ANNA-DSB

Technology and Operations Consultation Paper 1

FINAL REPORT

09 February 2017

1 Executive Summary

- European legislation MiFID II/MiFIR & MAR have specified the use of ISIN for all the instruments in-scope, including OTC Derivatives moving to trade on an EU Trading Venue
- ANNA, after discussions with the industry and ISO, have set up the Derivatives Service Bureau (DSB) to deliver global, permanent and timely ISINs to OTC Derivatives
- This final report is focused on important parts of the technological and operational parts of the DSB and the responses from the consultation
- The DSB received 14 responses to the Technology & Operations Consultation Paper and would like to take this opportunity to thank all the respondents that contributed – especially given the permitted timeframe
- This report analyses those responses and then summarizes the conclusions reached by the DSB. Certain details of the implementation will be finalized in combination with the newly appointed infrastructure Service Provider. As these decisions are made, the DSB will publish future documentation for the industry to consume
- The DSB is aware there is still some uncertainty surrounding ISIN usage and timing from a EU regulatory perspective and as a result, some of the responses were focused on race conditions that might not be relevant once the regulations are clarified. To mitigate this risk, the DSB has been deliberately designed and implemented with flexibility and expandability in its core
- The DSB will continue to publish and update Questions and Answers throughout 2017

Contents

2 Introduction

2.1 Background

The Association of National Numbering Agencies ("ANNA"), a corporation organized under the laws of Belgium, is founding the Derivatives Service Bureau (DSB), for the issuance and maintenance of International Securities Identification Numbers (ISINs) for OTC Derivatives. The DSB will rely on an automated platform capable of allocating ISINs in near real-time.

The European Union's MiFID II/MiFIR regulations take effect on 02 January 2018 and mandate the use of ISINs to identify OTC derivatives listed on a European trading venue.

2.2 DSB Approach

The DSB is consulting with the industry to ensure that its operational and technological processes and costs meet the industry's needs without compromising the fundamental service it is required to provide.

The DSB has recently appointed an infrastructure service provider (Service Provision Provider - SPP). The SPP is focused on providing and supporting the core infrastructure for the DSB including such items such as servers, network, data storage, receipt and distribution of network data.

This consultation was focused on the DSB Technology and Operations.

2.3 Organization of this report and feedback to the consultation

This report is organized in a number of sections that cover key technical and operational aspects of the DSB, along with the DSB's analysis of responses and final proposal that will form the basis on which the DSB moves forward:

- Section 3: Details the key operational processes or business use-cases supported by the DSB
- Section 4: Details the availability and conditions for FIX connectivity to the DSB Demo
- Section 5: Details the proposed approach to on-board stakeholders into the DSB UAT environment
- Section 6: Details key aspects of the capacity of the system
- Section 7: Details key aspects of performance and throughput of the system
- Section 8: Details key aspects of the availability of the system
- Section 9: Details key security aspects of the system
- Section 10: Details key aspects of connectivity to the system
- Sections 11 and 12: Detail key aspects of storage and disaster recovery of the system
- Section 13: Details the schedule of the implementation steps for the DSB

When required the DSB will issue further clarifications through Q&A on its website.

3 Key Operational Processes

The following was laid out in the ANNA DSB Connectivity Specifications (http://www.anna-web.org/anna-releases-connectivity-specifications-derivatives-service-bureau/) as part of the technical interface definition. As part of this consultation, the DSB has articulated the key processes using business parlance to allow the industry to understand what the current proposed capability of the DSB will be:

3.1 Request Single ISIN

Method

Access via FIX or the website

Description

The system will allow a user to submit the required set of attributes and request an ISIN. Currently this function is hosted at the demo website: https://www.anna-dsb.com/demo/. The system will return an ISIN with the associated relevant attributes.

Analysis

Most respondents considered that ISIN creation over both means was necessary although anyone creating a significant quantity of ISINs would be unlikely to use the website. There was some confusion over the interaction between ISINs created via the website versus ISINs created over FIX. Both channels access the same data and there is no chance of ISIN duplication.

Some respondents requested the ability to query the DSB regarding an ISIN's existence without triggering its creation. Users not setup to create ISINs using the Request Single ISIN process to inquire for an ISIN will receive a "does not exist" response. However, users who can create will simply trigger ISIN creation in the event of it not already existing. Alternative methods are available for those participants who want to inquire in the first instance – using the File Download Service and maintaining a FIX subscription will provide an up-to-date view of the ISIN population without further processes on the DSB.

