

DERIVATIVES SERVICE BUREAU (DSB) LTD

Equity : Option : Non_Standard

UPI Product Definition

Version 4

| Date | Status | Version | Revision Details |
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| 05 Sep 2022 | Draft | 1 | Initial Version |
| 01 Feb 2023 | Draft | 2 | <ul style="list-style-type: none"> Update example values in the Request and Record templates layout Insert Underlier Name attribute and Derivation rules |
| 05 Sep 2023 | Draft | 3 | <ul style="list-style-type: none"> Remove “Classified as Confidential” in the Footer section. Remove “RIC” as Alternate Underlier ID Source. Update Associated Documentation to include Best Practice Guidelines and FAQs. Update Best Practice Guidelines to include the link to Best Practice Guidelines and FAQs. |
| 11 Dec 2023 | Draft | 4 | <ul style="list-style-type: none"> Update CFI Taxonomy. Update Request and Record template for Option Type and Option Exercise Style as Optional. Update Derivation rules for the following: <ul style="list-style-type: none"> a. Classification Type b. Short Name c. CFI Option Style and Type Update Appendix I – ISO 4914 Equivalence. |

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I. Introduction

This document is designed to act as a manual for users to interpret the Product Definitions in the DSB UPI Service.

This document provides the user with the detailed description of the UPI Product Definition content such as attribute enumerations, validation, normalization, and derivation where applicable.

I.1 Associated Documentation

The reference documents below contain values and information maintained by the DSB for consistency and ease of access.

These documents are made available on the ANNA DSB website (Product Definitions page):

| Title | Description | Location |
|---|---|-------------------------|
| Enumerations Document | Lists all fixed values used for a product | Enumerations section |
| Product Definition Data Dictionary | Defines attributes in the Request and Record templates; and from which they are referenced on | Other Documents section |
| Product Definition Validations and Normalizations Document | Specifies details on validation and normalization rules | |
| UPI Underlier Input Method | Defines the structure for the input of the underlier following the rules that allow users to identify the Asset Class, Underlying Structure, Underlying Type, and Underlying ID Source. | |
| Best Practice Guidelines and FAQs | Lists answers to queries raised by users and provides guidance on the use of the templates | |
| GitHub Environment Section | ANNA DSB Github Environment where the JSON templates for each product is found | |

2. Product Taxonomy

2.1 CFI Taxonomy

Source: [ISO 10962](#) (CFI Code) – Third edition 2015-07-15

| Attr # | Title | Values | Name | Description |
|----------------|------------------------------|----------|---------------------------------------|---|
| | Instrument (Category) | H | Non-listed and complex listed options | |
| | Asset Class (Group) | E | Equity | |
| Attr #1 | Underlying Assets | S | Single stock | An option on a contract which gives the holder the right to buy, respectively to sell, single-named equity |
| | | I | Index | An option on a contract which gives the holder the right to buy, respectively to sell, specified equity indices |
| | | B | Basket | An option on a contract that may be exercised based on the weighted average performance of several underlying equities instruments |
| | | O | Options | Options |
| | | R | Forwards | Forwards |
| | | F | Futures | Futures |
| | | M | Others | Others (miscellaneous) |
| Attr #2 | Option style and type | A | European-Call | An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price only on the expiration date of the call |
| | | B | American-Call | An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price at any time during the term of the call option, up to and including the expiration date of the call |
| | | C | Bermudan-Call | An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the call |
| | | D | European-Put | An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) at a fixed price only on the expiration date of the put |
| | | E | American-Put | An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) |

| | | | | |
|--|--|----------|--------------------------|---|
| | | | | at a fixed price at any time during the term of the put option, up to and including the expiration date of the put |
| | | F | Bermudan-Put | An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the put |
| | | G | European-Chooser | An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price, only on the contract's expiration date; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration |
| | | H | American-Chooser | An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price at any time during the term of the contract, up to and including the expiration date of the call or put; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration |
| | | I | Bermudan-Chooser | An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the contract; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration |
| | | X | Not applicable/undefined | <i>Note: This is included in order to support Options products with no Option Type and Option Exercise Style. However, this is taken from ISO 10962: 2015 (CFI Code).</i> |

