

FpML 5.8 Schema Tightening

Discussions around data quality, or lack thereof, of trade information reported to Trade Repositories (TRs) in different jurisdictions and the publication by ESMA of a set of validation rules “Level 1 validation” led to a review of ways to tighten the FpML schema.

The changes, which make it possible for an XML parser to perform more data quality checks while processing documents, have been reviewed and refined through the Architecture Working Group (AWG), Validation Working Group (VALWG), Business Process Working Group (BPWG) and the Regulatory Reporting Working Group (RPTWG). The primary view impacted is the Record Keeping View, which is the schema representation used for regulatory reporting. Certain of the tightening proposals apply across multiple or all views. If the changes affect other views, this will be indicated as such.

We will continue to explore additional ways to tighten the schema and improve the data quality on an ongoing basis.

The FpML 5.8 schemas are backwards compatible with documents that use the FpML grammar correctly. The changes to the XML schema grammar and types should only cause documents that contain invalid data values or incorrect structures to fail XML schema validation.

The schema tightening changes introduce backward incompatible changes compared to previous versions of the schema.

The following sections detail each of the changes and the rationale for the change.

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Cross Asset Changes

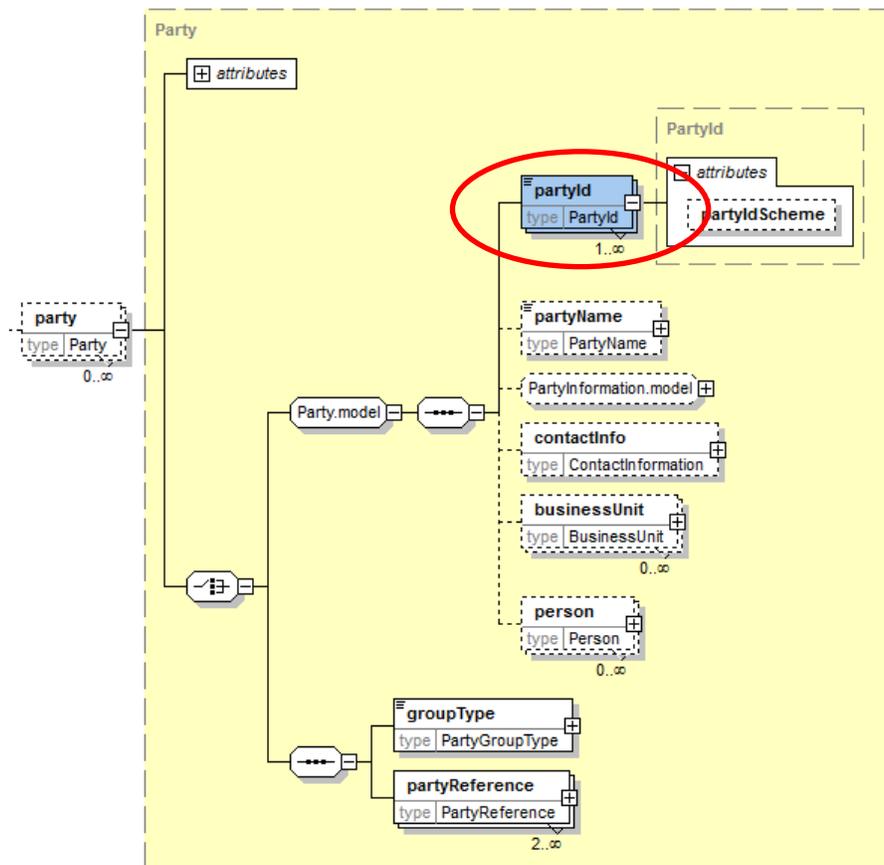
Party Identifier

The key element in the party structure is the repeatable ‘partyId’ element used to hold identifiers such as the LEI. Until version 5.8 it was possible to include party structures that contain no identifiers, however, for regulatory reporting an official identifier must be provided for every party associated with a trade.

In version 5.8, the cardinality on ‘partyId’ has been changed to ‘one or more’ to enforce the appearance of at least one identifier in both the confirmation and record keeping views. In addition, the content of the ‘partyId’ element has been given a minimum length of 1 so that empty IDs cannot be provided.

Comments/Remediation

We are aware of cases where firms provide ‘party’ elements with a missing or empty ‘partyId’ element when the corresponding party cannot be identified. The correct usage in this case is to omit the ‘party’ element and any references to it, for example ‘relatedParty’ references in the ‘partyTradeInformation’ structure.

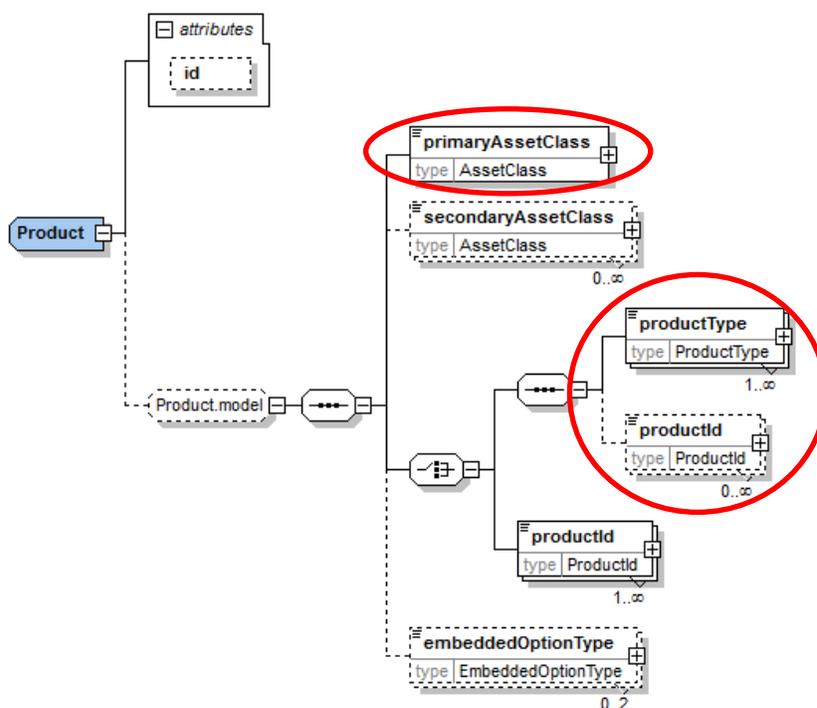


Product Type/Identifier

All FpML products include a set of elements that allow the type and identity of a financial product to be included.

- The ‘productType’ element is intended to indicate the type using a code (e.g. ‘InterestRate:Swap:FixedFloat’, etc.) taken from a standard taxonomy such as the one defined by ISDA.
- The ‘productId’ element is intended to contain a code that differentiates between products, for example ‘Unique Product Identifier’ (UPI) suggested by the Dodd Frank Act.¹

To be acceptable to a TR at least one of these two elements must be provided within the product definition so in FpML 5.8 record keeping view the grammar has been modified to enforce this.



Primary Asset Class

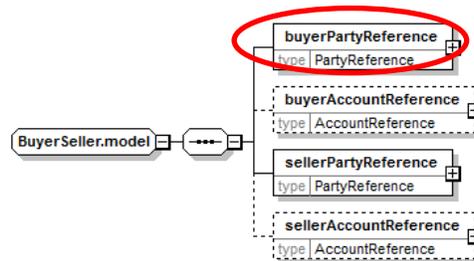
All FpML products contain elements that allow the asset class(es) to which the product belongs to be specified.

All of the regulation to date has requested that at least one asset class is specified so the ‘primaryAssetClass’ element should always be present in a valid FpML document when submitted to a TR and this element has been made mandatory in the record keeping view.

