

# DERIVATIVES SERVICE BUREAU

TECHNOLOGY ADVISORY COMMITTEE

13 March 2019

MEMBER FINAL V01

## Agenda

- Governance
  - TAC Meeting Invites
  - TAC Member Changes
- Topics Under Consideration
  - Overview
  - UAT Environment Provision
  - DR testing plans
  - FIX Re-Certification & 2019 Updates
  - Data Provision at Weekends
  - TAC SSC Update
  - Industry consultation timeline?
  - Monthly Technology Support Statistics
  - Software Version Upgrade Policy
  - Penetration Testing Update
  - ISIN Usage Analysis
- AOB
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# Governance

## TAC Meeting Invites

All members should now have the two 2019 meetings in their diaries. After feedback from the TAC SSC members and subsequent consultation with the TAC members, the invites have been created from outlook instead of WebEx. The key difference is that invites will appear in members diaries without any action required.

## Member Changes

There have been three member changes since the last TAC meeting, all member changes have been reviewed and approved by the DSB board. A full list of members is included in the appendix. We would like to welcome these new members to the TAC:

Institution	Category	First Name	Last Name	Position /Title
JP Morgan	SI	Eugene	Eltsofin	VP, IT Software Engineering
HSBC	SI	James	Cowie	GFI Regulatory Reporting Manager
Thomson Reuters MTF	TV	Zintis	Rullis	Senior Technical Specialist

## Topics under Consideration - Overview

- UAT Environment Provision
- DR testing plans
- FIX Re-Certification & 2019 Updates
- Data Provision at Weekends
- TAC SSC Update
- Industry consultation timeline?
- Monthly Technology Support Statistics
- Software Version Upgrade Policy
- Penetration Testing Update
- ISIN Usage Analysis

# Topics under Consideration – UAT Environment Provision 1 of 3

## Current Situation

- At launch, the DSB provided a single UAT Environment for user testing. The original driver for this was cost.
- The DSB is now integrated into production workflows which has resulted in a need to facilitate simultaneous testing of two separate use cases:
  1. Testing of new functionality within DSB users' software but with no change to DSB software (e.g. for Brexit testing)
  2. Testing of new functionality within DSB software (e.g. for Field 41)

## Proposal

- Introduce a second UAT environment, to allow parallel testing of both use cases
- If agreed, the DSB proposes that the existing UAT environment be treated as an as-prod environment for testing users' own software (e.g. for Brexit planning) and the new environment to be used for DSB 'next-release' testing (e.g. Field 41).

## Topics under Consideration – UAT Environment Provision 2 of 3

### Cost Considerations

- Standing up a second test environment incurs the additional costs as shown below
- We have considered two infrastructure options to implement the new test environment:
  - Production-like infrastructure - similar to the production environment in terms of performance & configuration
  - UAT-like infrastructure – reduced infrastructure similar to existing UAT environment

Option	Lead Time	2019				2020			
		Primary <sup>4</sup>	DR <sup>5</sup>	Total <sup>1,3,6</sup>	% Increase <sup>2</sup>	Primary <sup>4</sup>	DR <sup>5</sup>	Total <sup>1,6</sup>	% Increase <sup>2</sup>
Prod-like	8 weeks	€ 132,964	€ 50,479	€ 183,443	2.0%	€ 191,844	€ 51,569	€ 243,413	2.7%
UAT-like	8 weeks	€ 120,265	€ 43,480	€ 163,744	1.8%	€ 174,244	€ 42,769	€ 217,013	2.4%

- <sup>1</sup> All-in costs covering infrastructure & resource
- <sup>2</sup> % Increase in relation to current total DSB costs (2019 figure assumed for 2020)
- <sup>3</sup> Assumes stand-up completed by 30 June 2019. Stand up involves two full-time DSB resources for 5 weeks (with 3 weeks Rackspace effort)
- <sup>4</sup> Primary annual cost is based on 'next release' environment being available for 8 months of the year only (i.e. only when a change is placed in UAT)
- <sup>5</sup> DR annual cost is based on 'next release' environment being available for 4 months of the year only (i.e. only when DR invoked)
- <sup>6</sup> Increase in support headcount is forecast at 1.5 resources - 15% of existing team of 10; 1.25 resource for Primary and 0.25 for DR.

