Derivatives Service Bureau (UPI)

CHANGE REQUEST FORM

Version	State	Author	Date	Description
1	Draft	M.A. Gariplan	03 Jun 2021	Initial Document
2	Draft	M.A. Gariplan	30 Jun 2021	Amended JSON codeset for ESMA validation
3	Draft	M.A. Gariplan	13 Jul 2021	Revised Template Layouts and GUI details (Underlier Input Method); Removed active hyperlinks in Data Dictionary; Amended References section with standard text; Removed Short Name comment in the Comment section
4	Draft	M.A. Gariplan	29 Jul 2021	Amended template layout
5	Draft	M.A. Gariplan	10 Aug 2021	Amended template layout; Updated Validation on Other

Title	EQUITY OPTION Non-Standard Option Template Definition		
Background	The following CRF presents a specification for the generation and retrieval of a Unique Product Identifier for the following product: • **Equity : Option : Non_Standard_Option**	**DSB-ID**	**UPI-411**
		Type	New Template
		Owner	M.A. Gariplan
		Version	5
		State	Draft
Terms of Reference			
Scope	• This CRF specifies the product definition required for the generation / retrieval of a UPI only. • This CRF covers both the input (Request) and output (Record) templates. • Support for local jurisdiction / alternate underlier identifier input is currently out of scope. • Support for CFI 2019 values is currently out of scope.		
Requirements	• The product definition will conform to ISO 4914 (UPI). • Where possible, the product definition is to be based on the attributes, values and behaviour of the equivalent OTC ISIN. • The product definition will return a product short name (FISN). • All UPI records stored on the DSB RDL will include the ISO 10962 (CFI) code associated with the UPI along with an equivalent text value for all attributes that are included in the definition of the CFI.		
Dependencies	• This specification is dependent on final sign-off of the ISO 4914 (UPI) specification. • This specification is dependent on PC approval for the use of the OTC ISIN definitions as a basis for the UPI. • This specification is dependent on PC approval for the inclusion of ISO 4914 (UPI) conditional attributes. • This specification is dependent on TAC Approval for the DSB approach to ISO 10962 (CFI:2019) migration. • This specification is dependent on the provision of a human-readable alias for the primary underlier for inclusion in the Short Name (FISN) and a human-readable alias for the Contract Specification. • The format of the Short Name is dependent upon the outcome of the ISO 18774 (FISN) systematic review.		
Assumptions	• This specification assumes that, unless stated, all values and behaviours are based on those of the equivalent OTC ISIN product definition. • This specification assumes that no input values are to be defaulted by the system. • This specification is based on the current ISO 4914 (UPI) specification (CD) – including attributes that are not currently supported by the equivalent OTC ISIN. • This specification is based on the DSB's current equivalent OTC ISIN product definition. • This specification is based on the attributes and values defined in ISO 10962 (CFI:2015). • In order to provide an example Short Name, this specification defines a format for this attribute that may not conform to the eventually agreed FISN format for the UPI. This specification assumes that the Short Name is defined using the same attributes (where available) as the OTC ISIN Short Name.		

- Where possible, this specification derives GUI details from the ISO 4914 (UPI) specification for attributes that are not included in the current OTC ISIN product definition.
- The display information in the GUI for the existing attributes (and values) are taken from the OTC ISIN. If such information contains an "ISIN" in the description, replace the value into "UPI".
- The specification for UPI does not include expiry date as part of the attributes, hence "expired" status does not apply.
- The specification of individual underlying identifiers and their sources is not required as part of the definition of a product based on a custom basket – as defined in the ISO 4914 (UPI) specification.
- The specification for UPI will not require user to identify individual constituent identifiers if the OTC derivative has more than one underlier ID. This is also in agreement with PC to align with ISO 4914 (UPI) specification and CPMI/IOSCO.

