ISDA® Safe, Efficient Markets

Derivatives Symbology – Implementation Approach

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1 Executive Summary

1.1 Introduction

This document aims to summarize the regulatory and non-regulatory requirements discussed within the Symbology initiative and to propose a practical implementation strategy that will satisfy those requirements.

1.2 Regulatory Requirements

MIFID II Regulatory Summary

- **Scope** All derivative instruments for all asset classes that are traded on a trading venue or SI
- **Obligations** Reference Data Reporting
Pre- and Post-Trade Transparency Reporting
Transaction Reporting
Liquidity Determination
- **Granularity** Not explicitly stated, but imply a range from coarse (liquidity) to fine (to meet the reporting requirement)
- **Identifier** Must be identified using an ISIN (ISO 6166).

SEC Regulatory Summary

- **Scope** Security-based swaps reported by registered swap data repositories
- **Objectives** Simplify and improve the public dissemination of transactions, volumes and pricing of security-based swaps along with regulatory reporting.
- **Granularity** Rule 901 specifies the use of a UPI or a set of attributes that define the material economic terms of standardized contracts
- **Identifier** There is no prescription of the identifier that may be used

1.3 Non-Regulatory Requirement

In order to address the lack of consistency of key data elements across entities involved in trade support processing of the in scope products that can be used outside of the regulatory requirements, the industry has proposed a standardized, positional identifier. The intent is for this identifier to then become the positional reflection standard used by all parties throughout the lifecycle of the trade.

1.4 Symbology Considerations

MiFID II requires that a product identifier be utilised to facilitate compliance with several rules. ESMA has selected ISIN for this purpose, but may have underestimated (i) the limited current coverage of ISINs for OTC derivatives, and (ii) several practical issues associated with the creation of ISINs. The ISDA Symbology initiative has identified several considerations that need to be addressed to overcome those issues, and is engaging ISO/ANNA to evaluate how these can be implemented in time for compliance and in a cross-jurisdictional manner.

- **Hierarchy of Symbols** Requirements from MiFID, other regulators and business use cases imply a need to support a hierarchy of product symbols for OTC derivatives.
- **Number of Symbols** The number of symbols to be generated should be appropriate to the associated number of transactions and fit within the identifier format
- **On-The-Fly Creation** MiFID 2 requirements imply the creation of identifiers as part of a real-time workflow, e.g. to support an RFQ on a new non-benchmark swap.
- **No Re-Use of Symbols** Because of the long maturities of some derivatives and lengthy record keeping obligations, the reuse of symbols over time must not occur.
- **Open Standard** Are there any restrictions that might inhibit widespread distribution, access or usage of the symbols and associated metadata?
- **Flexibility for Innovation** It is critical that the standard and its implementation be sufficiently flexible to allow timely extension to future derivative products.
- **Timing** MiFID/MIFIR timelines require a complete specification by Q1, a solution available for testing by Q2 and a production implementation by Q3.
- **Solution Selection** A successful implementation within the required MiFID timelines may require evaluating best of breed solutions across the global landscape.

1.5 Next Steps

The ISDA Symbology initiative has drawn the following conclusions and next steps from the above considerations:

- **Hierarchy** The ISDA Symbology initiative is proposing a 3-level symbology hierarchy, tested against CFTC public price reporting data:
  1. *MiFID liquidity threshold*
  2. *Regulatory reporting*
  3. *Post-trade economic equivalence*
- **Use Cases** Develop workflow use cases with ISO / ANNA & evaluate against existing solutions.
- **Incorporation** Evaluate with ISO/ANNA how this can be incorporated into the standard.
- **Assessment** Assess with ISO/ANNA any impediments and evaluate appropriate resolution paths.

Evaluation – Evaluate with ISO/ANNA what is achievable within the current framework and infrastructure. For what is not achievable, evaluate the potential solutions that might exist outside of that framework.

2 Introduction

2.1 Background

The Derivative Symbology initiative was launched with the aim of agreeing a Symbology that would satisfy the current regulations and the wider industry requirements in relation to a standard method for the identification of derivative products.

The purpose of this document is to summarize the regulatory and non-regulatory requirements discussed within the Symbology initiative and to propose a practical implementation strategy that will satisfy those requirements.

