

DSB's UK ToTV/uToTV service

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Contents

| | |
|--|----|
| Preface | 3 |
| Change History | 3 |
| 1 Glossary of Terms..... | 4 |
| 2 Introduction | 5 |
| 2.1 Document Purpose | 5 |
| 2.2 Background | 5 |
| 3 General approach for the addition of UK ToTV/uToTV data | 5 |
| 4 DSB's UK ToTV/uToTV service scope | 6 |
| 5 Assumptions, key dependencies and impact..... | 6 |
| 5.1 Other assumptions not impacting DSB's UK ToTV/uToTV flags..... | 9 |
| 6 DSB's UK ToTV/uToTV definition | 9 |
| 7 ToTV version 1 vs version 2 - overview of differences..... | 11 |
| 8 DSB's ToTV version 2 record | 13 |
| 8.1 Header..... | 14 |
| 8.2 EU component | 14 |
| 8.3 UK component | 14 |
| 9 DSB ToTV version 2 data sources..... | 15 |
| 9.1 FCA FIRDS files..... | 16 |
| 9.2 FCA FITRS files | 16 |
| 10 User workflow to request ToTV version 2 record..... | 17 |
| 10.1 REST..... | 17 |
| 10.2 FIX..... | 19 |
| 10.3 ToTV GUI Search | 21 |
| 10.4 ToTV File Download | 21 |
| 11 Availability..... | 22 |
| 12 Scenarios | 22 |
| 12.1 Version1 vs Version 2 availability..... | 22 |
| 12.2 ToTV version 2 File Download..... | 22 |
| 12.3 Version1 vs Version 2 ToTV File Download when CFI Category and CFI Group is unknown | 23 |
| 12.4 ToTV flag | 24 |
| 12.5 uToTV flag | 25 |
| 13 FAQ..... | 26 |

Preface

Change History

| Date | Change | Version | Author | Revision Details |
|-------------------|----------|---------|--------|---|
| 27 February 2019 | Creation | Draft | DSB | |
| 11 March 2019 | Update | 0.1 | DSB | Updated section 5(d) and 10.4. Added section 12 and 13. |
| 19 March 2019 | Update | 0.2 | DSB | Updated section 8, 9.2 and 12.4. |
| 7 August 2019 | Update | 0.3 | DSB | Various updates, including update to ToTV/uToTV determination rules in section 6, and added section 9.2 on FCA Transparency |
| 19 September 2019 | Update | 0.4 | DSB | Updated section 4 |
| 23 October 2019 | Update | 0.5 | DSB | Added section 8.3.1.1 Updated section 11 Availability |

1 Glossary of Terms

Below is a list of terms where acronym details or definitions have been provided:

| | |
|-------------------------------------|---|
| CFI | Classification of Financial Instrument according to ISO 10962. |
| CFI Category | The first character of the CFI code that indicates the highest level of category to which the instrument belongs: Equities, Debt, etc. |
| CFI Group | The second character of the CFI code that refers to specific groups within each category. |
| DSB | Derivatives Service Bureau. |
| ESMA | European Securities and Markets Authority. |
| ESMA FIRDS | Financial Instruments Reference Data System is a data collection infrastructure established by the European Securities and Markets Authority (ESMA), in cooperation with the EU competent national authorities (NCAs). |
| ESMA FITRS | Financial Instruments Transparency System that contain information on transparency calculations and liquidity assessment. |
| FCA | Financial Conduct Authority |
| ISIN | International Securities Identification Number (ISO 6166 ISIN). |
| MTF | Multilateral Trading Facility – a non-exchange financial trading venue that facilitates the exchange of financial instruments between third parties in a way that results in a contract. |
| OTF | Organized Trading Facility – multilateral system which is not an RM or an MTF and in which multiple third-party buying and selling interests in bonds, structured finance products, emission allowances or derivatives are able to interact in the system in a way that results in a contract. Unlike RMs and MTFs, operators of OTFs will have discretion as to how to execute orders, subject to pre-transparency and best execution obligations. |
| RCA | Relevant Competent Authority. |
| Regulated Market (RM) | A multilateral system operated by and/or managed by a market operator, which brings together or facilitates the bringing together of multiple third-party buying and selling interests in financial instruments in a way that results in a contract. |
| Systematic Internaliser (SI) | An investment firm which, on an organized, frequent, systematic and substantial basis, deals on its own account by executing client orders outside a regulated market, an MTF or an OTF without operating a multilateral system. |
| Trading Venue | A regulated market, an MTF or an OTF. |

2 Introduction

2.1 Document Purpose

The purpose of this document is to provide an overview of a proposed solution for the DSB's Traded on a Trading Venue (ToTV) and underlying Traded on a Trading Venue (uToTV) service extension to include UK's data in the event of a no-deal Brexit, with underlying data drawn from FCA FIRDS¹ in addition to the current ESMA source.

This document lays out the DSB's definition of UK ToTV/uToTV, assumptions and key dependencies, format of a new ToTV record that includes UK data, ways to query UK ToTV/uToTV data via APIs/GUI, as well as UK data availability in File Download.

2.2 Background

The DSB provides an existing service to assist users with identifying instruments that are ToTV and uToTV (more details on the existing ToTV/uToTV service can be found [here](#)). The current service is based on FIRDS Reference Data published by ESMA. In an event of a no-deal Brexit, it is expected that no new UK data will be received nor published by ESMA from 30 March 2019². The UK's Financial Conduct Authority (FCA) will be replacing the ESMA FIRDS system for the UK¹. The DSB will be adding support for FCA FIRDS contingent on the FCA going live on 1st April 2019.

The DSB's UK ToTV/uToTV service has been designed to ensure that only those users who require UK ToTV/uToTV data will need to augment their integration models with the DSB.

The DSB's UK ToTV/uToTV service will be launched in the event the UK leaves the EU without an implementation period i.e. in the scenario of a no-deal Brexit. In the event that an implementation period is agreed to allow UK trading venues and SIs to continue to be subject to the EU transaction reporting regime and continue to report data to ESMA FIRDS beyond 29 March 2019, no changes will be introduced to the DSB's existing ToTV/uToTV service on 1st April 2019.

UPDATE (7 August): Previously published statements and measures in preparation for a no-deal Brexit scenario by the ESMA and the FCA were based on the no-deal Brexit date being 29 March 2019, the date was then moved to 12 April 2019, and subsequently to 31 October 2019. [Following an ESMA update on 12 April](#): "ESMA statements and measures on no-deal Brexit scenario preparations referring to 12 April 2019 should now be read as referring to 31 October 2019".