Request Template Layout

Section	Attribute	Format	Cat	Example Value	Validation / Derivation	Condition	Enum Source	Origin
Header Section	Asset Class	Set	M	Equity			CFI:2015 Char#2 (HE****)	ISIN
	Instrument Type	Set	M	Option			CFI:2015 Char#1 (HE****)	ISIN
	Product	Set	M	Non_Standard				ISIN
	Level	Set	M	UPI				NEW
Attribute Section	Underlying Asset Type (One Of)	Enum	M	Single Stock	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlier ID Source	String	(C)	ISIN	[ISIN]		Internal	NEW
	Underlier ID	Enum	(C)	US78462F1030	See CRF (Validations)			NEW
	Underlying Asset Type (One Of)	Enum	M	Other	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlying Structure (One Of)	Enum	(C)	Single Underlier	See CRF (Validations)		Internal	NEW
	Underlier ID Source	String	(C)	ISIN	[ISIN]		Internal	NEW
	Underlier ID	Enum	(C)	US78462F1030	See CRF (Validations)			NEW
	Underlying Structure (One Of)	Enum	(C)	Basket	See CRF (Validations)		Internal	NEW
	Underlier Characteristic	Enum	D	Basket	See CRF (Validations)	Displayed if Underlier Structure is Basket	Internal	NEW
	Underlying Asset Type (One Of)	Enum	M	Index	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlier Type (One Of)	Enum	(C)	Equity Index	[Equity Index]		Internal	NEW
	Underlier ID Source	String	(C)	ESMA	[ESMA]		Internal	NEW
	Underlier ID	Enum	(C)	NIKKEI 225 INDEX	See CRF (Validations)		ESMA TTC and Annex 7 Market Indices	NEW
	Underlier Type (One Of)	Enum	(C)	Proprietary Index	[Proprietary Index]		Internal	NEW
	Underlier ID Source	String	(C)	PROP	[PROP]		Internal	NEW
	Underlier ID	Enum	(C)	34810-XRJPD642	See CRF (Validations)		DSB Proprietary Index Enumeration	NEW
	Underlying Asset Type (One Of)	Enum	M	Options	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlying Structure (One Of)	Enum	(C)	Single Underlier	See CRF (Validations)		Internal	NEW
	Underlier ID Source	String	(C)	ISIN	[ISIN]		Internal	NEW
	Underlier ID	Enum	(C)	US78462F1030	See CRF (Validations)			NEW
	Underlying Structure (One Of)	Enum	(C)	Basket	See CRF (Validations)		Internal	NEW
	Underlier Characteristic	Enum	D	Basket	See CRF (Validations)	Displayed if Underlier Structure is Basket	Internal	NEW
	Underlying Asset Type (One Of)	Enum	M	Forwards	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlying Structure (One Of)	Enum	(C)	Single Underlier	See CRF (Validations)		Internal	NEW
	Underlier ID Source	String	(C)	ISIN	[ISIN]		Internal	NEW
	Underlier ID	Enum	(C)	US78462F1030	See CRF (Validations)			NEW
	Underlying Structure (One Of)	Enum	(C)	Basket	See CRF (Validations)		Internal	NEW
	Underlier Characteristic	Enum	D	Basket	See CRF (Validations)	Displayed if Underlier Structure is Basket	Internal	NEW
	Underlying Asset Type (One Of)	Enum	M	Futures	See CRF (Validations)		CFI:2015 Char#3 (HE****)	NEW
	Underlying Structure (One Of)	Enum	(C)	Single Underlier	See CRF (Validations)		Internal	NEW
	Underlier ID Source	String	(C)	ISIN	[ISIN]		Internal	NEW
	Underlier ID	Enum	(C)	US78462F1030	See CRF (Validations)			NEW
	Underlying Structure (One Of)	Enum	(C)	Basket	See CRF (Validations)		Internal	NEW
	Underlier Characteristic	Enum	D	Basket	See CRF (Validations)	Displayed if Underlier Structure is Basket	Internal	NEW
	Underlying Asset Type (One Of)	Enum	M	Basket	See CRF (Validations)		CFI:2015 Char#3 (SE****)	NEW
	Underlier Characteristic	Enum	D	Basket	See CRF (Validations)		Internal	NEW
	Option Type	Enum	M	OPTL	[CALL, PUTO, OPTL]		ISO 20022	ISIN
	Option Exercise Style	Enum	M	EURO	[AMER, BERM, EURO]		ISO 20022	ISIN
	Valuation Method or Trigger	Enum	M	Other	[Vanilla; Asian; Barrier; etc.]		CFI:2015 Char#5 (HE****)	ISIN
	Delivery Type	Enum	M	PHYS	[CASH; PHYS; OPTL]		ISO 20022	ISIN