¹ As a standard for UPIs was not agreed in time for DFA implementation some TR implementations require the product type to be provided as a proxy for the product identifier.

Buyer/Seller Party References

Buyer and seller party references are used on option products to indicate the party buying the right to exercise and the party writing the option. In the record keeping view of previous versions of FpML it was possible to omit all the party references from a product which makes no sense in a trade reporting feed.



The revised model in the FpML 5.8 record keeping view makes the buyer and seller party references mandatory to ensure that this information is always provided.

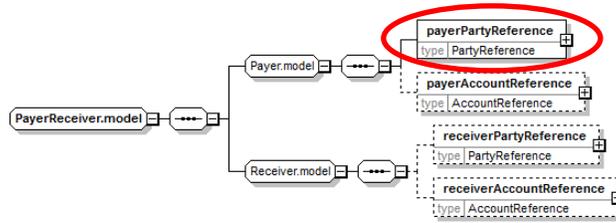
This affects the following products:

- CreditDefaultSwap
- CreditDefaultSwapOption
- CommodityOption
- CommoditySwap
- DividendSwap
- InstrumentTradeDetails
- EquitySwap, ReturnSwap, equitySwapTransactionSupplement, etc.
- equityOption, brokerEquityOption, equityForward, etc.
- FxFlexibleForward
- FxForwardVolatilityAgreement
- GenericProduct
- CancelableProvision and ExtendibleProvision and SinglePartyOption in Swap
- Fra
- Swaption
- BondOption
- Repo
- VarianceSwap

Payer/Receiver Party Reference

Payer and receiver party references are used in swap like products where there is an exchange of one obligation for another. Like the buyer/seller references they had been made entirely optional in previous versions of the record keeping schema.

In FpML 5.8 the model has been changed to ensure that at least the payer party is referenced in each product leg structure. As swap product will normally have at least two legs, this means that the references to both swap counterparties must be present in the product definition.



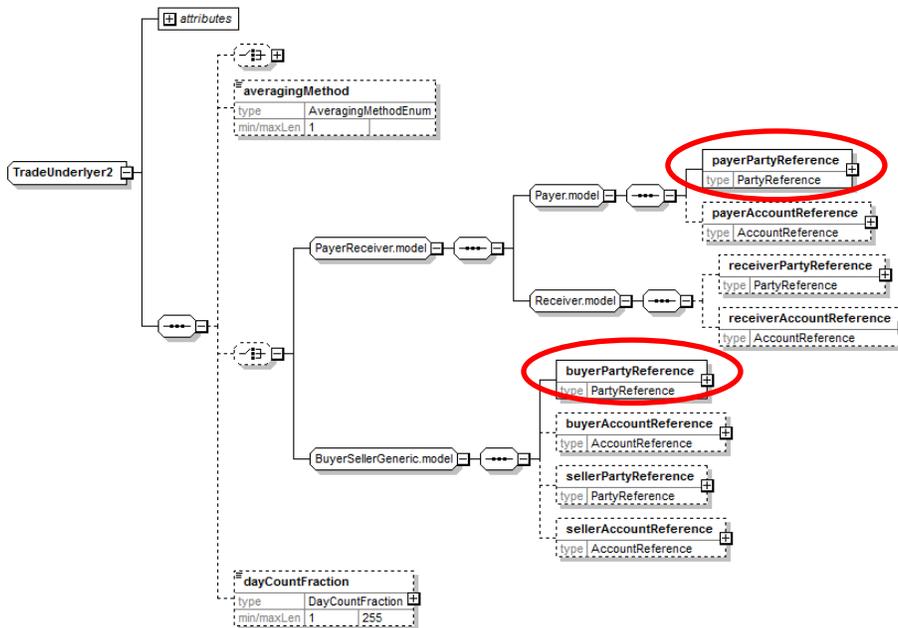
This affects all swap-like products, including most commodity products, equity/return swaps, term deposits, some complex FX products, genericProduct, interest rate swaps, repos, etc.

We expect that most reporting implementations will be unaffected by this change, as this information is typically required as part of regulatory reporting requirements.

Generic Product Buyer/Seller

The FpML ‘genericProduct’ is used to represent products for which there is no full product representation in FpML. Generic products are often expressed in terms of a number of underlying assets and the structure that describes this in FpML uses either payer/receiver party or buyer/seller references to express the direction of transfer. As the model structures for these references used to allow all the parties to be omitted it was possible to create underlying in which no direction is specified.

In 5.8, the model for these references has been changed to reflect that at least one of the payer or buyer party references must be specified. All the other party references can be omitted.



Scheme based Code Values

FpML has always used a two part system for identifiers that are controlled by external systems such as instrument, party and trade identifiers that comprises of a code value and a qualifying URI.

```
<tradeId tradeIdScheme="urn:hsbc:trade-id">ABC123</tradeId>
```

In some cases, the FpML schema provides a default value for the scheme URI which means that it doesn't have to be explicitly stated in the documents unless it is being overridden with a different URI. Most FpML documents for example omit the 'currencyIdScheme' attribute from currency elements which default to the ISO 4217 three letter codes.

```
<putCurrency>GBP</putCurrency>
```

Until 5.8, the value of the scheme URI (when present) and the code value itself were not constrained to be non-empty strings but if either value is missing then the element does not make business sense. From 5.8, empty strings will not be accepted by the XML schema for either scheme values or for qualifying scheme URIs when the attribute is present. *This will apply to all coding schemes based elements, in all views.*

```
<!-- Invalid: No qualifier -->  
<currency currencyIdScheme="">GBP</currency>  
<!-- Invalid: No value -->  
<currency></currency>
```

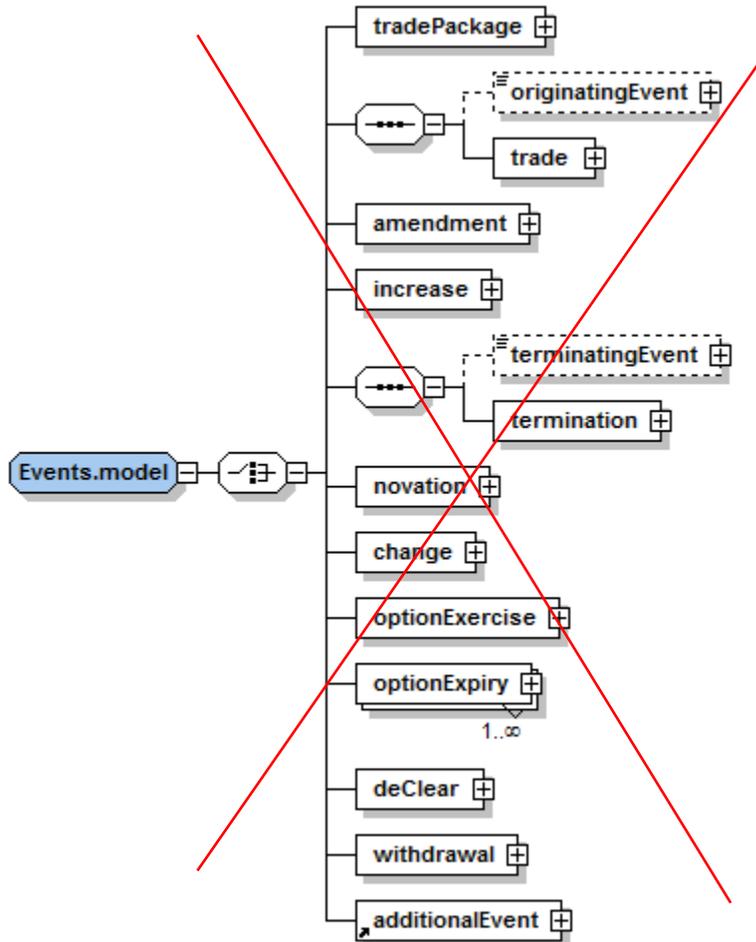
In most cases where you might like to omit an identifier (e.g. tradeId, partyId, etc) the element as a whole is optional and can be omitted.

