25001
Processing Org US FCM
Trade Filter
Filter Set
Pricing Environment default
Timezone America/Los_Angeles
Valuation Time Hour
Valuation Time Minute
Undo Time Hour
Undo Time Minute
Valuation Date Offset
From Days
To Days
Pricer Measures
Business Holidays