

DERIVATIVES SERVICE BUREAU (DSB) LTD

Underlier Input Method

Functional Specification

Version 2

Change History

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I. Introduction

The main objective is to define the structure for the input of the underlier following the number of rules that allows user to identify the Asset Class, Underlying Structure, Underlier Type and Underlier ID Source if these are necessary. The solution will vary depending upon the specific requirement for each product.

The structure outlines the following rules that allows user to construct their product definitions and to input the correct details following the logical pattern.

I.1 Asset Class Selection

- Asset Class selection is designed particularly for products with multi-assets.
- It allows user to define the underlying asset classes to align with ISO 4914 (UPI) requirement to identify the asset classes involved.
- Sample UPI product definition template is Other Swap (multi-asset) where user is allowed to select the underlying asset classes.
- In some cases where asset class is already defined in the template e.g., Fixed floating rates, the selection will not be required for users. The asset class selection is specifically for “Other” asset class where multi-asset products are applicable and can be defined by users.

I.2 Underlying Structure Selection

- Underlying Structure selection allows user to identify whether the product has a single underlier (e.g.: an Equity, a Debt Instrument etc.) or multiple underliers (i.e., Basket).
- To align with ISO 4914 (UPI) requirement, user is not required to identify the individual constituent identifiers if the OTC derivative has more than one underliers (i.e., Basket).
- Sample UPI product definition template is Non-standard Equity where user can select a Single Underlier or a Basket as an underlying structure.
- In a number of cases, the product can only accept a single underlier (e.g.: Debt Option). In other cases, the product is always based on a Basket (e.g.: Portfolio Swap). In both of these cases, the underlier structure is known and so the user is not required to make a choice.
- The underlying structure is based on the input of the user in the request message whether the underlier has single or multiple underliers. The record then will derive the input of the user into underlier characteristic whether the underlying is a “Single” or a “Basket” of underliers.

I.3 Underlier Type Selection

- Underlier Type selection allows user to select the underlying asset type whether it is a Security, Legal Entity, Index, Prop Index, etc.
- The method is being supported by the Underlier ID and Underlier ID Source that will indicate the origin of the underlier.
- Sample UPI product definition template is Corporate CDS where user can select a Fixed Income Security or Legal Entity as an underlier type. The Underlier Type selection does not apply to all product (e.g., Fixed floating rates) as there are templates in which single underlier type exist and so the attribute selection is not required.

I.4 Underlier ID Source Selection

- Underlier ID Source selection allows user to select the origin or publisher of the associated underlier ID depending on the nature of the underliers on which the product is based and will support a selection of its source.
- Sample UPI product definition template is Debt Option where user is allowed to select a Fixed Income Security using ISIN, RIC, FIGI, CUSIP and SEDOL as an underlier ID source. The following section takes each underlier selection and provides details of the choices available to the user (if required by the product) and the way in which each choice impacts the definition of the product.

I.5 Return Underlier ID Source Selection

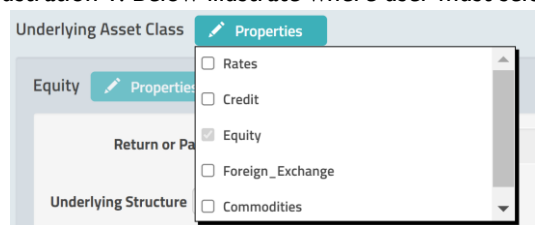
- Return Underlier ID Source selection allows user to select the Underlier ID Source values i.e., ISIN, RIC, FIGI, CUSIP and SEDOL, that they wish to receive in the returned UPI record message.
- The system will return the specified Underlier ID as part of the UPI record if it is mapped to the Primary ID (ISIN). If no mapping exists, the system will return the relevant attribute with no value.
- Applicable for product templates which support the input of Alternate Underlier Identifiers, i.e., RIC, FIGI, CUSIP and SEDOL.
- Sample UP product definition template is Equity Option Single Name where user can define the Return Underlier ID Source values i.e., ISIN, RIC, FIGI, CUSIP and SEDOL.

2. Asset Class Selection

- Underlying Asset Class Selection in the product definition template supports a product with multiple asset classes (i.e., Rates, Credit, Equity, Foreign Exchange & Commodities) as shown in Illustration 1.
- User is allowed to identify and select the underlying asset class of a certain product. Once user has selected the underlying asset classes (as shown in Illustration 1), relevant attributes for each asset class will be made available as shown in Illustration 3 below.
- If a given product does not require a selection of multiple asset classes, (i.e., single asset class only), then Asset Class Selection will not be included in the UPI product definition template and the GUI.

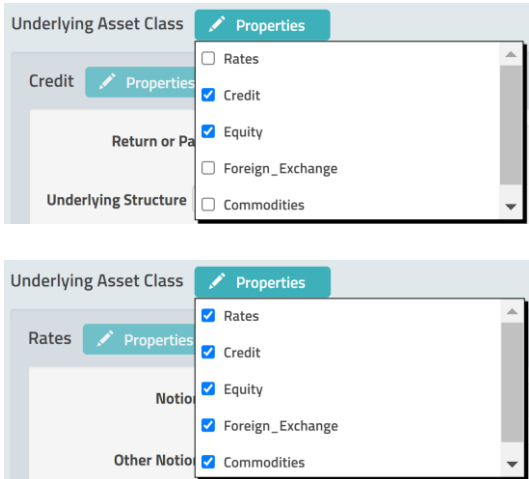
2.1 Single Asset Class Selection

Illustration 1: Below illustrate where user must select at least one underlying asset class and cannot have zero asset classes.



2.2 Multiple Asset Class Selection

Illustration 2: Below illustrate where user selects multiple asset class or all asset classes.



2.3 Associated Attributes for Asset Class Selection

Illustration 3: Below illustrates the attributes associated to its asset class (e.g., Equity and Credit) and will be made available based on Underlying Asset Class selected.