Bulk creation was an additional process suggested by respondents but was not fully defined. The DSB definition of bulk creation is the ability to trigger the production of a set of ISINs given certain criteria. For example: "Create all the Fixed-Float EUR ISINs maturing between 20270101 to 20271201". This kind of bulk creation process could be implemented and managed within the DSB or by a user. The only potential challenge the DSB currently envisages is the capacity of the network to distribute the bulk ISINs as they are created. As has been noted elsewhere, the DSB expects UAT to provide a better picture of behaviour and capacity constraints – in addition to final clarification of the ISIN use for pre-trade.

Proposal

The system will allow a user to submit the required set of attributes and request an ISIN. The system will return the ISIN and its associated attributes. This functionality will be available via FIX or the website.

Bulk creation will be considered at a later stage once there is a better understanding of how ISINs are being allocated.

3.2 Request the Definition for an ISIN

Method

Access via FIX or the website.

Description

The system will allow a user to submit an ISIN and request the associated relevant attributes. The system will return the ISIN with the associated relevant attributes.

Analysis

Respondents had no specific comments for this workflow.

Proposal

No change to the above description.

3.3 Request to receive OTC ISIN

Method

Access via FIX

Description

The system will allow a user to request to receive all the ISINs created from the start of day. The system will return a snapshot of all the ISINs and their associated data attributes created from the start of day (UTC time).

Analysis

Respondents were focused on the suggested 'start of day' time of 0500 UTC. In combination with concerns over system hours (addressed later in this document), respondents wanted the start of day to be defined between 0001 UTC to 0100 UTC. This was to provide a more consistent 'day' across Asia, Europe and the Americas. In combination with a change in availability, the DSB utility will bring forward the start of day to meet the markets' requirements. The main consequence of this will be an increase in support hours and associated costs.

Proposal

The system will allow a user to request to receive all the ISINs created from the start of day. The system will return a snapshot of all the ISINs and their associated data attributes created from the start of day (as defined by the UTC start of day 00:00:00).

3.4 Request to receive OTC ISINs plus updates

Method

Access via FIX

Description

The system will allow a user to request to receive all the ISINs created from the start of day and also receive all future ISINs going forward as they are created. The system will return a snapshot of all the ISINs and their associated attributes created from the start of day PLUS will send additional messages with subsequent ISINs going forward. All requests will end when the DSB closes for the day and users will need to resubmit the request.

Analysis

Whilst respondents appeared comfortable with the process itself, there was focus on the DSB's proposed daily closure approach for housekeeping. In addition to points about the continuous nature of many markets, some running from 1900 UTC on Sunday to 2200 UTC on Friday, there was technical response contesting the need for the 'daily roll'.

Proposal

Given the responses to both this and the availability questions, the DSB proposes to remove the daily roll from the service. However, there will still be a requirement to define a 'start of day'. The system will allow a user to request to receive all the ISINs created from the start of day and also receive all future ISINs going forward as they are created. The system will return a snapshot of all the ISINs and their associated attributes created from the start of day PLUS will send updates of subsequent ISINs going forward.

3.5 Download All Files

Method

File download service

Description

The system will allow a user to download all the ISINs that have been created up until the end of day yesterday. The ISIN data is stored in a series of files that are split by asset class and by date. Asset classes are: Interest Rates, Credit, Equity, Commodities & FX. An example of this file structure can be found via the download function on the Demo website: https://www.anna-dsb.com/demo/

Analysis

Respondents expressed a need for a single file with all the ISINs rather than being separated by asset class. In addition, there was a desire to inquire across the files based on a range of dates regardless of asset class. The file download service is offered by the DSB as a back-up facility or to enable market participants to build their own database. Participants can upload these files into that store which can then be interrogated as they wish without having any effect on other participants.

Proposal

The system will be capable of allowing a user to download all the ISINs that have been created up until the end of day yesterday.

The ISIN data is stored in a series of files that are split by asset class and by date. Asset classes are: Interest Rates, Credit, Equity, Commodities & FX. An example of this file structure can be found via the download function on the Demo website: https://www.anna-dsb.com/demo/.