| | | | | |
|----------------|------------------------------------|----------|----------------------|--|
| Attr #3 | Valuation method or trigger | V | Vanilla | An option for which all terms are standardized |
| | | A | Asian | An option where either the strike price or the settlement price is the average level of an underlying instrument over a predetermined period; the averaging can be either a geometric or arithmetic average |
| | | D | Digital (Binary) | An option that has a pre-determined pay-out if the option is in-the-money and the payoff condition is satisfied; also referred to as a “binary option” or an “all-or-nothing option” |
| | | B | Barrier | An option whose final exercise depends upon the path taken by the price of an underlying instrument; for a “knock-out” barrier option, the option is cancelled if the underlying price crosses a predetermined barrier level; for a “knock-in” barrier option, the option becomes available-for-exercise if the underlying price crosses a predetermined barrier level |
| | | G | Digital barrier | A digital option embedded with a barrier option; there are different variations of this type of option; as an example, a down-and-out digital call option will pay a fixed payoff, or the underlying, at any time before maturity that the underlying price is equal to or greater than the barrier level; it will pay zero if the underlying price is less than the barrier level |
| | | L | Lookback | An option that minimizes the uncertainties related to the timing of market entry; there are two types of look-back options: fixed and floating; the fixed option strike is determined at purchase, and the floating option strike is determined at maturity |
| | | P | Other path dependent | An option on a contract whose payoff is directly related to the price pattern the underlying asset follows during the life of the contract |
| | | M | Others | Others (miscellaneous) |
| Attr #4 | Delivery Type | C | Cash | The discharge of an obligation by payment or receipt of a net cash amount instead of payment or delivery by both parties |
| | | P | Physical | The meeting of a settlement obligation under a derivative contract through the receipt or delivery of the actual underlying instrument(s) instead of through cash settlement |
| | | E | Elect at exercise | The method of delivery of the underlying instrument when the option is exercised shall be determined at the time of exercise |

2.2 ISDA Taxonomy

The table below is based on the products identified as part of the [ISDA 2.0 taxonomy](#).

| Asset Class | Base Product | Sub-Product | Transaction Type | DSB Product Definition Name |
|-------------|--------------|-------------|------------------|-----------------------------|
| Equity | Other* | | | Non_Standard_Option |

**Other Base Product includes structured and exotic.*

3. Request Template

The Request Template describes the input message received by the UPI service.

Users can find the detailed description of this template in the Equity spreadsheet that contains the layout of all templates. This can be found in the Equity section of the Product Definitions page on the ANNA DSB website.

Change details of the template can be found on the appropriate Github page.

| Template name | Template details | Release |
|--|------------------|---------|
| Request.Equity.Option.Non_Standard.UPI.json | Initial version | Initial |

3.1 Underlier Input Method

For products that has an option for a Single or Multiple Underliers, users must select an underlying structure applicable [Single Underlier, Basket]. If a Basket is selected, underlier entry is not required.

| Title | Description |
|------------------------------------|---|
| Select Underlying Structure | User is able to select whether the underlying is a single underlier or basket based on its product. <ul style="list-style-type: none">• Single Underlier• Basket |
| Select Underlier Type | User is able to select a single required Underlier Type from the available options. <ul style="list-style-type: none">• Single Stock• Equity Index Identifier• Equity Index Name• Proprietary Index |
| Select Underlier ID Source | User is able to select a single required Underlier ID Source from the available options based on the selected Underlier Type. <ul style="list-style-type: none">• Single Stock [ISIN, FIGI, CUSIP, SEDOL]• Equity Index Identifier [ISIN]• Equity Index Name [EQIDX]• Proprietary Index [PROP] |
| Input Underlier ID | User enters a valid Underlier ID based on the selected Underlier ID Source. |

3.2 Validation Rules

For non-specific product validation rules, please refer to UPI Product Definition Validations and Normalizations Document can be found in the Other Documents section on the DSB website.

3.2.1 Underlying Structure [oneOf]

- If Underlying Structure selected is a “Single Underlier”, Underlying Asset Type attribute will be present in the REQUEST and RECORD templates with enumerated values [Single Stock, Index, Other, Options, Forwards, Futures].
- If Underlying Structure selected is a "Single Underlier", attributes Underlier ID and Underlier ID Source [ISIN, FIGI, CUSIP, SEDOL, EQIDX or PROP] will be required in the REQUEST template and only one value can be selected in the enumeration.
- If Underlying Structure selected is a “Basket”, Underlying Asset Type attribute will be present in the REQUEST and RECORD templates with enumerated values [Other, Options, Forwards, Futures, Basket].
- If Underlying Structure selected is a “Basket”, attributes Underlier ID and Underlier ID Source will not be present in the REQUEST and RECORD templates.