Equity ✎ Properties

Return or Payout Trigger ▾

Underlying Structure ▾

Underlier Type ▾

Underlier ID Source ▾

Underlier ID

Credit ✎ Properties

Return or Payout Trigger ▾

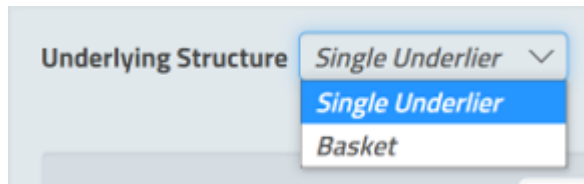
Underlying Structure ▾

3. Underlying Structure Selection

The Underlying structure selection allows user to select whether the underlying is a single underlier or basket based on its product. In line with this, the specification of ISO 4914 (UPI) document dictates that the constituent underlying identifiers and their sources are not required if underlying is a custom of basket.

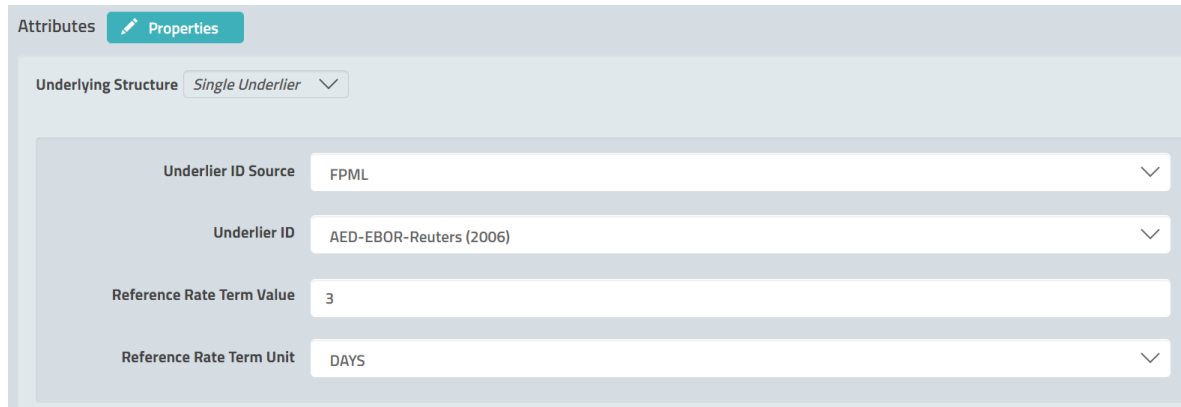
3.1 Single or Multiple Underliers

For product that supports both, user is asked to select whether underlying is a single or multiple underliers (i.e., Basket).



If the selection is a single underlier, user needs to enter the identifier of the underlier (e.g., Underlier ID and Underlier ID Source) in the request.

Request

A screenshot of a 'Request' form. At the top, there are two tabs: 'Attributes' and 'Properties', with 'Properties' selected. Below the tabs, there is a dropdown for 'Underlying Structure' set to 'Single Underlier'. The main form area contains four fields: 'Underlier ID Source' with a dropdown menu showing 'FPML'; 'Underlier ID' with a dropdown menu showing 'AED-EBOR-Reuters (2006)'; 'Reference Rate Term Value' with a text input field containing '3'; and 'Reference Rate Term Unit' with a dropdown menu showing 'DAYS'.

Then the record will return the underlying details and underlier characteristic of a “Single” in the Attribute section.

Record

Attributes

Underlying

Underlier Characteristic	Single
Reference Rate	AED-EBOR-Reuters
Reference Rate Term Value	3
Reference Rate Term Unit	DAYS

If the selection is a basket, underlier entry is not required and the default value for underlier characteristic in the request message is “Basket”.

Request

Attributes [Properties](#)

Underlying Structure *Basket* ▼

Notional Currency	EUR	▼
Notional Schedule	Constant	▼
Delivery Type	Cash	▼

Then the record will return underlier characteristic of a “Basket” in the Attribute section.

Record



Attributes

Underlying

Underlier Characteristic: Basket

Notional Currency: EUR

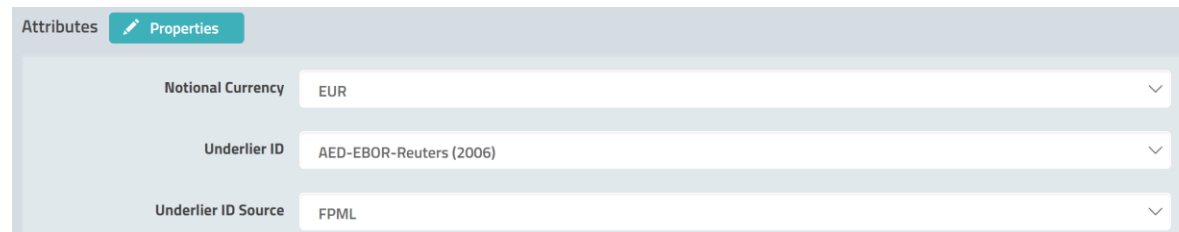
Notional Schedule: Constant

Delivery Type: CASH

3.2 Single Underlier only

For products that supports single underlier only (e.g., Fixed floating rates), the user is not required to make a selection of the underlier structure but is required to enter the identifier of the underliers and its sources (See Illustration 1). The record section will not return underlier characteristic of the product as it only allows single input of underlier.

Illustration 1: Below illustrates if Underlier Structure is Single Underlier



Attributes **Properties**

Notional Currency: EUR

Underlier ID: AED-EBOR-Reuters (2006)

Underlier ID Source: FPML

3.3 Basket only

In cases where the product supports multiple underliers only (e.g., Multi exotic swap), the user is not required to make a selection or enter the constituent underlying identifiers and its sources, but the UPI record will include an indication that the underlier is a basket (See Illustration 2).

Illustration 2: Below illustrates if Underlier Structure selected is Basket.

Request

Attributes	
Properties	
Base Product	Agricultural[AGRI]
Return or Payout Trigger	Contract for Difference (CFD)
Delivery Type	Cash

Record

Derived	
Classification Type	STACXC
Short Name	NA/Swap AGRI
Underlier Characteristic	Basket

Moreover, the specification for underlying structure selection includes basis style product where other leg underlier has same behavior as the first leg, this includes non-standard product templates even if other leg underlier is an optional field.