The DSB is not currently considering a single file download for all ISINs because the DSB expects the file size to quickly grow unmanageably large. Implementing a single file download is possible at a future date if the number of ISINs and user behaviour permits.

The DSB will consider other methods of querying and accessing the data archive once the utility is operational and as user behaviour is better understood.

3.6 Amendments

Method

Amendments will only be accessible by DSB technical support.

Analysis

Respondents asked for more detail regarding any additional workflows. The DSB here has detailed the processes around amendments and also added a further section on what workflows will not be supported.

Proposal

The DSB has identified two main workflows that will require amendments to an existing ISIN:

1. ISIN created in error.
    a. Upon identifying an ISIN created in error, DSB technical support will amend the ISIN record in the core system – changing its status to 'Deleted'.
    b. The File Download Service will include the altered ISIN in its file for the date of amendment.
    c. Web access users will see the altered status when they retrieve the ISIN record.
    d. This change will be pushed to FIX subscribers as a changed ISIN.
2. Definition of a new level.
    a. When the DSB implements a new level of ISIN, DSB technical support will run a batch that will amend existing ISINs and create the new level ISINs as required. The ISINs that are amended will have an altered status of 'Updated'.
    b. The File Download Service will contain all the updated ISINs for the date of the amendments and creation.
    c. Web access users will see the altered status of the existing ISINs and be able to query the new ISINs.
    d. FIX Access users will be able to configure how they receive these batched updates.

3.7 Out of Scope

The DSB will not permit the following actions on / for ISINs:

- Deletion of an existing ISIN
    - For invalid ISINs or ISINs created 'in error', the DSB technical support (as mentioned above) will be able to change its status to 'Deleted'. To reiterate, the ISIN record will remain but have a status of 'Deleted'
- Reassignment of an ISIN from one instrument to another

3.8 Record Format

The DSB proposes to maintain records in the JSON (JavaScript Object Notation) format. This is because it is an open, non-proprietary standard data exchange format that is widely adopted in the financial industry. In addition, it is both lightweight and human and machine-readable. More details on JSON can be found below:

- The JSON Data Interchange Standard is ECMA-404
- Each record is a valid JSON instance according to a JSON template (http://json-schema.org/)

The JSON template provides basic validation of the records as well as documentation of their structure. The templates are created based on the specifications defined by the DSB Product Committee.

The DSB will provide access to the set of JSON templates through the File Download service.

Analysis

Respondents agreed that JSON was an appropriate method to represent products. However, some did express a desire for alternate methods, above and beyond the file download service, to obtain the JSON schemas. The DSB will investigate other mechanisms to access the JSON schemas – however, it should be noted that the DSB is constantly balancing the requirement for more functionality alongside the desire to keep the costs of the utility low.

Proposal

The DSB will move forward on its original basis with the JSON format as stated above.

The DSB will provide access to the set of JSON templates through the File Download Service. The DSB will investigate alternative means of storing and making available the JSON templates during Q1 and Q2 of 2017.

4 Demo Connectivity

From 01 February 2017, the DSB will make FIX connectivity to the Demo environment available. Stakeholders will be able to connect using the specifications released in October 2016 [ANNA DSB Connectivity Specifications - http://www.anna-web.org/anna-dsb-connectivity-specifications/]. This will enable market participants to develop and test their FIX connections and messages. It is not meant to serve as a test for the instrument data itself because the new product definitions will not be implemented into Demo until late February 2017 at the earliest. Other key conditions of the test include:

- Only SSL connectivity will be supported
- The platform will have reduced performance and capacity compared to the production environment.
- As new releases are implemented into the Demo environment, the test ISIN data may need to be deleted

The DSB opened the list for connectivity to the Demo environment on 16 January 2017.

Analysis

Some respondents expressed a wish to test their connectivity and also mentioned further functions and processes they wished to test. For this early FIX testing, the DSB is wholly focused on allowing the industry to test the FIX connectivity itself rather than all the potential workflows and instruments. That thorough business process testing will be part of UAT.

Proposal

No change to the current proposal. Details for registration for FIX connectivity to the Demo can be found at http://www.anna-web.org/registration-open-fix-connectivity-testing-via-dsb-demo/

5 UAT On-boarding Approach

When the UAT environment is available for the industry to test the web GUI and FIX activity at the beginning of April 2017, the DSB will begin the on-boarding process of registered stakeholders.