## Topics under Consideration – UAT Environment Provision 3 of 3

### **\*TAC Decision \***

1. Does the TAC support the proposal to create a second UAT environment?
2. If yes, what capacity should the DSB deploy for the ‘as-production’ environment?
3. Also, should the DSB create an equivalent DR environment?

# Topics under Consideration – DR Testing I of 2

## Background

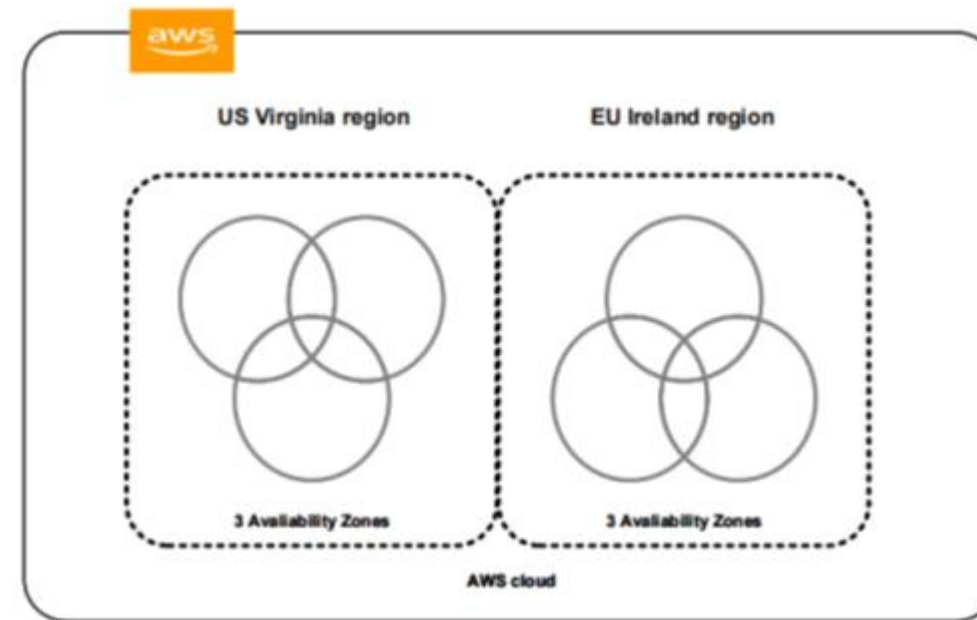
The DSB’s ISIN engine has been configured to run within a single cloud through our current cloud provider Amazon Web Service (AWS).

The service is deployed in two AWS Regions, with each Region implemented across three AWS Availability Zones. Each availability zone can be considered as a data center in it’s own right and each conforms to the following:

- *Runs on its own physically distinct, independent infrastructure*
- *Engineered to be highly reliable*
- *Common points of failures like generators and cooling equipment are not shared across Availability Zones*
- *Physically separate, such that even extremely uncommon disasters such as fires, tornados or flooding would only affect a single Availability Zone.*

The resiliency of the primary Region is constantly being tested, the DSB manages routine issues such as server failures within a single Availability Zone without any impact to the service.

Following on from the industry consultation in 2018, our attention is now focusing on business continuity planning in the event of losing the entire AWS primary Region and the testing of the failover process to the secondary region and then back to the primary Region when it becomes available.





## Topics under Consideration – DR Testing 2 of 2

### Proposed Region Failover Testing Approach

We would like to propose the following approach, which undertakes tests in the DSB’s secondary UAT environment before repeating the tests in production.

Environment	Direction	Scope	Users	Notes
UAT	To Secondary	Connectivity Test	All	Initial connectivity test
UAT	To Secondary	Read & Write	Subset	Weekend test, UAT failover, subset of users
UAT	To Secondary	Read & Write	All	Failover UAT for an 8-week period
UAT	To Primary	Read & Write	Subset	Weekend test, UAT failback to primary (then remain in secondary)
UAT	To Primary	Read & Write	All	Failback UAT permanently to primary
Production	To Secondary	Connectivity Test	All	Initial connectivity test
Production	To Secondary	Read-only	Subset	Weekend test, no data failback required, return to primary after test
Production	To Secondary	Read & Write	All	Failover of production to secondary for an 8-week period
Production	To Primary	Read & Write	All	Failback of production to primary

### \* TAC Decision \*

1. Does the TAC agree with the proposed multi-phase testing approach?
2. Given the current demands on industry, when should the DSB schedule the first test?