4. Underlier Type Selection

In order to support products that are based on more than one type of underlier, the underlier type selection will allow the user to select the type of underlier for the product. For example: the underlier for a Corporate CDS can be either (a) a Debt Instrument or (b) a Legal Entity. Once the type of underlier is selected, the user will then be able to select the underlier ID source from a list of appropriate identifiers (see next section).

4.1 Single Underlier Type

If a product has one type of underlier, the underlier type selection is not required (see sample below).



The screenshot displays a form with three fields:

- Underlying Structure:** A dropdown menu with the selected value "Single Underlier".
- Underlier ID:** A dropdown menu with the selected value "AUD-CPI".
- Underlier ID Source:** A dropdown menu with the selected value "FPML".

4.2 Multiple Underlier Type

If single underlier has been selected as underlying structure (or if the template only supports a single underlier) and product can be based on more than one type of underlier, the underlier type selection will be made available in the request message. The values in the selection list will vary depending on the asset class.

The screenshot displays a configuration interface for underlier types. It features a 'Properties' button at the top. The 'Underlying Structure' is set to 'Single Underlier'. Below this, another 'Properties' button is visible. The 'Underlying Asset Type' is set to 'Single Name'. The 'Underlier Type' dropdown menu is open, showing 'Fixed Income Security' as the selected option, with 'Legal Entity' also visible. Below the dropdown, the 'Underlier ID Source' is set to 'ISIN' and the 'Underlier ID' field is empty.

If underlying structure is a basket, the underlier type selection is not present in the request template.

The Underlier ID source will vary depending on the nature of the underliers on which product it is based and will support a selection of its sources e.g., for Fixed Income Security type there will be a selection of Underlier ID Source e.g., ISIN, RIC, FIGI, CUSIP, SEDOL and for Underlier type that has one source, the value will have a default Underlier ID Source e.g., Legal Entity – LEI.

4.3 Underlier Type selection for Multiple Asset Class

For product templates with multiple asset class, the underlier type will be defined based on the asset class selected by user and appropriate details must be provided.

- a) User's must select the asset class first, then followed by Underlying Structure.
- b) The Underlying structure will have two selections whether it is a Single underlier or a basket.
- c) If Single underlier has been selected, the underlier type will be present depending on the asset class. For single underlier type, the attribute will not be present and for multiple underlier type, the attribute will have a list of selection.
- d) If the underlier type has a multiple selection, the underlier ID source will vary dependent on the value selected.

Below shows underlier type selection based on the Underlying Asset Class selected.

Underlying Asset Class Properties

Equity Properties

Return or Payout Trigger Price

Underlying Structure Single Underlier

Underlier Type

- Equity Identifier
- Equity Identifier
- Equity Index Name
- Proprietary Index

ISIN

Underlier ID

Credit Properties

Return or Payout Trigger Credit Default

Underlying Structure Single Underlier

Underlier Type

- Fixed Income Security
- Fixed Income Security
- Legal Entity
- Proprietary Index
- Credit Index

Underlier ID

5. Underlier ID Source Selection

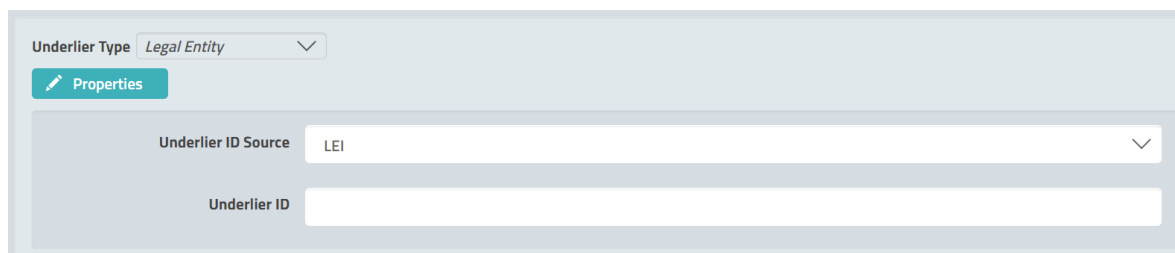
This section discusses the Underlier ID Source enumerations for the corresponding Underlier Type and how the user needs to identify which ID to enter in the product template. This attribute will be available only if a user selects Single Underlier as the Underlying Structure. The system will be designed to support Primary and Alternate Underliers which will be mapped to the Primary. Users can have an option to select the alternate IDs.

For Underlier Type – Security, Alternate Underlier Identifiers are possible where full details can be found in Alternative ID Functional Specification.

5.1 Single Underlier ID Source

Underlier Type with single source will have a default value in the Underlier ID Source field based on its type.

Sample 1: For underlier Type – Legal Entity, only LEI is the supported value.

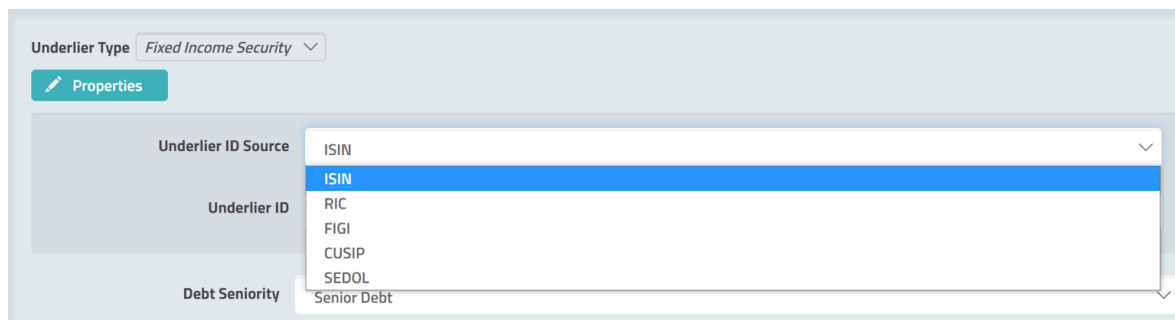


The screenshot shows a form for 'Underlier Type' set to 'Legal Entity'. Below the dropdown is a 'Properties' button. The 'Underlier ID Source' field is a dropdown menu with 'LEI' selected. Below it is an empty 'Underlier ID' text input field.