There are a set of approximately 40 elements in the FpML recordkeeping view for which scheme URI and a value must always be specified in documents. This includes the following commonly used fields:

1. accountIdScheme
2. approvalIdScheme
3. basketIdScheme
4. basketNameScheme
5. cashflowIdScheme
6. contractIdScheme
7. correlationIdScheme
8. creditLimitIdScheme
9. creditSupportAgreementIdScheme
10. entityIdScheme
11. entityNameScheme
12. eventIdScheme
13. eventTypeScheme
14. exchangeIdScheme
15. futureIdScheme
16. indexIdScheme
17. indexNameScheme
18. instrumentIdScheme
19. issuerIdScheme
20. legalDocumentIdScheme
21. legIdScheme
22. linkIdScheme
23. masterAgreementIdScheme
24. matchIdScheme
25. messageIdScheme
26. orderIdScheme
27. partyIdScheme
28. paymentIdScheme
29. personIdScheme
30. portfolioName
31. positionIdScheme
32. productIdScheme
33. productTypeScheme
34. queryParameterIdScheme
35. referenceBankIdScheme
36. regulatorIdScheme
37. reportIdScheme
38. resourceIdScheme
39. routingIdCodeScheme
40. tradeCashflowsIdScheme
41. tradeIdScheme

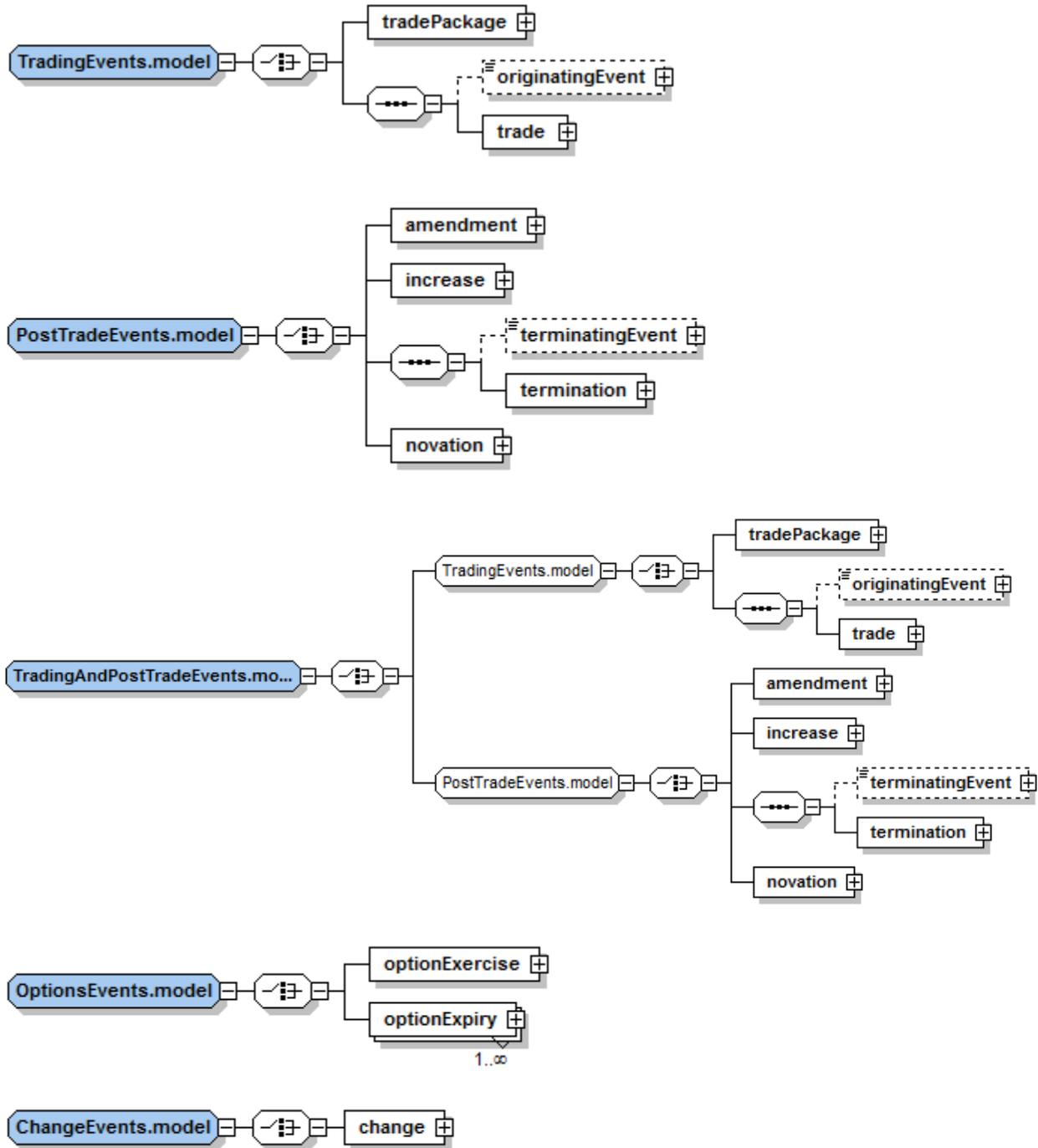
Refactored Events.model to remove implausible combinations of events within messages

Background: The Events.model group defines the collection of events (e.g., trade, amendment, novation, termination, option expiry, etc...) available for use within messages. From version 5.0 to 5.7, all the events are available in base messages through the Events.model.



Not all the events actually make sense within all the messages. In version 5.8 WD1, the BPWG analyzed the messages and removed implausible combinations.

The Events.model has now been replaced with smaller, more specialized model groups applied strategically within messages.



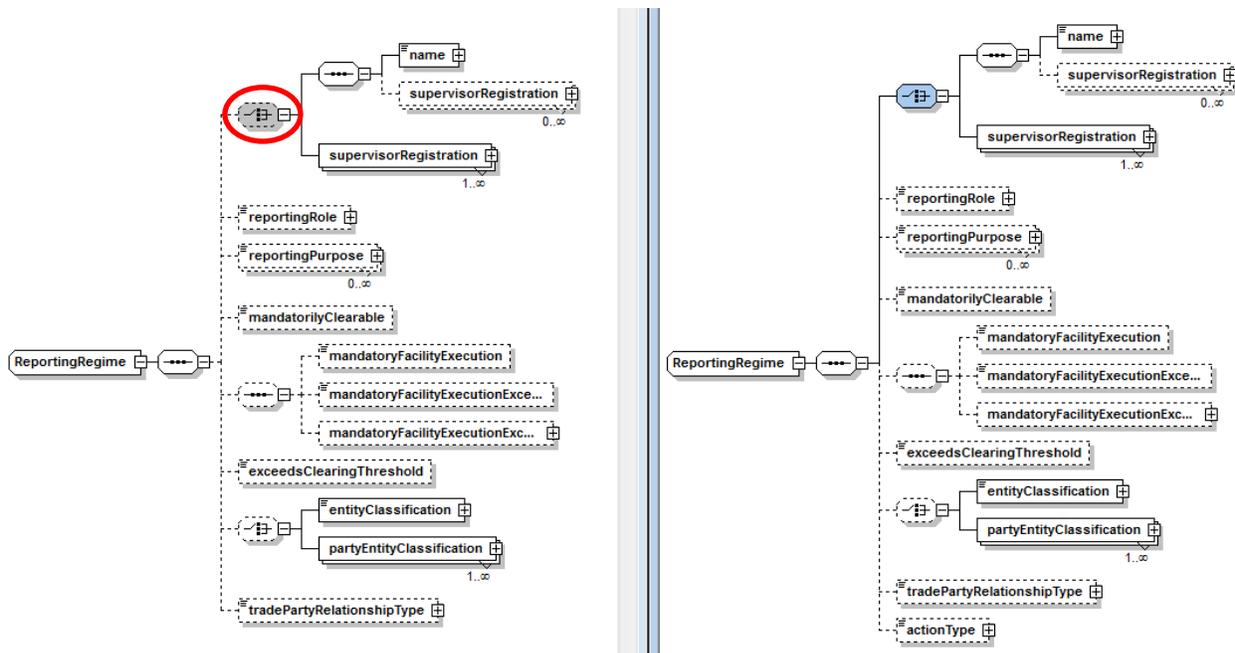
See section 3.3.4.1 of the Business Process Architecture for details (Section 3 of the online documentation).

