Derivatives Service Bureau (UPI)
CHANGE REQUEST FORM

Version	State	Author	Date	Description
1	Draft	M. Surop	23 April 2021	Initial Document
2	Draft	M. Surop	25 May 2021	Updated Validation
3	Draft	M.A. Gariplan	21 Jun 2021	Updated Validation (JSON codeset) & Record template layout
4	Draft	M. Surop	14 July 2021	Updated template layout with Underlier input method, Attributes section, GUI Details, Reference & Comment sections. Removed hyperlinks in Attribute Data Dictionary & Reference Section.

Title	**CREDIT SWAP Total Return Swap Template Definition**			
Background	The following CRF presents a specification for the generation and retrieval of a Unique Product Identifier for the following product: • **Credit : Swap : Total_Return_Swap**	**DSB-ID**	**UPI-0215**	
		Type	New Template	
		Owner	M. Surop	
		Version	4	
		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 assumes that underlying instrument index term unit/value is to be included as part of the definition of the underlier. • The specification for underlying debt issuance tenor period/underlying debt issuance tenor period multiplier is subject for review and approval by CDIDE as part of ISO 4914 standard.

Request Template Layout

Section	Attribute	Format	Cat	Example Value	Validation / Derivation	Enum Source	Origin
Header Section	Asset Class	Set	M	Credit		CFI:2015 Char#2 (SC****)	ISIN
	Instrument Type	Set	M	Swap		CFI:2015 Char#1 (SC****)	ISIN
	Product	Set	M	Total_Return_Swap			ISIN
	Level	Set	M	UPI			NEW
Attribute Section	Underlier Type (oneOf)	Enum	M	Fixed Income Security	[Fixed Income Security]		NEW
	Underlier ID Source	String	D	ISIN	[ISIN]	Internal	NEW
	Underlier ID	Enum	M	TH3871A33400	See CRF (Validations)		NEW
	Underlier Type (oneOf)	Enum	M	Legal Entity	[Legal Entity]		NEW
	Underlier ID Source	String	D	LEI	[LEI]	Internal	NEW
	Underlier ID	Enum	M	G5GSEF7VJP5I7OUK5573	See CRF (Validations)	ISO 17442 LEI Codes	NEW
	Underlier Type (oneOf)	Enum	M	Proprietary Index	[Proprietary Index]		NEW
	Underlier ID Source	String	D	PROP	[PROP]	Internal	NEW
	Underlier ID	Enum	M	58354-NMCDMOVW	See CRF (Validations)	DSB Proprietary Index Enumeration	NEW
	Underlier Type (oneOf)	Enum	M	Credit Index	[Credit Index]		NEW
	Underlier ID Source	String	D	MRKT	[MRKT]	Internal	NEW
	Underlier ID	Enum	M	CDX.NA.HY	MrktCreditIndex.json [See CRF (Validations)]	Markit Indices	NEW
	Underlying Instrument Index Term Value	Integer	C	12	See CRF (Validations)		ISIN
	Underlying Instrument Index Term Unit	Enum	C	MNTH	See CRF (Validations)	ISO 20022	ISIN
	Underlying Credit Index Series	Integer	C	5	See CRF (Validations)		ISIN
	Underlying Credit Index Version	Integer	C	10	See CRF (Validations)		ISIN
	Debt Seniority	Enum	C	SNDB	[SNDB, MZZD, SBOD, JUND]	ISO 20022	ISIN
	Delivery Type	Enum	M	CASH	[CASH; PHYS; OPTL]	ISO 20022	ISIN