5.2 Multiple Underlier ID Source

Underlier Type with multiple origins will have a selection of supported sources in the field and underlier ID definition will vary depending on its choice.

Sample 2: If underlier Type is Fixed Income Security, multiple sources are applicable i.e., Primary (ISIN) and Alternate (RIC, FIGI, CUSIP, SEDOL).



The screenshot shows a form for 'Underlier Type' set to 'Fixed Income Security'. Below the dropdown is a 'Properties' button. The 'Underlier ID Source' field is a dropdown menu with a list of options: ISIN, RIC, FIGI, CUSIP, SEDOL, and Senior Debt. 'ISIN' is currently selected and highlighted in blue. Below it is an empty 'Underlier ID' text input field. At the bottom, there is a 'Debt Seniority' dropdown menu with 'Senior Debt' selected.

6. Return Underlier ID Source Selection

Based on user's permission, Return Underlier ID Source selection allows user to define the Underlier ID Source values, i.e., ISIN, RIC, FIGI, CUSIP, SEDOL that they wish to receive in the returned UPI record. If the user is not permitted for Underlier ID Source e.g., SEDOL, the value in the drop-down menu is greyed-out and cannot be selected. This selection is made available for users when UPI is created, retrieved, or searched.

The system will return the specified Alternate ID as part of the derived section in the UPI record if it is mapped to Primary ID (ISIN). If no mapping exists, the system will return the relevant attribute with no value.

Request

The screenshot displays a web interface for creating or editing a UPI record. At the top, there are tabs for 'ISIN' and 'UPI'. Below the tabs, there are filters for 'Asset Class' (Equity), 'Instrument Type' (Option), 'Product' (Single_Name), and 'Level' (UPI), along with a 'LOAD' button. The main content area is titled 'Request.Equity.Option.Single_Name.UPI' and contains a 'Header' section with dropdowns for 'Asset Class', 'Instrument Type', 'Product', and 'Level'. Below the header is an 'Attributes' section with a 'Properties' button and several dropdowns: 'Underlier ID Source' (set to ISIN), 'Underlier ID' (US92857WBQ24), 'Option Type' (Call), 'Option Exercise Style' (American), 'Valuation Method or Trigger' (Vanilla), and 'Delivery Type' (Cash). A 'Return Underlier ID Source:' dropdown is highlighted with an orange box, and its menu is open, showing options: ISIN, CUSIP, FIGI (highlighted in blue), RIC, and SEDOL. At the bottom right, there are 'CREATE' and 'DISMISS' buttons.

Record

ISIN UPI

Asset Class Instrument Type Product Level

Equity.Option.Single_Name.UPI.V1

Template Version

Header

Asset Class

Instrument Type

Product

Level

Identifier

UPI

Status

Status Reason

Last Update DateTime

Derived

Classification Type

Short Name

Underlier Name

Underlying Asset Type

CFI Option Style and Type

CFI Delivery Type

UnderlyingRecord

Underlying Record 1

Underlier ID US92857WBQ24

Underlier ID Source ISIN

Return Underlier ID Source FIGI

Return Underlier ID

Return Underlier ID 1 BBG00NR6TKJO

Attributes

Underlying Instrument ISIN US92857WBQ24

Option Type CALL

Option Exercise Style AMER

Valuation Method or Trigger Vanilla

Delivery Type CASH

DOWNLOAD QZCKQXDBXWPE

DISMISS

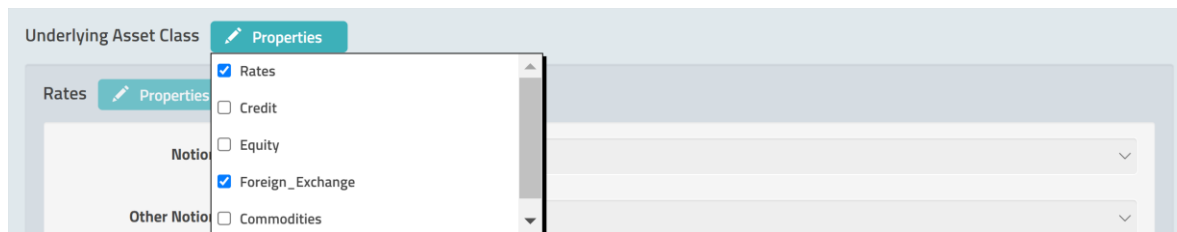
7. Example Use Case

This section will illustrate how the underlier input method will work for certain products. The example workflows will give user a view of how each structure is defined based on the selection and will vary depending on the product template.

7.1 Underlying Asset Class

The underlying asset class is applicable for multi-asset product that will allow users to choose one or more asset class depending on the nature of their request. The associated attributes will vary depending on the underlying asset class selected.

In the sample below for Other non-standard templates, if two asset classes e.g., Rates and Foreign Exchange are required, user must click on the properties to have the list of asset classes and tick the desired values.



Once the underlying asset class has been selected, the attributes associated to the underlying asset class will be displayed after. The underlying structure and underlier type behavior will vary depending on the asset class selected by the user.

Rates ✎ Properties

Notional Currency	EUR	▼
Other Notional Currency	EUR	▼
Return or Payout Trigger	Spreadbets	▼
Underlying Structure	Single Underlier	▼
Underlier ID	AUD-CPI	▼
Underlier ID Source	FPML	▼
Reference Rate Term Value	0	
Reference Rate Term Unit	DAYS	▼

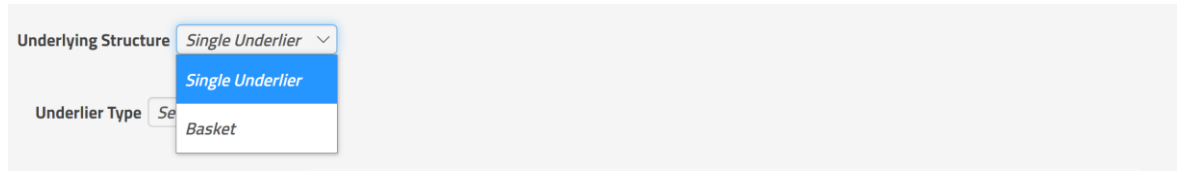
Foreign_Exchange ✎ Properties

Underlier ID Source	CCY	▼
Underlier ID	EUR	▼
Other Underlier ID Source	CCY	▼
Other Underlier ID	EUR	▼
Return or Payout Trigger	Spreadbets	▼
Settlement Currency	EUR	▼
Place of Settlement	Afghanistan	▼

7.2 Underlying Structure behavior

The Underlying Structure defines whether a product has single underlier or multiple underliers. The structure will vary depending on the product usage.