Record Template Layout

Section	Attribute	Format	Cat	Example Value	Validation / Derivation	Condition	Enum Source	Origin
Header Section	Asset Class	Set	M	Equity			CFI:2015 Char#2 (HE****)	ISIN
	Instrument Type	Set	M	Option			CFI:2015 Char#1 (HE****)	ISIN
	Product	Set	M	Non_Standard				ISIN
	Level	Set	M	UPI				NEW
	Template Version	Integer	D	1				ISIN
Attribute Section	Underlying Asset Type	Enum	M	Single Stock	[Single Stock; Index; Basket; Options; Forwards; Futures; Other]		CFI:2015 Char#3 (HE****)	ISIN
	Underlying Instrument ISIN	String	C	US78462F1030	See CRF (Validations)	Displayed if Underlier Structure is Single Underlier		ISIN
	Underlying Instrument Index	String	C	NIKKEI 225 INDEX	See CRF (Normalization and Validations)		ESMA TTC and Annex 7 Market Indices	ISIN
	Underlying Instrument Index Prop	String	C	34810-XRJPD642	See CRF (Validations)		DSB Proprietary Index Enumeration	ISIN
	Option Type	Enum	M	OPTL	[CALL, PUTO, OPTL]		ISO 20022	ISIN
	Option Exercise Style	Enum	M	EURO	[AMER, BERM, EURO]		ISO 20022	ISIN
	Valuation Method or Trigger	Enum	M	Other	[Vanilla; Asian; Barrier; etc.]		CFI:2015 Char#5 (HE****)	ISIN
	Delivery Type	Enum	M	PHYS	[CASH; PHYS; OPTL]		ISO 20022	ISIN
Identifier Section	UPI	String	D	QZH0KZ89WLJZ	UPI		ISO 4914	NEW
	Status	String	D	New				ISIN
	Status Reason	String	D	<null>	Not applicable to a New record			ISIN
	Last Update Date Time	DtTm	D	2021-06-02T11:28:29	YYYY-MM-DDThh:mm:ss			ISIN
Derived Section	Classification Type	String	D	HESGMP	See CRF (Derivations)		ISO 10962: 2015	ISIN
	Short Name	String	D	NA/O Sgle Stk Opt Epn	See CRF (Derivations)		ISO 18774: 2015	NEW
	Underlier Characteristic	String	D	Basket	See CRF (Derivations)	Derived from underlier attributes	Internal	NEW
	CFI Option Style and Type	String	D	European-Chooser	See CRF (Derivations)		CFI:2015 Char#4 (HE****)	NEW
	CFI Delivery Type	String	D	Physical	See CRF (Derivations)		CFI:2015 Char#6 (HE****)	NEW