Record Template Layout

Section	Attribute	Format	Cat	Example Value	Validation / Derivation	Enum Source	Origin
Header Section	Asset Class	Set	M	Credit		CFI:2015 Char#2 (SC****)	ISIN
	Instrument Type	Set	M	Swap		CFI:2015 Char#1 (SC****)	ISIN
	Product	Set	M	Total_Return_Swap			ISIN
	Level	Set	M	UPI			NEW
	Template Version	Integer	D	1			ISIN
Attribute Section	Underlying Instrument LEI	String	C	G5GSEF7VJP5I7OUK5573	See CRF (Validations)	ISO 17442 LEI Codes	ISIN
	Underlying Instrument ISIN	String	C	TH3871A33400	See CRF (Validations)		ISIN
	Underlying Instrument Index	String	C	CDX.NA.HY	MrktCreditIndex.json [See CRF (Validations)]	Markit Indices	ISIN
	Underlying Instrument Index Prop	String	C	58354-NMCDMOVW	See CRF (Validations)	DSB Proprietary Index Enumeration	ISIN
	Underlying Instrument Index Term Value	Integer	C	1	See CRF (Validations & Normalization)		ISIN
	Underlying Instrument Index Term Unit	Enum	C	YEAR	See CRF (Validations & Normalization)	ISO 20022	ISIN
	Underlying Credit Index Series	Integer	C	5	See CRF (Validations)		ISIN
	Underlying Credit Index Version	Integer	C	10	See CRF (Validations)		ISIN
	Debt Seniority	Enum	C	SNDB	See CRF (Validations)	ISO 20022	ISIN
	Delivery Type	Enum	M	CASH	[CASH; PHYS; OPTL]	ISO 20022	ISIN
Identifier Section	UPI	String	D	QZXBMR5NL326	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	2021-04-23T04:20:45	YYYY-MM-DDThh:mm:ss		ISIN
Derived Section	Classification Type	String	D	SCITCC	See CRF (Derivations)	ISO 10962:2015	ISIN
	Short Name	String	D	NA/CDS Corp Idx	See CRF (Derivations)	ISO 18774	NEW
	Underlying Asset Type	String	D	Index	See CRF (Derivations)	CFI:2015 Char#3 (SC****)	ISIN
	Return or Payout Trigger	String	D	Total Return	Fixed value	CFI:2015 Char#4 (SC*T**)	ISIN
	Underlying Issuer Type	String	D	Corporate	Fixed value	CFI:2015 Char#5 (SC**C*)	ISIN
	CFI Delivery Type	String	D	Cash	See CRF (Derivations)	CFI:2015 Char#6 (SC****)	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) **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: • Legal Entity • Fixed Income Security • Proprietary Index • Credit 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. Underlier ID** The following validation will be applied to Underlier ID based on the value selected on Underlier ID Source [LEI, ISIN, MRKT, PROP]. • LEI • The input text by user must be in 20 characters (18 alphanumeric, 2 numeric). • A syntactic validation is being performed to confirm LEI. • If the input LEI is less or more than 20 characters and/or is not aligned with the above pattern before hitting create, an error message will apply "Value must match the pattern ^[A-Z0-9]{18}[0-9]{2}\$. • If the input LEI is not aligned with the pattern and conformed with the syntactic validation after hitting create, an error message will apply "Error: /Attributes/Underlying: instance failed to match exactly one schema (matched 0 out of 2)". • 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 and conformed with the syntactic validation after hitting create, an error message will apply "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 conformed with syntactic validation, an error message will apply "Error: ISIN/s must be valid". • MRKT • Enumeration list is based on JSON codeset (MrktCreditIndex.json). • PROP • This attribute is to be validated against a list of Credit 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 Proprietary Indices must be valid for Asset Class Credit or Other". **2. Underlying Instrument Index Term Value / Underlying Instrument Index Term Unit** a. If Underlier ID Source selected is MRKT, the following will apply: • Underlying Instrument Index Term Unit: *[DAYS, WEEK, MNTH, YEAR].* • Underlying Instrument Index Term Value: Input text must be an integer (positive or negative but not 0). • If Underlier ID Source selected is either LEI, ISIN or PROP, remove these attributes in the request template. **3. Underlying Credit Index Series / Underlying Credit Index Version** • If Underlier ID Source selected is MRKT, the following validations will apply: • The input text by the user must be a positive integer from 1 to 999. • If the input text has a prefix of negative (-), an error message will apply: "Value must be at least 1." • If the input contains negative (-) after the integer, an error message will apply "Value must be of type integer. Value must be at most 999. Value must be at least 1." • If the input text contains character, remove the character and retain the integer if exists. • If Underlier ID Source selected is either LEI, ISIN, or PROP, remove these attributes in the request template. **4. Debt Seniority** • If Underlier ID Source selected is either LEI or ISIN, list the enumerated values for Debt Seniority *[SNDB, MZZD, SBOD, JUND].*

	• If Underlier ID Source selected is either MRKT or PROP, remove the Debt Seniority attribute in the request template.
Normalization	1. **Underlying Instrument Index Term Value / Underlying Instrument Index Term Unit** • If Underlying Instrument Index Term Unit = "DAYS" and Underlying Instrument Index Term Value is divisible by 7, record it in weeks:

<table>
<tr><td>Underlying Instrument Index Term Value</td><td>7</td><td rowspan="2">→</td><td>Underlying Instrument Index Term Value</td><td>1</td></tr>
<tr><td>Underlying Instrument Index Term Unit</td><td>DAYS</td><td>Underlying Instrument Index Term Unit</td><td>WEEK</td></tr>
</table>

• If Underlying Instrument Index Term Unit = "MNTH" and Underlying Instrument Index Term Value is divisible by 12, record it in years:

<table>
<tr><td>Underlying Instrument Index Term Value</td><td>12</td><td rowspan="2">→</td><td>Underlying Instrument Index Term Value</td><td>1</td></tr>
<tr><td>Underlying Instrument Index Term Unit</td><td>MNTH</td><td>Underlying Instrument Index Term Unit</td><td>YEAR</td></tr>
</table>