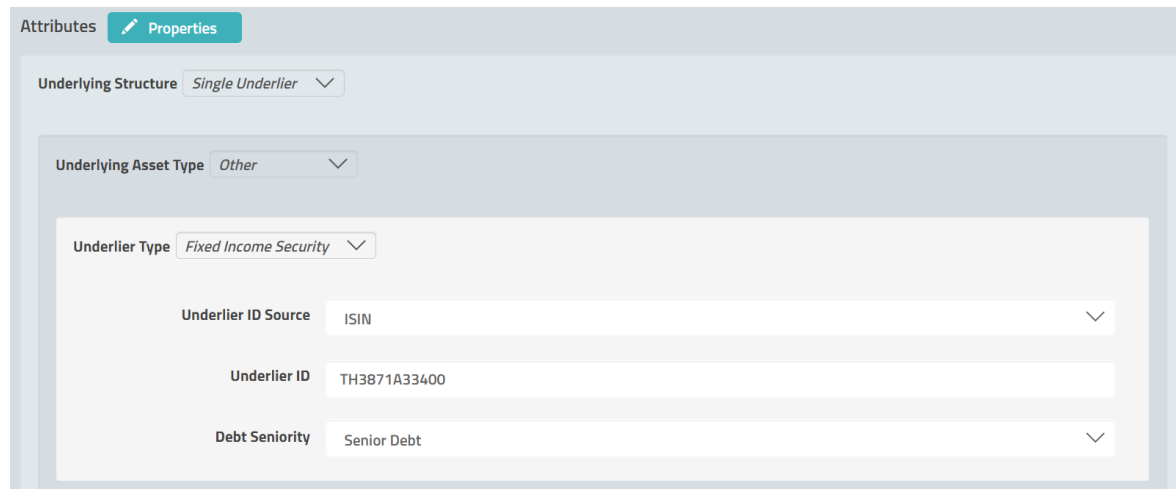
In the sample below for Non-standard Credit where Underlying structure is a dropdown in request template. The user is allowed to define whether underlying is a single or a basket (multiple underliers).



A screenshot of a form with two dropdown menus. The first dropdown is labeled 'Underlying Structure' and has 'Single Underlier' selected. The second dropdown is labeled 'Underlier Type' and has 'Basket' selected. The 'Underlier Type' dropdown is open, showing 'Single Underlier' and 'Basket' as options.

If single underlier is selected, the associated attributes of the underlying will be displayed which includes the underlier source and identifier, then the record will return the input underlying details and underlier characteristic of a “Single” in the Attribute section.

Request



A screenshot of a 'Request' form. At the top, there are two tabs: 'Attributes' and 'Properties'. The 'Properties' tab is active. Below the tabs, there are three dropdown menus: 'Underlying Structure' (set to 'Single Underlier'), 'Underlying Asset Type' (set to 'Other'), and 'Underlier Type' (set to 'Fixed Income Security'). Below these are three input fields: 'Underlier ID Source' (set to 'ISIN'), 'Underlier ID' (set to 'TH3871A33400'), and 'Debt Seniority' (set to 'Senior Debt').

Record

Attributes

Underlying Asset Type Other

Underlying

Underlier Characteristic Single

Underlying Instrument ISIN TH3871A33400

If Basket is selected, the associated underlier/s of the product is not required to identify and the underlier characteristic of a “Basket” is default in the request message. The record will return underlier characteristic in the Attribute section.

Request

Attributes [Properties](#)

Underlying Structure *Basket* ▼

Record

Attributes

Underlying Asset Type Other

Underlying

Underlier Characteristic Basket

In cases where the underlying is already defined based on the nature of its product e.g., OIS rates swap (only single underlying is required), the underlying structure will not be a requirement in the request message.

- a. Sample below is OIS rates swap where the underlier must only be one, the underlying structure is not visible in the request or record template, however, the identifier and its source are required to be populated in the request.

Attributes ✎ Properties

Notional Currency	EUR	▼
Underlier ID	AED-EBOR-Reuters (2006)	▼
Underlier ID Source	FPML	▼
Reference Rate Term Value	0	
Reference Rate Term Unit	DAYS	▼
Notional Schedule	Constant	▼
Delivery Type	Physical	▼

- b. In cases like Multi exotic commodities swap where the underlying is multiple and cannot be single underlier. The structure will be treated as Basket and will be defined in the Derived section of the record template. The underliers associated to the product will not be a requirement in the request and record templates.

Derived

Classification Type	STACXC
Short Name	NA/Swap AGRI
Underlier Name	Basket
Underlier Characteristic	Basket
Underlying Asset Type	Agriculture
CFI Delivery Type	Cash

7.3 Underlier Type

The selection supports the type of underlier whether it has single or multiple underlier types. The Underlier type will vary depending on the nature of the product e.g., for Equity – Security, Index and Prop Index are the supported underlier types whilst in Credit – Fixed Income Security, Legal Entity, Credit Index and Prop Index are the supported underlier types.

In the sample below for Non-standard Credit where user selects “Single Underlier” as underlying structure, the underlier type will have a selection of values depending on the user’s requirement.

The screenshot shows a 'Credit Properties' form with the following fields:

- Return or Payout Trigger:** Credit Default
- Underlying Structure:** Single Underlier
- Underlier Type:** A dropdown menu is open, showing options: Fixed Income Security (highlighted), Legal Entity, Proprietary Index, and Credit Index.
- Underlier ID:** An empty text input field.
- Debt Seniority:** Senior Debt

If the underlier type selected is Fixed Income Security, the identifier and source associated to underlier type will be displayed.