The DSB will sequence the on-boarding process on a first-come, first-serve basis and give priority to those stakeholders required to provide ISINs.

The DSB UAT on-boarding list will open on 01 March 2017.

Analysis

Most respondents were satisfied with the on-boarding approach for UAT. There was some concern around how long users would have to test. The DSB will allow testing for the entire UAT period – as mentioned elsewhere, the intention is for market participants to be certified in the UAT environment before being switched to production.

The certification process itself is currently under examination – the DSB is considering the cost-benefit of automation versus manual. Obviously, one of the key factors in this assessment is the number of firms connecting to the DSB over FIX. The number of firms expected to connect over FIX is discussed later in this document.

Respondents expected to be able to use more than one FIX connection – with this number rising to ten in some instances.

At a minimum, respondents required the UAT system to support multiple simultaneous connections from the industry. In addition, some considered an organized test to be an important step in the implementation of an industry utility like the DSB. The DSB will provide a single UAT system to which all participants will connect. Regarding the organized co-ordinated test, the DSB will examine the benefits and also draft, if necessary, a set of tests that should be considered.

Proposal

When the UAT environment is available for the industry to test the web GUI and FIX activity at the beginning of April 2017, the DSB will begin the on-boarding process of registered stakeholders. The DSB will sequence the on-boarding process on a first-come, first-serve basis and give priority to those stakeholders required to provide ISINs under MiFID II. All stakeholders will connect to the same system so that the DSB can observe any impacts of simultaneous activity from the market on the DSB.

The DSB UAT on-boarding list will open on 01 March 2017.

The DSB will assess any requirement for co-ordinated, market-wide testing and publish its approach in due course.

6 Capacity

The system must be able to support the following minimum capacity requirements for the FIX network:

Variable	Notes / Description	Est. Value
Firms	The total number of firms that are connected to the DSB at any one time during the operating hours.	200
Daily Messages	The total number of messages supported by the network per day. A message is defined as an appropriate FIX message sent to the DSB.	16m / day

	Assumption of 20m new OTC derivatives over a 12 month period. This is based on 12 months of SDR data for the number of transactions for rates, equity and credit derivatives. The DSB notes that the first ISIN level is unlikely to be defined at this level of granularity. This number was doubled to take account of commodities and FX and introduce some spare capacity. With 200 firms, assuming a single connection per firm, that implies a total number of messages (assuming all firms request ISIN updates across all asset classes) of 4bn messages annually. There are approximately 250 annual business days, that implies a daily message count of 16m per day. See 'ANNA DSB. FIX Interface Specifications' for specification of the message type itself: (http://www.anna-web.org/anna-dsb-connectivity-specifications/) .	

Analysis

There were mixed views on the number of firms estimated to connect to the DSB and the ensuing logic to build a total number of annual messages. The DSB recognizes, as pointed out by some respondents, the crudeness of the method used to derive this total number. In fact, respondents also highlighted the greater importance of peak volume rather than the total. Once there is greater clarity on the granularity of ISINs across the products along with the use of ISINs for pre-trade and post-trade, the DSB will perform a further set of analyses on capacity. It should be noted that, as mentioned elsewhere, the DSB architecture and implementation has been deliberately designed to expand as required with little notice.

The FIX Access service is run on a different server to the File Download service and therefore there is no risk of contagion of capacity restrictions across the two services.

Proposal

The DSB will recalculate the metrics and in addition, consider using 'peak volume' once there is greater clarity on usage and granularity. In the interim, the system will move forward on the stated basis. Note that each of the components of the DSB is horizontally scalable – ie. Adding resources increases capacity.

7 Proposed Infrastructure Build

The DSB proposes to build the system infrastructure using cloud based technology. The reasons for this are:

- Given the tight timelines for production cloud offers quick infrastructure build out.
- Allows flexibility to scale the infrastructure (servers, storage etc.) down and up quickly depending on resource utilisation
- Allows for automatic software and security updates ensuring that the system remains patched to the latest version

- Allows for an agile approach to infrastructure build out with a choice of technology solutions ranging from virtual to dedicated hosted servers encompassing multi-tenant to single tenanted solutions. The system can be built out utilising one, some or all of these solutions should the system require
- Facilitate resiliency in the system with no single point of failure by utilising datacentres in different locations. These are planned to be Europe
- No data centre maintenance or rack space costs

The DSB will deliver an IT security document detailing the policies, procedures and infrastructure employed in protecting the system.