**Note:** The DSB proposes that the next test in the sequence should only occur after TAC review of the preceding test.



# Topics under Consideration – Data Provision At Weekends 1 of 2

## Background

A DSB customer reported an issue to the DSB:

- The DSB customer's client complained that some ISIN's were not being displayed by the DSB Customer
- 42 ISIN's identified with updated timestamps after the DSB's (then) cut-off time of 12pm
- Example: EZ14YVP6FZ21 created at 2018-08-04 12:00:28 - 28 seconds after the published cut-off
- Example ISIN was created by another organisation via the REST interface
- DSB customer used the FIX "Subscribe to ISIN Records" stopped at 12pm in line with the DSB's operating hours

This issue was investigated:

- Identified as an edge case with the transition into the weekend maintenance mode
- A number of ISIN's were created while the system was shutting down
- ISIN's were not sent to the DSB Customer as they had already stopped their service
- On restart, ISIN's were not sent – only ISIN's updated/created that day were sent
- The immediate advice offered was to undertake reconciliation via the daily end of day file download process

Note: Further related issue raised by support:

*In the event of a FIX outage in either of the DSB or client sides where the outage spans a change of day*

*The client will no longer receive the ISIN's created/updated from the point of outage to the end of that day*

*E.g.: Outage from 11:30 PM to 00:30 AM, client restarts service at 00:30AM, ISIN's created or updated in the period 11:30 PM to*

*11:59:59.999 PM UTC from the previous day will not be sent.*

## Topics under Consideration – Data Provision At Weekends 2 of 2

### Options:

#### **Change of Operating Hours**

One suggested way forward is to change the DSB's hours of operations from 20:00 Saturday – 08:00 Sunday to 00:30 Sunday to 12:30 Sunday. This ensures that downtime occurs within the same day.

This option ensures that users will be able to receive all ISIN creation/update messages during the downtime, including the ones that were in-flight during the time the system transitioned into maintenance mode. With the current setup, users will not be able to subscribe to requests which come in around 8pm as the system re-opens on the next day.

*This option would not resolve the situation where an outage at either the DSB or the Customer side was to span into the next day.*

#### **Control the transition into the maintenance mode**

One suggestion was to carefully sequence the shutdown and start-up processes.

Creation service would be the first item to be closed down, say at 19:55 – no new requests received after this time

Remaining processors would stay active until say 20:00 in line with the operating hours.

This creates a set window to allow for messages to be processed.

*DSB Update: The system is not structured in this way, therefore not a simple change resulting in 6 to 8 weeks of development/testing.*

#### **Allow a timestamp to be provided to the FIX subscription on restart**

Update the FIX subscription workflow to allow a timestamp to be provided, so that ISIN's updated/created after this time can be reported

*DSB Update: Not currently possible with the existing API. We also need to be mindful of the data volumes that would potentially be returned.*

## Topics under Consideration – TAC SSC Update 1 of 2

### **Introduction:**

The TAC Strategy Subcommittee (SSC) consists of 14 members of the existing TAC Membership. Subcommittee collateral is available on the DSB Website [here](#). An initial start-up meeting was held on 12<sup>th</sup> December 2018 with the first formal meeting held on 6<sup>th</sup> February 2019.

### **TAC SSC Objectives:**

The TAC SSC's objectives and scope of activities shall be to submit reports and recommendations to the TAC in order to take forward the technology-related work of the original ISO working group ("SG2"). The SSC will help to define the ISIN hierarchy and to facilitate the implementation of the UPI, irrespective of the selection of UPI Service Provider(s).