The screenshot shows a software interface with the following elements:

- Attributes** section with a **Properties** button.
- Underlying Structure** dropdown menu set to *Single Underlier*.
- Underlying Asset Type** dropdown menu set to *Single Name*.
- Underlier Type** dropdown menu is open, showing options: *Fixed Income Security* (highlighted), *Fixed Income Security*, and *Legal Entity*.
- Underlier ID Source** dropdown menu set to *ISIN*.
- Underlier ID** text input field containing *US195325BB02*.
- Debt Seniority** dropdown menu set to *Senior Debt*.

7.4 Underlier ID Source

The selection supports the origin of the underlier ID. In cases where (a) single underlier ID source is supported, the field will have a default value or (b) if multiple underlier ID Source is available, an enumeration list will be available based on its supported product.

For sample Non-standard Credit where underlier type – Fixed Income Security can be supported by different sources e.g., ISIN, RIC, FIGI, CUSIP and SEDOL. The selection of values will be available in the dropdown after selecting the Fixed Income Security as underlier type.

Underlier Type *Fixed Income Security* ▾

Underlier ID Source ISIN ▾
ISIN
Underlier ID RIC
FIGI
Debt Seniority CUSIP
SEDOL

In case the supported source has only one value, the selection is not required, and the value for underlier ID source is auto populated.

Underlier Type *Legal Entity* ▾

Underlier ID Source LEI ▾
LEI
Underlier ID
Debt Seniority Senior Debt ▾

8. Appendix

The table below illustrates the underlier structure selection, underlier type and their sources per product templates.

Asset	Inv	Template	CFR#	Asset Class	Underlying Structure	Underlier Type	Underlier Type Values	Underlier ID Source	Underlying Asset Type	Other Support	Comment
RATES	SWAP	Basis	83	Rates	Single	Single	(Floating Rate)	1 (FPML)		Basis	Other Leg is required
RATES	SWAP	Basis OIS	87	Rates	Single	Single	(Floating Rate)	1 (FPML)		Basis	Other Leg is required
RATES	OPTN	CapFloor	211	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Gross_Currency_Basis	98	Rates	Single	Single	(Floating Rate)	1 (FPML)		Basis	Other Leg is required
RATES	SWAP	Gross_Currency_Fixed_Fixed	86	Rates	N/A	N/A	N/A	N/A			
RATES	SWAP	Gross_Currency_Fixed_Float	90	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Gross_Currency_Fixed_Float_NDS	91	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Gross_Currency_Zero_Coupon	88	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Gross_Currency_Inflation_Swap	89	Rates	Single	Single	(Inflation Rate)	1 (FPML)			
RATES	SWAP	Fixed_Fixed	71	Rates	N/A	N/A	N/A	N/A			
RATES	SWAP	Fixed_Float	8	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Fixed_Float_OIS	68	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	SWAP	Fixed_Float_ZeroCoupon	67	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	FRWD	FRA_Index	224	Rates	Single	Single	(Floating Rate)	1 (FPML)			
RATES	FRWD	FRA_Other	225	Rates	Single	Single	(Fixed Income Security)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
RATES	SWAP	Inflation_Swap	70	Rates	Single	Single	(Inflation Rate)	1 (FPML)			
RATES	SWAP	Inflation_Fixed_Float_YoY	72	Rates	Single	Single	(Inflation Rate)	1 (FPML)			
RATES	SWAP	Inflation_Fixed_Float_Zero_Coupon	69	Rates	Single	Single	(Inflation Rate)	1 (FPML)			
RATES	SWAP	Inflation_Basis	94	Rates	Single	Multiple	Floating Rate, Inflation Rate	1 (FPML), 2 (FPML)		Basis	Other Leg is required
RATES	SWAP	Inflation_Basis_YoY	95	Rates	Single	Single	(Inflation Rate)	1 (FPML)		Basis	Other Leg is required
RATES	SWAP	Inflation_Basis_Zero_Coupon	96	Rates	Single	Single	(Inflation Rate)	1 (FPML)		Basis	Other Leg is required
RATES	OPTN	Inflation_CapFloor	213	Rates	Single	Single	(Inflation Rate)	1 (FPML)			
RATES	OPTN	Swaption	103	Rates	Single	Single	(UPI)	1 (UPI)			
RATES	OPTN	Debt Option	214	Rates	Single	Single	(Fixed Income Security)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
RATES	OPTN	Non-Standard	419	Rates	Multiple	Single	(Reference Rate)	1 (FPML)			Underlier Characteristic is driven by Underlying Structure.
RATES	SWAP	Non-Standard	176	Rates	Multiple	Multiple	(Reference Rate)	1 (FPML)		Basis (Opt)	Underlier Characteristic is driven by Underlying Structure.
RATES	FRWD	Debt	1051	Rates	Multiple	Single	(Fixed Income Security)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			Underlier Characteristic is driven by Underlying Structure.
CREDIT	SWAP	Corporate	10	Credit	Multiple	Multiple	Legal Entity, Fixed Income Security	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