3.2.2 Underlying Asset Type

The following validations will apply based on the Underlying Asset Type selected:

a. “Index”

- If Underlying Asset Type is an “Index”, the attributes Underlier ID and Underlier ID Source will be present in the REQUEST message.
- Underlier ID Source must be [ISIN, EQIDX or PROP] and only one Underlier ID is allowed.
- Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN, EQIDX or PROP].

b. “Single Stock”

- If Underlying Asset Type is a “Single Stock”, the attributes Underlier ID and Underlier ID Source will be present in the REQUEST message.
- Underlier ID and Underlier ID Source must be present in the REQUEST template and Underlier ID Source must be [ISIN, FIGI, CUSIP, SEDOL].
- Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN, FIGI, CUSIP, SEDOL].

c. “Options” or “Forwards” or “Futures” or “Other”

- User can select a Single Underlier or a Basket [multiple underliers].
- If a single underlier is selected, Underlier ID must be present in the REQUEST template and the Underlier ID Source must be [ISIN, FIGI, CUSIP, SEDOL].
- If a Basket [multiple underliers] is selected, Underlier ID and Underlier ID Source must not be present in the REQUEST template.
- Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN, FIGI, CUSIP, SEDOL].

d. “Basket”

- User can select a Basket [multiple underliers].
- If a Basket [multiple underliers] is selected, Underlier ID and Underlier ID Source must not be present in the REQUEST template.

4. Record Template

The Record Template describes the record returned by the UPI service.

Users can find the detailed description of this template in the Equity spreadsheet that contains the layout of all templates. This can be found in the Equity section of the Product Definitions page on the ANNA DSB website.

Change details of the template can be found on the appropriate Github page.

| Version | Template name | Template details |
|---------|--|--|
| V.1 | Equity.Option.Non_Standard.UPI.V1.json | Initial version |
| V.2 | Equity.Option.Non_Standard.UPI.V2.json | Update on Option Type and Exercise Style |

4.1 Normalization Rules

For non-specific product normalization rules, please refer to UPI Product Definition Validations and Normalizations Document can be found in the Other Documents section on the DSB website.

4.2 Derivation Rules

This section describes the derivations of product attributes highlighted in the Record Template.

4.2.1 Classification Type

| Attribute | Classification Type | | |
|-----------------------|---|-------------------|--------|
| Structure | Instrument Type + Asset Class + Underlying Asset Type + Option Type/Style + Valuation Method or Trigger + Delivery Type | | |
| Example | HESGMP | | |
| Source | ISO 10962 (CFI) – Third edition 2015-07-15 | | |
| Source Attribute | Source Value | Derivation Method | Result |
| Instrument Type | Non-listed and complex listed options | Fixed Mapping | H |
| Asset Class | Equity | Fixed Mapping | C |
| Underlying Asset Type | Single Stock | Mapped to => | S |
| | Index | Mapped to => | I |
| | Basket | Mapped to => | B |
| | Options | Mapped to => | O |

| | | | |
|------------------------------------|-----------------------|------------------------|---|
| | Forwards | Mapped to => | R |
| | Futures | Mapped to => | F |
| | Other | Mapped to => | M |
| Option Style and Type | PUTO/EURO | Mapped to => | D |
| | CALL/EURO | Mapped to => | A |
| | OPTL/EURO | Mapped to => | G |
| | PUTO/AMER | Mapped to => | E |
| | PUTO/BERM | Mapped to => | F |
| | CALL/AMER | Mapped to => | B |
| | CALL/BERM | Mapped to => | C |
| | OPTL/AMER | Mapped to => | H |
| | OPTL/BERM | Mapped to => | I |
| | <i>No input value</i> | <i>Mapped to =></i> | X |
| Valuation Method or Trigger | Vanilla | Mapped to => | V |
| | Asian | Mapped to => | A |
| | Digital (Binary) | Mapped to => | D |
| | Barrier | Mapped to => | B |
| | Digital Barrier | Mapped to => | G |
| | Lookback | Mapped to => | L |
| | Other Path Dependent | Mapped to => | P |
| | Other | Mapped to => | M |
| Delivery Type | CASH | Mapped to => | C |
| | PHYS | Mapped to => | P |
| | OPTL | Mapped to => | E |