### **Assumptions:**

- The UPI identifier should be stored within the ISIN record and populated in near real-time
- The UPI identifier should be an optional attribute of the ISIN record
- UPI record can be created independently of the ISIN
- The structure will be normalized
- An ISIN cannot be created without an implicit UPI

### **Issues under Consideration:**

- The additional permutations to workflows. E.g. Lookup UPI by ISIN; Return ISINs by UPI etc.
- UPI is less granular than ISIN. Is there also a need for a more granular level to fully describe an OTC derivative?
- How to keep the UPI-ISIN mapping clean and avoiding DQ/dupes.

## Topics under Consideration – TAC SSC Update 2 of 2

### Specific TAC Outstanding Questions:

- RE: Clarity on when ISIN or UPI can be used for a given workflow:  
The DSB expects the TAC to flesh out the set of workflows which have ISIN and UPI inter-dependency with the aim of providing clarity to industry.  
*Note: Assume that invariance of the ISIN attributes is good practice and holds true for UPI.*
- Does this mean two different subscriptions to received ISIN's and UPI's?  
The DSB expects this to be a future TAC SSC discussion item leading to a proposal for TAC review

### Next Steps:

- The DSB will commence the draft of the proposed document taking into consideration the TAC SSC discussion so far.
- The next TAC SSC meeting is scheduled for Wednesday 10<sup>th</sup> April

## Topics under Consideration – Industry Consultation

The DSB will be undertaking a further industry consultation in 2019, the timeline for this was published on Monday 4<sup>th</sup> March, the full notification is available [here](#).

Do the TAC Members have any questions that they would like included in the broader industry consultation process?

If so, please email the [DSB TAC Secretariat](#) before cob **Friday 29<sup>th</sup> March 2019**.

### Key Milestones:

- 09-May-2019 Publication of 1<sup>st</sup> DSB 2020 Consultation Document (CPI)
- 05-Jun-2019 Deadline for CPI Feedback
- 05-Jul-2019 Publication of 2<sup>nd</sup> DSB 2020 Consultation Document (CP2)
- 29-Jul-2019 Deadline for CP2 Feedback
- 19-Aug-2019 Publication of DSB 2020 Final Consultation Report

## Topics under Consideration – Monthly Technology Support Statistics

- As part of the 2018 industry consultation exercise, the TAC agreed to increase the DSB support coverage subject to the two following caveats:
  - Publish monthly support statistics onto DSB website from 2019, with an additional snapshot publication for 2018 (no FTE impact)
  - Review resource needs in Q2 2019, taking into consideration the support statistics after SI regime implementation (FTE impact TBC post review)
- With respect to the first point, there has been a single post to the bulletin board:

I think the statistics presented are good, and provide a reasonable level of understanding of where the time and cost is spent supporting ANNA. In terms of improvements, I would expect there would be questions on the larger numbers where further breakdowns are not available, i.e.:

- System Investigation (324)
- Reporting & Analysis (216)
- Documentation (324), maybe break down by external / internal documentation ?

If there are reasonable ways to break these down further that would be good.

In time it would be good to have trends of the time spent on each area, which will show how the product is continuing to mature.

- DSB has drafted the January 2019 metrics and will publish these once reviewed



## Topics under Consideration – Software Version Upgrade Policy

- The DSB’s software version policy is to remain within one major version of the latest version in industry. This is to ensure that we remain current particularly in relation to security updates. The key versions are as follows:

Software	DSB Current Version	Latest Version
MongoDB	3.4	4.06
SOLR	6.4	7.0
Open JDK	8 (1.8.0)	11
QuickFIXJ	1.7.0 (1.6.3)	2.1.1
Elasticsearch	6.2.4	6.61
Kafka	0.10.1.1	2.0.x
NGINX	1.12	1.15.9

### Notes:

- The DSB anticipates upgrading several of these components during the second half of this year
- All upgrades are anticipated to be transparent (i.e. backwardly compatible) to the DSB user base

## Topics under Consideration – Penetration Testing Update

- DSB Annual Penetration Test was undertaken in December by Gotham Digital Science (GDS) (external 3<sup>rd</sup> party)
- The GDS Report has been supplied to the DSB for review
- A summary of findings is provided below:

Severity	No. of Issues	Notes
Critical	0	
High	1	Related to the GUI only
Medium	4	
Low	5	

- Remediation of the High priority issue is expected to be completed before the next TAC meeting
- DSB will provide an update to the TAC at the next meeting in October