CREDIT	SWAP	Municipal	169	Credit	Single	Multiple	Legal Entity, Fixed Income Security	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
CREDIT	SWAP	Sovereign	168	Credit	Single	Multiple	Legal Entity, Fixed Income Security	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
CREDIT	SWAP	Loan	187	Credit	Single	Multiple	Legal Entity, Fixed Income Security	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
CREDIT	SWAP	ABS	193	Credit	Single	Multiple	Legal Entity, Fixed Income Security	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
CREDIT	SWAP	Index Tranche	188	Credit	Single	Multiple	Credit Index, Proprietary Index	1 (CRIDX), 2 (PROF)			
CREDIT	SWAP	Index	194	Credit	Single	Multiple	Credit Index, Proprietary Index	1 (CRIDX), 2 (PROF)			
CREDIT	SWAP	Total Return Swap	215	Credit	Single	Multiple	Legal Entity, Fixed Income Security, Credit Index, Proprietary Index	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL), 3 (CRIDX), 4 (PROF)			
CREDIT	OPTN	Index Swaption	226	Credit	Single	Single	(UPI)	1 (UPI)			
CREDIT	OPTN	Single Name Swaption	222	Credit	Single	Single	(UPI)	1 (UPI)			
CREDIT	SWAP	Non-Standard Swap	353	Credit	Multiple	Multiple	Legal Entity, Fixed Income Security, Credit Index, Proprietary Index	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL), 3 (CRIDX), 4 (PROF)	1 (Single Name, Other), 2 (Single Name, Other), 3 (Index, Index Tranche, Other), 4 (Index, Index Tranche, Other)	Underlying Asset Type (One Of Structure)	Underlier Characteristic is driven by Underlying Structure.
CREDIT	OPTN	Non-Standard Option	413	Credit	Multiple	Multiple	Legal Entity, Fixed Income Security, Credit Index, Proprietary Index, UPI	1 (LEI), 2 (ISIN, RIC, FIGI, CUSIP, SEDOL), 3 (CRIDX), 4 (PROF), 5 (UPI)	1 (CDS on Single Name, Other), 2 (CDS on Single Name, Swaps, Other), 3 (CDS on Index, CDS on Index Tranche, Other), 4 (CDS on Index, CDS on Index Tranche, Other), 5 (CDS on Single Name, CDS on Index, CDS on Index Tranche, Swaps, Other)	Underlying Asset Type (One Of Structure)	Underlier Characteristic is driven by Underlying Structure.
CREDIT	FRWD	Non-Standard Forward	878	Credit	Multiple	Single	(Fixed Income Security)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			Underlier Characteristic is driven by Underlying Structure.
CREDIT	FRWD	Debt	1052	Credit	Multiple	Single	(Fixed Income Security)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			Underlier Characteristic is driven by Underlying Structure.
EQUITY	SWAP	Price_Return_Basic_Performance_Single_Name	100	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	SWAP	Price_Return_Basic_Performance_Single_Index	102	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	SWAP	Price_Return_Basic_Performance_Basket	356	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Parameter_Return_Dividend_Single_Name	110	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	SWAP	Parameter_Return_Dividend_Single_Index	111	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	SWAP	Parameter_Return_Dividend_Basket	357	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Parameter_Return_Variance_Single_Name	112	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	SWAP	Parameter_Return_Variance_Single_Index	113	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	SWAP	Parameter_Return_Variance_Basket	358	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Parameter_Return_Volatility_Single_Name	117	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	SWAP	Parameter_Return_Volatility_Single_Index	118	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	SWAP	Parameter_Return_Volatility_Basket	353	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Price_Return_Basic_Performance_Single_Name_CFD	114	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	SWAP	Price_Return_Basic_Performance_Single_Index_CFD	115	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	SWAP	Price_Return_Basic_Performance_Basket_CFD	352	Equity	Basket	N/A	N/A	N/A			
EQUITY	FRWD	Price_Return_Basic_Performance_Single_Name_CFD	119	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	FRWD	Price_Return_Basic_Performance_Single_Index_CFD	116	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	FRWD	Price_Return_Basic_Performance_Basket_CFD	354	Equity	Basket	N/A	N/A	N/A			
EQUITY	OPTN	Single Name	120	Equity	Single	Single	(Single Stock)	1 (ISIN, RIC, FIGI, CUSIP, SEDOL)			
EQUITY	OPTN	Single Index	129	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 (ISIN), 2 (EQIDX), 3 (PROF)			
EQUITY	OPTN	Basket	359	Equity	Basket	N/A	N/A	N/A			