Attribute Data Dictionary

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

Full Name	Source	Type
Delivery Type	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01	Enums *[CASH, PHYS, OPTL]*
CFI Delivery Type	ISO 10962 Classification of financial instruments (CFI code)	Enums *[Cash, Physical, Auction]*
Debt Seniority	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01 *Note: Only applies if Underlier ID Source is [ISIN; LEI].*	Enums *[SNDB, MZZD, SBOD, JUND]*
Underlying Instrument LEI	ISO 17442 LEI Codes	Max of 20 text (pattern) Char 1-4: LOU Identifier Char 5-18: Entity Identifier Char 19-20: Verification ID
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	Markit Indices	Max350Text (based on string) minLength: 1 maxLength: 350
Underlying Instrument Index Prop	DSB Proprietary Index Enumerations	(Based on string)
Underlying Credit Index Series	Positive Integer (1 to 999) *Note: Only applies if Underlier ID Source is MRKT.*	Max3Number fractionDigits: 0 totalDigits: 3
Underlying Credit Index Version	Positive Integer (1 to 999) *Note: Only applies if Underlier ID Source is MRKT.*	Max3Number fractionDigits: 0 totalDigits: 3
Underlying Instrument Index Term Value	Integer – Positive or negative but not 0 *Note: Only applies if Underlier ID Source is MRKT.*	Max3Number (based on decimal) fractionDigits: 0 totalDigits: 3
Underlying Instrument Index Term Unit	ISO 20022 FinancialInstrumentReportingReferenceDataReportV01	Enums *[DAYS, WEEK, MNTH, YEAR]*

		Note: Only applies if Underlier ID Source is MRKT.

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: "S"
		• Asset Class: "C"
		• Underlying Asset Type:
		  - *Single Name* → "U" (if Underlier ID Source selected is ISIN; LEI)
		  - *Index* → "I" (if Underlier ID Source selected is MRKT; PROP)
		• Return or Payout Trigger: "T"
		• Underlying Issuer Type: "C"
		• Delivery Type: from Request.DeliveryType…
		  - *CASH* → *C*
		  - *PHYS* → *P*
		  - *OPTL* → *A*
		E.g.: "SCITCC"

	Short Name	Concatenation of the following attributes/values:
		• Issuer: "NA/"
		• Instrument Type: "CDS" (fixed value)
		• Underlying Issuer Type: "Corp" (fixed value)
		• Underlying Asset Type: "SN" (if Underlier ID Source selected is ISIN; LEI)
		  "Idx" (if Underlier ID Source selected is MRKT; PROP)
		E.g.: "NA/CDS Corp Idx"
		Note: The Short Name is based on the OTC ISIN that excludes the following field:
		  - *Notional Currency*
		  - *Expiry Date*

	CFI Delivery Type	Derived from the input Delivery Type… • CASH → "Cash" • PHYS → "Physical" • OPTL → "Auction"
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 Type	Underlier Type	Indicates the type of underlying asset or entity on which the product is based.
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.
UPI	Identification	Unique Product Identifier (ISO 4914).
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	• 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. • The Contract Specification only applies to Credit.Swap.Corporate; Credit.Swap.Municipal; Credit.Swap.Sovereign & Credit.Swap.Non_Standard and does not apply to Credit.Swap.Loan; Credit.Swap.ABS; Credit.Swap.Index; Credit.Swap.Index_Tranche; & Credit.Swap.Total_Return_Swap. • Codeset name for Credit Indices must be amended from FpMLCreditIndex.json to MrktCreditIndex.json.

	• Underlying Instrument Index Term Unit/value are required fields in the DSB OTC ISIN having a default value of 0 if Underlying Instrument Index PROP is selected. In the case of UPI, if PROP is selected as underlier ID source, these attributes will be removed instead of default to 0. • Underlying Credit Index Series/Version are required fields in the DSB OTC ISIN having a default value of 0 if Underlying Instrument Index PROP is selected. In the case of UPI, if PROP is selected as underlier ID source, these attributes will be removed instead of default to 0. • Debt Seniority is a required field in DSB OTC ISIN having a default of N/A if underlying instrument selected is Markit Index or Index PROP. In the case of UPI, if MRKT or PROP is selected as underlier ID source, debt seniority will be removed in the request template instead of having a default "N/a" value.	

ISO 4914 Equivalence	ISO 4914		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
	Return, pricing method or payout trigger	M	Not Required	Return or Payout Trigger
	Seniority*	M	Debt Seniority	
	Standard Contract Specification**	C	Not Required	
	Underlier ID	C	Underlier ID	Underlying Instrument ISIN
				Underlying Instrument LEI
				Underlying Instrument Index
				Underlying Instrument Index Prop
	Underlier ID source	C	Underlier ID Source	Not Required
	Underlier type	M	Not Required	Underlying Asset Type
	Underlier sub-type (first level)	M	Not Required	Underlying Issuer Type
	Underlying credit index series***	C	Underlying Credit Index Series	
	Underlying credit index version***	C	Underlying Credit Index Version	
	Underlying debt issuance tenor period****	C	Not Required	
	Underlying debt issuance tenor period multiplier****	C	Not Required	

*Seniority applies only if underlying is a Legal Entity or Debt Instrument, refer to comments section above.

**Standard Contract Specification does not apply for this product, refer to comments section above.

***Underlying Credit Index Series/Version applies only if underlying is MRKT Indices, refer to comments section above.

****Subject for review and approval by CDIDE as part of ISO 4914 standard.