Tightened ReportingRegime in Transparency, Recordkeeping and Confirmation views

As part of tightening the schema around surveillance fields, in the ReportingRegime type,

- Made mandatory the choice of reporting regime name and supervisorRegistration
- Made mandatory reportingRole (usage depends on declaring the role of the submitting party e.g. ReportingParty, FullyDelegated ...)

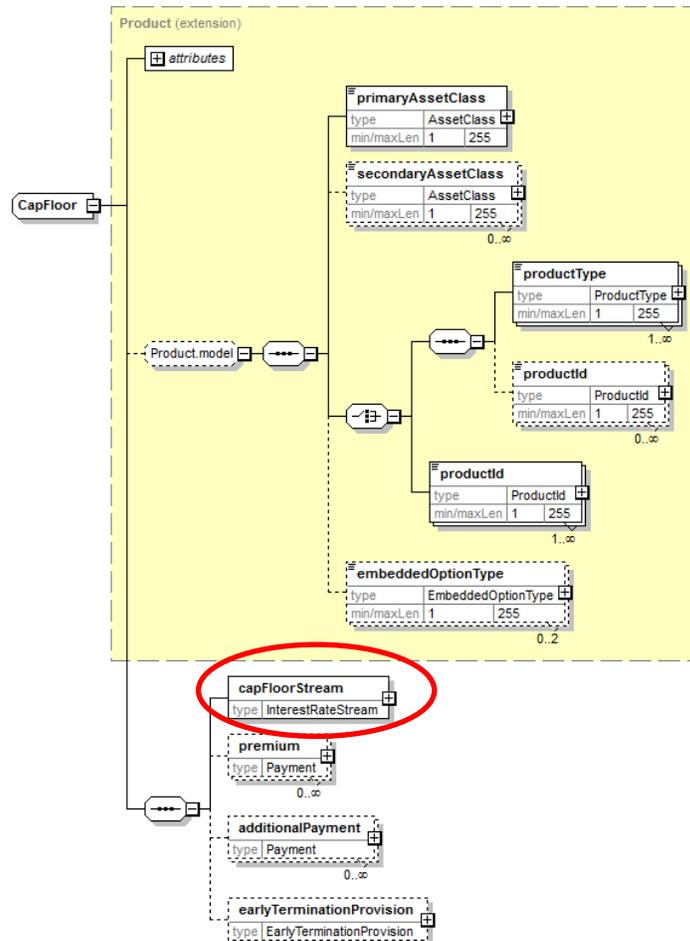
The following schema diagram shows the reportingRegime in FpML 5.7 vs 5.8 (Recordkeeping view).



Interest Rate Product Changes

CapFloor Stream

Within the CapFloor product definition an instance of the element ‘capFloorStream’ is used to hold the details of the floating rate and the associated cap or floor level. In previous versions of the record keeping view this element was optional which allows a product with no details to be created.



In the 5.8 version of the schema, the ‘capFloorStream’ element has been made mandatory since it must always be present. It is unlikely that this change will create any backwards incompatibility as business valid documents must have contained a definition of the cap/floor stream.

Other changes

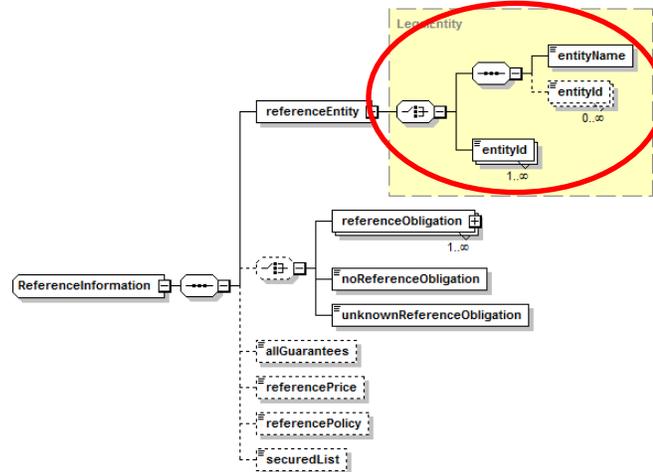
Certain other changes that have been made that implementers should be aware of include the ‘PayerReceiver.model’ and ‘BuyerSeller.model’ changes described above, affecting several products.

Credit Product Changes

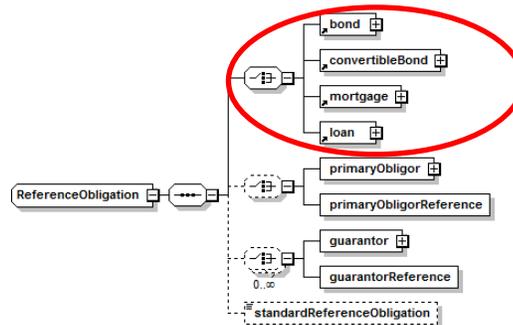
CreditDefaultSwap

There are several changes in the credit default swap product model which make the appearance of certain elements mandatory, namely:

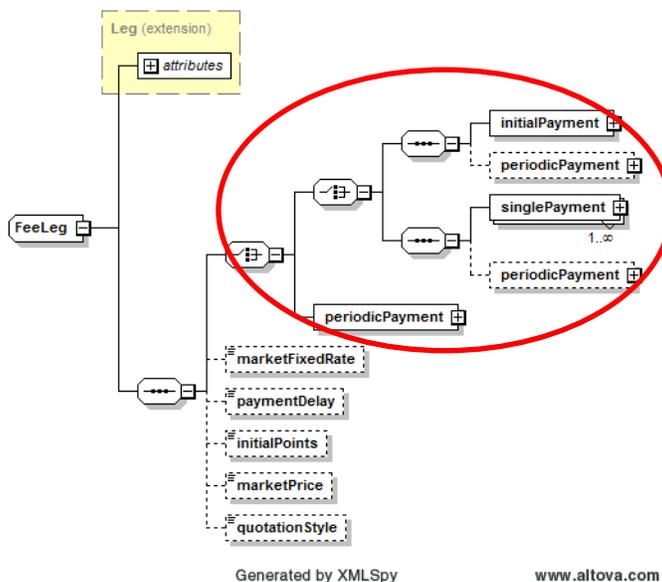
- At least one of the 'entityId' or 'entityName' elements in 'referenceInformation' must now be provided as a valid credit product must contain some information to identify the underlying asset.