Asset	Instr	Template	CMP	Asset Class	Underlying Structure	Underlier Type	Underlier Type Values	Underlier ID Source	Underlying Asset Type	Other Support	Comment
EQUITY	FRWD	Price Return Basic Performance Single Name	121	Equity	Single	Single	(Single Stock)	1 [ISIN, RIC, FIGI, CUSIP, SEDOL]			
EQUITY	FRWD	Price Return Basic Performance Single Index	130	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 [ISIN], 2 [EQIDX], 3 [PROP]			
EQUITY	FRWD	Price Return Basic Performance Basket	336	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Portfolio Swap	339	Equity	Basket	N/A	N/A	N/A			
EQUITY	SWAP	Portfolio Swap Other	123	Equity	Single	Single	(Single Stock)	1 [ISIN, RIC, FIGI, CUSIP, SEDOL]			
EQUITY	SWAP	Portfolio Swap Single Name	122	Equity	Single	Single	(Single Stock)	1 [ISIN, RIC, FIGI, CUSIP, SEDOL]			
EQUITY	SWAP	Portfolio Swap Single Index	131	Equity	Single	Multiple	Equity Index Identifier, Equity Index Name, Proprietary Index	1 [ISIN], 2 [EQIDX], 3 [PROP]			
EQUITY	SWAP	Non-Standard Swap	377	Equity	Multiple	Multiple	Single Stock, Other, Equity Index Identifier, Equity Index Name, Proprietary Index	1 [ISIN, RIC, FIGI, CUSIP, SEDOL], 2 [ISIN, RIC, FIGI, CUSIP, SEDOL], 3 [ISIN], 4 [EQIDX], 5 [PROP]	1 [Single Stock], 2 [Other], 3 [Index], 4 [Index], 5 [Index]	Underlying Asset Type (One Of Structure)	Underlier Characteristic is driven by Underlying Structure.
EQUITY	OPTN	Non-Standard Option	411	Equity	Multiple	Multiple	Single Stock, Other, Options, Forwards, Futures, Equity Index Identifier, Equity Index Name, Proprietary Index	1 [ISIN, RIC, FIGI, CUSIP, SEDOL], 2 [ISIN, RIC, FIGI, CUSIP, SEDOL], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [ISIN, RIC, FIGI, CUSIP, SEDOL], 5 [ISIN, RIC, FIGI, CUSIP, SEDOL], 6 [ISIN], 7 [EQIDX], 8 [PROP]	1 [Single Stock], 2 [Other], 3 [Options], 4 [Forwards], 5 [Futures], 6 [Index], 7 [Index], 8 [Index]	Underlying Asset Type (One Of Structure)	Underlier Characteristic is driven by Underlying Structure.
EQUITY	FRWD	Non-Standard Forward	463	Equity	Multiple	Multiple	Single Stock, Options, Futures, Equity Index Identifier, Equity Index Name, Proprietary Index	1 [ISIN, RIC, FIGI, CUSIP, SEDOL], 2 [ISIN, RIC, FIGI, CUSIP, SEDOL], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [ISIN], 5 [EQIDX], 6 [PROP]	1 [Single Stock], 2 [Options], 3 [Futures], 4 [Index], 5 [Index], 6 [Index]	Underlying Asset Type (One Of Structure)	Underlier Characteristic is driven by Underlying Structure.
FOREX	FRWD	NDF	150	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	NDO	248	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Forward	151	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Vanilla Option	262	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Barrier Option	252	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Digital Option	249	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Vol Var	152	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Target Option	265	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Forward Vol Agreement	263	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Rolling Spot	153	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Contract For Difference	154	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Spread-bet	155	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	SWAP	FX Swap	293	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	SWAP	NDS	283	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	FRWD	Non-Standard Forward	465	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
FOREX	OPTN	Non-Standard Option	492	Foreign Exchange	Single	Single	(Currency Pair)	1 [CCY]		Ccy Pair	Other Leg is required
COMMOD	SWAP	Swap	284	Commodities	Single	Single	(Commodity Ref Price)	1 [COMMI]			
COMMOD	SWAP	Single Index	297	Commodities	Single	Multiple	Commodity Index, Proprietary Index	1 [COIDX], 2 [PROP]			Basket is driven by Underlier Characteristic.
COMMOD	SWAP	Multi Exotic Swap	334	Commodities	Basket	N/A	N/A	N/A			Other Leg is required
COMMOD	SWAP	Basis	307	Commodities	Single	Single	(Commodity Ref Price)	1 [COMMI]		Basis	Other Leg is required
COMMOD	SWAP	Non-Standard Swap	875	Commodities	Multiple	Multiple	Commodity Ref Price, Commodity Index, Proprietary Index	1 [COMMI], 2 [COIDX], 2 [PROP]		Basis (Opt)	Other Leg is optional; Underlier Characteristic is driven by Underlying Structure.
COMMOD	OPTN	Option	333	Commodities	Single	Single	(Commodity Ref Price)	1 [COMMI]			
COMMOD	OPTN	Single Index	340	Commodities	Single	Multiple	Commodity Index, Proprietary Index	1 [COIDX], 2 [PROP]			
COMMOD	OPTN	Multi Exotic Option	496	Commodities	Basket	N/A	N/A	N/A			Basket is driven by Underlier Characteristic.
COMMOD	OPTN	Non-Standard Option	876	Commodities	Multiple	Multiple	Commodity Ref Price, Commodity Index, Proprietary Index	1 [COMMI], 2 [COIDX], 2 [PROP]			Underlier Characteristic is driven by Underlying Structure.
COMMOD	FRWD	Forward	302	Commodities	Single	Single	(Commodity Ref Price)	1 [COMMI]			
COMMOD	FRWD	Single Index	335	Commodities	Single	Multiple	Commodity Index, Proprietary Index	1 [COIDX], 2 [PROP]			
COMMOD	FRWD	Multi Exotic Forward	495	Commodities	Basket	N/A	N/A	N/A			Basket is driven by Underlier Characteristic.
COMMOD	FRWD	Non-Standard Forward	874	Commodities	Multiple	Multiple	Commodity Ref Price, Commodity Index, Proprietary Index	1 [COMMI], 2 [COIDX], 2 [PROP]			Underlier Characteristic is driven by Underlying Structure.
COMMOD	OPTN	Swaption	301	Commodities	Single	Single	(LUP)	1 [LUP]			
OTHER	SWAP	Other Swap (Multi-Asset)	494	Multiple	Multiple	Multiple	Currency, Reference Rate, Fixed Income Security, Commodity Ref Price, Commodity Index, Proprietary Index, Equity Identifier, Equity Index Name, Legal Entity, Credit Index	1 [CCY], 2 [FPML], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [COMMI], 5 [COIDX], 6 [PROP], 7 [ISIN, RIC, FIGI, CUSIP, SEDOL], 8 [EQIDX], 9 [LEI], 10 [CRIDX]		Basis (Opt)	Other Leg is optional; Underlier Characteristic is driven by Underlying Structure.
OTHER	OPTN	Other Option (Multi-Asset)	493	Multiple	Multiple	Multiple	Currency, Reference Rate, Fixed Income Security, Commodity Ref Price, Commodity Index, Proprietary Index, Equity Identifier, Equity Index Name, Legal Entity, Credit Index	1 [CCY], 2 [FPML], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [COMMI], 5 [COIDX], 6 [PROP], 7 [ISIN, RIC, FIGI, CUSIP, SEDOL], 8 [EQIDX], 9 [LEI], 10 [CRIDX]		Basis (Opt)	Other Leg is optional; Underlier Characteristic is driven by Underlying Structure.
OTHER	OTH	Other Other (Multi-Asset)	455	Multiple	Multiple	Multiple	Currency, Reference Rate, Fixed Income Security, Commodity Ref Price, Commodity Index, Proprietary Index, Equity Identifier, Equity Index Name, Legal Entity, Credit Index	1 [CCY], 2 [FPML], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [COMMI], 5 [COIDX], 6 [PROP], 7 [ISIN, RIC, FIGI, CUSIP, SEDOL], 8 [EQIDX], 9 [LEI], 10 [CRIDX]		Basis (Opt)	Other Leg is optional; Underlier Characteristic is driven by Underlying Structure.
OTHER	FRWD	Other Forward (Multi-Asset)	880	Multiple	Multiple	Multiple	Currency, Reference Rate, Fixed Income Security, Commodity Ref Price, Commodity Index, Proprietary Index, Equity Identifier, Equity Index Name, Credit Index	1 [CCY], 2 [FPML], 3 [ISIN, RIC, FIGI, CUSIP, SEDOL], 4 [COMMI], 5 [COIDX], 6 [PROP], 7 [ISIN, RIC, FIGI, CUSIP, SEDOL], 8 [EQIDX], 9 [CRIDX]			Underlier Characteristic is driven by Underlying Structure.