Analysis

Whilst a cloud implementation was met with general approval, there was significant focus from respondents on security and resiliency. The DSB will publish further details on security in the future.

One respondent raised the question of personal identifiable information – the DSB expects the only information to be held in the systems is user login details. This will be held in a standardized secure manner to be detailed in future documentation.

There was a general sense that locating the system solely in Europe was potentially limiting and possibly riskier. As well as a more global footprint, respondents were keen for the DSB to maintain a presence in key data centres for financial markets. This would facilitate lower latency connectivity (to be discussed later in this document) as well as improving resiliency and coverage for global trading hours.

Proposal

The DSB will build the system infrastructure using cloud based technology. In addition to the IT security document detailing the policies, procedures and infrastructure, the DSB will publish further detail on connectivity approaches and some of the more technical questions raised through the consultation.

There is no application-enforced restriction on just having European datacentres. The DSB will consider the demand for non-European locations and implement as required.

8 Performance and Throughput

The system must be able to support the following minimum throughput requirements.

- Delivery is defined as the message leaving the DSB or being queued within the system if the user is unable to receive the message
- The DSB performance and throughput is focused on those variables in the context of the DSB infrastructure and software itself. Because each of the connecting firms will have their own different internal infrastructures and connectivity configuration, it is not possible for the DSB to give a complete time for 'the creation of an ISIN' from a business perspective. What the DSB can determine is how long any messages, once received by the DSB infrastructure, take to be processed and responded to

Variable	Notes / Description	Est. Value
Latency	99% of all messages routed through the system are to be processed and delivered (to a maximum of 200 recipients) in the following interval (after receipt).	1,000ms

	This time measures the elapsed time from when the incoming message hits the DSB Firewall and the outgoing message hits the DSB Firewall.	
Bursts	The system must be able to receive, process and deliver this number of messages in a burst to 200 users within one minute	60,000

Analysis

The general view was that 1,000ms was too long a latency – especially given that this time does not measure the round-trip from the user's perspective. The concern was mostly focused on its effect on the trading process itself. However, whilst DSB understands the sentiment, none of the respondents detailed a specific workflow or provided evidence where the 1s latency would have a detrimental effect.

The DSB notes that currently there is no requirement for an ISIN for pre-trade data – indeed, despite the detail in the reference data technical standard (RTS 23), the expectation is for ESMA to soften its stance on ISIN requirement before the instrument is quoted for OTC derivatives. This would relieve some of the concerns respondents expressed.

The DSB is not proposing to limit the number of connections to 200. This was simply the initial capacity number used to define the required infrastructure. Implementing on the cloud gives the DSB the ability to easily scale to meet industry demand. In addition, the onboarding process and UAT will give the DSB visibility of the usage pipeline.

The issue of latency contagion caused by the behaviour of other participants connected to the DSB was also raised here. The DSB will answer the specific questions as part of future clarifications and Q&A.

Proposal

Once the regulatory requirements are further clarified, the DSB will, if necessary, re-examine the 1,000ms latency proposal and focus on the cost impact for reducing this to the microsecond latency mentioned by the industry. As stated above, the DSB expects UAT to provide a more accurate measure of capacity requirements.

9 Availability

The DSB is designed to be a global 24 x 7 system. However, given the initial focus of industry on European regulatory requirements, it may be possible to reduce start-up operating costs, and hence user fees, by focusing support around the European time zone. This will allow the DSB to delay incurring the extra cost for global support to when it is required by the industry.

The below are the proposed system availability hours for the DSB production environment.

Variable	Notes / Description	Est. Value
System hours	Hours and days for which the system will be available. The start time will be Monday 0500 UTC and the end time will be Friday 2100 UTC. These have been proposed to maximize access from EMEA	16 x 5
Availability	SLA must be for at least X% of the available hours	99.9%

		(this implies a total down-time for a year of 15hours

Analysis

Respondents were both strong and clear, with evidence, that the current proposed operational hours are not sufficient. Most stated that 24 x 6 would be the optimum provision with an opening time of Sunday 1900 UTC until Friday 2200 UTC – this would support global trading activity and allow venues to prepare for the next day's activity. The DSB agrees with the 24 x 6 availability approach and will propose hours to reflect this definition. One venue explained they create instruments overnight and their intention is to create any required ISINs for these during the same process. The DSB is aware of the additional costs that will be incurred to support these expanded hours but will make every effort to ensure they are kept at a minimum.

