CHANGE REQUEST FORM

Title	ToTV File Download generation in Historical mode		
Background	Alongside the DSB's core service of issuing ISINs for OTC derivatives, the DSB has an additional service to assist the users with identifying those ISINs that are Traded on a Trading Venue (ToTV) and those that have an underlying instrument that is Traded on a Trading Venue (uToTV). As part of the DSB's ToTV/uToTV service, the DSB makes available daily ToTV files at https://prod.anna-dsb.com/file-download/totv/ Normally, ToTV files are generated daily at 9:00am CET which is the cut-off for the ESMA source data including FIRDS and FITRS data to be made available for the day. This ToTV File Download (FDL) generation process is referred to as the Daily mode. However, occasionally there is a need to run ToTV FDL generation in a Historical mode. The Historical mode means that the generation process runs not only for "Today's" date but for a number of sequential days starting from a date in the past. That would be required if an issue was identified in historical data, and in order to correct it, the files needed to be re-generated. There is an issue noted in historical ToTV FDL files generation when the DSB could prematurely filter out a reporting period. The issue is documented in https://github.com/ANNA-DSB/ToTV-uToTV/issues/20 The issue is not critical and leads to the most up-to-date Transparency information being made available in historical files as well as in the latest.	**JIRA**	**DSB-119**
		Type	ToTV
		Owner	Natalia Kozlovich
		Version	2
		State	Final
Objective	The purpose of this document is to further elaborate on details of the issue and to specify resulting requirements for the dev team.		
DSB's ToTV/uToTV record construction	The DSB's ToTV/uToTV records are constructed based on DSB-ISIN Ref Data (for DSB-issued instruments) and source data from ESMA FIRDS and FITRS systems (for instruments reported in FIRDS/FITRS files). FIRDS data are structured by ISIN, Reporting MIC and the Date of submission. An ISIN can be reported by different MICs as well as by the same MIC multiple times (for data correction and eventually to record ISIN termination). To manage the size of the DSB's ToTV/uToTV records, only the latest submission of an ISIN by any given MIC is made part of DSB's ToTV/uToTV record. FITRS data are structured by ISIN, Reporting Period and the Date of publication. The DSB has logic in place that filters out Reporting Periods that are no longer valid. However, if there is a publication delay (i.e. when ESMA is not following their normal publication schedule for Transparency data), the latest available 'Reporting Period' record continues to be available until a newer data is published. Also, any data made available in advance, immediately makes part of the DSB's ToTV/uToTV record.		

Problem Statement	When ToTV FDL data is generated in the Daily mode, all data that FIRDS/FITRS made available for that day before the cut-off time of 9am CET is taken into the current day folder. When ToTV FDL data is generated in the Historical mode, the issue is that the system still uses Today's date in deciding whether Reporting period for Transparency data needs to be filtered out or not in-spite the fact that the generation is happening for historical dates. As a result, the data that was still valid on a historical date, gets filtered out based on being no longer be valid as of today. And the latest historical Reporting period will be made part of the DSB's ToTV/uToTV record based on Today's date rather than a given date for which ToTV FDL generation is happening historically. Also, if there were multiple reports of the same ISIN reported by the same MIC in FIRDS, the DSB only makes available the latest reports of an ISIN by any given MIC. This is done to manage the size of the DSB's ToTV/uToTV records. Again, for the ToTV FDL data generated in the Historical mode, as the Today's date is used rather than the date for which historical data gets generated, the dataset that gets picked up will be different if the file generation was done on the day.
Requirements	When generating ToTV FDL data in the Historical mode, the date that is passed on (as the date of ToTV FDL folder being generated) must be used in selecting FIRDS and FITRS data to be included in the ToTV FDL folder for that date: only include data before and inclusive of that date and do not include data after that date. Example: Today's date 02/12/2019 ToTV FDL date being generated: 25/11/2019 FIRDS data: mic_code, record, modified_date, isin A, record1, 2019-11-24, isin1 A, record2, 2019-11-30, isin1 For 25/11/2019 ToTV FDL folder, record1 needs to be picked up from FIRDS data: A, record1, 2019-11-24, isin1 The record that's picked up now based on Today's date is record2: A, record2, 2019-11-30, isin1 FITRS data: period, record, modified_date, isin 2019-04-01:2019-06-30, record1, 2019-11-24, isin1 2019-04-01:2019-06-30, record2, 2019-11-30, isin1 2019-01-01:2019-03-31, record3, 2019-11-30, isin1 For 25/11/2019 ToTV FDL folder, record1 needs to be picked up from FITRS data: 2019-04-01:2019-06-30, record1, 2019-11-24, isin1 Whereas now, record2 and record3 get picked up. Resulting ToTV record in the 25/11/2019 ToTV FDL folder: Isin1: Firds-RefData: {A, record1, 2019-11-24, isin1} Firds-TransparencyData: {2019-04-01:2019-06-30, record1, 2019-11-24, isin1}}

