DERIVATIVES SERVICE BUREAU

TECHNOLOGY ADVISORY COMMITTEE

23 March 2022

MEMBER FINAL

Agenda

- **Governance**
  - Competition Law Reminder
  - Roll call
  - TAC Member Changes
  - TAC Meetings 2022
  - Action Update
  - HAP & Covid

- **Existing Topics**
  - OS Migration / Software Version
  - DR Testing
  - ToTV Disaster Recovery
  - IC 2021 Q2 Search Only User
  - Weekly Snapshot
  - Dynamic Enumerations
  - CFI 2019
  - 2022 POAP

- **New Topics**
  - Basic Authentication
  - Validation Rules

- **UPI Update**
  - Baseline
  - Scalability

- **CISO Update**

- **Subcommittee Updates**
  - TAC Strategy Subcommittee (SSC)
  - Cloud Architecture Subcommittee (CASC)

- **AOB**

- **Appendices**
  - A - TAC Members
  - B - Meeting Schedule
  - C - Bulletin Board Items
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  - E - Actions
  - F – Service

Governance I of VI - Competition Law Reminder I of II

The purpose of this protocol is to remind attendees of Derivatives Service Bureau (DSB) Limited ("DSB") Technology Advisory Committee, that all discussions at such meetings are subject to the application of EU, UK and other applicable national competition law ("Competition Law").

Individual attendees are responsible for observing the requirements of Competition Law and should make themselves familiar with their legal obligations and their own organization policies.

The DSB is committed to compliance with Competition Law and advises that TAC participants follow the guidance set out below in order to ensure that all meetings remain in compliance with Competition Law.

1. A meeting agenda will be circulated in advance of a meeting. Any objections to, or potential concerns about, the proposed agenda in relation to Competition Law compliance should be raised prior to the meeting if practicable
2. Attendees must stick to the prepared agenda during the meeting and avoid discussion about other topics
3. Attendees must not seek, discuss, communicate or exchange any commercially or other business sensitive information about their organization or relating to competitors (whether before, during or after meetings). This includes, for example, any non-public information relating to prices, costs, revenues, business plans/marketing activities, individual terms and conditions, risk appetite or any other information which is likely to reduce strategic uncertainty in the market (i.e. which might result in less intensive competition than would normally occur)
4. Attendees must not reach any sort of agreement or understanding that is unlawful due to competition law (e.g. unlawful horizontal agreement, unlawful vertical agreement)

Governance II ofVI - Competition Law Reminder II of II

5. The TAC Secretariat will take minutes of the meeting, and supply these to each attendee in due course.
6. If the Chair considers that a discussion at the meeting may be inappropriate from a Competition Law perspective, he or she shall raise an objection and promptly bring that part of the discussion to an end. If another attendee, or the DDO, is concerned about a discussion from a Competition Law perspective, he or she shall bring it to the attention of the Chair, who will promptly bring that part of the discussion to an end. If other attendees attempt to continue that discussion, the Chair shall bring the meeting to an end. Every attendee is allowed to immediately leave the meeting in such situations. All such situations must be properly recorded in the minutes.
7. The minutes of the meeting must subsequently be read and approved by the attendees. If any matter discussed is not recorded in the minutes, or is recorded incorrectly, any attendee may raise an objection in writing and request an amendment.
8. Similar principles should be observed for any group email exchanges or other online group discussions operated by DSB, including those pertaining to TAC matters.

We remind attendees that breaching Competition Law has serious potential consequences for them as individuals and their organizations. Such consequences may include heavy fines, liability to pay compensation to affected individuals and businesses and, in certain cases, the imposition of criminal penalties, director disqualification orders and disciplinary action.

Governance III of VI – Roll Call

The DDO will undertake the roll call.

Governance IV of VI – Member Changes

The DSB Board has recently approved the following TAC membership changes:

- Torbjörn Cronbladh has replaced Henrik Martensson as the member for SEB. Torbjörn joins the TAC as a Market Data Specialist and Product Owner.
- Vincent Dessard has left the TAC as the member for EFAMA. We are currently in discussion with EFAMA about a possible replacement.

We would like to welcome Torbjörn to the TAC and also to extend our thanks to both Henrik and Vincent for their contribution to the TAC.

Governance V of VI - TAC Meetings 2022

The TAC meetings for 2022 have been scheduled with invites being sent out to members. The overview for the year is as follows:

- **23rd March 2022 - TAC BAU Meeting 1**

The first of two BAU meetings for 2022

- **20th April 2022 - Additional Meeting on Future Technical Direction**

An additional meeting in 2022 to focus on the DSB's future technical direction. The meeting will review the conclusions from the TAC's Cloud Architecture Subcommittee (CASC) with completed the analysis into both the multi-cloud and multi-region options from the 2020 Industry Consultation paper

- **22nd June 2022 - TAC Industry Consultation Review (Invites outstanding)**

A review of any technical items relating to the 2022 Industry Consultation Exercise for the 2023 Service Provision
Please note: We may reach out to the TAC members via the bulletin board for guidance before the consultation paper is published

- **26th October 2022 - TAC BAU Meeting 2**

The second of the two BAU meetings for 2022

Governance VI of VI - Action Update

Action	Description	Update	Slide#
2010-007	TAC Secretariat to investigate alternative VPN options to the current FortiGate solution and report findings back to the TAC.	Verbal updated to be provided	N/A
2111-001	DSB to create a new topic on the TAC bulletin board regarding the future DR testing options	Complete BB item created 8/3	10-12
2111-002	CISO to produce a report relating to the 2019 consultation paper items that can be shared publicly.		35-36
2111-003	TAC Secretariat to create a new bulletin board topic regarding UPI Scenarios	UPI Scenarios Topic created Propose to close	N/A

New Topics – HAP & Covid

Current Status

- The current Heightened Awareness Period ends on Sunday 3rd April 2022
- The DSB is seeking the TAC's views on what action to take at the end of the HAP period
- The agreement to introduce a further HAP included a caveat that the TAC would discuss the situation during the Q1 2022 meeting
- Since the discussion with the TAC in January we now have the ongoing problems in the Ukraine to consider

Existing Topics – O/S Migration & Software Upgrades

OS Migration Recap:

The DSB undertook a project to migrate away from the Amazon Linux 1 operating system that reached its end of life on 31 Dec 2020 and move to Ubuntu LTS. The multi-phased project took place throughout 2021 and the four planned phases were completed with the last delivery on the 14 Nov 2021.

The project also included the rollout of new versions of MongoDB and the Apache software stack.

Software Upgrades 2022:

During 2022 we will continue to review and upgrade the relevant components. The initial review in Q1 has identified the following components:

- Tomcat 3 Apr 2022 (Fipro/Cordra Upgrade)
- Elastic Search In development, release date TBC
- NGINX Not started

As usual, we will endeavor to ensure these upgrades are transparent to the users.

*Expected

Existing Topics – Disaster Recovery Testing I of III

Recap:

During the November 2021 TAC meeting the TAC members considered four options for future DR testing. These were:

1. Repeat the UAT DR Test Annually
2. DSB Test in Isolation in Production
3. 8-week DR Test in Production
4. DSB Production Service switches between regions every 6 months

The meeting discussion was summarised and the DSB took an action to present the TAC members with revised options via the TAC bulletin board. This summary was provided on 8th March 2022 and asked a number of questions of the TAC members.

The TAC members were also made aware that one DSB client had escalated concerns from their risk team that the DSB, as a critical supplier to their firm, has not completed a Production DR test. They recognized the progress made with the UAT test in 2021, but this does not satisfy the concerns from their risk team. They have asked the DSB to ensure that the TAC are made aware of their concerns as part of the planned March discussion on the subject.

We would like to obtain the TAC members feedback in relation to the questions that were asked.