4.2.2 Short Name

| Attribute | Short Name | | |
|------------------------------|--|--------------------|----------|
| Structure | "NA" + "/" + Instrument Type + Underlying Asset Type + Option Type + Option Exercise Style | | |
| Example | NA/O Sgle Stk Opt Epn | | |
| Source | ISO 18774 (Financial Instrument Short Name) - First edition 2015-11 | | |
| Source Attribute | Source Value | Derivation Method | Result |
| Issuer Name | None | Fixed Value | NA/ |
| Instrument Type | Option | Fixed Abbreviation | O |
| Underlying Asset Type | Single Stock | Mapped to => | Sgle Stk |
| | Index | Mapped to => | Idx |
| | Basket | Mapped to => | Bskt |
| | Options | Mapped to => | Options |
| | Forwards | Mapped to => | Forwards |
| | Futures | Mapped to => | Futures |
| | Other | Mapped to => | Oth |
| Option Type | PUTO | Mapped to => | Put |
| | CALL | Mapped to => | Call |
| | OPTL | Mapped to => | Opt |
| | <i>Note: For Option products with no Option Type and Option Exercise Style, it follows the existing functionality where <u>NO</u> equivalent value/abbreviation is included in the Short Name.</i> | | |
| Option Exercise Style | AMER | Mapped to => | Amr |
| | BERM | Mapped to => | Brm |
| | EURO | Mapped to => | Epn |
| | <i>Note: For Option products with no Option Type and Option Exercise Style, it follows the existing functionality where <u>NO</u> equivalent value/abbreviation is included in the Short Name.</i> | | |

4.2.3 Underlier Name

Based on the Underlier Type selected, the following Underlier Name derivation rules will apply:

| Attribute | Underlier Name | | | |
|---|---------------------------------------|---|---|--------------------|
| Underlying Asset | Underlier Name Source | Underlier Name Source Attribute | | Underlier Name |
| Underlying ID with Underlying ID Source [ISIN] | Index Name to Index ISIN Mapping File | Equivalent Underlying Equity Index Name that exists in the mapping file | | FTSE 100 INDEX |
| | ISIN Reference Data | longName of Underlying Instrument ISIN | ISIN is found in ISIN Reference Data. | VODAFONE GROUP PLC |
| | | | ISIN is found in ISIN Reference Data, but its description is missing. | No name available |
| | | | ISIN is not found in ISIN Reference Data. | No name obtainable |
| Underlying ID with Underlying ID Source [EQIDX] | UPI record | Underlying Instrument Index | | MSCI EM USD |
| Underlying ID with Underlying ID Source [PROP] | UPI record | Underlying Instrument Index Prop | | 34810-JPCFNAMR |
| Basket | Constant | N/A | | Basket |

4.2.4 CFI Option Style and Type

| Attribute | CFI Option Style and Type | | |
|-----------------------|---------------------------|-------------------|--------------------------|
| Source Attribute | Source Value | Derivation Method | Result |
| Option Style and Type | PUTO/AMER | Mapped to => | American-Put |
| | PUTO/BERM | Mapped to => | Bermudan-Put |
| | PUTO/EURO | Mapped to => | European-Put |
| | CALL/AMER | Mapped to => | American-Call |
| | CALL/BERM | Mapped to => | Bermudan-Call |
| | CALL/EURO | Mapped to => | European-Call |
| | OPTL/AMER | Mapped to => | American-Chooser |
| | OPTL/BERM | Mapped to => | Bermudan-Chooser |
| | OPTL/EURO | Mapped to => | European-Chooser |
| | No input value | Mapped to => | Not applicable/undefined |

4.2.5 CFI Delivery Type

| Attribute | CFI Delivery Type | | |
|------------------|-------------------|-------------------|-------------------|
| Source Attribute | Source Value | Derivation Method | Result |
| Delivery Type | CASH | Mapped to => | Cash |
| | PHYS | Mapped to => | Physical |
| | OPTL | Mapped to => | Elect at Exercise |

5. Supplementary Information

5.1 Best Practice Guidelines

Please refer to Best Practice Guidelines and FAQs that can be found in the Other Documents section on the DSB website.

5.2 Additional Comments

- The short name abbreviation for Option Type [CALL, PUTO, OPTL] within Commodity Asset Class are [Call, Put, OPTL] whereas Rates use [Call, P, Opt], Equities use [Call, Put, Opt] and Foreign_Exchange use [Call, Put, O]. For Credit Asset Class, Option Type is not part of the short name.
- Underlier sub-type (first level) will be represented by the Underlier Characteristic which varies depending on the underlying structure of the product, i.e., a single underlier or a multiple underliers (Basket).