## Topics under Consideration – ISIN Usage Analysis I of 6

### Background

As part of the 2018 industry consultation exercise, the DSB received feedback to provide ISIN analytics in readable format. Based on this feedback, the DSB proposes to provide the following analytics on a monthly basis:

- i. # of ISIN creates per product template
- ii. # of ISIN retrievals per product template (where ISIN is supplied)
- iii. # of ISIN searches across all product templates (search by metadata)
- iv. # of ISIN creates per user fee category
- v. # of ISIN retrievals per user fee category (where ISIN is supplied)
- vi. # of ISIN searches per user fee category (search by metadata)
- vii. # of ISINs submitted to FIRDS per product template

DSB expectation was that such analytics can be provided at no incremental build or run cost, as long as the information is placed on the DSB web-site once a month, for user download in a csv file format.

## Topics under Consideration – ISIN Usage Analysis 2 of 6

### DSB Website

It is proposed that the files:

- Will be generated at the start of the month for the previous month's data
- Are created in csv format
- Are available to download from the DSB's file download area\* (see directory structure below)

### Directory Structure

A new “metrics” directory will be created in the file download area. With that folder, files will be organized by year and month:

[Anna-dsb File Download area/metrics/YYYY/MM/](#)

For example:

<https://prod.anna-dsb.com/file-download/metrics/2019/01/DSBISINCreationTrends-201901.csv>

### Filenames

Filenames will take the format <Description>-YYYYMM.csv

## Topics under Consideration – ISIN Usage Analysis 3 of 6

### DSB ISIN Usage Files

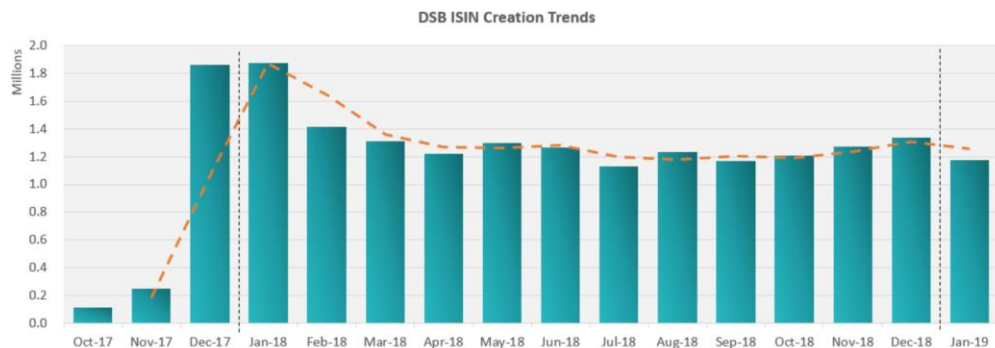
The following four files will be produced as a first delivery:

#	Description	Notes	Filename
i	# of ISIN creates per product template	Shows creation trend for the total number of ISIN's created month-by-month since October 2017.	DSBISINCreationTrends-YYYYMM.csv
		Shows the number of ISINs for the last month by product template	DSBISINCreatedByProduct-YYYYMM.csv
iii	# of ISIN searches across all product templates (search by metadata)	Shows the number of ISIN searches across all product templates	ISINSearchesByMetadata-YYYYMM.csv
vii	# of ISINs submitted to FIRDS per product template	Number of ISINs submitted to FIRDS last month broken out by asset class rather than product template	ISINsInFIRDS-YYYYMM.csv

# Topics under Consideration – ISIN Usage Analysis 4 of 6

## Examples: i. ISIN Creation

The DSB currently publishes ISIN Creation Trends on its Website, these figures are updated every month. It is proposed that in addition to the existing published metrics, two new csv files will be available to download from the DSB’s website:



DSBISINCreationTrends.csv  
4 KB

Date	ISINsCreated
2017-10	115120
2017-11	250944
2017-12	1860402
2018-01	1876630
2018-02	1412065
2018-03	1312881
2018-04	1222091
2018-05	1296885
2018-06	1264311
2018-07	1128652
2018-08	1233525
2018-09	1171861
2018-10	1204484
2018-11	1274023
2018-12	1339679