Existing Topics – Disaster Recovery Testing II of III

Past issues identified and proposed remediation:

The following table lists the issues encountered in previous tests and proposes the remediation for future tests:

Issue	Remediation
DSB Servers Remaining Online Some users have configured their global load balancers to select any operational IP addresses from a pool which contains both the Primary and Secondary DSB IP addresses. During the failover, the DSB did not take the Primary IP addresses offline, so the global load balances thought that the IP addresses were still operational, even though the services were not running on the boxes.	For future tests, the DSB will ensure the Primary IP addresses are not accessible during the period of the failover test.
Hardcoded IP Addresses Two DSB users reported issues trying to connect to the DSB UAT DR environment. This was as a result of their connectivity configuration where they do not use the DSB's standard of using fully qualified domain names, but instead use the underlying IP addresses of the service.	The DSB has provided guidance to users on how to resolve this issue by using the DSB's qualified domain names. Some users are unable to adopt the recommended configuration, so will be required to make changes to their configuration to utilise the DR IP addresses at the point of failover by the DSB.

Existing Topics – Disaster Recovery Testing III of III

Questions to the TAC via the Bulletin Board Article:

The TAC were asked the following questions:

1. Do the TAC members agree to discount option 1?
2. Do the TAC members agree to discount option 2?
3. Do the TAC members support undertaking a production DR test by failing the primary region across to the secondary region and running the service from the secondary region for an agreed period of time?
4. If so, what duration do the TAC members propose for the DR test?
5. Should the failover be invoked during the operational hours and if so, when?
6. Do the TAC members accept the risk that the DSB does not require a DR capability for the duration of the Production DR test?
7. If not then:
    a. Should the DSB look to establish a reverse flow capability, to replicate data from the secondary site to the primary?
    b. And should the reverse flow be established before any production DR test is undertaken?
8. What period of time should be given to users to prove connectivity to the DSB's DR region prior to the start of a production DR test?
9. What frequency should be incorporated for future DR test? E.g.: annually, noting the caveat that consideration should be given to repeating DR tests after significant infrastructure upgrades.

Additional Questions:

a. Depending on the answer to Question 4, would the TAC recommend a change freeze during the failover test?

Next steps?

Existing Topics – ToTV Disaster Recovery

Background:

The TAC recommended the DynamoDB Global Tables solution as a basis for the implementation of a warm standby capability for the ToTV service in the Disaster Recovery Region. This recommendation was presented to and approved by the DSB Board at the November 2020 meeting.

- The solution required the build out of the DR infrastructure (to be undertaken under BAU).
- Additional operating expenditure to cover the additional infrastructure including data storage and replication costs.

Previous Actions:

- As part of the October 2020 TAC meeting, the members had requested more details on DynamoDB Global Tables. The DSB has placed additional information on the TAC bulletin board to address some queries made in the October 2020 TAC meeting.
- With the completion of OS Migration Phase 4 the implementation of the DynamoDB Global Tables solution has commenced

Progress Made:

- The preparation work has been completed
- Technical design and estimates for the work have been completed
- The ToTV infrastructure has been established (EC2-instances and ELBs)

Next Steps:

- The Global Tables solution work is expected to begin in April and is estimated to be deployed into ToTV Production by the end of Q2

Existing Topics – IC2021Q2 – Search Only User

Update:

- Dependent Vendor Component Release:
  - QA testing of the vendor software has been completed
  - Changes were deployed into UAT on 12th March 2022
  - Production release is targeted for Sunday 3rd April 2022

- Search Only User:
  - Development and QA work has been completed
  - The DSB has reached out to potential clients to perform UAT testing in Q2
  - Target release date to PROD is on track for Q2

Next Steps:

- Finalise onboarding process updates
- Website updates are finalised and will be published by the target release date
- Industry will be notified of the UAT and Production release dates

Existing Topics – IC2021 Weekly Snapshot

Recap:

At the November 2021 meeting the weekly snapshot topic was discussed having received additional user feedback The TAC concluded that by merging the two similar requirements, the weekly snapshot requirement from BAU and the new way to programmatically accessing the EOD download file information (which carried additional incremental costs), the DSB was able to lower the overall original anticipated costs for both build and run, the savings achieved will be passed back to users.

It was noted that the weekly snapshot files would complement, not replace, the existing daily delta files.

Update:

- The Weekly Snapshot item has been added to the 2022 workstack
- Technical Design has been completed

Next Steps:

- Development is scheduled to commence in April 2022
- Production release date targeting end Q2/start Q3

Existing Topics – Dynamic Enumerations Update

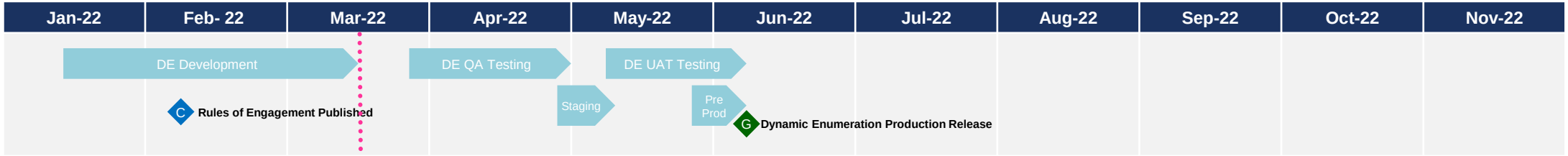
Current Status:

- ✓ All development activities are now complete
- ✓ ReST Rules of Engagement (to include internalizeRefs and the default behavior) have now been defined & published internally

Next Steps:

- Quality Assurance scheduled to commence Monday 28th March (for 5 weeks)
- Staging scheduled to commence Monday 2nd May (for 1 week)
- UAT Testing scheduled to commence Monday 2nd May (for 4 weeks)
- Pre-production Testing scheduled to commence Monday 30th May (for 1 week)
- Production Release scheduled for Sunday 5th June

Timeline of Deliverables:

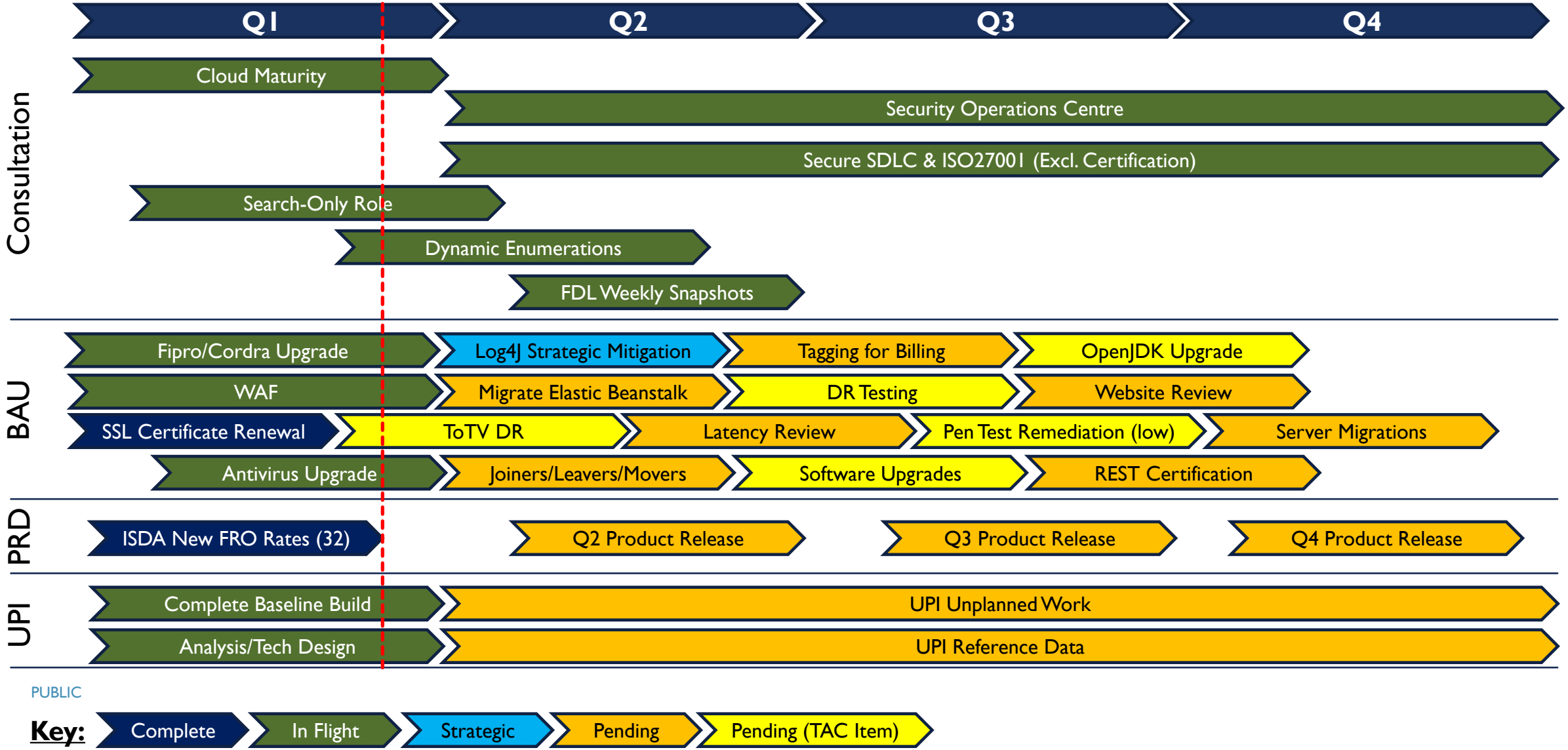


RAG Status	G – On Track	A – Risk Of Being Late	R – Late	C - Complete	P - Pending

Existing Topics – CFI 2019

A verbal update will be provided during the meeting.

2022 Plan on a Page



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Key: Complete | In Flight | Strategic | Pending | Pending (TAC Item)

New Topics – Basic Authentication I of II

Background:

- After a recent UAT release, users reported authentication issues accessing the UAT service
- As a result, the UAT deployment was rolled back which addressed the issues for all impacted users
- The root cause was that one of the software components included in the release enforced the RFC 7617 standard
- The issue has been addressed for the time being, however, we wanted to raise this point with the TAC for further discussion

Feature	RFC 7617	Current DSB ReST ROE
Syntax (in http header):	Authorization: Basic Base64(User:Password)	Authorization: Base64(User:Password)
Details:	If the user agent wishes to send the user-id "Aladdin" and password "open sesame", it would use the following header field: `Authorization: Basic QWxhZGRpbjpvcGVuIHNlc2FtZQ==`	Users should attach the authentication parameters to each of the REST methods' header with: key = "Authorization" value = base64(username + ":" + password) The username and password are concatenated with a colon separator and encoded in base64

New Topics – Basic Authentication II of II

Proposal:

- To introduce a breaking change to conform to RFC07617 by enforcing the use of 'Basic '
- Users who already follow RFC-7617 will not be impacted by this change
- Users who do not follow RFC-7617 must add 'Basic ' to their authorisation string
- In alignment with the DBS's terms and conditions, users will be given a minimum of 90 days notice to make this change

Feature	RFC 7617	Proposed DSB ReST ROE
Syntax (in http header):	Authorization: Basic Base64(User:Password)	Authorization: Basic Base64(User:Password)
Details:	If the user agent wishes to send the user-id "Aladdin" and password "open sesame", it would use the following header field: `Authorization: Basic QWxhZGRpbjpvcGVuIHNlc2FtZQ==`	Users should attach basic authentication parameters to each of the REST methods' header according to RFC-7617 having: key = "Authorization" value = Basic base64(username + ":" + password) The username and password are concatenated with a colon separator and encoded in base64 For instance: If the user wishes to send the user-id "Aladdin" and password "open sesame", it would use the following header field: Authorization: Basic QWxhZGRpbjpvcGVuIHNlc2FtZQ==

TAC Decision:

Do the TAC approve of this recommendation to update the ReST RoE to adopt RFC-7617 standards by enforcing the use of 'Basic ' in the authorisation syntax?

New Topics 1 of 1 – Machine Readable Validation 1 of VII

Introduction:

In October 2021, the DSB met with the ROC's Oversight Arrangements Group (OAG). One item that came up during the discussion was the DSB's approach to validation rules relating to the JSON templates.

This topic has been discussed with the TAC members previously.

The DSB's validation rules are documented and available to all users on the Website. In terms of implementation, some of the rules are implemented in the JSON templates themselves, and industry tooling can be used to test that user messages conform to these rules. The remaining rules are implemented in the DSB's JavaScript code. These are exercised when users send the DSB messages. However, if a user wants to test these rules before sending a message to the DSB, then they have to implement the rules in their own software.

The OAG provided the DSB with some examples of how the DSB's current approach could be modified to make the full set of rules available to users without having to implement any bespoke software.

We would now like to take the TAC members through a short demonstration of this problem space.

New Topics 1 of 1 – Machine Readable Validation 1 of VI

The DSB publishes product documentation via the DSB's website in https://www.anna-dsb.com/products/. An Overview Document[1] is provided which acts as a manual for the DSB's product definition templates as well as the product templates themselves. The manual includes details of the validation that is adopted.

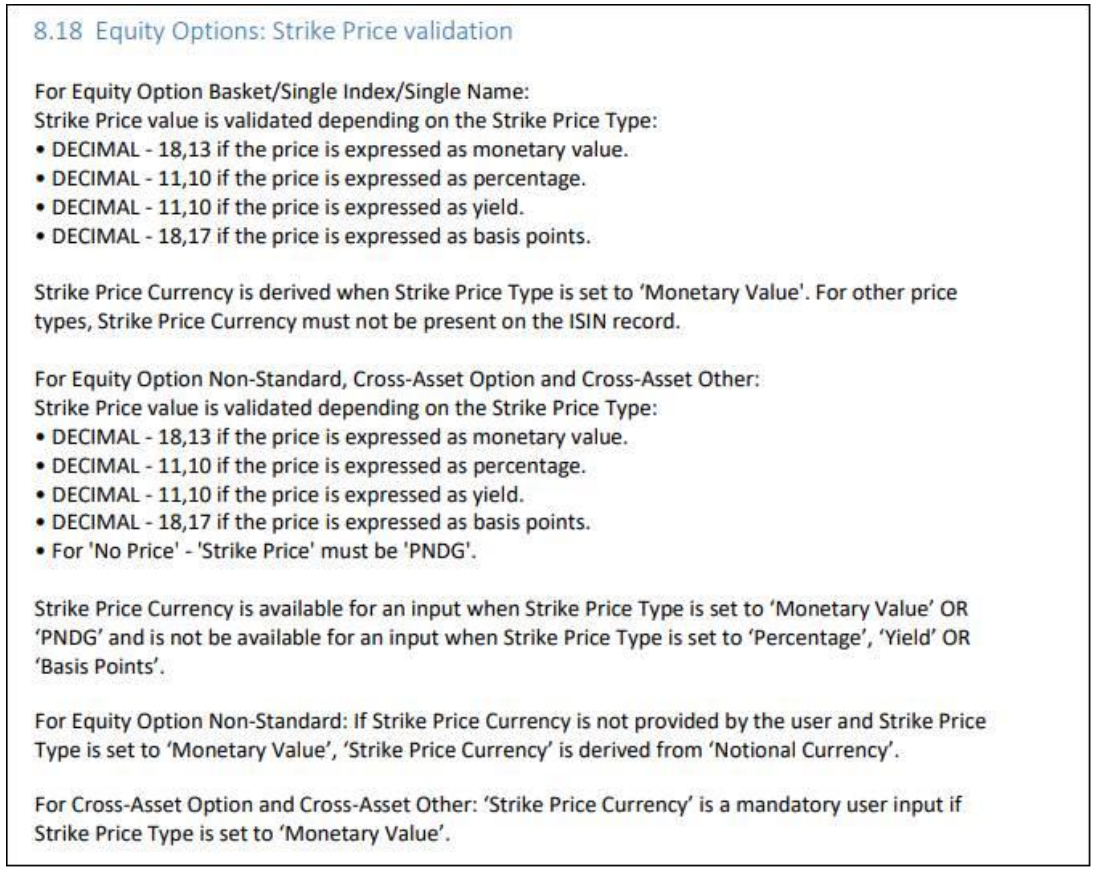
For this topic, we will refer to section 8.18 Equity Options: Strike Price Validation, which can be seen opposite, as well as the Equity Option Single_Name request template.

