

Mapping between the JPMorgan Chase Securities Extensions and the FpML Standard

FpML Architecture Working Group – March 2020

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Background

JPMorgan Chase's Extensions to cover securities, repos, and security lending

The first version of the extensions, an initial proposal, was developed by Andrew Parry (JPMorgan Chase) in 2006 to cover non derivatives products. The first extended schema was based on the FpML 4.2 Trial Recommendation.

The FpML Standards Committee decided not to include these products as part of the standard so the extensions were not included in the FpML Specifications, and instead, were published in a separate section of the FpML site <https://www.fpml.org/documents/extensions/>

The JPMorgan Chase (JPM) extensions were further developed and provided the product representation for different securities, listed derivatives, and securities financing products, including:

- Collective Investment Vehicles
- Equities
- Fixed Income
- Futures and Options
- Listed Interest Rate Derivatives
- Warrants
- Repos
- Securities Lending

In addition, the following repos and securities lending mid-life events were covered by the JPM extensions:

- billingEvent
- cashRepricing
- markToMarketEvent
- partialReturnEvent
- rateChange
- rateObservation

Implementation as part of the core FpML Standard

Over time, FpML provided support for the security products, which were only covered by the JPMorgan Chase extensions. There was demand from a reporting perspective but also from a post-trade reconciliation/risk processing point of view, to support derivative and non-derivative products in single format using FpML. It is much easier to process, aggregate, and query derivative and non-derivative products if all of them are using the same standard.

From FpML version 5.3 onwards, the product element instrumentTradeDetails was created to report trades of multiply traded instruments. This was used initially to represent the trade resulting from a physically settled OTC product where the underlying is a security, for example the exercise of a physically settled option.

The instrumentTradeDetails product followed the architecture proposed by the JPM extensions. The architecture was based on reusing the existing FpML underlying asset such as bond, equity, etc. and "promote" them as first class products.

At version 5.8, support for Classic Repos was added in FpML, both repurchase agreements and tri-party contracts.

Last but not least, in the latest working version, FpML 5.11 is introducing Security Lending product model to support the reporting to SFTR in addition to the new observation business event.

Securities Mapping

Since version 5 of FpML, the JPM extensions were published using both the FpML Confirmation and Reporting views as basis.

The different JPM extended products can be mapped to a corresponding FpML product. The high-level mapping from the product extensions to the standard is given in the following table:

JPM Extension	Standard FpML	Since FpML Version
exchangeTradedFundTransaction	instrumentTradeDetails with exchangeTradedFund underlyer	5.3
unitizedFundTransaction	instrumentTradeDetails with mutualFund underlyer	5.3
equityTransaction	instrumentTradeDetails with equity underlyer	5.3
bondTransaction	instrumentTradeDetails with bond underlyer	5.3
optionTransaction	instrumentTradeDetails with option underlyer	5.5 (option underlyer)
futureTransaction	instrumentTradeDetails with future underlyer	5.3
swapTransaction	instrumentTradeDetails with index* underlyer	5.3
warrantTransaction	instrumentTradeDetails with warrant underlyer	5.10 (warrant underlyer)
repo	repo	5.8
securityLending	securityLending	5.11

In addition, the following table shows the high-level mapping of the mid-life events for repos and security lending:

JPM Extension	Standard FpML	Since FpML Version
rateObservation	observation	5.11
partialReturnEvent	termination (partial)	4.0
rateChange	termination (full) + trade (new)	4.0
billingEvent	Not Available	
cashRepricing	Not Available	
markToMarketEvent	Not Available	

For the “low level” mapping of the extensions, mapping field by field, to the FpML Standard, refer to the Appendix A of this document.

Conclusions

The JPM extensions to cover non-derivatives products are now covered by standard FpML. FpML users should use standard FpML instead of the JPM extensions to implement these products.

Additional work on the product coverage may include settlement information and the creation of additional sample messages to cover the existing FpML product coverage.

However, not all the mid-life events for repos and security lending covered by the JPM extensions are present in standard FpML yet. Extensions are still needed for billing, cash repricing, and mark to market. The FpML Cross Asset Product Working Group has the coverage of mid-life events in scope for 2020 so the coverage of the standard may include some of these events in the next version of FpML.