Product Definition

Attributes	See Template Layout (above). In order to support the different ways in which underliers need to be supported in the definition of this product, the above Request template layout allows the user to specify the following: **a) Underlying Structure** The above Request template described in this document supports products that can be defined with either a single underlier or a custom basket of (multiple) underliers. For this product, the user is asked to select one of the following: • Single Underlier • Basket The selection of "Single Underlier" allows the user to enter the identifier for that individual underlier whereas the selection of "Basket" is considered a sufficient level of granularity (see ISO 4914 (UPI)) and so the user is not required to input a set of identifiers. **b) Underlier Type** The Request template described in this document supports products that can be defined on the basis of more than one type of underlier. For this product, the user is asked to select one of the following: • Equity Index • Proprietary Index Once the Underlier Type is chosen, the user will be asked to select one of the Underlier ID Sources associated with that Underlier Type and enter the Underlier ID that matches the ID Source. ** Please see Underlier Input Method Document (link provided in the Reference Section below) for further details.*
Validation	**1. Underlying Asset Type** The following validations will apply based on the Underlying Asset Type selected. a. "**Index**" • Underlier ID is present, and Underlier ID Source must be [ISIN, ESMA or PROP]. • Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN, ESMA or PROP] indicated below. b. "**Single Stock**" • Underlier ID is present, and Underlier ID Source must be [ISIN]. • Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN] indicated below. c. **"Basket"** • The attribute Underlier Characteristic [Equity] is present, and "Basket" will appear as field value. • If the Underlier Characteristic is selected, Underlier ID, Underlier ID Source and Underlying Instrument attributes will not be present on the REQUEST message and RECORD template. d. "**Options**" or "**Forwards**" or "**Futures**" or "**Other**" • User can select Underlier ID (single Underlier) or Underlier Characteristic (multiple Underliers). • If Underlier ID is present, Underlier ID Source must be [ISIN]. • Validation of the Underlier ID will apply based on the Underlier ID Source [ISIN] indicated below. • If the Underlier Characteristic is selected, Underlier ID, Underlier ID Source and Underlying Instrument attributes will not be present on the REQUEST message and RECORD template. **2. Underlier ID and Underlier Characteristic [one of structure]** • If Underlier ID is selected, attributes Underlier ID and Underlier ID Source [ISIN, ESMA or PROP] must be present in the REQUEST message and only one value can be selected in the enumeration. • If Underlier Characteristic is selected, attributes Underlier ID and Underlier ID Source will not be present in REQUEST and RECORD templates. • Only "Basket" is the allowed value in the REQUEST message if Underlier Characteristic is selected. **3. Underlier ID Source** The following validation will be applied to Underlier ID based on the value selected on Underlier ID Source [ISIN, ESMA, PROP]. a. ISIN • The input text by user must be in 12 characters (2 alpha, 9 alphanumeric, 1 numeric). • The input text must not have a prefix of "QZ" or "EZ".

- A syntactic validation is being performed to confirm an ISIN when hitting create.
- If the input ISIN is less or more than 12 characters and/or is not aligned with the above pattern before hitting create, an error message will apply “Value must match the pattern ^(?!(EZ|QZ))[A-Z]{2}[A-Z0-9]{9}[0-9]$.”
- If the input ISIN is not aligned with the above pattern after hitting create, an error message will apply “If Error: /Attributes/Underlying: instance failed to match exactly one schema (matched 0 out of 2)”.
- If the input ISIN is aligned with the pattern criteria but ISIN value does not conform with syntactic validation, an error message will apply "Error: ISIN/s must be valid".

b. ESMA

- Enumeration list is based on JSON codeset (EsmaEquityIndex.json).

c. PROP

- This attribute is to be validated against a list of Equity Proprietary Indices that must have been pre-submitted to the DSB.
- The input text by user must exist in the DSB Proprietary Index Enumeration.
- The Proprietary index is made on a per asset class and only relevant to the particular asset class based on DSB data. The only exception is asset class “Other” which is applicable to all asset classes.
- If the input Prop Index does not exist in the DSB Proprietary Index Enumeration, value will be rejected with an error message “Error: Given Index/ices must be an existing and valid Equity or Multi-Asset Index”.

Normalization

1. Underlying Instrument Index

- For any given Equity Index submission, a validation will apply against the existence of an ISIN and return the Index ISIN as part of the record in place of the Index Name.

Request Template		Record Template
Underlying Instrument Index	→	Underlying Instrument ISIN
KOSPI 200		KRD020020016

- If Index name has no associated Index ISIN, the index name input by the user will return in the record.

Request Template		Record Template
Underlying Instrument Index	→	Underlying Instrument Index
MSCI EM USD		MSCI EM USD

List of Indices and associated ISINs can be found here.

Attribute Data Dictionary

This section provides the exact reference or source of the attribute.