The validation is broken out into two parts:

- JSON Template Validation
- JavaScript Validation

Both parts are executed when a user sends a message into the DSB. Users can validate their own message before sending the message to the DSB, however, his will only validate the rules implemented in the JSON template. If users want to validate the rules implemented in the JavaScript validation, then they must follow the documentation and implement these rules themselves.

In a recent discussion, the Regulators have asked if the DSB could make the specification published machine readable thus preventing end users from having to implement these rules themselves. In light of this, we would like to raise this topic with the TAC members to understand their views.



8.18 Equity Options: Strike Price validation

For Equity Option Basket/Single Index/Single Name:
Strike Price value is validated depending on the Strike Price Type:
- DECIMAL - 18,13 if the price is expressed as monetary value.
- DECIMAL - 11,10 if the price is expressed as percentage.
- DECIMAL - 11,10 if the price is expressed as yield.
- DECIMAL - 18,17 if the price is expressed as basis points.

Strike Price Currency is derived when Strike Price Type is set to 'Monetary Value'. For other price types, Strike Price Currency must not be present on the ISIN record.

For Equity Option Non-Standard, Cross-Asset Option and Cross-Asset Other:
Strike Price value is validated depending on the Strike Price Type:
- DECIMAL - 18,13 if the price is expressed as monetary value.
- DECIMAL - 11,10 if the price is expressed as percentage.
- DECIMAL - 11,10 if the price is expressed as yield.
- DECIMAL - 18,17 if the price is expressed as basis points.
- For 'No Price' - 'Strike Price' must be 'PNDG'.

Strike Price Currency is available for an input when Strike Price Type is set to 'Monetary Value' OR 'PNDG' and is not be available for an input when Strike Price Type is set to 'Percentage', 'Yield' OR 'Basis Points'.

For Equity Option Non-Standard: If Strike Price Currency is not provided by the user and Strike Price Type is set to 'Monetary Value', 'Strike Price Currency' is derived from 'Notional Currency'.

For Cross-Asset Option and Cross-Asset Other: 'Strike Price Currency' is a mandatory user input if Strike Price Type is set to 'Monetary Value'.

[1] https://www.anna-dsb.com/download/dsb-prod-product-definitions-pdf/

New Topics I of I – Machine Readable Validation II of VI

JSON Template Validation:

A user can download the DSB's product template from GitHub or registered users can access the current template from the DSB's File Download Area. With a template downloaded, a user can use industry standard tools to validate that the message they are sending conforms to the rules as defined by the template. To demonstrate this, we have selected the "JSON Schema Validator" [3] tool.

The tool allows the user to load the JSON template (schema) and to enter the details of the data message. The tool will then validate that the data message conforms to the specified JSON schema.

In this example, the tool is showing that the Strike Price Type of "DSB TAC" is not valid.

[1]https://github.com/ANNA-DSB/Product-Definitions/tree/master/PROD
[2]https://prod.anna-dsb.com/file-download/
[3]https://www.jsonschemavalidator.net/

New Topics I of I – Machine Readable Validation III of VI

JSON Template Validation (continued):

In this example, you can see that the template does not allow a Strike Price containing 19 digits to be entered as this exceeds the maximum allowed.

Select schema: Custom

```
                "Yield": "Yield",
                "Basis Points": "Basis Points"
              },
              "options": {
                "enum_titles": [
                  "Monetary Value",
                  "Percentage",
                  "Yield",
                  "Basis Points"
                ]
              }
            },
            "StrikePrice": {
              "title": "Strike Price",
              "description": "Predetermined price at which the
              holder will have to buy or sell the underlying
              instrument, or an indication that the price cannot be
              determined at the time of execution",
              "type": "number",
              "highPrecisionNumber": true,
              "minimum": -100000000000000000,
              "exclusiveMinimum": true,
              "maximum": 100000000000000000,
              "exclusiveMaximum": true
            }
          },
          "required": [
            "StrikePriceType",
```

Input JSON: ✖ Found 1 error(s)

```
{
    "Header": {
        "AssetClass": "Equity",
        "InstrumentType": "Option",
        "UseCase": "Single_Name",
        "Level": "InstRefDataReporting"
    },
    "Attributes": {
        "NotionalCurrency": "BIF",
        "ExpiryDate": "2021-07-13",
        "UnderlyingInstrumentISIN": [
            "US00215W1009"
        ],
        "OptionType": "CALL",
        "OptionExerciseStyle": "AMER",
        "ValuationMethodorTrigger": "Vanilla",
        "DeliveryType": "CASH",
        "StrikePriceType": {
            "StrikePriceType": "Yield",
            "StrikePrice": 1234567890123456789
        },
        "PriceMultiplier": 1
    }
}
```

✖ Found 1 error(s)

Message: **Integer 1234567890123456789 exceeds maximum value of 1E+18.**

Schema path: #/properties/Attributes/properties/StrikePriceType/properties/StrikePrice/maximum

New Topics 1 of 1 – Machine Readable Validation IV of VI

JSON Template Validation (continued):

When the Strike Price value is Single Name corrected to 18 digits, the tool is happy that the data message conforms to the schema:

This is actually incorrect. If you refer back to section 18.8 of the product definitions overview, you will see that a Strike Price Type of "Yield" only supports 11 digits.

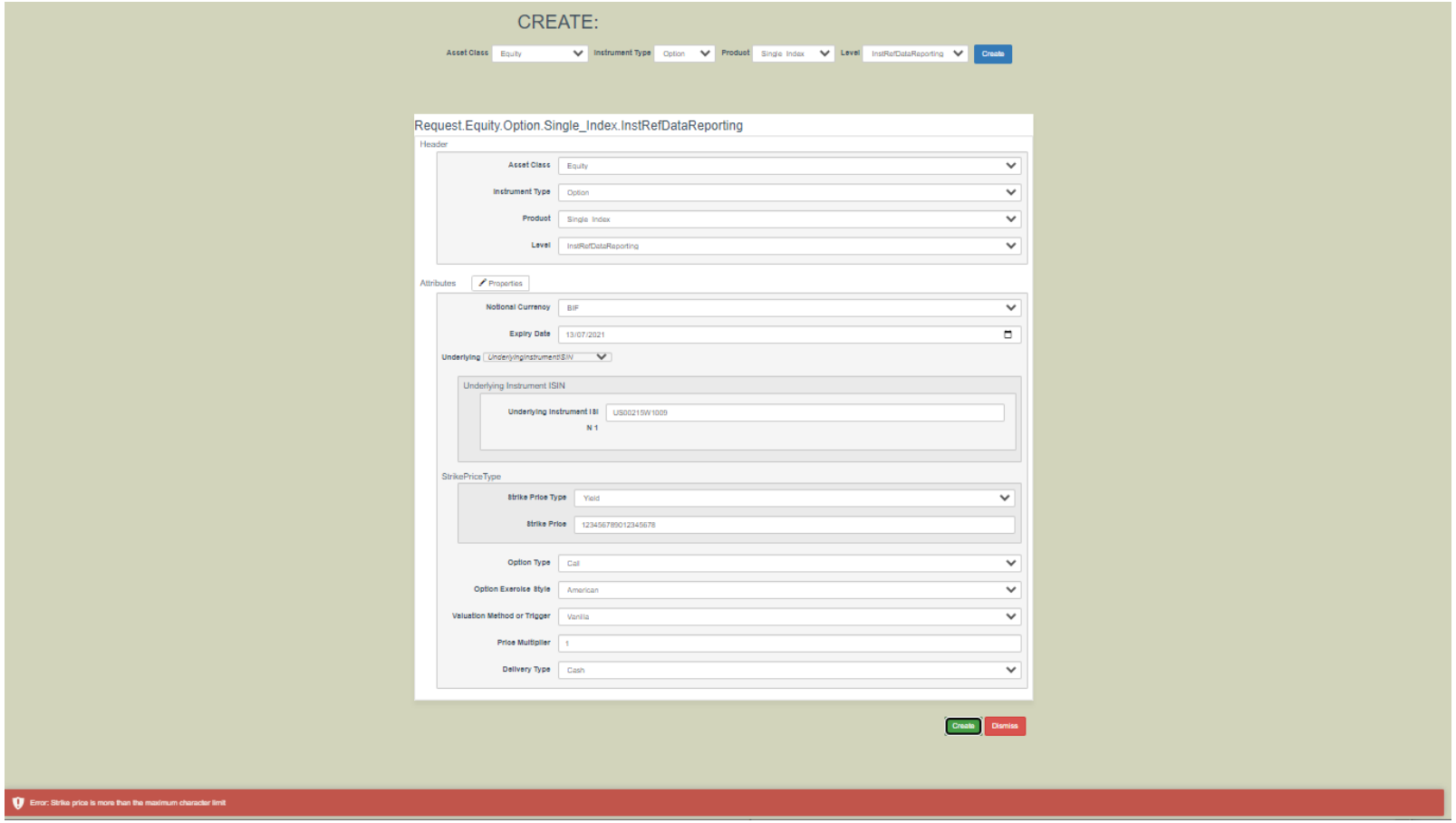
This rule is not implemented in the JSON template but is instead implemented in the JavaScript validation.