- The 'referenceObligation' structure must now indicate the type of underlying asset (e.g. bond, loan, mortgage, etc.).



- The 'FeeLeg' type has been restructured to require that at least one of the payment structures ('initialPayment', 'singlePayment', or 'periodicPayment') be present. This is now true in confirmation view as well as record keeping view.

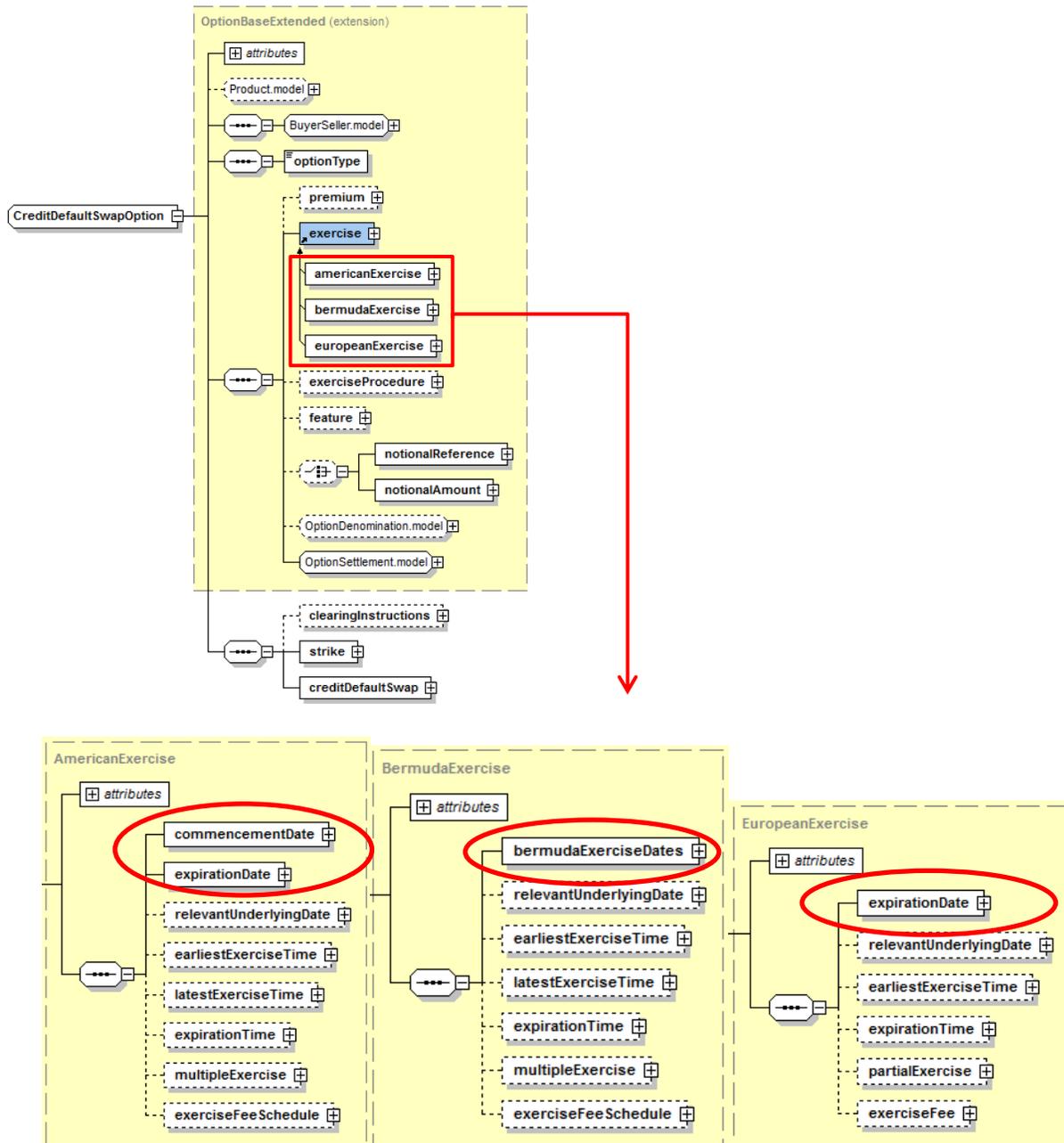


The Credit Derivative Working Group has confirmed that all CDS transactions should meet the structure defined above. One TR verified that indeed all these fields are present in the submissions they receive. No existing feeds should be affected.

CD Swaptions

The changes made to the credit default swaption product make the elements that define the exercise dates for American, European and Bermudan style options mandatory. The affected elements are:

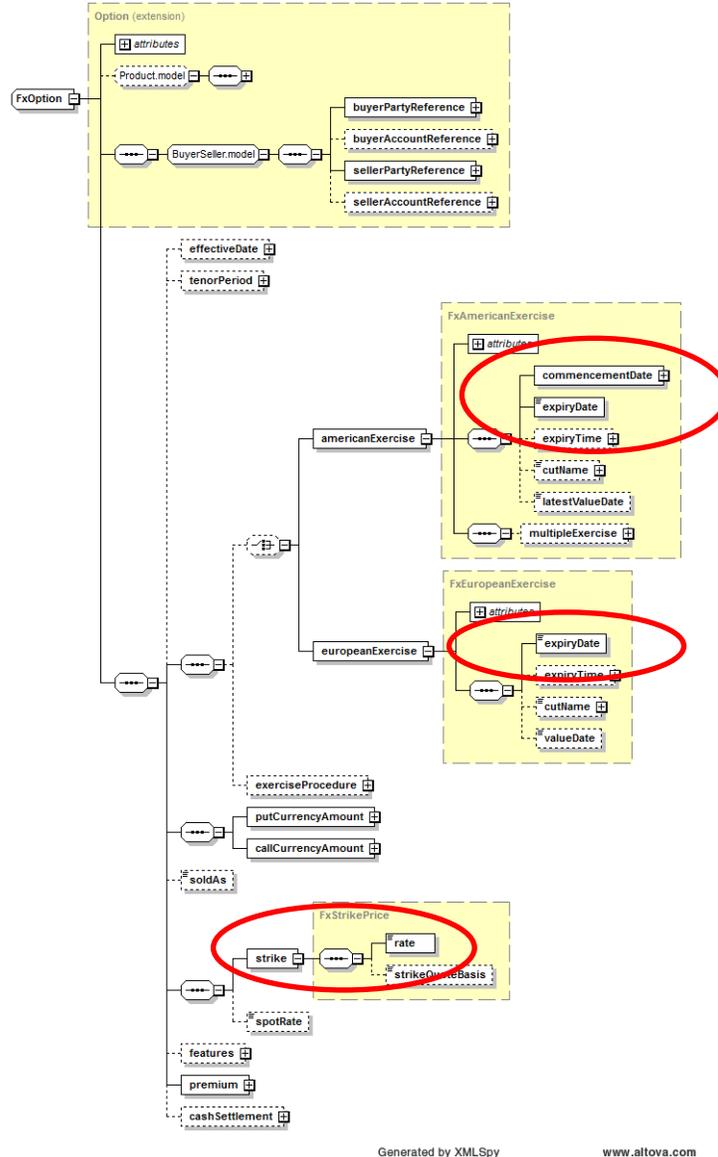
- americanExercise/commencementDate
- americanExercise/expirationDate
- europeanExercise/expirationDate
- bermudaExercise/bermudaExerciseDates



Foreign Exchange Product Changes

FX Option

The following diagram shows the sections of the FX option product that have been adjusted.