Full Name	Source	Type
Underlying Asset Type	ISO 10962 Classification of financial instruments (CFI code)	Enums *[Single Stock; Index; Basket; Options; Forwards; Futures; Other]*
Underlying Instrument ISIN	Not Available	Max of 12 text (pattern) [A-Z] – firsts 2 characters [A-Z], [0-9] – Next 9 characters [0-9] – Last value is based on ISIN calculation
Underlying Instrument Index	ESMA TTC	Max of 350Text (based on string) minLength: 1 maxLength: 350
Underlying Instrument Index Prop	DSB Proprietary Index Enumerations	(Based on string)
Option Type	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01	Enums *[CALL; PUTO; OPTL]*
Option Exercise Style	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01	Enums *[AMER; BERM; EURO]*
Valuation Method or Trigger	ISO 10962 Classification of financial instruments (CFI code)	Enums *[Vanilla; Asian; Digital (Binary); Barrier; Digital*

		Barrier; Lookback; Other Path Dependent; Other]
Delivery Type	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01	Enums *[CASH, PHYS, OPTL]*
CFI Delivery Type	ISO 10962 Classification of financial instruments (CFI code)	Enums *[Cash; Physical; Elect at Exercise]*

Derivation

This section provides additional details to the derivation logic specified in the Template Layout sections (above).

Classification Type	Concatenation of the following attributes/values: • Instrument Type: “H” • Asset Class: “E” • Underlying Asset Type: from Request.UnderlyingAssetType… - Single Stock → S - Index → I - Basket → B - Options → O - Forwards → R - Futures → F - Other → M • Option Type/Style: from Request.OptionType and Request.OptionExerciseStyle… - PUTO/AMER → E - PUTO/BERM → F - PUTO/EURO → D - CALL/AMER → B - CALL/BERM → C - CALL/EURO → A - OPTL/AMER → H - OPTL/BERM → I - OPTL/EURO → G • Valuation Method or Trigger: from Request.ValuationMethodorTrigger… - Vanilla → V - Asian → A - Digital (Binary) → D - Barrier → B - Digital Barrier → G - Lookback → L - Other Path Dependent→ P - Other → M • Delivery Type: from Request.DeliveryType… - CASH → C - PHYS → P - OPTL → E E.g.: “HESGMP”
Short Name	Concatenation of the following attributes/values: • Issuer: “NA/” • Instrument Type: “O” (fixed value) • Underlying Asset Type: from Request.UnderlyingAssetType… - *Single Stock →* *Sgle Stk* - *Index →* *Idx* - *Basket →* *Bskt* - *Options →* *Options* - *Forwards →* *Forwards* - *Futures →* *Futures* - *Other →* *Oth* • Option Type: from Request.OptionType… - *PUTO →* *Put* - *CALL →* *Call* - *OPTL →* *Opt* • Option Exercise Style: from Request.OptionExerciseStyle…

		- *AMER →* *Amr* - *BERM →* *Brm* - *EURO →* *Epn* E.g.: "NA/O Sgle Stk Opt Epn" *Note: The Short Name is based on the OTC ISIN that excludes the following fields:* - *Notional Currency* - *Expiry Date*
	Underlier Characteristic	Based on the attribute selected, the following derivations will apply: 1. If in the oneOf a single [ISIN, ESMA or PROP] is selected: • then set the Underlier Characteristic to "Single". 2. If in the oneOf a Basket is selected: • then set the Underlier Characteristic to "Basket".
	CFI Option Style and Type	Derived from the input Request.OptionType and Request.OptionExerciseStyle… • PUTO/AMER → "American-Put" • PUTO/BERM → "Bermudan-Put" • PUTO/EURO → "European-Put" • CALL/AMER → "American-Call" • CALL/BERM → "Bermudan-Call" • CALL/EURO → "European-Call" • OPTL/AMER → "American-Chooser" • OPTL/BERM → "Bermudan-Chooser" • OPTL/EURO → "European-Chooser"
	CFI Delivery Type	Derived from the input Delivery Type… • CASH → "Cash" • PHYS → "Physical" • OPTL → "Elect at Exercise"
GUI Details	The following section provides display information for any attributes (and values) that are not included in the related OTC ISIN definition.	