Currently end users wishing to fully validate messages before calling the DSB would need to undertake their own implementation of this rule.

New Topics I of I – Machine Readable Validation V of VI

JSON Template Validation (continued):

Entering the same combination in the DSB GUI, correctly traps this error as the DSB has implemented this rule as part of the JavaScript validation. This can be seen in the screen shot below, the red error bar reads "Error: Strike price is more than the maximum character limit":



New Topics 1 of 1 – Machine Readable Validation VI of VI

Real World Examples:

The ROC's OAG have kindly provided a number of examples, these have been shared with the TAC members via the bulletin board:

- FDIC / FFIEC White Paper 2006
- European Central Bank 2018
- SEC / XBRL US

Next steps:

- Review of the above examples
- One additional example is the DSB's own master definition which has been built to Orchestra standards. The DSB's Product Templates are generated from this machine-readable master definition. The Orchestra standard continues to be extended, so further analysis could be undertaken to understand how the repository could be further enhanced to support additional functionality.
- Continue the discussion on the TAC bulletin board

[1]https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-fdic-ffiec-white-paper/#post-273
[2]https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-european-central-bank/#post-274
[3]https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-sec-xbrl-us/#post-275

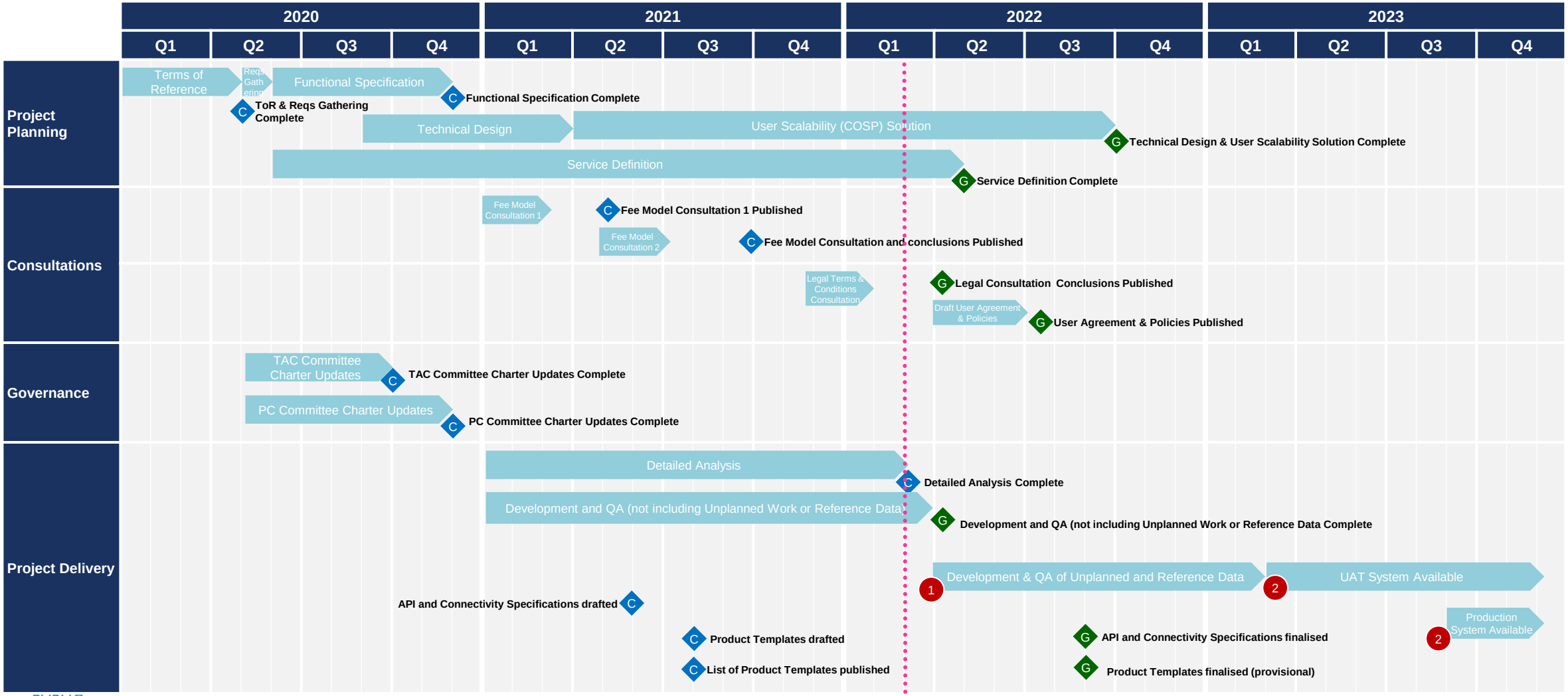
UPI Update I of II – Baseline I of II - Progress

UPI Progress:

- 99 of 99 UPI templates developed (with simple underlier structure, CFI 2015 and assumed FISN), testing complete except for cross-asset templates as development underway in equivalent OTC ISIN templates. UPI normalised templates in QA.
- Additional UPI templates (as requested by CDIDE) being analysed and reviewed with PC.
- GUI updated for UPI templates with functional improvements
- UPI ReST interface developed and tested, development in progress for FIX interface.
- WAF implemented into QA environment, monitoring ongoing, prepping for higher environments.
- Final release from Cordra software vendor in UAT, Production scheduled for 03/04/22
- User Permissioning development (integrating UPI Core with Auth0) in progress – finalising dev requirements of Web GUI to use one URL
- Reference Data RFI concluded, data analysis, technical design, redistribution requirements, data licensing work continuing
- Fee Model Industry Consultation process completed - final paper[1] published 27 September 2021
- UPI Legal Terms and Conditions consultation[2] closed 19 January 2022. Report will be published 12 April 2022 alongside draft DSB Access and Usage Agreement and Policies for 2023 (incorporating UPI Service).
- Analysis underway with DSB Board of Unplanned Work items to determine essential items required for launch of UPI Service.

[1] https://www.anna-dsb.com/download/dsb-upi-fee-model-final-report/
[2] https://www.anna-dsb.com/upi-legal-terms-and-conditions-consultation/

UPI Update I of II – Baseline II of II - Plan on a Page



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1 Dependent on DSB Board decision

2 Availability of UAT and Production services assuming November 2023 Regulatory Mandate

RAG Status	G – On Track	A – Risk Of Being Late	R – Late	C - Complete	P - Pending

UPI Update II of II – User Scalability I of IV

The Client Onboarding & Support Platform (COSP) will be available at the launch of the UPI Service in UAT, in order to enable fee-paying users of the UPI service to set-up their client profile, configure GUI users and API connections for UAT (depending on User Type), and to enable Registered users to sign up.