Appendix A

The different JPM extensions product elements were implemented in the FpML Standard using the instrumentTradeDetails Product component. This last one has generic components and definitions to hold the different parameters of the underlying product. Depending on this one, the product is mapped with different particularities, but all products are mapped completely from extension to standards, founding no gaps between both implementations. Green fields reflect exact mapping between extension and standard, while blue ones show the fields with different names but representing the same data. Orange fields mean elements required in FpML but not present in the JPM's extensions.

Extension: equityTransaction

equityTransaction extension	instrumentTradeDetails
primaryAssetClass	primaryAssetClass
secondaryAssetClass	secondaryAssetClass
productType	productType
productId	productId
assetClass	assetClass
buyerPartyReference	buyerPartyReference
buyerAccountReference	buyerAccountReference
sellerPartyReference	sellerPartyReference
sellerAccountReference	sellerAccountReference
numberOfUnits	quantity/number
UnitPrice	pricing/quote
- currency	pricing/quote/currency
- amount	pricing/quote/value
equity	equity

Extension: bondTransaction

bondTransaction extension	instrumentTradeDetails
primaryAssetClass	primaryAssetClass
secondaryAssetClass	secondaryAssetClass
productType	productType
productId	productId
assetClass	assetClass
buyerPartyReference	buyerPartyReference
buyerAccountReference	buyerAccountReference
sellerPartyReference	sellerPartyReference
sellerAccountReference	sellerAccountReference
nominalAmount	quantity/nominal
price	pricing/quote/value
- cleanPrice	+(pricing/quote/measureType = "CleanGrossCurrentMarketPrice")
- cleanOfAccruedInterest	+(pricing/tradedFlatOfAccrued)
- accruals	+(pricing/quote/measureType = "AccruedCoupon")?
- dirtyPrice	+(pricing/quote/measureType = "DirtyGrossCurrentMarketPrice")
bond	bond

Extension: futureTransaction

futureTransaction extension	instrumentTradeDetails
primaryAssetClass	primaryAssetClass
secondaryAssetClass	secondaryAssetClass
productType	productType
productId	productId
assetClass	assetClass
buyerPartyReference	buyerPartyReference
buyerAccountReference	buyerAccountReference
sellerPartyReference	sellerPartyReference
sellerAccountReference	sellerAccountReference
numberOfUnits	quantity/number
UnitPrice	pricing/quote
- currency	pricing/quote/currency
- amount	pricing/quote/value
deliveryPrice	pricing/quote/value +(pricing/quote/measureType = "SettlementPrice")?
future	future

Extension: optionTransaction

optionTransaction extension	instrumentTradeDetails
primaryAssetClass	primaryAssetClass
secondaryAssetClass	secondaryAssetClass
productType	productType
productId	productId
assetClass	assetClass
buyerPartyReference	buyerPartyReference
buyerAccountReference	buyerAccountReference
sellerPartyReference	sellerPartyReference
sellerAccountReference	sellerAccountReference
numberOfUnits	quantity/number
UnitPrice	pricing/quote
- currency	pricing/quote/currency
- amount	pricing/quote/value
strikePrice	option/strike
optionPremium	pricing/quote/value +(pricing/quote/measureType = "Premium")
option	option

Extension: warrantTransaction

optionTransaction extension	instrumentTradeDetails
primaryAssetClass	primaryAssetClass
secondaryAssetClass	secondaryAssetClass
productType	productType
productId	productId
assetClass	assetClass
buyerPartyReference	buyerPartyReference
buyerAccountReference	buyerAccountReference
sellerPartyReference	sellerPartyReference
sellerAccountReference	sellerAccountReference
numberOfUnits	quantity/number
UnitPrice	pricing/quote
- currency	pricing/quote/currency
- amount	pricing/quote/value
warrant	warrant

Extension: rateObservation

rateObservation	observation
eventIdentifier	eventIdentifier
eventDate	date
rate	observedValue
	source

Extension: partialReturnEvent

partialReturnEvent	termination
eventIdentifier	eventIdentifier
eventDate	effectiveDate
payment	payment
transfer	combination of termination/resultingTrade + termination/sizeChange

Extension: rateChange

rateChange	termination	trade
eventIdentifier	eventIdentifier	tradeId
eventDate	effectiveDate	tradeDate
rate	Not Applicable	repo/fixedRateSchedule