Attribute	Display Name	Tool Tip (and • *value elaboration*)
Underlier ID	Underlier ID	An identifier that can be used to determine the asset(s), index (indices) or benchmark underlying a contract or, in the case of a foreign exchange derivative, identification of the currency pair or index
Underlier ID Source	Underlier ID Source	The origin, or publisher, of the associated underlier ID.
Underlying Structure	Underlying Structure	Indicates whether the product is based on a single underlier or a basket of underliers.
Underlier Type	Underlier Type	Indicates the type of underlying asset or entity on which the product is based.
Underlier Characteristic	Underlier Characteristic	An attribute that is used to specify whether the product is based on a single or multiple underliers.
UPI	Identification	Unique Product Identifier (ISO 4914).
CFI Option Style and Type	CFI Option Style and Type	The Delivery Type as defined by CFI code: ISO 10962. For all values: • *As defined by CFI Code: ISO 10962*
CFI Delivery Type	CFI Delivery Type	The Delivery Type as defined by CFI code: ISO 10962 • *As defined by CFI Code: ISO 10962*

Additional Information	
Reference	References to external documents can be found on the DSB website at this address [https://www.anna-dsb.com/upi-external-reference-documents/].
Comments	• The Option Type enumerated values of UPI will be based on current DSB OTC ISIN values [CALL; PUTO; OPTL] rather than the ISO 20022 values [CALL; PUTO; OTHR].

<table>
<tr><td></td><td colspan="4">In Equity, the short name abbreviation for Option Type [CALL; PUTO; OPTL] are [Call; Put; Opt] whereas Commodities has [Call; Put; OPTL]; Rates has [Call; P; Opt]; Foreign_Exchange has [Call; Put; O]. For Credit, option type is not part of the short name.
Currently, the system does not hold reference data to support the validation of the LEI or ISIN. This means that it is not possible to validate the existence or classification of the Underlier ID. In addition, this means that human-readable alias is not currently supported for inclusion in the Short Name attribute.</td></tr>
<tr><td rowspan="15">ISO 4914 Equivalence</td><th colspan="2">ISO 4914</th><th>Request Attribute</th><th>Record Attribute</th></tr>
<tr><td>Asset Class</td><td>M</td><td colspan="2">Asset Class</td></tr>
<tr><td>Instrument type</td><td>M</td><td colspan="2">Instrument Type</td></tr>
<tr><td rowspan="2">Delivery type</td><td rowspan="2">M</td><td rowspan="2">Delivery Type</td><td>Delivery Type</td></tr>
<tr><td>CFI Delivery Type</td></tr>
<tr><td>Option Style</td><td>M</td><td colspan="2">Option Exercise Style</td></tr>
<tr><td>Option Type</td><td>M</td><td colspan="2">Option Type</td></tr>
<tr><td>Return, pricing method or payout trigger</td><td>M</td><td colspan="2">Valuation Method or Trigger</td></tr>
<tr><td rowspan="3">Underlier ID*</td><td rowspan="3">C</td><td rowspan="3">Underlier ID</td><td>Underlying Instrument ISIN</td></tr>
<tr><td>Underlying Instrument Index</td></tr>
<tr><td>Underlying Instrument Index Prop</td></tr>
<tr><td>Underlier ID source*</td><td>C</td><td>Underlier ID Source</td><td>Not Required</td></tr>
<tr><td>Underlier type</td><td>M</td><td colspan="2">Underlying Asset Type</td></tr>
<tr><td>Underlying Contract Tenor Period**</td><td>C</td><td colspan="2">Not Required</td></tr>
<tr><td>Underlying Contract Tenor Period Multiplier**</td><td>C</td><td colspan="2">Not Required</td></tr>
</table>

*Underlier ID / Source is only supported by single underlying instrument (ISIN, INDEX, PROP). If the underlying is a custom basket, attribute is not required as defined in the ISO 4914 (UPI) specification.

**Underlying Contract Tenor Period / Multiplier applies only to a derivative contract underlying another derivative. For this product, the underlying is (ISIN, INDEX, PROP) and so these attributes are not required.