On 12 April 2022, the DSB will publish the Legal Terms & Conditions Final Report, the draft DSB legal framework (including the documentation making up the Agreement) and Policies, updated to reflect the UPI Service in addition to the OTC ISIN.

In this section of this pack, visibility of key COSP design decisions, aligned to the content of the above documents, is being provided in order to allow review and feedback from the TAC:

Registered Users:

Sign up via email or social media login

- For social login, Facebook, Twitter, LinkedIn were assessed for suitability to leverage their authentication process
- Facebook and Twitter were discounted due to:
  - (i) a lack of alignment with a business-facing service, and
  - (ii) because they allow authentication by telephone number which the DSB does not need/wish to capture
- LinkedIn is deemed to be fit-for-purpose For Day 1. Other social media logins can be assessed once the COSP is live

Change of name or email

- Users will notify the DSB via a Support ticket and re-register (rather than amending details of their existing login)

UPI Update II of II – User Scalability II of IV

Fee Paying Users:

Mandating use of LEI for identification of the User

- Support received for DSB's proposal in Legal Terms & Conditions Consultation to mandate the LEI
- LEIs provided by Users will be validated against GLEIF to ensure they are 'Active' at point of onboarding
- Where the client has no LEI there will be manual exception handling, based on existing process for ISIN (search of publicly available sources to identify the User)
- DSB will perform periodic monitoring against GLEIF to flag and address any mismatch in LEI status (active LEI becomes inactive, company detail change etc.)

COSP roles to perform administrative Onboarding tasks

- Role-based permission to access the COSP workflows (e.g.: Client Administrator, Legal, Billing, Support)
- The appropriate number of COSP roles provided per User is being assessed and will be confirmed via the DSB Legal Terms & Conditions Final Report in April 2022
- An individual can have a COSP role on multiple User accounts, to administer multiple relationships with the DSB

GUI access management for fee-paying User Types

- An individual can only have GUI access under a single User Type (due to technical limitations)
- Email domain linked to an individual's GUI account does not have to match the email domain of the Client Administrator (as affiliates and intermediaries will likely have different email addresses)
- DSB terms of use are constructed to legally commit the User to agree to acceptable use of the system

UPI Update II of II – User Scalability III of IV

Fee Paying Users (Continued):

Read-only GUI access for fee-paying clients

- Users at fee-paying clients can separately sign-up as Registered Users (providing they are not GUI users under the subscription)
- COSP Client Administrators may wish to have visibility of Register Users in their organisation using the system:
  - Day 1: Client Administrator can raise a support ticket to request this information. DSB Support team will manually pull this together (assuming no data privacy constraints)
  - Day 2: Introduce ability to give fee-paying users read-only access to the GUI where required (to 'protect' create caps)

REST and FIX API connections

- The DSB expects greater demand for REST API compared to FIX API
- REST and FIX Certification will be via the Fixspec platform. Target state is to trigger this process from within the COSP and for Fixspec to pass the Certification Status back to the COSP as a pre-requisite for activation in Production

Intermediaries

- The End User that primarily controls that the role the intermediary fulfils on its behalf:
  - End User configures GUI and/or API connections for intermediary via the COSP
  - Intermediary GUI users will be asked to validate their email and create a password
  - End User will share details of API connections with the intermediary outside of the COSP
  - Intermediary must have created a profile in the COSP before the intermediary connections can be activated
  - Either End Users or Intermediaries can raise Support Tickets via the COSP
  - Intermediaries will be asked to confirm the End Users they are working with, and to reconfirm on a periodic basis

UPI Update II of II – User Scalability IV of IV

General:

Support Tickets

- COSP Users can raise Support Tickets for queries/issues with any aspect of the UPI Service or COSP
- Non-COSP Users can raise a 'Guest Ticket' but will be encouraged to self-diagnose via website content/FAQs in order to minimize load on the DSB Support teams

Password Policy for UPI Service and COSP

- Identity & Access Management (IAM) is managed in Auth0 in line with the DSB Security Policy
- Passwords are set and managed by Users to control access to the UPI Service and COSP
- Users given GUI access or COSP roles can be forced to reset their passwords by a COSP client administrator

Users of both OTC ISIN and UPI services

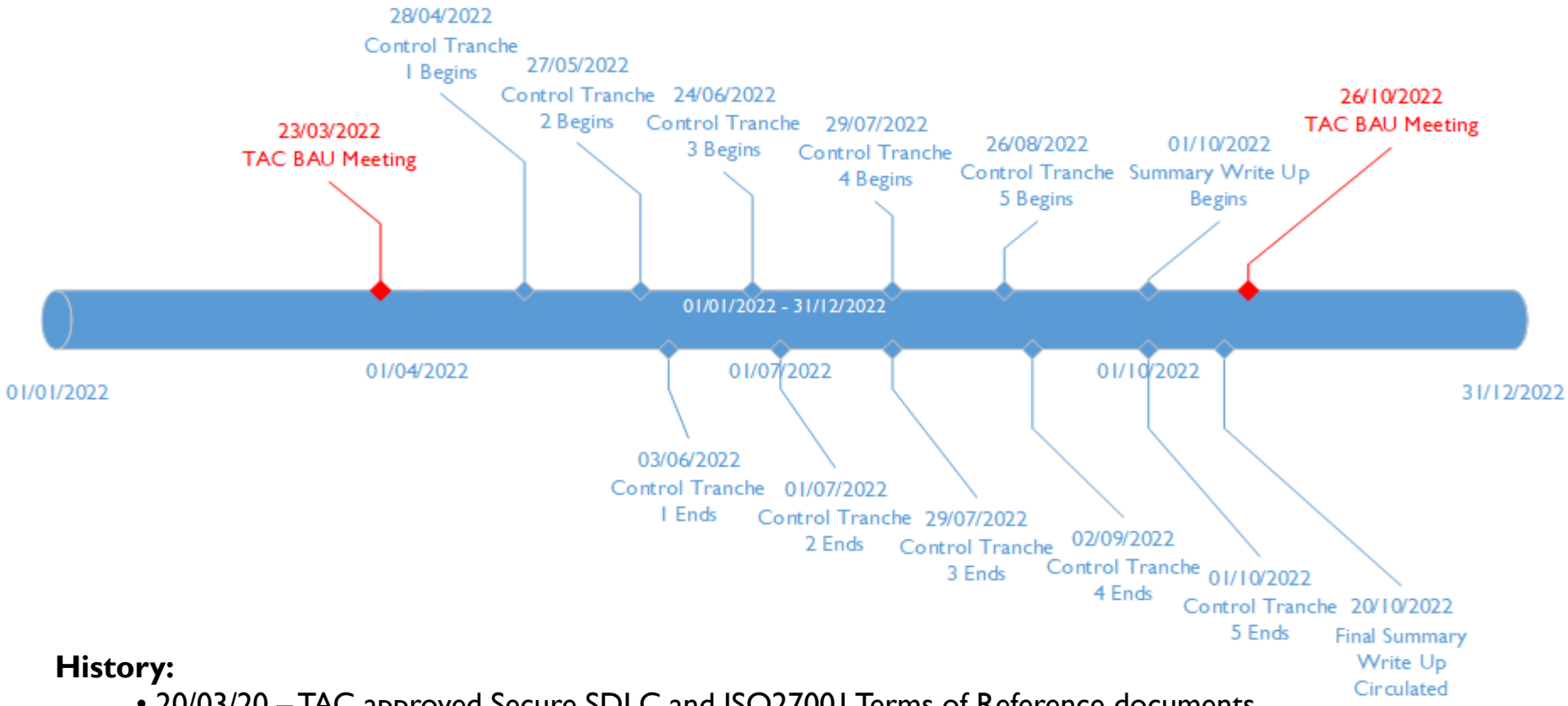
Existing ISIN clients who also subscribe to the UPI Service

- GUI access
  - A User can have GUI access for both ISIN and UPI services
  - On Day 1, via the COSP, Users of the UPI service will set up access to the GUI using a separate identity to that used for the OTC ISIN service
  - A 'silent migration' for all OTC ISIN Users is being planned in order to consolidate permissions in Auth0 for both the OTC ISIN and UPI services, during which Clients will be asked to reset their password
- COSP access
  - Upon launch of the UPI service, only fee-paying Users of the UPI Service will have access to the COSP
  - OTC ISIN Users will follow existing onboarding and in-life management processes (pending future consultation on roadmap to rollout the COSP to OTC ISIN Users)

CISO Update 1 of 11

There was an action to produce a report relating to the 2019 consultation paper items that can be shared publicly.
This will be shared with the TAC via the Bulletin Board by 1st April 2022 to allow the TAC to review prior to wider distribution.