Use Cases	**Scenario 1 - 1 record in FIRDS, no records in FITRS.** **1.1.** ISIN 1 is reported in FIRDS once and the date is after the date of the ToTV FDL folder being generated. Expected Result: ISIN1 is not in ToTV FDL on that date. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-30,2019-12-30, isin1 **last_update** modified_date, isin 2019-12-08, isin1 2019-12-30, isin1 ToTV FDL generated historically on 2019-12-30 for 2019-12-10, and isin1 is not in 2019-12-10 FDL folder. **1.2** ISIN 1 is reported in FIRDS once and the date is before the date of the ToTV FDL folder being generated. Expected Result: ISIN1 is not in ToTV FDL on that date. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-08,2019-12-08, isin1 **last_update** modified_date, isin 2019-12-08, isin1 ToTV FDL generated historically on 2019-12-15 for 2019-12-10, and isin1 is not in 2019-12-10 FDL folder. **1.3** ISIN 1 is reported in FIRDS once and the date is the same as the date of the ToTV FDL folder being generated. Expected Result: ISIN1 is in ToTV FDL on that date with Ref Data component. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-10,2019-12-10, isin1

	last_update modified_date, isin 2-19-12-08, isin1 2019-12-10, isin1 ToTV FDL generated historically on 2019-12-15 for 2019-12-10, and isin1 is in 2019-12-10 FDL folder. **Scenario 2 – multiple records in FIRDS, no records in FITRS.** **2.1** ISIN 1 is reported in FIRDS multiple times by the same MIC, 1 submission is on the ToTV FDL folder date and 1 submission is after the ToTV FDL folder date. Expected Result: ISIN1 is in ToTV FDL on that date with the submission that is on the date of the folder generated. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-11,2019-12-11, isin1 ABCD2019-12-12,2019-12-12, isin1 **last_update** modified_date, isin 2019-12-08, isin1 2019-12-11, isin1 2019-12-12, isin1 ToTV FDL generated historically on 2019-12-12 for 2019-12-11, and isin1 is in 2019-12-11 FDL folder with ABCD2019-12-11 Ref Data submission. **2.2** ISIN 1 is reported in FIRDS multiple times by different MICs, 1 submission is before the ToTV FDL folder date and 1 submission is after the ToTV FDL folder date. Expected Result: ISIN1 is not in ToTV FDL on that date. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-10,2019-12-10, isin1 EFGH2019-12-12,2019-12-12, isin1 **last_update** modified_date, isin 2019-12-08, isin1 2019-12-10, isin1 2019-12-12, isin1 ToTV FDL generated historically on 2019-12-15 for 2019-12-11, and isin1 is not in 2019-12-11 FDL folder.