3 General approach for the addition of UK ToTV/uToTV data

Users that only require ESMA ToTV/uToTV information from the DSB will not need to make any changes.

The DSB will introduce ToTV version 2 record format (see details in 8) that will:

- a. contain information from the FCA FIRDS system as well as ESMA FIRDS
- b. have 2 sets of flags: EU ToTV/uToTV and UK ToTV/uToTV

¹ <https://www.fca.org.uk/markets/market-data-regimes/fca-firds-and-transaction-reporting>

² <https://www.esma.europa.eu/press-news/esma-news/esma-sets-out-use-uk-data-in-esma-databases-under-no-deal-brexit>

- c. be made available under a different folder in the ToTV File Download structure (see details in 10.4)
- d. be made available via a different API call to allow retrieval of both sets of data in a single query (see details for REST in 10.1, FIX in 10.2)

DSB users that wish to receive UK data will need to amend their APIs to request/process “ToTV version 2” record format.

DSB users not requiring UK data will be able to continue to retrieve TOTV version 1 format with no changes to the existing APIs.

The current ToTV record (version 1) based on ESMA’s data will not have changes made to it, ToTV File Download structure for ESMA data will remain at the current location /file-download/totv/. ToTV search request by ISIN will continue to return only one ToTV record which is ESMA’s. This is to minimise user impact for those who do not require UK data.

4 DSB’s UK ToTV/uToTV service scope

- a. UK ToTV/uToTV will have the same scope as the current ESMA driven data made available in the DSB, i.e. the initial, Brexit contingency based DSB service will not be setting UK ToTV for OTC derivatives.
- b. UK ToTV records will have transparency when FCA will make it available ([FCA to publish details by the end of February 2019](#)). The DSB will provide users with further information about its approach, once it has had a chance to evaluate the updates provided by FCA.
- c. **UPDATE (7 August 2019):** The FCA started publishing Transparency files from 26 April 2019. DSB UK ToTV records will have any non-equity Transparency information published by the FCA³ which is in line with the scope of the current ESMA driven data for Transparency. Currently, the content of the FCA Transparency files does not include actual reporting periods, instead all reporting periods are defaulted to one day which is the date of the file. The DSB is awaiting information on when the FCA will start publishing actual transparency data. [**UPDATE (19 September 2019):** ~~Until then, the ‘test’ data will not be made part of DSB’s ToTV/uToTV records.~~]
- d. **UPDATE (19 September 2019):** The DSB’s ToTV/uToTV record in the DSB’s UAT environment will reflect the data made available from FCA FITRS test environment, free of validation amendments.

5 Assumptions, key dependencies and impact

- a. FCA FIRDS will go live only in the event of the UK leaving the EU “without an implementation period”¹. The DSB service will therefore be built in a manner that allows for full-roll back of the expected Production release.

³ <https://data.fca.org.uk/artefacts/fca-fitr-instructions.pdf>

- b. The DSB will make the new UK ToTV/uToTV service available in Production following a no-deal Brexit date and contingent on the FCA FIRDS availability. i.e. the DSB will not make UK ToTV/uToTV service available in Production if there is a deal.
- c. Following the above, the DSB does not expect to receive FCA ToTV/uToTV data in any other circumstances.
- d. FCA published a statement that the FCA FIRDS system will be available for testing on 21 February 2019¹. The FCA has subsequently indicated that access to the FIRDS files on <https://data.fca.org.uk/> is not expected to be available for firms to access until mid-March 2019, although the exact date is yet to be confirmed.

Until this date, the DSB expectation is that work it undertakes will be driven by sample files created by the DSB based on an assumption of the data construction in the FCA FIRDS system, in accordance with the FCA FIRDS specification⁴. The DSB expects to be able to complete integration with FCA FIRDS, within a week of publication of FCA FIRDS Reference Data files (as documented in section 9.1 below). Delays in the publication of FCA FIRDS test data may result in a delay to a UAT release, up to and including the week before production go-live, or in a release to UAT occurring before analysis and integration of the FCA FIRDS files. Delay in publication of FCA FIRDS data is also therefore likely to have a material impact on the DSB delivery timeline. The DSB will communicate timeline changes in the event these occur.

Additionally, any changes needed as a result of a delta between the DSB assumptions, based on the available information from the FCA at the time, and the final construction of the FCA data, may also result in a material impact to the DSB delivery timeline.

UPDATE (11-March-2019): The FCA has published a [statement](#) that FCA FIRDS files will be available to download and test from 14 March 2019. The DSB has two options:

(1) deploy its UK ToTV/uToTV solution to UAT on 18 March (as scheduled) before integration. Once the FCA data is available, the DSB will complete the integration with FCA FIRDS and subsequently re-deploy to UAT on 25 March 2019, subject to timely access to the FCA FIRDS on 14 March.

(2) postpone DSB's UK ToTV/uToTV solution roll out to UAT in order to integrate with FCA FIRDS data first.

Option 1 will give users more time in UAT: first week of testing on sample files created by the DSB based on the assumption of the data construction in the FCA FIRDS system conforms to the FCA FIRDS specification⁴, and second week of testing of the integrated solution with actual FCA data. Option 2 would allow one week of UAT with the integrated solution.

The DSB will be following option 1 and will be making two subsequent releases to UAT: 18 March 2019 with test data and 25 March 2019 for FCA integrated solution.

However, the DSB is inviting feedback on any user preference between the two options. The deadline for the user feedback is 5pm London time on 14 March. Unless material feedback is received to the contrary, the DSB will proceed with option 1.

If for any reason the DSB is unable to access FCA FIRDS data until the week of 25 March, it might lead to the integrated solution to be released to Production bypassing UAT. The DSB will communicate timeline changes resulting from confirmed FCA FIRDS data availability.

UPDATE (7 August 2019): The DSB is aware of some data quality related matters in relation to the content of FCA Reference Data and Transparency files. Based on the ongoing ratification of the data, the DSB assumes that the FCA data remains in “test” mode. The DSB assumes any data issues will be resolved ahead of a no-deal Brexit and will pass through any data provided by the regulators.