2019 Consultation Paper Progress: ISO27001 & Secure SDLC



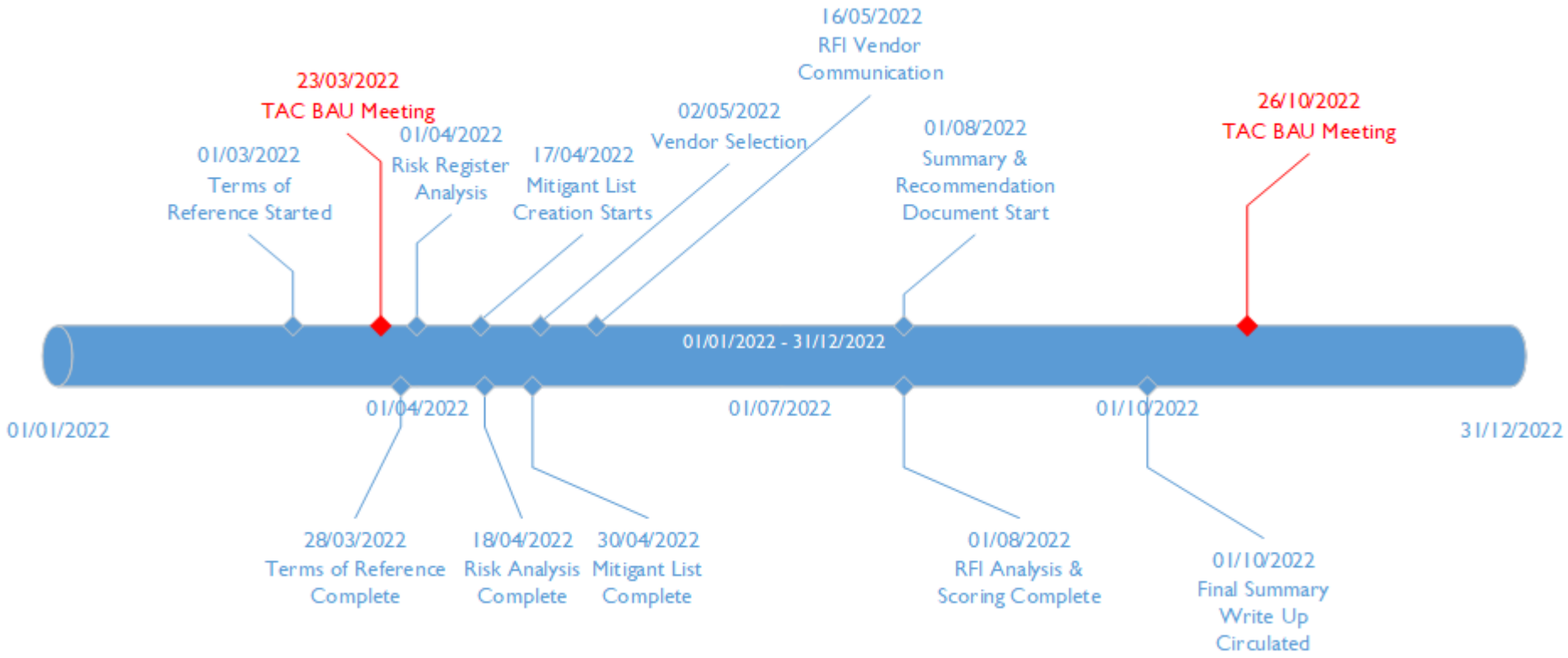
Control Area
Security Policy
Acceptable Use
Human Resources
IT Asset Management
Capacity Management
IT Risk Management
Supplier Management
Incident Management
Business Continuity
Physical Security
Network Security
IT Operations Management
IT Endpoint Management
Malware Protection
IT Change Management
Information Handling
Access Control
Configuration Management
Logging and Monitoring
Encryption
System Development

History:

- 20/03/20 – TAC approved Secure SDLC and ISO27001 Terms of Reference documents
- 03/12/20 - The Office of the CISO published the analysis findings to the TAC via email
- 18/12/20 – TAC feedback deadline

CISO Update II of II

2021 Consultation Paper Progress: Security Operations Centre Analysis



Summary:
The DSB believes it is appropriate to undertake a detailed analysis on the implementation of a Security Operations Centre, either on-site or contracted to a third-party.

TAC Question:
Should the DSB perform a cost, benefit and risk analysis on the implementation of a Security Operations Centre?

TAC Subcommittee Updates I of II – TAC SSC

Further to the update provided at the last TAC meeting, the TAC SSC met on the 8th December 2021. The key outstanding task remains the finalisation of the DSB UPI Strategic Requirements Report, however, one question is still outstanding which has prevented this from being completed.

The meeting also discussed a framework for the UPI release which could be applied to any changes to the mandated start of UPI regulatory reporting. This framework raised the option of a third UAT environment, which was put forward as recommended option avoid a hard change freeze for the OTC ISIN during the UPI UAT period. TAC members had previously advised that a longer period of UAT up to 9 months would be helpful should the dates move out. The UAT system could be made available 9 months before the regulatory mandate start, with the production system being available 3 months before the regulatory mandate start, and thus overlapping with the last 3 months of UAT.

Since the meeting, we have been advised of delays to the regulatory mandate start, however, we await final confirmation of the revised dates. We do not expect this to be until late Q3 2023, which would mean UAT starting late on in Q1 2023.

The subcommittee has not met so far in 2022, however, we will be looking to hold a meeting soon to discuss:

- Progress on the regulatory mandate start
- Agree how to proceed regarding the outstanding question which is more product related than technical in nature
- Discuss further the impact on the file download and FIX subscription services caused by the UPI pre-population process

Further TAC SSC Information:

Website:	https://www.anna-dsb.com/technology-advisory-sub-committee/
Members:	https://www.anna-dsb.com/technology-advisory-sub-committee-members/
Charter:	https://www.anna-dsb.com/download/technology-advisory-sub-committee-charter/
Minutes:	https://www.anna-dsb.com/knowledge-centre/?wpdmc=tac-sc-minutes

TAC Subcommittee Updates II of II - CASC

Further to the update provided at the last TAC meeting, the DSB has consolidated the two sets of conclusions taken from the two separate consultation questions and has produced a single recommendations paper.

This paper was presented back to the CASC members during the meeting held in December 2021.

The plan then was to share this with the TAC members ahead of a strategic review session in January 2022. However, it was not possible to arrange the strategic review session for January. This has now been scheduled for 20th April 2022 and a meeting has been sent out to the TAC members.

The recommendations will be shared with the strategic review material ahead of the meeting.

Depending on the outcome of the meeting, there is an option to engage industry through the 2022 consultation process, prior to discussing with the DSB Board in July.

We would like to thank the vendors who have engaged with the CASC process. A further progress update will be sent out to them early on in Q3 2022.