3 Regulatory Requirements

3.1 Introduction

This section of the document summarizes the findings of the Regulatory WG that has been analysing the MiFID II regulations in detail to identify the direct and implied requirements for a derivatives instrument identifier.
The Regulatory WG examined specifically those MiFID II regulations that concerned reference data, pre- and post-trade transparency and transaction reporting (contained in RTS 2, 3, 22 and 23). It should be noted that the MiFID II Best Execution requirements were considered to be a sub-set of the above regulations and the Systematic Internaliser calculations have yet to be agreed – and will therefore need to be reviewed at a future date.

3.1.1 MiFID II Regulations

- **Scope** All derivative instruments that are traded on a trading venue or by a systematic internaliser (SI) require an ISIN.
- **Objectives**
  - Capture and share across all regulators the full population of reference data for the in-scope OTC derivatives traded – this data will allow the regulator to understand the detail of active instruments
  - Create public price transparency on derivatives for both pre and post-trade data
  - Test instrument liquidity and size waivers for transparency to prevent damaging market liquidity or creating volatility spikes
  - Capture and analyze transaction data to monitor market abuse and systemic risks
- **Granularity** The regulations do not specify a particular level of granularity. Essentially, for each of the above objectives, they require a different sets of fields amongst which is an ISIN. These sets range from the very coarse (for the liquidity tests) to the very fine (to meet the spirit of the transparency requirement)
- **Identifier** Instruments that are subject to the regulatory obligations (above) must be identified using an ISIN (ISO 6166).

3.1.2 SEC Regulations

- **Scope** Security-based swaps reported by registered swap data repositories
- **Objectives** Simplify and improve the public dissemination of transactions, volumes and pricing of security-based swaps
- **Granularity** Rule 901 specifies the use of a UPI or a set of attributes that define the material economic terms of standardized contracts
- **Identifier** There is no prescription of the identifier that may be used

3.1.3 CPMI IOSCO

CPMI and IOSCO are planning to issue a consultative report on global UPIs in the near future and the contents of this report will need to be taken into consideration in the definition of the symbology.

4 Non-Regulatory Requirement

4.1 Introduction

One of the biggest issues currently facing the industry from the point of trade execution through to the point of trade reporting, is the lack of consistency of key data elements (i.e. Positional Identifiers) across entities involved in trade support processing. The existing identifiers may be considered to be:

- **Too high / low level** OTC derivatives trades are given USIs (US) or UTIs (EU) at execution.
  ISDA has defined a taxonomy that provides classifications for derivative products.

- **Too stand-alone** Each CCP offers netting services and generates a *position identifier* for risk netted positions comprised of multiple trades.
  End users and Asset Owners have no way to link these CCP-specific position identifiers to the USI/UTIs that were generated at trade execution.
  This creates operational risk and makes such products very difficult to track through the multiple touch points associated with the trade- and risk-management lifecycle.

This lack of standardization creates inefficiencies in the overall end-to-end business process for cleared OTC derivatives which needs to be addressed by the introduction of an identifier that is defined at a standard positional level. The identifier should be used to support use cases from SEF execution and processing through to Central Clearing Counterparties, Clearing Broker statements, Trade Repository reports and portfolio reconciliation tools in addition to related valuation and collateralization processes.

4.2 Requirement Summary

In order to provide an identifier that can be used outside of the regulatory requirements, the industry has proposed a standardized, available, and widely utilized series of "positional identifiers" across the in-scope products. The intent is for this identifier to then become the positional reflection standard throughout the lifecycle of the trade and the chosen identifier would be considered unique when…

- *Two assets with the same identifier have economic equivalence.*
- *The identifier would support the effective pricing of a notional of one.*
- *The identifier could be used for risk free netting of two products at a CCP.*

The identifier should be generated at the earliest point of the life cycle so that it can be leveraged in trade communication from asset managers to accounting agent, be available to CCPs for pricing, and FCMs for reconciliation and margin management.

It should be noted that the above requirement for a position identifier satisfies a single requirement and that an identifier at another level of granularity may emerge from the industry at some point in the future. For this reason it is important that the proposed solution is flexible enough to support an extension to the requirement.

5 Symbology Principles

5.1 Introduction

The following section is based upon a set of general principles that were agreed by the Governance Working Group in order to provide a framework for the eventual choice of a suitable symbology.

Whilst the regulations (detailed in Section 4 of this document) provide the primary drivers for the selection of a symbology, the following principles represent the broader requirements of the industry and should therefore ensure that the chosen solution is not simply used to satisfy the various regulations but also proves beneficial in the processing of the in scope products.