- e. The content of FCA production quality files will be ESMA’s FIRDS EU28 data. The DSB will only act on data in FCA files to set UK ToTV/uToTV flags, i.e. if an ISIN is not present in the FCA files, then it will not be assessed against the UK ToTV/uToTV rules.
- f. FCA FIRDS files will be made available by 9am UTC: Full File – weekly on Saturday morning by 09:00 UTC; Delta File – daily by 09:00 UTC⁴. If the FCA files are not available by the stated cut-off time, the DSB will include any data available late in the next day files following the same approach as with ESMA’s data availability.
- g. If there are no ESMA FIRDS files made available prior the FCA cut-off time on the day, FCA FIRDS files will only include UK data submissions for that day.
- h. FCA will be consolidating reference data from UK TVs and SIs as well as ESMA FIRDS files containing the EU27 instrument reference data downloaded from ESMA’s public website.
- i. The DSB proposes that the DSB’s UK ToTV flag will be set to True if an instrument has been traded by a UK trading venue (based on the MIC) rather than based on it being in FCA FIRDS (see h above). If this logic needs to be redefined, this would have a material impact to the DSB delivery timeline. **UPDATE (7 August 2019):** Following an [FCA clarification](#) on how UK ToTV should be determined, the DSB will be using Relevant Competent Authority data in order to determine UK ToTV/uToTV rather than the MIC Country logic implemented previously. Within the scope of non-OTC derivatives for ToTV/uToTV, the DSB will use the following logic:
 - If at least one RCA is GB for an Instrument, then the Instrument is UK ToTV.
 - If at least one Underlying of an Instrument has at least one RCA=GB, then the Instrument is UK uToTV.
- j. Ahead of FIRDS data publication, ESMA checks the consistency of Reference Data submitted by multiple venues against values provided by the RCA for that instrument⁵ and normalizes the data. Where instruments are dual reported (i.e. traded in UK as well as in EU27), if FCA was to default Reference Data to a UK venue submission, the DSB assumes that CFI codes may differ from ESMA FIRDS. The DSB has considered various scenarios for reconciling and publishing data in the event of mismatches, and is proposing (1) to exclude CFI Category and CFI Group as part of its ToTV version 2 record (see 8.1) and (2) to place instruments with multiple CFI codes according to logic documented in 10.4.
- k. The DSB will provide an update on availability of transparency records, following confirmation of the timeline for publication of FCA Transparency data. Once available, the DSB intends to include transparency information as part of its UK ToTV/uToTV record. See b above in DSB’s UK ToTV/uToTV service scope, in a similar manner to that published for ESMA ToTV/uToTV

⁴ <https://www.fca.org.uk/publication/systems-information/fca-firds-tech-spec.pdf>

⁵ <https://www.esma.europa.eu/document/firds-reference-data-reporting-instructions>

records today. **UPDATE (7 August 2019):** The FCA started publishing non-equity Transparency files from 26 April 2019. The DSB will be integrating FCA Transparency data as part of UK ToTV record in time for the next no-deal Brexit date which is expected to be 31 October 2019 as of the time of writing. The DSB assumes that the latest snapshot files contain all live instruments, and hence will not be processing all historical snapshots made available thus far. Based on that, the DSB will be loading Transparency data from the latest snapshot files at the time of integration with the FCA Transparency data followed by any deltas and snapshots thereafter. The DSB have observed that the current content of FCA Transparency files does not include actual reporting periods, instead all reporting periods are defaulted to one day which is the date of the file. Until the matter is remediated, the data will not be made part of DSB's ToTV/uToTV records.

5.1 Other assumptions not impacting DSB's UK ToTV/uToTV flags

- a. Instruments reported to ESMA by UK entities only prior to Brexit will be removed from the ESMA snapshot following a no-deal Brexit.
- b. Instruments reported to ESMA by UK entities only prior to Brexit will be terminated in ESMA delta files following a no-deal Brexit.
- c. Instruments that are traded by EU27 as well as UK will continue to be on ESMA FIRDS.
- d. UK instruments reported to ESMA until the no-deal Brexit date can remain flagged as EU ToTV=True (for non-OTC) as ESMA has no published preference on how DSB should show UK submissions prior to Brexit.
- e. Post no-deal Brexit: Instruments traded in UK only and not in EU27 cannot have the existing (ESMA) ToTV flag set to True. There will be no UK data published in ESMA FIRDS post a no-deal Brexit⁶. The DSB will be relying on ESMA for no new UK instruments/modifications to be reported to ESMA beyond no-deal Brexit date and will not be introducing any controls if UK data were to slip in. If that was to happen, the DSB could set EU ToTV=True to a UK traded instrument beyond no-deal Brexit date.

6 DSB's UK ToTV/uToTV definition

The current assumptions for the DSB's UK ToTV/uToTV flag determination are:

- The DSB's UK ToTV flag is derived on the basis that an instrument is traded by at least one UK trading venue.
- The DSB's UK uToTV flag is derived on the basis that an instrument underlying is traded by at least one UK trading venue.

UPDATE (7 August 2019): Following an [FCA clarification](#) on how UK ToTV should be determined, the DSB will be using Relevant Competent Authority data in order to determine UK ToTV/uToTV. Within the scope of non-OTC derivatives for ToTV/uToTV, the DSB will use the following logic:

⁶ <https://www.esma.europa.eu/press-news/esma-news/esma-sets-out-use-uk-data-in-esma-databases-under-no-deal-brexit>

- If at least one RCA is GB for an Instrument, then the Instrument is UK ToTV.
- If at least one Underlying of an Instrument has at least one RCA=GB, then the Instrument is UK uToTV.

If this logic needs to be redefined, this would have a material impact to the DSB delivery timeline.

As a reminder, the DSB should not to be treated as a golden source for ToTV or uToTV data but should be considered as one input into a multi-factor determination made by each user.