Row Labels	@ 31 January 2019			@ 31 December 2018	MoM Change
	Forwards	Options	Swaps	Total DSB ISINs	
<b>Commodities</b>					
Basis_Swap	0	0	8,647	8,647	8,128 6%
Forward	118,962	0	0	118,962	113,287 5%
Option	0	35,470	0	35,470	34,037 4%
Swap	0	0	55,991	55,991	53,225 5%
Swaption	0	620	0	620	595 4%
Multi_Exotic_Forward	4,261	0	0	4,261	676 530%
Multi_Exotic_Option	0	1,068	0	1,068	224 377%
Multi_Exotic_Swap	0	0	6,026	6,026	1,453 315%
<b>Commodities Total</b>	<b>123,223</b>	<b>37,158</b>	<b>70,664</b>	<b>231,045</b>	<b>211,625 9%</b>
<b>Credit</b>					
ABS	0	0	1,728	1,728	1,544 12%
Corporate	0	0	325,113	325,113	320,290 2%
Index	0	0	13,624	13,624	12,838 6%
Index_Swap	0	13,198	0	13,198	12,183 8%
Index_Tranche	0	0	768	768	678 13%
	0	0	96	96	96

DSBISINCreatedbyProduct.csv  
8 KB

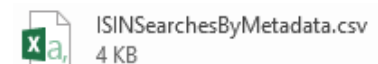
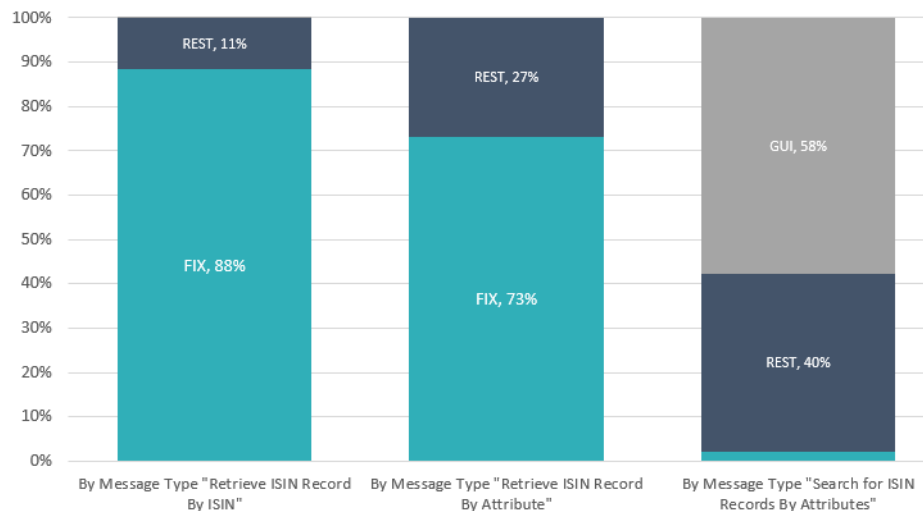
Date	AssetClass	InstrumentType	Product	TotalDSBISINs
31/12/2018	Commodities	Swap	Basis_Swap	8128
31/12/2018	Commodities	Forward	Forward	113287
31/12/2018	Commodities	Option	Option	34037
31/12/2018	Commodities	Swap	Swap	53225
31/12/2018	Commodities	Swap	Swaption	595
31/12/2018	Commodities	Forward	Multi_Exotic_Forward	676
31/12/2018	Commodities	Option	Multi_Exotic_Option	224
31/12/2018	Commodities	Swap	Multi_Exotic_Swap	1453
31/12/2018	Credit	Swap	ABS	1544
31/12/2018	Credit	Swap	Corporate	320290
31/12/2018	Credit	Swap	Index	12838
31/12/2018	Credit	Option	Index_Swap	12183
31/12/2018	Credit	Swap	Index_Tranche	678

## Topics under Consideration – ISIN Usage Analysis 5 of 6

### Examples: iii. ISIN Searches

The DSB currently publishes search request message trends on its Website, these figures are updated every month. It is proposed that an additional monthly csv file will be published to the website:

Search Request Message Trends - January 2019



	A	B	C	D	E	F
1	Date	Connection	RetrieveISINByISIN	RetrieveISINByAttributes	SearchISINByAttributes	
2	31/12/2018	FIX	8832368	4246215	12618	
3	31/12/2018	REST	1189285	1624000	206596	
4	31/12/2018	GUI	13169	0	326319	
5						

## Topics under Consideration – ISIN Usage Analysis 6 of 6

### Examples: vii. ISIN’s Submitted to FIRDS

The DSB currently publishes FIRDS analysis on its Website, these figures are updated every month. It is proposed that an additional monthly csv file will be published to the website:

Commodities	Credit	Equities	Foreign Exchange	Rates	Grand Total
4,108	49,031	1,373,895	2,128,962	970,662	4,526,658



	A	B	C	D
1	Date	AssetClass	NumberOfISIN	
14	2019-01	Commodities	4058	
28	2019-01	Credit	47830	
42	2019-01	Equity	1320527	
56	2019-01	Foreign_Exchange	2054846	
70	2019-01	Rates	910402	
72				



# AOB

- TAC information: <https://www.anna-dsb.com/technology-advisory-committee/>

# Appendices

- TAC Members
- 2019 Meeting Schedule

# Committee Members

Institution	Category	First Name	Last Name	Position / Title
Citigroup	SI	Souvik	Deb	VP, Regulatory Reform
Credit Suisse	SI	Prem	Ananthkrishnan	IT
HSBC	SI	James	Cowie	GFI Regulatory Reporting Manager
JP Morgan	SI	Eugene	Eltsofin	VP, IT Software Engineering
Lloyds Bank	SI	Stephen	Pond	FI E-Trading & Rates Pricing Dev Manager
Morgan Stanley	SI	Shari	Lines	Financial Instrument Ref Data Architect
Rabobank	SI	James	Brown	Delivery Manager, IT Systems
SEB	SI	Henrik	Martensson	Markets CTO Office
Standard Chartered Bank	SI	Andrew	Poulter	Sabre Development Manager
State Street Bank	SI	Kimberly	Cohen	MD - Business Technology Solutions
UBS	SI	Tony	Chau	IB CTO for Regulatory Initiatives
BGC Partners	TV	Jimmy	Chen	Development Manager
Bloomberg LP	TV	Chris	Pulsifer	Software Development Manager
Nex	TV	Ziv	Yankowitz	VP - Research and Development
State Street FX Connect	TV	Tony	Flamand	Head of Regulatory Reform
Thomson Reuters MTF	TV	Zintis	Rullis	Senior Technical Specialist
Tradeweb	TV	Elodie	Cany	Director, Technology Product Development
Asset Control	Other Industry	Martijn	Groot	VP - Product Management
Simplitem	Other Industry	Aanya	Madhani	Head of Product Development
SIX Group Services AG	Other Industry	Stephan	Schaub	Senior Architect
SmartStream	Other Industry	Rocky	Martinez	CTO
Thomson Reuters Data	Other Industry	David	Bull	Head of FI Content Management
BVI	Other Industry	Felix	Ertl	VP, Legal
EFAMA	Other Industry	Vincent	Dessard	Senior Policy Advisor
FIX	Other Industry	Lisa	Taikitsadaporn	FIX Global Technical Committee
Investment Association	Other Industry	David	Broadway	Investment Operations Lead
ISDA	Other Industry	Karel	Engelen	Senior Director
Independent Expert	Other Industry	Jim	Northey	ex officio as ISO TC 68 Chair Elect

DSB Sponsor:

Marc Honegger  
DSB Board Member

Chair:

David Broadway  
Investment Association

Designated DSB Officer:

Sassan Danesh  
DSB Management Team

Observers	Name	Position / Title
ESMA	Olga Petrenko	Senior Officer, Markets
FCA	Paul Everson	Senior Associate – Market Oversight
JSDA	Eiichiro Fukase	General Manager

## TAC 2019 Meeting Schedule

The following shows the two agreed meeting dates & times for 2019:

- Wednesday 13<sup>th</sup> March 2019 1pm GMT (1pm UTC, 2pm CET, 8am EST)
- Wednesday 9<sup>th</sup> October 2019 1pm BST (12pm UTC, 2pm CEST, 8am EDT)