The changes are:

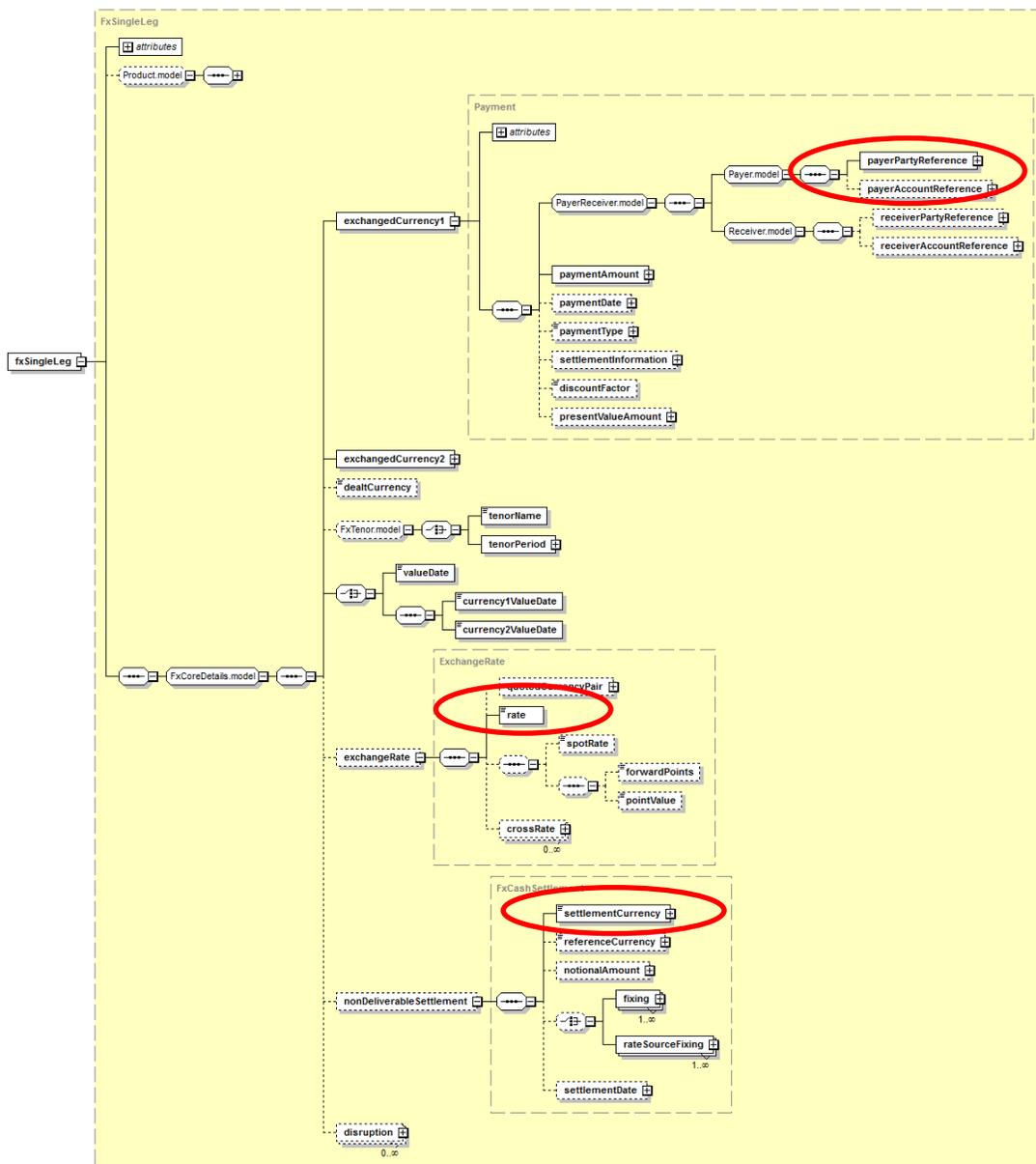
- Within the exercise structures the expiration dates elements become mandatory. The key dates in the exercise structures become required, as they are reportable in all jurisdictions.
- Strike/rate becomes mandatory. The strike rate becomes mandatory as it is a key reportable field.
- The buyer/seller party references are affected by the cross product change described earlier.

FX Single

There are a few changes in the FxSingleLeg product, used as a base for spot and forward FX transactions:

- Payer party becomes mandatory in each of the two currency exchanges. Knowing at least the payer on each exchange means that both parties are known for the trade as a whole.
- The 'rate' element in the 'exchangeRate' structure becomes mandatory. All regulators have asked for the rate to be specified in the reporting data set.
- The settlement currency in nonDeliverableSettlement becomes mandatory.

These changes are highlighted on the diagram over leaf.



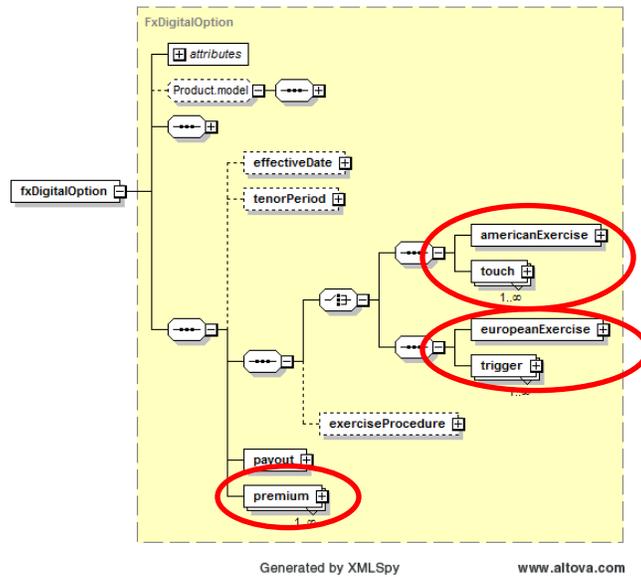
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FX Digital Options

There changes to the FX digital option product are highlighted in the following diagram, they are:

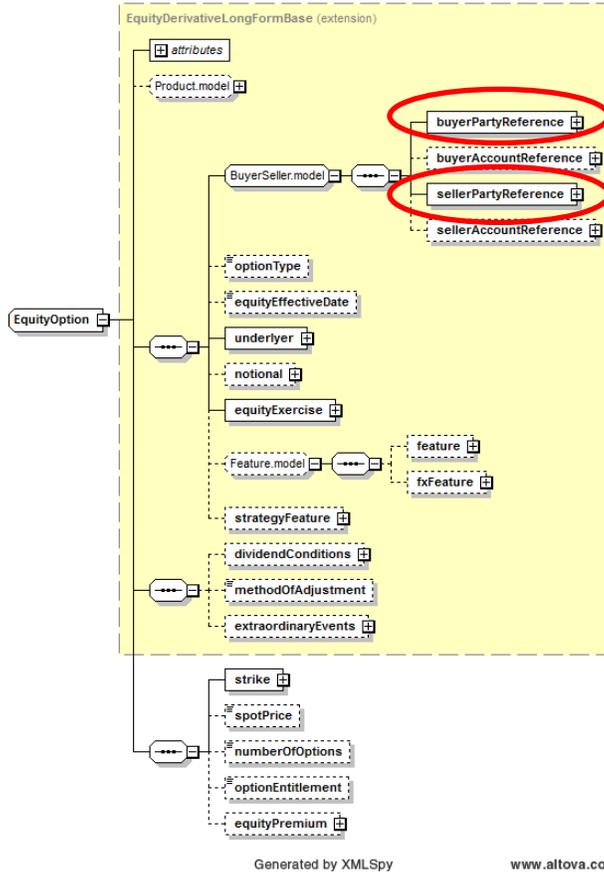
- The option exercise and trigger/touch conditions become mandatory
- The payout becomes mandatory
- The premium becomes mandatory.