7 ToTV version 1 vs version 2 - overview of differences

This section gives a sample of TOTV record in both version 1 and 2 to illustrate the differences between them. Text highlighted in green represents additions to the current schema. Text highlighted in yellow represents changes in keywords to the current schema. Text highlighted in purple represents removal of keywords to current schema:

| | |
|---|---|
| <pre> "ToTV-record": { "Header": { "ISIN": "AT0000A1N8R5", "LastModifiedDate": "2017-10-22", "LastCompletedProcessingDate": "2017-10-30", "CFI-Category": "S", "CFI-Group": "R" }, "DSB-ISIN": {...}, "Derived":{ "ToTV": true, "TOTV-EffectiveDate": "2016-08-01", "uToTV": true, "uTOTV-EffectiveDate": "2007-11-01" }, "Firds-RefData": { "RM":[{}], #RMs submissions to ESMA FIRDS "MTF":[{}], #MTFs submissions to ESMA FIRDS "OTF":[{}], #OTFs submissions to ESMA FIRDS "SI":[{}], #SIs submissions to ESMA FIRDS }, "Firds-TransparencyData":{} # Transparency records in ESMA FITRS } </pre> | <pre> "ToTV-record": { "version": "2", "Header": { "ISIN": "AT0000A1N8R5", "LastModifiedDate": "2017-10-22", "LastCompletedProcessingDate": "2017-10-30", "CFI-Category": "S", "CFI-Group": "R" }, "DSB-ISIN": {...}, "EU": { # Section is available if and only if the ISIN exists in ESMA FIRDS system }, "Derived":{ "ToTV": true, "TOTV-EffectiveDate": "2016-08-01", "uToTV": true, "uTOTV-EffectiveDate": "2007-11-01" }, "RefDataRecords": { "RM":[{}], #RMs submissions to ESMA FIRDS "MTF":[{}], #MTFs submissions to ESMA FIRDS "OTF":[{}], #OTFs submissions to ESMA FIRDS "SI":[{}], #SIs submissions to ESMA FIRDS }, } </pre> |
|---|---|

```

        "TransparencyDataRecords": {} # Transparency
        records in ESMA FITRS
    },
    "UK": { # Section is available if and only if the ISIN exists in
        FCA FIRDS system
        "Derived": {
            "ToTV": true,
            "TOTV-EffectiveDate": "2016-08-01",
            "uToTV": true,
            "uTOTV-EffectiveDate": "2007-11-01"
        },
        "RefDataRecords": {
            "RM": [...], #RMs submissions in FCA FIRDS
            "MTF": [...], #MTFs submissions in FCA FIRDS
            "OTF": [...], #OTFs submissions in FCA FIRDS
            "SI": [...], #SIs submissions in FCA FIRDS
        }
    }
}

```

8 DSB's ToTV version 2 record

The DSB will introduce a ToTV version 2 record format that will contain information from the FCA FIRDS system (UK component in the table below) as well as ESMA FIRDS (EU component in the table below):

| Name | Required | Notes |
|-----------------------------|-----------------------|---|
| version | Y | 2 |
| Header | Y | |
| ISIN | Y | |
| LastModifiedDate | Y | Indicates when ToTV record was last modified |
| LastCompletedProcessingDate | Y | Indicates when all ToTV sources components (DSB ISIN, ESMA FIRDS Reference Data, ESMA Transparency, FCA FIRDS Reference Data) were processed. |
| DSB-ISIN | At least one required | Only present for instruments issued by DSB. DSB-ISIN component holds an entire ISIN record as available in the DSB. Non-DSB ISINs will not have the DSB-ISIN component on their ToTV records. |
| EU | Y | |
| RefDataRecords | | Only present for instruments that have been reported to FIRDS Reference Data. Contains only latest submissions by every MIC. |
| RM | | RMs submissions to ESMA FIRDS |
| MTF | | MTFs submissions to ESMA FIRDS |
| OTF | | OTFs submissions to ESMA FIRDS |
| SI | | SIs submissions to ESMA FIRDS |
| TransparencyDataRecords | | Only present for instruments that have been reported to ESMA FIRDS Transparency. |
| Derived | Y | |
| ToTV | Y | |
| ToTV-EffectiveDate | | Only present if ToTV is set to True |
| uToTV | Y | |
| uToTV-EffectiveDate | | Only present if uToTV is set to True |
| UK | Y | |
| RefDataRecords | | Only present for instruments that are in FCA FIRDS. Contains only latest submissions by every MIC (see Latest submissions use cases). |
| RM | | RMs submissions in FCA FIRDS |
| MTF | | MTFs submissions in FCA FIRDS |
| OTF | | OTFs submissions in FCA FIRDS |
| SI | | SIs submissions in FCA FIRDS |
| TransparencyDataRecords | | Only present for instruments that have been reported to FCA FIRDS Transparency. |
| Derived | Y | |
| ToTV | Y | |
| ToTV-EffectiveDate | | Only present if ToTV is set to True |
| uToTV | Y | |
| uToTV-EffectiveDate | | Only present if uToTV is set to True |

8.1 Header

The DSB is proposing to exclude CFI Category and CFI Group as part of its ToTV version 2 record. For further details, please refer to j in Assumptions, key dependencies and impact. Users will still have access to the CFI code within the RefData (EU and UK) components of the record.

8.2 EU component

The EU section will always be present as part of a ToTV version 2 record. This is to accommodate the Derived component (see the table above), i.e. ToTV/uToTV flags will always be available. However, 'RefDataRecords' component will not be present inside the EU/UK blocks if there haven't been submissions for that ISIN to ESMA/FCA FIRDS. This is in the table above. RefData, TransparencyData and Derived components are populated in accordance with the existing ToTV logic documented in sections 6.1.3-6.1.5 of the [DSB ToTV current operating model](#) document.

8.3 UK component

The UK section will always be present as part of a ToTV version 2 record. This is to accommodate the Derived component (see the table above), i.e. ToTV/uToTV flags will always be available. However, 'RefDataRecords' component will not be present inside the EU/UK blocks if there haven't been submissions for that ISIN to ESMA/FCA FIRDS. FCA FIRDS will have a consolidated record of UK submissions as well as data published by ESMA FIRDS for EU27.

The RefData component will hold as many records as there are submissions for an ISIN by a MIC in FCA FIRDS (UK+EU27). If there have been multiple submissions of an ISIN by the same MIC, the ToTV record will only hold the latest submission for that MIC.

8.3.1 UK ToTV/uToTV flags

UK ToTV/uToTV will have the same scope as the current ESMA's, i.e. DSB will not be setting UK ToTV for OTC derivatives – full details of the current DSB scope are [available here](#).

In line with the existing rules for EU ToTV/uToTV determination, the DSB will be applying the following rules for UK ToTV/uToTV determination

For DSB-issued ISINs (ones that start with 'EZ'):

- For instruments within the scope of the [ESMA opinion](#) published in May 2017, the DSB UK ToTV flag is set to False pending further clarification from ESMA about the specific attributes that determine ToTV
- The DSB UK uToTV flag is set to True if one or more of the underlying instruments are non-OTC derivatives and at least one of which has GB RCA
- The DSB UK uToTV flag remains set to False in any of the following scenarios: the underlying is an OTC derivative; the underlying ISIN does not have at least one GB RCA, the underlying instrument is an index or reference rate, an LEI underlying is an LEI, the underlying instrument is a basket containing non-ISIN values

For non-DSB ISINs:

- The DSB UK ToTV flag is set to True where the instrument in FCA FIRDS has at least one GB RCA
- The DSB UK uToTV flag is set to True where one or more of the non-OTC derivative underlying ISINs have been reported to FCA FIRDS with GB RCA
- The DSB uToTV flag is set to False in all other scenarios

8.3.1.1 Latest submissions use cases

To ensure ToTV records a reasonable size for users to consume, the DSB makes available the last submission of an instrument by any MIC as part of its ToTV records.