Proposal

The DSB will be available from Sunday 1200 UTC to Saturday 1200 UTC. The DSB has now appointed its Service Provision Provider and agreed an availability level of 99.99%.

10 Security

This section details some of the key requirements for the system security.

Variable	Notes / Description	Interface
Authentication	All access must be authenticated using a password / certificates. All passwords and/or certification must conform to industry best practice. Eg. be at least 8 characters long. Password must be stored in encrypted form, eg. as salted hashed, and never be cached or displayed.	All connections
Permitted Access	Access to any of the system components is possible only from certain pre-defined IP/Addresses.	FIX
SSL Encryption or VPN	All external communication [i.e. communication with external systems] to / from the system are encrypted using TLS version 1.1 minimum (SSL / SSH) at least 128 bits AES or RC4 [see connectivity requirement]. The web UI will utilise https://	All direct connections Web UI

Analysis

Respondents had no red-line concerns regarding cloud implementation. However, as stated earlier, they would require further detail on the security of the system. The DSB will provide further details on security in the near future.

Proposal

The DSB will implement on the cloud and provide further details on the security in the near future.

10.1 Penetration test.

As per the PCI data security standards https://www.pcisecuritystandards.org/documents/Penetration_Testing_Guidance_March_2015.pdf it states “penetration testing must be performed at least annually and after any significant change—for example, infrastructure or application upgrade or modification—or new system component installations.” The DSB proposes to follow this recommendation. There are a number of different tests that can be completed:

1. Application-layer testing: Testing that typically includes websites, web applications, thick clients, or other applications.
2. Network-layer testing: Testing that typically includes external/internal testing of networks (LANS/VLANS), between interconnected systems, wireless networks, and social engineering.
3. White-box testing: Testing performed with knowledge of the internal structure/design/implementation of the object being tested.
4. Grey-box testing: Testing performed with partial knowledge of the internal structure/design/implementation of the object being tested.
5. Black-box testing: Testing performed without prior knowledge of the internal structure/design/implementation of the object being tested.

Analysis

A respondent suggested a more appropriate set of standards (ISO/IEC 27001 / 27002 & ISAE 3402 or its US counterpart SSAE16 SOC 1 & 2) for the DSB. The DSB technical team will examine these alternatives and consider these with the selected Service Provision Provider. The frequency of tests should be higher, especially since the DSB should maintain an up-to-date implementation of all its software – especially any open source products.

Proposal

The DSB will consider the alternative standard and, once decided, intends to follow the standard’s recommendations regarding testing frequency. This will be performed in combination with the newly appointed Service Provision Provider.

11 Connectivity

As specified in the ANNA-DSB FIX Specification (referred to earlier in section #), the DSB will support a direct FIX connection to access the DSB and the OTC Derivative ISIN reference database.

Variable	Notes / Description	Est. Value
VPN	System can be accessed through VPN. External communication that are tunnelled through encrypted VPN may not be SSL encrypted.	The VPN must provide an encryption that is at least as secure as SSL 128 bits AES.
SSL	System can be accessed through internet SSL connection. With a minimum TLS version of 1.1	

Analysis

There was no consensus among the respondents regarding connectivity to the DSB. The options, in addition to VPN and SSL, suggested by respondents were leased line, third-party access and direct cross-connect. Any consideration of these other options will have to include the impact on costs for the utility. The DSB is conscious that, because of the lack of consensus, those costs should be borne by those organizations requiring the different connectivity. In addition, very little evidence was provided by respondents as to why one method was preferable versus another.

Proposal

The DSB will move forward with VPN and SSL connectivity. In addition, it will continue to investigate the alternative connection methods (leased line, access via third party networks and direct cross-connect) to better understand the costs and the benefits. Users wishing to utilize one of these other methods should note that any specific costs for that connection will be borne by themselves above and beyond their standard fees for the DSB utility.