6. Appendix I – ISO 4914 Equivalence

This section describes the attributes as per the ISO 4914 Unique Product Identifier (UPI).

| ISO 4914 Reference Data Elements | | Request Attribute | Record Attribute |
|--|---|-----------------------------|--|
| Asset Class | M | Asset Class | Asset Class |
| Instrument Type | M | Instrument Type | Instrument Type |
| Delivery Type | M | Delivery Type | Delivery Type |
| | | | CFI Delivery Type |
| Option style | M | Option Exercise Style | Option Exercise Style (CFI Option Style and Type) |
| Option type | M | Option Type | Option Type (CFI Option Style and Type) |
| Return, pricing method or payout trigger | M | Valuation Method or Trigger | Valuation Method or Trigger |
| Underlier ID* | C | Underlier ID | Underlying Instrument ISIN |
| | | | Underlying Instrument Index |
| | | | Underlying Instrument Index Prop |
| Underlier ID source* | C | Underlier ID Source | Not Required |
| Underlier type | M | Underlying Asset Type | Underlying Asset Type |

*Underlier ID/Source is only supported by a single underlying instrument [ISIN, FIGI, CUSIP, SEDOL, EQIDX, PROP]. If the underlying is a custom basket, these attributes are not required as defined in the ISO 4914 (UPI) specification.

7. Appendix 2 – OTC ISIN-UPI Mapping

This section describes the mapping between the ISIN and UPI input attributes.

| One Of | ISIN Input Attributes | Condition | Mapping Logic | UPI Input Attributes | Sample UPI Value | Comments |
|--------|-----------------------------|--|-----------------------------------|----------------------|-------------------------|-------------------------|
| | Asset Class | | Direct Map | Asset Class | Equity | |
| | Instrument Type | | Direct Map | Instrument Type | Option | |
| | Use Case | | Direct Map | Product | Non_Standard | |
| | Level | | Set to "UPI" | Level | UPI | |
| | Notional Currency | | No Mapping | | | |
| | Expiry Date | | No Mapping | | | |
| | Price Multiplier | | No Mapping | | | |
| A | Underlying Instrument ISIN | If Underlying Asset Type = "Single Stock" or "Other" or "Options" or "Forwards" or "Futures" | Set to "Single Stock" | Underlier Type | Single Stock | "One Of" Underlier Type |
| | | | Map to | Underlier ID | GB00BH4HKS39 | |
| | | | Set to "ISIN, FIGI, CUSIP, SEDOL" | Underlier ID Source | ISIN | |
| | | If Underlying Asset Type = "Index" | Set to "Equity Index Identifier" | Underlier Type | Equity Index Identifier | |
| | | | Map to | Underlier ID | GB0001383545 | |
| | | | Set to "ISIN" | Underlier ID Source | ISIN | |
| | | If Underlying Asset Type = "Basket" or "Options" or "Forwards" or "Futures" or "Other" AND If Underlying Instrument > 1 | Map to | Underlying Structure | Basket | |
| | | | | | | |
| | | If Underlying Asset Type = "Index" | Set to "Equity Index Name" | Underlier Type | Equity Index Name | "One Of" Underlier Type |
| | | | Map to | Underlier ID | MSCI EM USD | |
| B | Underlying Instrument Index | | | | | |

| | | | | | | |
|---|----------------------------------|--|----------------------------|-----------------------------|-------------------|-------------------------|
| | | | Set to "EQIDX" | Underlier ID Source | EQIDX | |
| | | If Underlying Asset Type = "Basket" or "Options" or "Forwards" or "Futures" or "Other" AND If Underlying Instrument > I | Map to | Underlying Structure | Basket | |
| C | Underlying Instrument Index Prop | If Underlying Asset Type = "Index" | Set to "Proprietary Index" | Underlier Type | Proprietary Index | "One Of" Underlier Type |
| | | | Map to | Underlier ID | 34810-JPCFNAMR | |
| | | | Set to "PROP" | Underlier ID Source | PROP | |
| | | If Underlying Asset Type = "Basket" or "Options" or "Forwards" or "Futures" or "Other" AND If Underlying Instrument > I | Map to | Underlying Structure | Basket | |
| | Strike Price | | No Mapping | | | |
| | Strike Price Currency | | No Mapping | | | |
| | Underlying Asset Type | | Direct Map | Underlying Asset Type | Basket | |
| | Option Type | | Direct Map | Option Type | OPTL | |
| | Option Exercise Style | | Direct Map | Option Exercise Style | EURO | |
| | Valuation Method or Trigger | | Direct Map | Valuation Method or Trigger | Other | |
| | Delivery Type | | Direct Map | Delivery Type | PHYS | |