It is therefore possible that:

- (1) The UK ToTV flag might be set for an instrument that does not appear to have RCA=GB on any of the latest submissions displayed as part of the current ToTV record. This will indicate that one of the submitting firms has reported the instrument to FIRDS with RCA=GB in their previous submissions.
- (2) The Effective Date set for the ToTV flag may in some rare instances vary from the First Trading Date displayed in the current ToTV record. This will indicate that one of the submitting firms has reported the instrument to FIRDS with an earlier date than those in the latest submissions available as part of the current ToTV record.
- (3) The uToTV flag might be set for an instrument that does not appear to have an Underlying as part of its current ToTV record. This will indicate that one of the submitting firms has reported the instrument to FIRDS with an Underlying in their previous submissions and that Underlying has been reported to FIRDS by a Trading Venue.

For the 3 scenarios above, a way for the user to track back the data will be a full history of DSB's ToTV File Download that will remain available for the historical data. This approach does guarantee invariability of ToTV/uToTV, i.e. whenever an instrument is set to ToTV/uToTV, it will remain ToTV/uToTV.

9 DSB ToTV version 2 data sources

In addition to information already sourced by the ToTV engine for ToTV version 1 (see 5 in [DSB ToTV current operating model](#)):

- FIRDS Financial Instruments Reference Files
- FIRDS Transparency Files
- DSB ISIN data
- MIC TV/SI list

For ToTV version 2, the ToTV engine will also take data from

- FCA FIRDS files (see 9.1)
- FCA Transparency files (see 9.2)

9.1 FCA FIRDS files

According to [FCA Instructions on access and download of full and delta reference files](#), FCA will be making available two types of files:

- Delta files that contain all records for which a change has occurred (an instrument starts trading, a modification, an instrument ceases to trade) since the generation of the last set of files. Example: DLTINS_20190818_01of07.zip, DLTINS_20190818_02of07.zip
- Full files that contain a snapshot of all Reference Data for instruments received by the FCA and is consolidated with the ESMA EU27 instrument reference data, for all instruments that are still active. Example: FULINS_C_20190818_01of01.zip, FULINS_D_20190818_01of04.zip

The timing of publishing will be:

- Full File –Saturday morning by 09:00 UTC;
- Delta File – every morning by 09:00 UTC.

XML schema to be made available at: <https://www.fca.org.uk/markets/market-data-regimes/market-data-reporting-mdp>

The DSB will be using 09:00 UTC as a cut-off time for the daily ToTV version 2 file generation and all data made available before 09:00 UTC will be in the current day's totv-v2 folder. Anything made available after the cut-off will be processed the next day.

In line with the existing logic for the ToTV version 1 files generation, if a Reference Data file is published several days after the date stated in the filename, the data will be included in the totv-v2 folder on the day it is made available if this is before the cut off time of 9:00 UTC. When a MIC has submitted an instrument multiple times, the DSB will hold only the last submission. Data from delta files (DLTINS) will always override the content of the Reference Data record for any given ISIN and MIC. Data from a weekly full file (FULINS) is only added for new submissions that have never been reported in a delta or another full file.

The DSB makes available all data from the FCA FIRDS Reference Data files at the MIC level for both DSB issued and non-DSB ISINs as part of the ToTV version 2 JSON file.

9.2 FCA FITRS files

(New on 7 August 2019) According to [FCA Financial Instruments Transparency System \(FITRS\) Instructions on access and download of full and delta transparency files](#), FCA will be making two types of files available:

- Delta files that contain all records for which a change (calculations have been made for a new instrument or an update to the existing instrument calculation) has occurred since the generation of the last set of files. Example: DLTNCR_20190818_01of07.zip, DLTNCR_20190818_02of07.zip
- Full files that contain all UK transparency calculation results with the latest calculation results for each ISIN and Reporting Period. Example: FULNCR_C_20190818_01of01.zip, FULNCR_D_20190818_01of04.zip

The file publishing times will be:

- Full File –Saturday morning from 09:00 UTC;

- Delta File – every morning from 09:00 UTC.

XML schema to be made available at: <https://www.fca.org.uk/markets/market-data-regimes/market-data-reporting-mdp>

The DSB will be using 09:00 UTC as a cut-off time for the daily ToTV version 2 file generation and all data made available before 09:00 UTC will be in the current day's totv-v2 folder. Anything made available after the cut-off time will be processed the next day.

In line with the existing logic for the ToTV version 1 files generation:

- If a Transparency Data file is published several days after the date stated in the filename, the data will be included in the totv-v2 folder on the day it is made available if this is before the cut off time of 9:00 UTC.
- Historical reporting periods will be excluded from the ToTV records as soon as a new period is made available and becomes valid.
- Data from delta files (DLTNCR) will always override the content of the Transparency Data record for any given ISIN and Reporting Period.
- Data from a weekly full file (FULNCR) is only added for new submissions that have never been reported in a delta or another full file.
- The DSB makes available all data from the FCA FIRDS Non-equity Transparency Data files for both DSB issued and non-DSB ISINs as part of the ToTV version 2 JSON file.

10 User workflow to request ToTV version 2 record

In addition to the existing workflows to request ToTV version 1 records, those users that require UK data will be able to enquiry for a ToTV version 2 record for an individual ISIN (via REST, FIX or ToTV GUI Search) or use the daily delta of all ToTV data via ToTV File Download.

10.1 REST

This section contains a summary of REST API that can be used to retrieve a TOTV version 2 record.

10.1.1 Retrieve ToTV version 2 Record by ISIN

The `GET /records/<ISIN>` method is used to return the ISIN record for an existing ISIN. The ISIN is specified in `<ISIN>`.

By default, the user retrieves an ISIN record.