Equity Product Changes

Equity Option

The equity option product is affected by the cross product change to the 'BuyerSeller.model' as shown in the following diagram.



Generated by XMLSpy

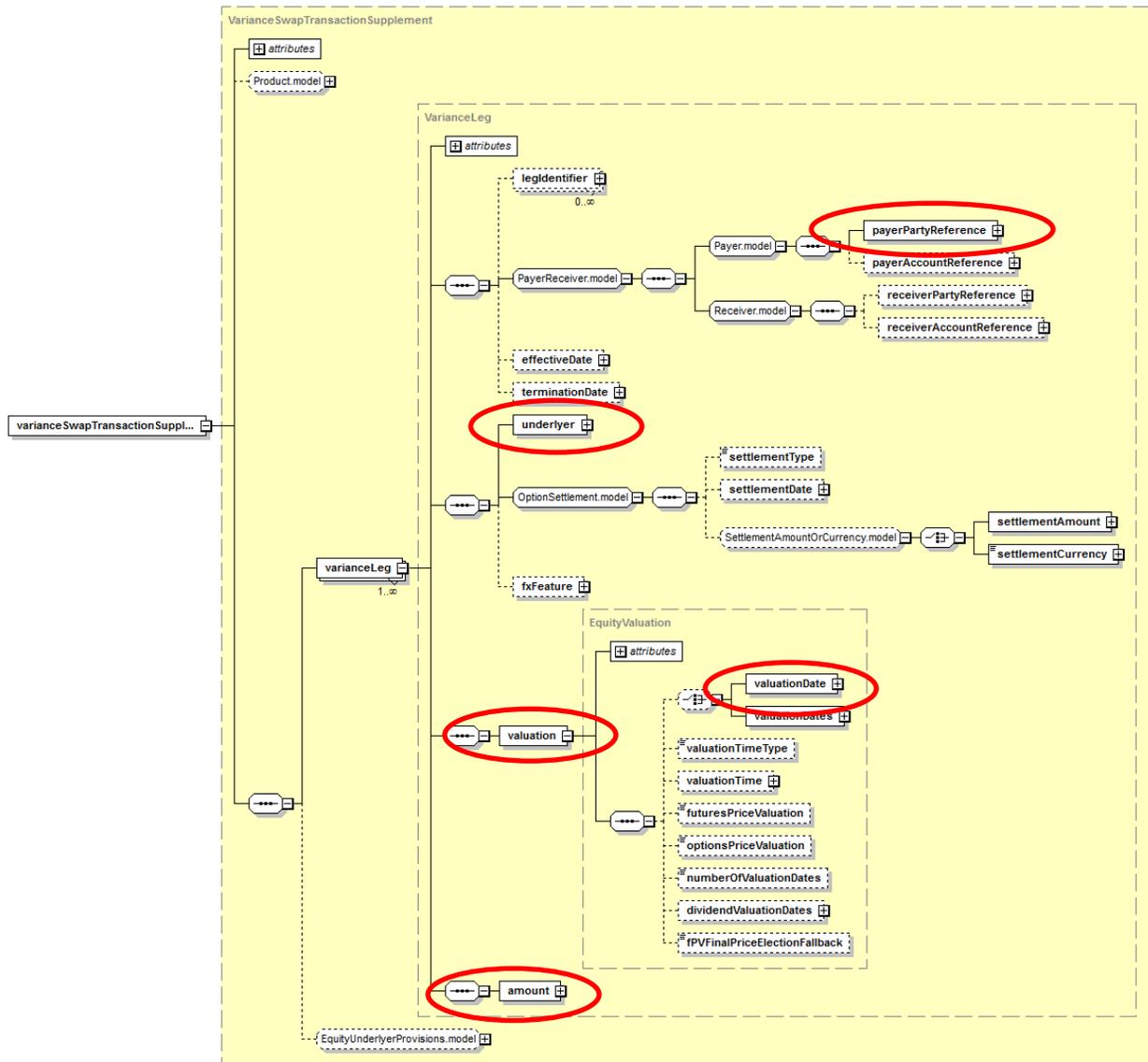
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Variance Swap

Several adjustments have been made to the equity variance swap product model to ensure that key data fields are always present, namely:

- Payer party becomes mandatory as described in the cross product changes
- The 'underlyer' becomes mandatory
- The 'valuation' and repeatable 'valuationDate' elements become mandatory
- Variance 'amount' becomes mandatory

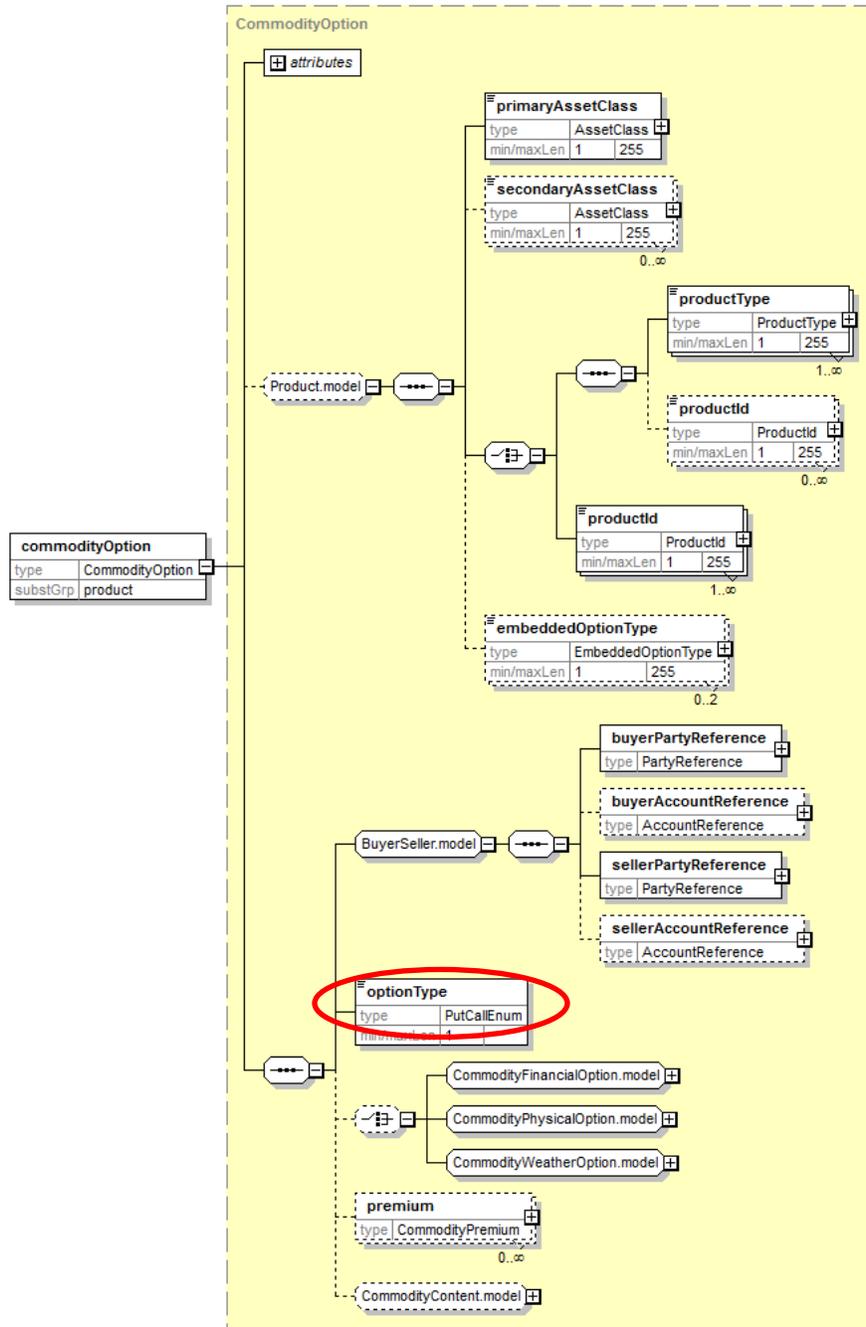
The following diagram highlights all of these changes.