Further TAC CASC Information:

Website:	https://www.anna-dsb.com/cloud-architecture-sub-committee/
Members:	https://www.anna-dsb.com/cloud-architecture-sub-committee-members/
Charter:	https://www.anna-dsb.com/download/tac-casc-charter/
Minutes:	https://www.anna-dsb.com/knowledge-centre/?wpdmc=tac-casc-minutes

AOB

Reminder: TAC Charter Term ending October 2022

Further TAC Information:

Website: https://www.anna-dsb.com/technology-advisory-committee/
Members: https://www.anna-dsb.com/technology-advisory-committee-members/
Charter: https://www.anna-dsb.com/download/technology-advisory-committee-charter/

Appendices

- A – TAC Committee Members
- B – TAC Meeting Schedule
- C – TAC Bulletin Board Items
- D – Annual Checklists
  - D1 – Software Version Levels
  - D2 – Penetration Testing
  - D3 – Disaster Recovery Testing
- E – Actions

Appendix A - TAC Committee Members

Institution	Category	First Name	Last Name	Position / Title
Asset Control	Industry	Martijn	Groot	VP, Marketing and Strategy
Bloomberg	Industry	Chris	Pulsifer	Software Development Manager
BVI	Industry	Felix	Ertl	VP, Legal
CFETS	Industry	Yan	Hui	RMB Derivatives Research & Development Manager
CFMMC	Industry	Huang	Lu	IT & Senior Economist
Citigroup	Industry	Souvik	Deb	VP, Regulatory Reform
CSIS	Industry	Billy	Chen	Monitoring Centre Director
Deutsche Bank AG	Industry	Amit	Bairagi	Product Owner
DTCC	Industry	Warren	Rubin	Director, Repository and Derivatives Services
EFAMA	Industry			tbc
FIX	Industry	Lisa	Taikitsadaporn	FIX Global Technical Committee
HSBC	Industry	James	Cowie	Americas Product Owner - Regulatory Reporting
Independent Expert	Industry	James	McGovern	Enterprise Architect & Security Leader
Independent Expert	Industry	Jim	Northey	ex officio as ISO TC 68 Chair Elect
ISDA	Industry	Ian	Sloyan	Head of Data & Digital Solutions
JP Morgan	Industry	Nadav	Krispin	VP, Software Engineering
LSEG	Industry	Niteen	Shastri	Assistant Vice President - Enterprise Content Technology - Shared Technology
Morgan Stanley	Industry	Bharat	Kanase	Vice President, Technology
Rabobank	Industry	James	Brown	Delivery Manager, IT Systems
SEB	Industry	Torbjörn	Cronbladh	Market Data Specialist and Product Owner
SIX Group Services AG	Industry	Richard	Gee	Head of Product Provisioning and Delivery
SmartStream	Industry	Rocky	Martinez	CTO
Standard Chartered Bank	Industry	Anthony	Brennan	Data Solutions Lead
State Street Bank	Industry	William	Rodiger	MD - Business Technology Solutions
Tahoe Blue Ltd	Industry	Jefferson	Braswell	Founding Partner
UBS	Industry	James	Colquhoun	Market Regulation Domain Architect
BGC Partners	TV	Jimmy	Chen	Development Manager
Refinitiv MTF	TV	Zintis	Rullis	Senior Technical Specialist
State Street FX Connect	TV	Rajkamal	Roka	Head of FX Regulatory Reform
Tradeweb	TV	Elodie	Cany	Director, Technology Product Development

Observers

Organisation	Name	Position / Title
CFTC	Robert Stowsky	IT Specialist
ESMA	Olga Petrenko	Senior Officer, Markets
FCA	Paul Everson	Senior Associate – Market Oversight
JSDA	Eiichiro Fukase	Counsellor to the Chairman (for Fintech, Financial Products and Global Regulation)

DSB TAC Sponsor: Marc Honegger, DSB Board Member

DSB TAC Chair: Chris Pulsifer, Bloomberg

Designated DSB Officer: Andy Hughes, DSB Management Team

DSB CISO: Will Palmer, DSB Management Team

DSB TAC Secretariat: Tom Smith, DSB Project Manager

Yuval Cohen, DSB Technical Architect

Appendix B - TAC Meeting Schedule

The following shows the TAC meeting dates & times:

Date	Description	Time
Wednesday 23rd March 2022	**2022 Meeting 1**	**1pm GMT (1pm UTC, 2pm CET, 9am EDT)**
Wednesday 20th April 2022	2022 Strategy Meeting	1pm BST (12pm UTC, 2pm CET, 8am EDT)
Wednesday 22nd June 2022	2022 Industry Consultation	1pm BST (12pm UTC, 2pm CET, 8am EST)
Wednesday 26th October 2022	2022 Meeting 2	1pm BST (12pm UTC, 2pm CET, 8am EDT)

Appendix C – TAC Bulletin Board Items

The following table details the active TAC Bulletin Board topics:

Created	Title	Posts	Link
15/03/2022	DSB Software Version Levels	1	https://www.anna-dsb.com/bulletin-board/tac-forum/dsb-software-version-levels/#post-276
14/03/2022	Validate Rules – SEC / XBRL US	1	https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-sec-xbrl-us/#post-275
14/03/2022	Validate Rules – European Central Bank	1	https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-european-central-bank/#post-274
14/03/2022	Validate Rules – FDIC / FFIEC White Paper	1	https://www.anna-dsb.com/bulletin-board/tac-forum/validation-rules-fdic-ffiec-white-paper/#post-273
08/03/2022	DR Testing Options	1	https://www.anna-dsb.com/bulletin-board/tac-forum/action-2111-001-dsb-to-create-a-new-topic-on-the-tac-bulletin-board-regarding-the-future-dr-testing-options/#post-272
10/11/2021	UPI Unplanned Items	3	https://www.anna-dsb.com/bulletin-board/tac-forum/action-2111-001-dsb-to-create-a-new-topic-on-the-tac-bulletin-board-regarding-the-future-dr-testing-options/#post-272
03/11/2021	UPI Scenario Analysis	4	https://www.anna-dsb.com/bulletin-board/tac-forum/upi-scenario-analysis/#post-267
23/04/2021	CFI 2019	2	https://www.anna-dsb.com/bulletin-board/tac-forum/cfi-2019/#post-244
29/03/2021	ToTV Disaster Recovery (Global Tables)	1	https://www.anna-dsb.com/bulletin-board/tac-forum/new-topics-totv-disaster-recovery-global-tables/

Please note – All 50 historical topics remain on the bulletin board, only the ones deemed active have been listed above for reference

Appendix D – Annual Checklists

The following table details the items which will be checked on an annual basis:

Appendix	Item	Last Review	Next Review	Comments
D1	Software Version Levels	03/11/2021	Q4 2022	Items being progressed in 2022 (slide 10)
D2	Penetration Testing	03/11/2021	Q4 2022	2021 Pen Test completed
D3	Disaster Recovery Testing	n/a	Q1 2022	2021 UAT DR Test completed.

Appendix D1 - Software Version Levels

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.

All upgrades are anticipated to be transparent to the DSB user base (i.e.: backwardly compatible)

The key software versions are available to the TAC members via the bulletin board via the following link: as follows:

https://www.anna-dsb.com/bulletin-board/tac-forum/dsb-software-version-levels/#post-276

Appendix D2 – Penetration Testing Update

2019 (GDS Test Dec 2018)

- 10 items resolved
- 3 items - no action was required

2020 (AON Test Dec 2019)

- 17 items raised
- 4 items – no action required
- 6 items resolved
- 4 items pending release (1 on 1st Nov 20; 3 with the OS Migration phase 3 in 2021 (vendor deliver))
- 3 items outstanding (low priority)

2021 (Jumpsec Test Dec 2020)

- 8 items raised – remediation in flight

2022 (Jumpsec Test Dec 2021)

- 5 new low priority items raised, remediation in flight

Appendix D3 – Disaster Recovery Testing

This table below details the DSB's DR testing history:

Environment	Start	End	Description	Outcome	Notes
UAT	16 July 2021	10 September 2021	Full migration of DSB service to the DR region using the UAT environment	Success	Runbook revised and optimised

Appendix E – TAC Open Actions

Ref	Action	Update	Slides	Target	Status
2010-007	TAC Secretariat to investigate alternative VPN options to the current FortiGate solution and report findings back to the TAC.	Solution dependent on UPI VPN volumes, c/f			Open
2111-001	DSB to create a new topic on the TAC bulletin board regarding the future DR testing options	BB item created	11-13		Close
2111-002	CISO to produce a report relating to the 2019 consultation paper items that can be shared publicly	Update provided in the meeting	35-36		Open
2111-003	TAC Secretariat to create a new bulletin board topic regarding UPI Scenarios	BB item was created 03/11/2021	N/A		Close