To receive the ToTV version 1 record, user needs to add to the request the parameter: `totv=true`

To receive the ToTV version 2 record, user needs to add to the request the parameters:
`totv=true&version=2`

For compatibility, to retrieve TOTV version 1 record users may send:

`GET /records/<ISIN>?totv=true&version=1`

(i.e. this is equivalent to: `GET /records/<ISIN>?totv=true`)

The following diagram illustrates the workflow:



Diagram 1: REST API: Retrieve ToTV version 2 Record by ISIN

10.1.2 Retrieve ToTV version 2 Record by ISIN - REST method

| Method | Request | Required authorization | |
|-------------------------------|-----------------|------------------------|--|
| GET | /records/<ISIN> | ✓ | |
| Request arguments | | | |
| Argument name | Datatype | Required | Note |
| totv | Boolean | ✗ | When totv=false, the returned record is a valid ISIN record. When totv=true, the returned record is a valid ToTV record. The default is: totv=false. |
| version | String | ✗ | When totv=true, this argument determine the version of the record to be return. The default is: version=1. |
| Response arguments | | | |
| Output JSON record components | Datatype | Required | Note |
| responseCode | Integer | ✓ | Matches the HTTP status code: success = 200 Authorization failed: 401 No such ISIN: 404 |

| | | | |
|---------|-------------|---|--|
| | | | Bad request: 400 (wrong or unsupported version) |
| message | String | ✘ | Contains indicative error message Contains: "Success" in case responseCode = 200 |
| record | JSON record | ✘ | Conditionally required if responseCode=200 Contains a valid <i>instrument JSON record</i> . |

10.2 FIX

This section contains a summary of FIX API that can be used to retrieve a ToTV version 2 record.

10.2.1 Retrieve ToTV version 2 Record by ISIN

The SecurityDefinitionRequest(35=c) having SecurityRequestType(321)= Request Security identity and specifications(0) is used to return the ISIN Record for an existing ISIN.

The SecurityDefinitionRequest(35=c) having SecurityRequestType(321)= Product(6) is used to return the ToTV version 1 Record for an existing ISIN.

The SecurityDefinitionRequest(35=c) having SecurityRequestType(321)= Product(6) and SecurityGroup(1151)=2 is used to return the ToTV version 2 Record for an existing ISIN.

The ISIN is specified in SecurityID(tag 48). The SecurityIDSource(22) is set to ISIN(4).

The following diagram illustrates the workflow:

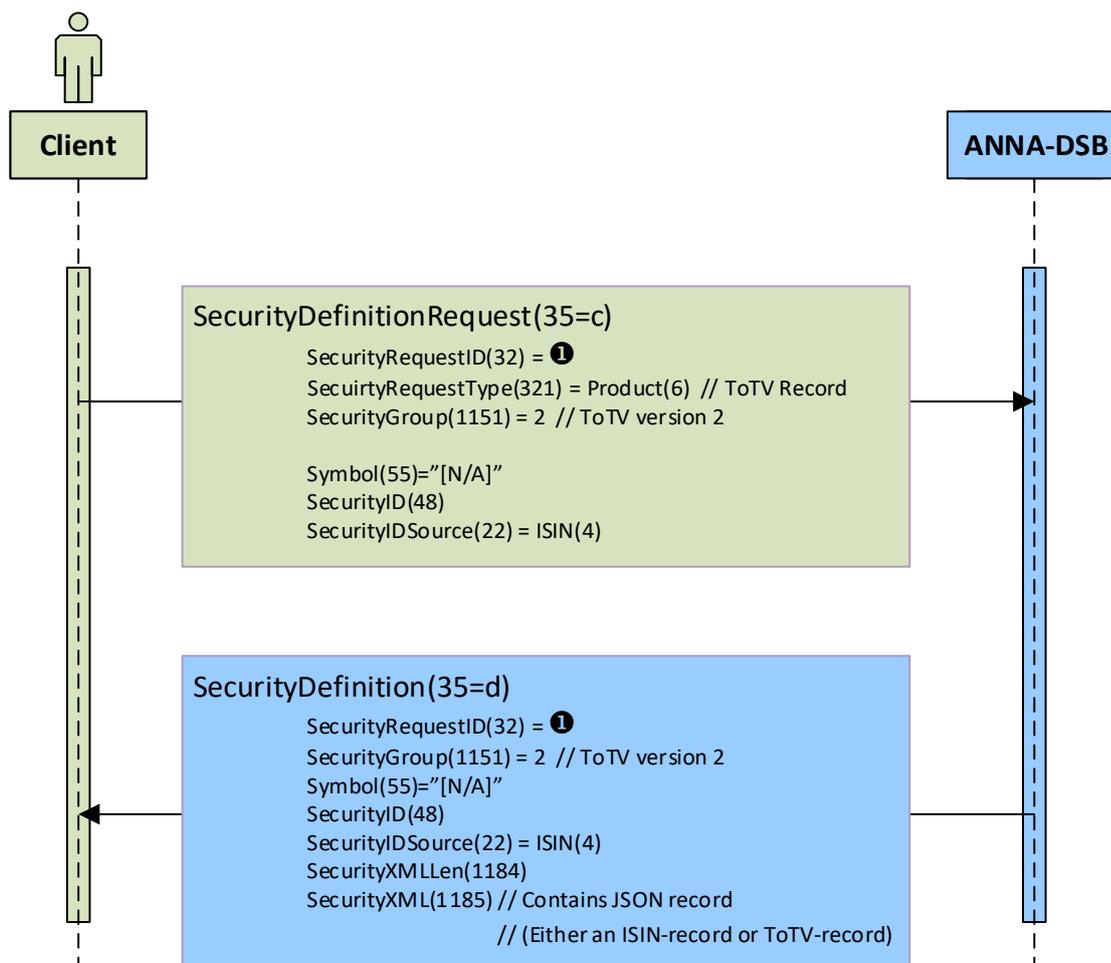


Diagram 2: FIX API: Retrieve ToTV version 2 Record by ISIN

10.2.2 Retrieve ToTV version 2 Record by ISIN: Expected Results

The following table contains possible attributes' values of the SecurityDefinition (35=D) message:

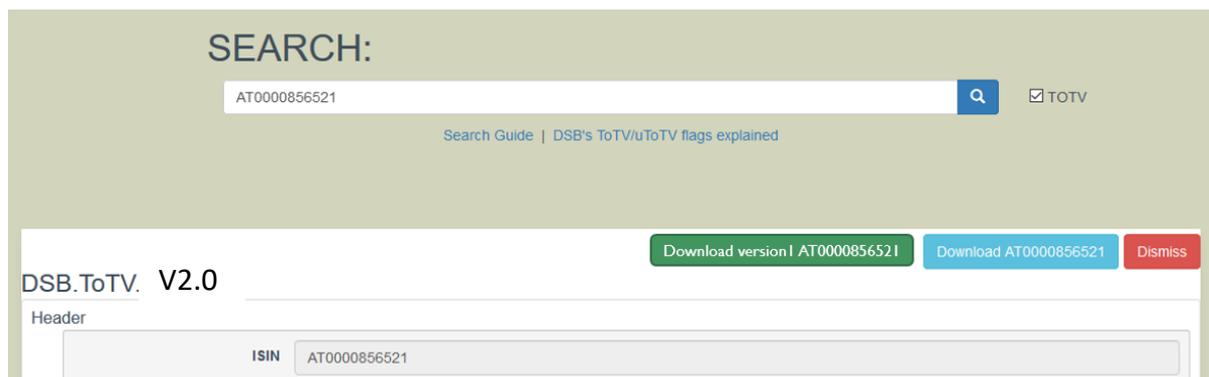
| Scenario | Security Request Result (560) | Information is available in Text(58) attribute |
|---|-----------------------------------|--|
| ISIN and product definitions are available | Valid request(0) | ✗ |
| ISIN does not exist | No Instruments Found(2) | ✓ |
| Invalid or unsupported request (e.g.: bad combination of FIX tags SecurityRequestType(321) and SecurityGroup(1151)) | Invalid or unsupported request(1) | ✓ |

As stated in [FIX Rules of Engagement](#), FIX subscription is not currently supported.

10.3 ToTV GUI Search

In line with the existing EU ToTV/uToTV functionality, it will not be possible to enquire ToTV version 2 records for more than one instrument at a time. There will be no search by attributes but ISIN only for ToTV.

To utilise ToTV search in the GUI, the users need to set the ToTV checkbox and provide an individual ISIN for which ToTV record is required:



Only version 2 format will be displayed to users. If the version 2 record contains either “EU” or “DSB-ISIN” (or both) then users can also see and select:

Download version1 <ISIN>

Users only requiring EU ToTV/uToTV data can download the version 1 record and proceed with no changes.

10.4 ToTV File Download

ToTV File Download structure for ESMA data will remain at the current location `/file-download/totv/`. Historical ToTV File Download will not be reloaded past Brexit.

ToTV version 2 records containing both FCA and ESMA data will be made available under `/file-download/totv-v2/`.

The `totv-v2` folder structure will be aligned with the new ISIN File Download structure and will be organised first by year, then date and then by the first two characters of the CFI code, i.e. CFI Category and CFI Group. For example, `/file-download/totv-v2/2019/20190401/ToTV-CB-20190401.zip`

For DSB-issued ISINs (beginning with “EZ”) – the ISIN will only be located in a single ToTV version 2 file within ToTV File Download according to the CFI code the DSB holds in the DSB ISIN record. This ensures consistency and singularity in DSB ISIN data.

For non-DSB ISINs – the ISIN will be located in as many ToTV version 2 files within ToTV File Download as there are different CFI codes reported for that ISIN (both in ESMA and FCA FIRDS). E.g. a non-DSB ISIN that has been reported with CFI that begins with AB, and another CFI that begins with XY, will be in two files (the AB and the XY files).

11 Availability

The current cut-off time for the processing of ESMA FIRDS data is 09:00am CET. Any data made available by ESMA by 09:00am CET will continue to be processed at that time to form part of ToTV File Download for ToTV version 1 (available at /file-download/totv/).

The FCA is expected to publish their FIRDS files by 09:00am UTC and FITRS files by 08:00am UTC. The DSB will be setting the cut-off time for the FCA data to 09:00am UTC to have both FCA FIRDS and FITRS submissions for ToTV version 2 (will be made available at /file-download/totv-v2/).

As with the existing logic, any data made available after the cut-off time will be published in the next day ToTV files.

Users interested in ToTV v2 daily files are requested to set up their processes such that they start polling the DSB's ToTV File Download v2 data no earlier than 10:00am UTC in Production and 12:00 (midday) UTC in UAT. This is the earliest time the DSB may make the daily ToTV v2 files available. The DSB will start generation of daily ToTV v2 files at 9:00am UTC in Production and the files will be made available once the processing is complete for the day, which is 1-2 hours after the processing starts in most cases. The DSB will start generating ToTV v2 files in UAT at 11:00am UTC and the files will be then published 1-2 hours after in most cases. Depending on the number of files ESMA and FCA make available for the day, the time the DSB will publish the daily ToTV v2 files may significantly vary. The users are asked to avoid sending requests to the DSB for the daily ToTV v2 files download between midnight and 10:00am UTC for Production and between midnight and midday UTC for UAT to reduce number of failed requests.

12 Scenarios

The following section describes some important scenarios the DSB will be using in order to validate its ToTV/uToTV solution.

12.1 Version1 vs Version 2 availability

The DSB envisages a single scenario when ToTV Version 2 is available, but Version 1 is not:

- ISIN is reported in FCA FIRDS and FCA Transparency
- ISIN is non-OTC (i.e. not issued by the DSB)
- ISIN is not in ESMA FIRDS
- ISIN is not in ESMA Transparency

For any ToTV version 1 record, there will always be Version 2.

12.2 ToTV version 2 File Download

Where an ISIN is reported with the same CFI Category and CFI Group in any of/all DSB ISIN, ESMA FIRDS and FCA FIRDS, there will only be one ToTV version 2 record for that ISIN in ToTV File Download on any given day.

Assuming that an instrument could be reported with different CFI codes (see item (k) in Assumptions, key dependencies and impact), the DSB will be not be determining a preference/correctness between submissions and will be making the data available in multiple ToTV version 2 files.