	2.3 ISIN 1 is reported in FIRDS multiple times by different MICs, both submissions are on the day the ToTV FDL folder is generated. Expected Result: ISIN1 is in ToTV FDL on that date with both submissions being in the FDL on that date. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-11,2019-12-11, isin1 EFGH2019-12-11,2019-12-11, isin1 **last_update** modified_date, isin 2019-12-08, isin1 2019-12-11, isin1 ToTV FDL generated historically on 2019-12-15 for 2019-12-11, and isin1 is in 2019-12-11 FDL folder with both MICs submissions. **Scenario 3 – 1 record in FIRDS and 1 record in FITRS.** **3.1** ISIN 1 is reported in both FIRDS and FITRS once and the date is after the date of the ToTV FDL folder being generated. Expected Result: ISIN1 is not in ToTV FDL on that date. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-15,2019-12-15, isin1 **firds_transparency_data** period, modified_date, isin 2018-01-01:2018-12-31, 2019-12-15, isin1 **last_update** modified_date, isin 2019-12-08, isin1 2019-12-15, isin1 ToTV FDL generated historically on 2019-12-15 for 2019-12-11, and isin1 is not in 2019-12-11 FDL folder. **3.2** ISIN 1 is reported in both FIRDS and FITRS once and the date of Ref Data submission is before the date of the ToTV FDL folder being generated whereas the date of transparency is on the date of the ToTV FDL folder being generated. Reporting period is valid at the time of ToTV FDL folder generation. Expected Result: ISIN1 is in ToTV FDL on that date with both Ref Data and Transparency components.

	Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-12,2019-12-12, isin1 **firds_transparency_data** period, modified_date, isin 2018-01-01:2018-12-31, 2020-01-01, isin1 (note: period valid until 01.06.2020) **last_update** modified_date, isin 2019-12-08, isin1 2019-12-12, isin1 2020-01-01, isin1 ToTV FDL generated historically on 2020-01-07 for 2020-01-01, and isin1 is in 2020-01-01 FDL folder with both Ref Data and Transparency records. **3.3** ISIN 1 is reported in both FIRDS and FITRS once and the date is the same as the date of the ToTV FDL folder being generated. Reporting period is not valid at the time of ToTV FDL folder generation. Expected Result: ISIN1 is in ToTV FDL on that date with both Ref Data and Transparency components. The fact that Reporting period is not valid does not matter, being the only and the latest available Transparency record for that ISIN. Sample data: **dsb_isin** modified_date, isin 07/12/2019, isin1 **firds_ref_data** mic_code, modified_date, isin ABCD2019-12-28,2019-12-28, isin1 **firds_transparency_data** period, modified_date, isin 2017-01-01:2017-12-31, 2019-12-28, isin1 (note: period valid until 01.06.2019) **last_update** modified_date, isin 2019-12-08, isin1 2019-12-28, isin1 ToTV FDL generated historically on 2020-01-07 for 2019-12-28, and isin1 is in 2019-12-28 FDL folder with both Ref Data and Transparency. **Scenario 4 – multiple records in FIRDS and multiple records in FITRS.** **4.1** ISIN 1 is reported in FIRDS multiple times by the same MIC, 1 submission is on the ToTV FDL folder date and 1 submission is after the ToTV FDL folder date.

	ISIN 1 is reported in FITRS with different reporting periods, 1 reporting period is valid at the time of ToTV FDL folder generation and 1 reporting period becomes valid after the ToTV FDL folder generation. Both Transparency records have Publication date before the date of ToTV FDL. Expected Result: ISIN1 is in ToTV FDL on that date with the Ref Data submission that is on the date of the folder generated. ISIN 1 has both Transparency records (current at the day of FDL generation and the future one). Sample data: **firds_ref_data** mic_code, modified_date, isin ABCD2019-11-05, 2019-11-05, isin1 ABCD2020-01-07, 2020-01-07, isin1 **firds_transparency_data** period, modified_date, isin 2019-04-01:2019-06-31, 2019-11-01, isin1 (note: period valid 16.08-15.11.2019) 2019-07-01:2019-09-30, 2019-11-01, isin1 (note: period valid 16.11-15.02,2020) **last_update** modified_date, isin 2019-11-01, isin1 2019-11-05, isin1 2020-01-07, isin1 ToTV FDL generated historically on 2020-01-07 for 2019-11-05, and isin1 is in 2019-11-05 FDL folder with ABCD2019-11-05 Ref Data record and both Transparency records. **4.2** ISIN 1 is reported in FIRDS multiple times by different MICs, 1 submission is on the ToTV FDL folder date and 1 submission is after the ToTV FDL folder date. ISIN 1 is reported in FITRS with different reporting periods, both periods are outdated on the day ToTV FDL folder is generated. Both Transparency records have Publication date before the date of ToTV FDL. Expected Result: ISIN1 is in ToTV FDL on that date with the submission that is on the date of the folder generated. ISIN1 has one Transparency record with the latest period (in-spite it's being outdated). Sample data: **firds_ref_data** mic_code, modified_date, isin ABCD2019-11-16, 2019-11-16, isin1 EFGH2020-01-07, 2020-01-07, isin1 **firds_transparency_data** period, modified_date, isin 2019-01-01:2019-03-31, 2019-11-01, isin1 (note: period valid 16.05-15.08.2019) 2019-04-01:2019-06-30, 2019-11-01, isin1 (note: period valid 16.08-15.11,2019) **last_update** modified_date, isin 2019-11-01, isin1 2019-11-16, isin1 2020-01-07, isin1 ToTV FDL generated historically on 2020-01-07 for 2019-11-16, and isin1 is in 2019-11-16 FDL folder with ABCD2019-11-16 Ref Data record and latest Transparency record.