This section of the document lists the Symbology Principles that were agreed by the Governance Working Group. The Principles cover a number of areas – format, governance and implementation – and have been used as input to the recommended approach detailed later in this document.

- **Conformant** — The symbology will be capable of being applied to the globally relevant regulations for the product.
- **Open-Source** — Access, distribution, redistribution and use of the symbology will be universal and unrestricted by license.
- **Reasonable Cost** — Cost of issuance / access / processing of the symbology will be reasonable and reflect the cost of operation.
- **Neutrality** — The symbology will not be dependent upon factors that are specific to a jurisdiction – ensuring that it will be globally applicable.

- **Clarity** The symbology will be clear, legible and unambiguous as to format and generation.[1]
- **Timeliness** Generation of the symbology will be at the most appropriate point of the workflow and access to the symbology will be timely.
- **Backward-Compatible** The symbology will be applicable to existing products.
- **Extensible** The symbology will be able to be adapted to support product types that are not included in the initial product scope.
- **Persistent** The symbology will remain valid for as long as the key attributes remain the same.
- **Representation** The symbology will be transmittable through generally accepted means of communication.
- **Traceability** The symbology will provide an audit trail of the product ID or key attribute changes.
- **Consistency** The symbology will aim for a consistently formatted symbology across all in scope asset classes.
- **Format** The symbology should be a fixed-length string with a reasonable maximum number of characters.
- **Industry Requirements** The symbology will support the agreed non-regulatory requirements of the industry.

6 Proposed Implementation Approach

6.1 Introduction

In order to satisfy the requirements detailed in this document a multi-tiered approach to derivative product identification would provide an appropriate solution for both regulatory and industry needs. Specifically, the use of a hierarchical symbology makes it easier for the market participants to satisfy the multiple regulatory and industry requirements in a coherent manner that minimises operational risk and maximises the possibility of achieving the regulatory objectives of achieving transparency at the financial instrument level.

The structure of the hierarchy needs to be defined in detail, but may include the following tiers (in granularity order from coarse-grain to fine-grain):

- **Liquidity Determination** *ESMA – MiFID2/MiFIR liquidity buckets*
  The level required within the MiFID regulations for the determination of liquidity and size thresholds.

- **Reporting** *ESMA – MiFID2/MiFIR – RTS 2, 3, 22 and 23*
  SEC 17 CFR Part 242 (901)
  The level required by MiFID II at which pre-/post-trade, transaction, reference data is to be measured. It also needs to

[1] *In relation to the Clarity Principle, the term "Legible" means that the ID is human-readable (unlike a bar-code) but is not necessarily meaningful (as a ticker would be)*

satisfy the equivalent requirements from the SEC for the reporting of asset based swaps.

- **Post-Trade Processing** — *Industry : Position keeping, netting*
  The level at which products are economically equivalent and where the same price can be applied. This level would also satisfy the spirit of the MiFID II regulations for transparency and transaction reporting.

- **Other** — In addition to the above, other regulatory authorities may require product reporting at other levels of granularity in the future and these additional tiers would need to be accommodated within the structure of the symbology. It should also be noted that an increase in the scope of covered products could result in an additional level of granularity.

It is recommended that the various levels of a multi-tiered symbol would constitute a hierarchy in which all attributes that are used to define a coarse-grained tier would also form the basis of a more detailed tier, in order to ensure data integrity across all levels of the hierarchies.

The ISDA Symbology initiative has considered the way in which the proposed symbology should be formatted but in light of the ESMA decision, the ISIN format was agreed as the most suitable format by the group. However, the group did work through the arguments concerning the possible ways in which an identifier should be formatted for the in scope products and the details of that process are provided in Appendix I of this document.

6.2 Symbology Considerations

MiFID II requires that a product identifier be utilised to facilitate compliance with several rules. ESMA has selected ISIN for this purpose, but may have underestimated (i) the limited current coverage of ISINs for OTC derivatives, and (ii) several practical issues associated with the creation of ISINs. The ISDA Symbology initiative has identified several considerations that need to be addressed to overcome those issues, and is engaging ISO/ANNA to evaluate how these can be implemented in time for compliance and in a cross-jurisdictional manner.