For a non-OTC ISIN (i.e. not issued by the DSB), any differences in CFI Category and CFI Group for the same ISIN, between ESMA and FCA or within the same system, will result in as many ToTV records in ToTV version 2 File Download as there are different combinations of CFI Category and CFI Group for the same ISIN:

| # | DSB ISIN | ESMA FIRDS | FCA FIRDS | TOTV version 2 File Download |
|---|----------|--|--|------------------------------|
| 1 | ✘ | ✓ CFI starts with CD | ✓ CFI starts with XY | CD and XY files |
| 2 | ✘ | ✓ CFI starts with CD ✓ CFI starts with XY | ✓ CFI starts with XY ✓ CFI starts with CD | CD and XY files |
| 3 | ✘ | ✓ CFI starts with CD ✓ CFI starts with AB | ✓ CFI starts with XY ✓ CFI starts with EF | AB, EF, CD and XY files |

Legend: ✓ - RECORD EXISTS ✘ - RECORD DOES NOT EXIST

For an OTC ISIN (i.e. issued by the DSB), there will only be one ToTV record for that ISIN in ToTV File Download on any given day in accordance to CFI Category and CFI Group the DSB holds for that ISIN:

| # | DSB ISIN | ESMA FIRDS | FCA FIRDS | TOTV version 2 File Download |
|---|----------------------|----------------------|----------------------|------------------------------|
| 1 | ✓ CFI starts with AB | ✘ | ✓ CFI starts with XY | AB |
| 2 | ✓ CFI starts with AB | ✓ CFI starts with CD | ✘ | AB |
| 3 | ✓ CFI starts with AB | ✓ CFI starts with CD | ✓ CFI starts with XY | AB |

Legend: ✓ - RECORD EXISTS ✘ - RECORD DOES NOT EXIST

12.3 Version1 vs Version 2 ToTV File Download when CFI Category and CFI Group is unknown

In line with the existing functionality, for a non-OTC ISIN (i.e. not issued by the DSB), for which neither ESMA FIRDS nor FCA FIRDS data are available, i.e. those having Transparency Data only, a single ToTV record will be recorded in an "XX" file.

| # | DSB ISIN | ESMA FIRDS | ESMA Transparency | FCA FIRDS | TOTV version 2 File Download | TOTV version 1 File Download |
|---|----------|------------|-------------------|----------------------|------------------------------|------------------------------|
| 1 | ✘ | ✘ | ✓ | ✘ | XX | XX |
| 2 | ✘ | ✘ | ✓ | ✓ CFI starts with XY | XY | XX |

Legend: ✓ - RECORD EXISTS ✘ - RECORD DOES NOT EXIST

Note that if there was an ISIN in ESMA Transparency and FCA FIRDS, but not in ESMA FIRDS, its CFI code is unknown in ToTV version 1 files (based on ESMA data) and is known in ToTV version 2 files (based on FCA data). Hence the ISIN will be located in different folders between the two versions, as indicated in scenario #2 in the table above. There is no user impact, as the users will either be using version 1 or version 2 files, but not both.

12.4 ToTV flag

The following scenarios show permutations of EU/UK submissions across ESMA and FCA FIRDS, and provide insight into how the DSB will derive the DSB EU and DSB UK ToTV flags:

| # | ESMA FIRDS | FCA FIRDS | Expected | |
|----|------------|------------------|-------------|-------------|
| | RCA | RCA | DSB EU/ToTV | DSB UK/ToTV |
| 1 | DE | DE | True | False |
| 2 | DE | ✘ | True | False |
| 3 | FR | ✘ | True | False |
| 4 | DE | ✘ | True | False |
| 5 | FR | ✘ | False | False |
| 6 | DEFR | ✘ | True | False |
| 7 | GB | ✘ | True | False |
| 8 | ✘ | DEFR DE | False | False |
| 9 | ✘ | FR | False | False |
| 10 | ✘ | GB | False | True |
| 11 | ✘ | GB DEFR DE | False | True |
| 12 | ✘ | GBGB | False | True |
| 13 | FR | GB | False | True |
| 14 | GB | GB | True | True |

Legend: ✘ - RECORD DOES NOT EXIST

As stated in section 5.1 Other assumptions not impacting DSB's UK ToTV/uToTV flags (e):

It is expected that there will be no UK data published in ESMA FIRDS following a no-deal Brexit. As can be seen from scenario #7 and #14, DSB's EU ToTV flag will be set if UK TV's/SI's were to continue submitting data to ESMA and ESMA subsequently made UK submissions available passed a no-deal Brexit.

12.5 uToTV flag

The following scenarios show permutations of an instrument ISIN (ISIN-1) being reported with or without an underlying (ISIN-2) across ESMA and FCA FIRDS, and how the DSB will derive the DSB EU and DSB UK uToTV flags.

It is assumed that:

- ISIN-1 is reported in both ESMA and FCA
- ISIN-2 is traded by both EU and UK trading venues

| # | DSB | | ESMA | FCA | Expected uToTV | ISIN-1 |
|----|--------|-----------------------------------|-----------------------------------|-----------------------------------|----------------|--------|
| | ISIN-1 | ISIN-1 contains underlying ISIN-2 | ISIN-1 contains underlying ISIN-2 | ISIN-1 contains underlying ISIN-2 | DSB EU | DSB UK |
| 1 | x | x | x | x | False | False |
| 2 | x | x | x | ✓ | False | True |
| 3 | x | x | ✓ | x | True | False |
| 4 | x | x | ✓ | ✓ | True | True |
| 5 | ✓ | x | x | x | False | False |
| 6 | ✓ | x | x | ✓ | False | True |
| 7 | ✓ | x | ✓ | x | True | False |
| 8 | ✓ | x | ✓ | ✓ | True | True |
| 9 | ✓ | ✓ | x | x | True | True |
| 10 | ✓ | ✓ | x | ✓ | True | True |
| 11 | ✓ | ✓ | ✓ | x | True | True |
| 12 | ✓ | ✓ | ✓ | ✓ | True | True |

Legend: ✓ - RECORD EXISTS x - RECORD DOES NOT EXIST

Scenarios #1-4 indicate a non-OTC ISIN (i.e. not issued by the DSB).

Scenarios #5-7 indicate a DSB-issued ISIN that according to the DSB data has no underlying.

Scenario #9-12 indicate a DSB-issued ISIN that according to the DSB data has Underlying ISIN-2.

Note that for a non-OTC instrument (i.e. not issued by the DSB), the DSB EU uToTV flag will only be set, if the instrument has been reported with an Underlying that has been traded on a venue according to ESMA data. The DSB UK uToTV flag will only be set, if the instrument has been reported with an Underlying that has GB RCA according to FCA data.

For instruments issued by the DSB and having an underlying:

- If that underlying is traded on a venue according to ESMA data – the DSB EU uToTV flag will be set even if the instrument was reported without an underlying to ESMA.
- If that underlying is traded on a UK trading venue according to FCA data – the DSB UK uToTV flag will be set even if the instrument was reported without an underlying to FCA.

13 FAQ

Please refer to [UK ToTV/uToTV FAQ](#) section on the DSB website to find answers to questions the DSB has been asked on the topic.