Commodity Product Changes

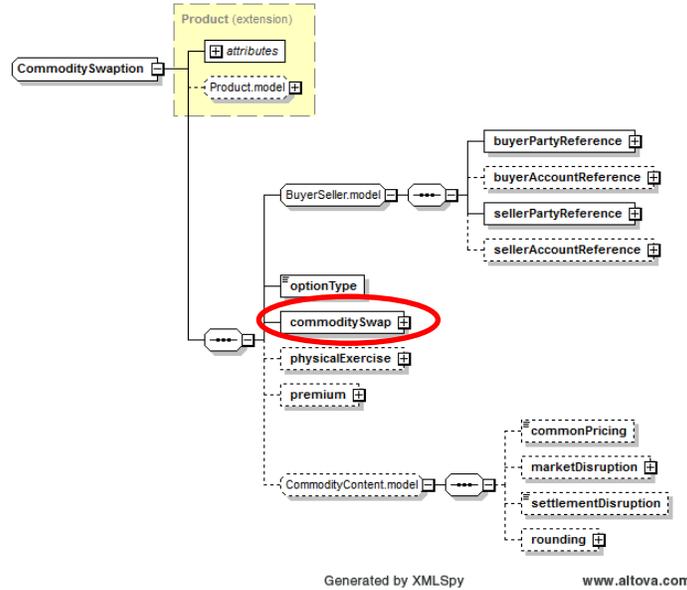
Commodity Option

In the commodity option product definition, the option type (e.g. put or call) has been made mandatory.



Commodity Swaption

In the commodity swaption product, the element containing the description of the underlying swap has been made mandatory.



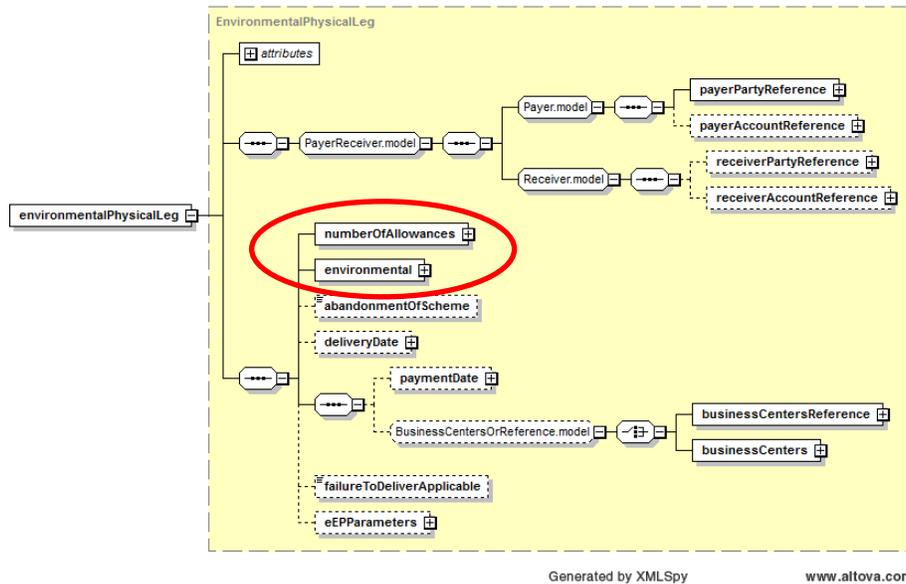
A swaption containing no underlying does not make business sense so this change should not affect any existing valid documents.

Weather and Environmental products

A number of elements that are typically required for reporting have been made required in recordkeeping view for these products. This had been overlooked when reporting requirements were originally developed for these products.

The changes to the environmental product description are:

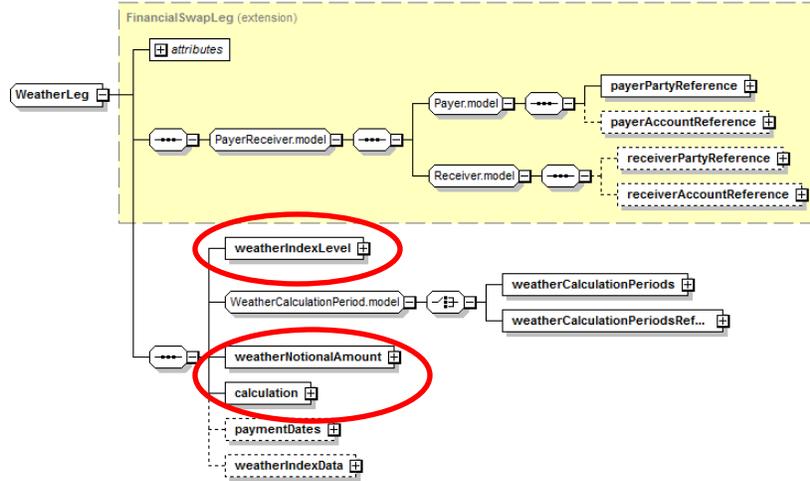
- ‘numberOfAllowances’ should be mandatory (as transparency)
- ‘environmental’ should be mandatory (as transparency)



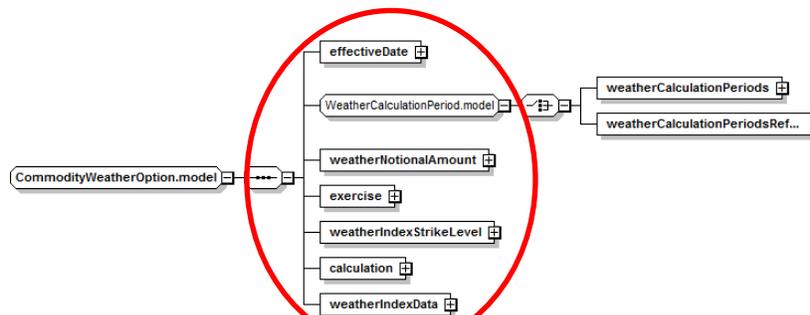
The changes to the weather product description are:

- ‘weatherNotionalAmount’ is now mandatory
- ‘exercise’ should be mandatory
- ‘weatherIndexStrikeLevel’ should be mandatory
- ‘weatherIndexData’ should be mandatory, and some of the fields in it (reference level, data provider)
- ‘effectiveDate’ should be mandatory (as transparency)
- ‘weatherNotionalAmount’ should be mandatory (as transparency)
- ‘calculation’ should be mandatory (as transparency)

The changes are highlighted in the following diagrams.



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Conclusion

Although the FpML 5.8 model contains a number of changes that are technically backward incompatible, the data validation tests currently performed by one of the TRs indicate that the impact should be minimal.

One area where submitters may encounter issues relates to the current use of code values that have either no value or no qualifying scheme URL. We have seen examples of this particular issue in documents containing excess 'partyTradeIdentifier', 'party' and 'account' structures. There are two approaches to resolving this issue:

- 1) If the affected element needs to be present then additional data should to be sourced either from the trade source or, alternatively, through an enrichment database to complete the definition.
- 2) If the affected element is not required, the generating code should be amended to omit the structure when it is not required.