- **Hierarchy of Symbols** — The different usages for a derivatives product symbology imply the need to support a “hierarchy of symbols”.
  These usages include:
  - Support the respective MiFID provisions for liquidity classes, transparency, transaction reporting and reference data reporting
  - Support other regulatory regimes, including SEC and future CPMI-IOSCO requirements
  - Support non-regulatory usages such as unique position identifiers

  Question: How can a hierarchy of symbols be implemented within the ISO 6166 framework?

- **On-The-Fly ISIN Creation** It is understood that meeting MiFID II requirements will involve - he industry implementation of a flexible workflow to enable real-time ISIN creation as part of pre-trade workflows. E.g. as part of an RFQ on a new non-benchmark swap.
  Question: How can the industry implement a full front-to-back real-time ISIN solution within the established timelines?

- **Number of ISINs** The level of granularity specified by ESMA could lead to a very high number of ISINs which require to be issued. Analysis based upon the US public price reporting data to evaluate different scenarios in this respect is currently being performed.
  Question: What could be the implications of very high number of ISINs?

- **No Re-Use of Symbols** Because of the long maturities of some derivatives transactions and lengthy record keeping requirements beyond the maturity date, we believe that there should not be any reuse of symbols over time.
  Question: How best to ensure there is no symbol re-use?

- **Flexibility for Innovation** Given continued innovation in the industry, it is critical that the ISO standard and its implementation are sufficiently flexible to allow timely extension to future derivative products
  Question: How best can this be achieved?

- **Open Standards** There is a broad consensus among regulators and market participants that unrestricted open access is of critical importance.
  Question: Are there any restrictions that might inhibit widespread distribution, access or usage of the symbols and associated metadata?

- **Best of Breed Solution** We believe that a successful implementation of a derivatives product symbology within the required timelines and in the most cost-optimal manner will require the selection of best-of-breed solutions chosen from a broad selection of service providers.
  Question: What steps will ensure the selection of the best of breed solution?

- **Domain expertise** Given the short timeframes to go-live, the involvement of derivatives industry experts will be critical to the success of the ISIN implementation
  Question: What are the best ways to engage with ISO and ANNA to provide such expertise?

- **Timing** In order to allow timely implementation by the market for the MiFID II/MIFIR mandate of 3rd Jan 2017, we believe the following milestones need to be met for all derivatives in scope of MiFID II/MIFIR:

- **End Q1 2016**: full technical specifications of both standards and implementations
- **End Q2 2016**: test implementation
- **End Q3 2016**: production implementation

Question: What processes need to be adopted to allow these milestones to be met?

6.3 Next Steps

The ISDA Symbology initiative has drawn the following conclusions and next steps from the above considerations:

- **Hierarchy** The ISDA Symbology initiative is proposing a 3-level symbology hierarchy, tested against CFTC public price reporting data:
  1. *MiFID liquidity threshold*
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- **Use Cases** Develop workflow use cases with ISO / ANNA & evaluate against existing solutions.
- **Incorporation** Evaluate with ISO/ANNA how this can be incorporated into the standard.
- **Assessment** Assess with ISO/ANNA any impediments and evaluate appropriate resolution paths.

EvaluationEvaluate with ISO/ANNA what is achievable within the current framework and infrastructure. For what is not achievable, evaluate the potential solutions that might exist outside of that framework.

7 Appendices

7.1 Appendix I: Format Requirements

7.1.1 Introduction

As part of the symbology initiative, the group ran through the various ways in which the identifier could be formatted and generated while satisfying the agreed requirements and principles. At present, the MiFID II requirements define the need for the the identifier to confirm to the standards set for ISIN and so these arguments are currently redundant. The following section provides the details of this analysis and the approach that was agreed by the group.

This section of the document examines the ways in which a product ID might be formatted and how the symbology would be generated and managed. The candidate options are measured against the relevant regulatory and non-regulatory requirements (see previous) in order to arrive at a suitable solution for the industry.

This section of the document is not concerned with the provision, governance or administration of the symbology since it is necessary to establish an appropriate format for the symbology before moving onto the implementation and adoption of that symbology. Instead, it examines the various ways in which an appropriate id may be represented and the method by which such an id would be generated.

7.1.2 Locally Generated Symbology

The creation of a product ID that is derived from the attributes of a product will create an ID that is fully or partially meaningful to the user and would allow the attributes contained in the ID to be derived by the user.

The creation of a derived symbology would require the definition of an exact format (attribute order, enumerations, reference codes, default values etc.) and may also require the creation and distribution of an algorithm that would generate the string. However, all institutions wishing to create an ID from a set of attributes would be able to generate an identical product ID without reference to a central authority or database.