	4.3 ISIN 1 is reported in FIRDS multiple times by different MICs, both submissions are on the day the ToTV FDL folder is generated. ISIN 1 is reported in FITRS with different reporting periods, both periods are valid on the day ToTV FDL folder is generated, but one becomes outdated at the day of the run (Today's date). Both Transparency records have Publication date before the date of ToTV FDL. Expected Result: ISIN1 is in ToTV FDL on that date with both submissions being in the FDL on that date. ISIN 1 has both Transparency records. Sample data: **firds_ref_data** mic_code, modified_date, isin ABCD2019-11-01, 2019-11-01, isin1 EFGH2019-11-01, 2019-11-01, isin1 **firds_transparency_data** period, modified_date, isin 2019-04-01:2019-06-30, 2019-10-30, isin1 (note: period valid 16.08-15.11,2019) 2019-07-01:2019-09-30, 2019-10-30, isin1 (note: period valid 16.11-15.02,2020) **last_update** modified_date, isin 2019-10-30, isin1 2019-11-01, isin1 ToTV FDL generated historically on 2019-11-16 for 2019-11-01, and isin1 is in 2019-11-01 FDL folder with both Ref Data submissions and both Transparency records. **4.4** ISIN 1 is reported in FIRDS twice by the same MIC and the first submission date is before the day the ToTV FDL is generated and the second submission date is after the ToTV FDL. ISIN 1 is reported in FITRS twice, first record with Publication date that is on the date of ToTV FDL and second record with Publication date after the ToTV FDL date. Both Transparency records have valid Reporting periods at the date of ToTV FDL generated. Expected Result: ISIN1 in ToTV FDL on that date with Ref Data component containing only one submission that's before the ToTV FDL date and Transparency component. Transparency component only has one reporting period that was reported with the Publication date on the date of ToTV FDL generated. Sample data: **firds_ref_data** mic_code, modified_date, isin ABCD2019-10-30, 2019-10-30, isin1 ABCD2019-11-16, 2019-11-16, isin1 **firds_transparency_data** period, modified_date, isin 2019-04-01:2019-06-30, 2019-11-01, isin1 (note: period valid 16.08-15.11,2019) 2019-07-01:2019-09-30, 2019-11-16, isin1 (note: period valid 16.11-15.02,2020) **last_update** modified_date, isin 2019-10-30, isin1 2019-11-01, isin1 2019-11-16, isin1 ToTV FDL generated historically on 2019-11-16 for 2019-11-01, and isin1 is in 2019-11-01 FDL folder with the earlier Ref Data submission and 2019-11-01 Transparency record.

Documentation	There are no DSB documents to update as a result of this bugfix.
References	https://www.anna-dsb.com/download/dsb-totv-current-operating-model/ https://www.esma.europa.eu/sites/default/files/library/esma65-8-5240_firds_download_and_use_of_full_and_delta_transparency_results_files.pdf https://www.esma.europa.eu/sites/default/files/library/esma65-8-5014_firds_-_instructions_for_download_of_full_and_delta_reference_files.pdf

CHANGE HISTORY

Version	State	Author	Date	Description
1	Draft	Natalia Kozlovich	3 December 2019	Initial Document
2	Final	Natalia Kozlovich	7 January 2020	Added sample data for the Use Cases