12 Storage

This section details key aspects of the system's storage requirements:

Variable	Notes / Description	Est. Value
Period for all system change and audit logs to be kept	The system will retain all audit logs (including change logs and FIX message logs) for a minimum of X years	7 years
Period for ISINs and their reference data to be kept	The system will retain ISINs and their reference data for a minimum of Y years	Permanently

Analysis

There are European countries that require ten years of records for commercial documents. Regarding ISIN retention and availability, there was no objection to the DSB's current proposal of permanent availability. Elsewhere, the DSB has explained that ISINs will not be re-used.

In addition, the DSB OTC ISINs will, as per ISINs elsewhere, carry a state. The details of these states will be explained in further documentation from the DSB.

Proposal

The DSB will retain all audit logs for ten years and maintain ISINs permanently in the active ISIN datastore.

13 Disaster Recovery

This section details the key aspects of the system's disaster recovery requirements:

Variable	Notes / Description	Est. Value
Recovery Time	In the event of a disaster event and the system goes down. Once the disaster recovery event has been declared the infrastructure will be up and running in a maximum of this many hours	4 hours
Failover Test Frequency	The DSB will aim to execute a failover test on a set frequency	Annual

Analysis

The main concern from respondents was the impact on their ability to trade OTC derivatives if the DSB was unable to serve ISINs for 4 hours. Some of this concern was focused on the requirement for an ISIN for post-trade disclosure within 15 minutes. However, there is some uncertainty in the industry surrounding this post-trade obligation and whether that report can be submitted without the ISIN. The DSB will continue to raise this with the regulators.

The DSB will also continue to look at ways to improve the recovery time without significantly impacting the costs.

Proposal

The DSB will examine reducing the 4-hour recovery time without significantly increasing the costs and will publish the detail of this in future documentation. The DSB will move forward on the basis of running a failover test on an annual basis.

13.1 HA – High Availability

The DSB is planning to build a resilient HA (high availability, active - active) system with at least two geographically separate, connected systems. This is to ensure that if there is a problem on one side that they system will remain up and available on limited resilience.

Analysis

High Availability was deemed necessary by respondents and the consequent costs acceptable. However, some wanted the DSB to consider having another, unnamed, site to add further resiliency and security to the service. The DSB is also aware that it will have to provide details on how any switch from primary might work including – communication processes and expected technical changes.

Proposal

The DSB will move forward on the basis of providing a High Availability system and document and publish any process on how any kind of switch from one centre to another might work.

14 Implementation Steps

These are the high level implementation steps with a description of events with timeframes.

- As more detail is known, the DSB will publish this to the industry
- The UAT environment will be subject to down-time if issues require it for remediation

Implementation Step	Description	Time Frame
Draft FIX API published	The draft FIX API details published and presented on ANNA DSB website	07 November 2016
Open DSB Demo Connection List	The DSB opens the list for applications from firms to connect to the Demo using FIX	16 January 2016
Demo Connectivity Details available	The detailed parameters will be available for those scheduled to connect to the DSB Demo	24 January 2017
SPP vendor selected	SPP selected and starting to build out the UAT environment	01 February 2017
DSB DEMO Connectivity Testing	Priority users can connect to and use the DSB Demo over FIX to test their systems	01 February 2017

UAT Connection Details available	Connection details will be available for those market participants who have been scheduled for on-boarding.	01 March 2017
Open DSB UAT Connection List	The DSB opens the list for applications from firms to connect to the UAT over the web and FIX	01 March 2017
UAT Environment Live	Make UAT environment available for participants to test connection and functionality	01 April 2017
Production Go-Live	DSB Production environment ready for connection by industry participants	02 October 2017

Analysis

The specification of the instruments themselves along with their granularity that make up the ISINs is under the aegis of the Product Committee. The current aim is to have as many instruments finalized, published and implemented in UAT as possible by 01 April 2017.

The Final FIX API will be published in March. Whilst the DSB does not expect significant changes, refinement of the document will continue for the next six weeks and will include any clarifications that are required during the demo testing due to start on 01 February 2017.

The UAT environment will be a match for the production infrastructure and will continue to be used for certification. The decision on whether a further certification environment will be implemented to support the next version of the software is yet to be made. The DSB is continuously assessing all the costs it incurs since, as a cost-recovery utility, these will be eventually borne by the market.

Proposal

The DSB will continue to refine and add to the implementation timelines. Where required, further documentation will be created and published to the industry.