In order to create a derived identifier, the attributes of the product are concatenated to form the product ID. Whilst it would be possible to abbreviate the attributes (eg: Single Name Swap = SNS), the Product ID is essentially a string generated directly from the agreed attributes. Eg: : CR-SN-FORD-S-USD-SNAC-MAY19-100-MMR

The main advantages of the derived symbology are that it is meaningful, it can be generated without reference to a central agency or service (and is thus available as soon as it is required) and it can easily support aggregation and filtering.

However, the main disadvantages are that the ID will change if any (minor) element of the product were amended and that if the rules for generating the ID were updated, the algorithm

would need to be distributed to (and implemented by) all users in order to ensure the consistency of the identifier. Additionally, this method will produce an ID of variable length (that could be long) and would be inconsistent across different assets.

In order to create a more manageable identifier, it would be possible to abstract the identifier by feeding the attributes of the product into an algorithm to produce a generated code. This would produce a shorter identifier than the direct method and would still allow the attributes of the product to be derived from the ID (by "reversing" the algorithm) but it still suffers from the previously mentioned disadvantages and is also less meaningful due to the abstraction of the attributes.

7.1.3 Centrally Issued Symbology

The alternative method of ID creation is to follow the generated model in which the attributes that define a product are used by an agency/service to create a unique product ID. The product is always associated with the resultant ID and it is entirely meaningless to the user since the ID is a randomly assigned series of characters.

There are two main methods by which the Generated Symbology could be created:

- **Pre-Allocated** In order to ensure that the product IDs are available as soon as they are required (eg: quoting), the agency/service generates unique IDs for all possible combinations of attributes for each asset type. Depending upon the level of granularity and the scope of the product universe this may result in a large number of IDs (some of which may never be used) but it eliminates latency issues for the create IDs.

- **As Required** As an alternative to pre-allocation it is also possible for the product IDs to be created at the time that they are required. In the example used above, the following attributes would be sent to an agency/service: CR, SNS, FORD, SEN, USD, SNAC, NOV19, 100, MMR whereupon the agency/service would return a product ID produced independently from the received attributes. If two institutions send an identical set of attributes, them the same product ID would be returned.

Whilst the timing of the product ID maybe different, these two methods result in a identifier that is meaningless and therefore requires associated meta-data to be made available (via API or regular download) in order to provide the user with the necessary intelligence about the product.

The advantages of the Generated Symbology are that it is possible to create a fixed-length string with a reasonable number of characters, it is consistent across all assets, it can handle additional or bespoke products without impacting the format of the ID and the meta-data provides the necessary supporting information for display, aggregation or filtering.

The disadvantages of pre-allocation derive from the challenges presented by the lack of ex-ante knowledge of the exact trade parameters that a client might request – as a result, such an approach is only practical at a high level of granularity (since the possible permutations can

quickly become too numerous) and it is highly problematic for bespoke or non-standard products. With the creation of identifier on an "as required" basis, the main issues are ensuring that the ID can be requested, created and distributed to all participants in the trading ecosystem in a timely (ie. almost immediate) fashion and, in parallel, protecting against the creation of different IDs for identical products (due to attribute mismatches, or due to multiple requests for and ID for the same product at the same time – an inherent feature of off-venue RFQ based trading).

In both cases, the issue of meta-data access and distribution also needs to be considered.

7.1.4 Conclusion

The assessment of the possible solutions detailed above suggests that a generated symbology with central issuance provides a best fit to the requirements of the industry, a proposal that is supported by the regulatory requirement (expressed in MiFID II) for the use of an ISIN to identify derivative instruments.

The question of whether the product ID could be pre-allocated or generated as required can only be answered when more details about the levels of granularity have been agreed. If there are a small number of standard products at a coarse level of granularity required, then it may be possible to pre-allocate the codes and augment them with a small number of "trade level" parameters to uniquely represent a contract. However, if the required granularity is at a detailed level then the number of permutations would imply that an "as required" method would provide a better solution, subject to an acceptable solution to the non-trivial problems surrounding timeliness and speed of issuance/dissemination being found.

It is important that the appropriate solution is selected for the generation of the identifier given the complex requirements and varied use cases that are to be satisfied. However, it is possible that a hybrid solution may be proposed in which standard products have identifiers that are pre-allocated, whilst the identifiers for non-standard products may be generated in real time.