London Stock Exchange Group Transaction Reporting Service Description

For Third Country Member Firms of:

- London Stock Exchange
- Turquoise Global Holdings Limited (TGHL)
- Turquoise Global Holdings Europe B.V. (TGHE)

Issue 2.1

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London
Stock Exchange Group

Contents

1 Introduction

1.1 Purpose

The purpose of this document is to provide Third Country Member Firms ("TC Member Firms") with information on how to submit their Transaction Reports (TRs) under:

- UK MiFIR for trades executed on London Stock Exchange (LSE) and Turquoise Global Holdings Limited (Turquoise UK) (collectively referred to in this document as "the UK Trading Venues" or "UK TVs")

- EU MiFIR for trades executed on Turquoise Global Holdings Europe B.V (Turquoise Europe) (referred to in this document as "EU TV")

TC Member Firms should submit TRs for all on-book and off-book trades executed on the TVs. The UK and EU trading venues will be collectively referred to as "the Trading Venues" or "TVs."

1.2 Readership

This document is relevant to trading, operations, compliance and technical staff within TC Member Firms.

This document is applicable for all TC Member Firms irrespective of whether the firm is already registered on and using UnaVista MiFIR ARM.

1.3 Documentation

[1] The Markets in Financial Instruments (Amendment) (EU Exit) Regulations 2018
http://www.legislation.gov.uk/ukdsi/2018/9780111173480/contents

[2] MiFIR Detailed Requirements in Delegated Regulation 2017/590 (formerly known as RTS 22)
http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0590&rid=1

[3] ESMA Guidelines on Transaction Reporting
https://www.esma.europa.eu/sites/default/files/library/2016-1452_guidelines_mifid_ii_transaction_reporting.pdf

[4] ESMA MiFIR ISO20022 message specification
https://www.esma.europa.eu/document/annex-iii-draft-iso-20022-message-specification

[5] UnaVista MiFIR ARM Documentation

http://www2.londonstockexchangegroup.com/UnaVista-MiFIR-ARM-Document-Pack

[6] Non-MiFID II Member Transaction Reporting Guide

https://www.lseg.com/documents/lseg-member-transaction-reporting-guide-non-mifid-firms-v1-2-pdf

[7] The Financial Regulators' Powers (Technical Standards etc.) (Amendment etc.) (EU Exit) Regulations 2018

https://www.legislation.gov.uk/ukdsi/2018/9780111171394

[8] CSV format example

https://www.lseg.com/documents/arm-sample-trade-csv-output-csv

1.4   Abbreviations

Abbreviation	Description
ARM	Approved Reporting Mechanism
ESMA	European Securities and Markets Authority
EU MiFIR	Markets in Financial Instruments (MiFIR) - Regulation (EU) No 600/2014
FCA	Financial Conduct Authority
LEI	Legal Entity Identifier
NCA	National Competent Authority
TC	Third Country
TR	Transaction Report
TV	Trading Venue
UK MiFIR	Markets in Financial Instruments (Amendment) (EU Exit) Regulations 2018

1.5 Document History

Version	Date	Description
1.9	17 December 2020	Added additional guidance in section 4.2 and 4.2.9 around national identifier codes
2.0	15 February 2022	Removal of CurveGlobal, update to Transaction Reporting contact details. Added guidance on INTC reporting
2.1	07 April 2022	Enhancement to fields in the reconciliation process in section 4.3

2 Operational Process

2.1 Overview

TC Member Firms must supply their transaction reports to the Trading Venues for submission to the National Competent Authority (NCA).

UK TVs have partnered with UnaVista ARM to expedite and automate the transaction reporting process for trades executed through its systems.

TC Member Firms who have signed up with UnaVista for venue reporting to UK TVs will submit their transaction reports using UnaVista's MiFIR ARM configuration for TV reporting, subject to the provisions laid out in this guide. These firms will be further referred to as "UV members" in this document.

TC Member Firms that do not wish to use UnaVista venue reporting service will be required to submit their transaction reports to the Trading Venues via SFTP and will be subject to the same provisions. These firms will be further referred to as "non-UV members" in this document.

TC Member Firms files are collected by UnaVista Approved Reporting Mechanism (ARM) and validated against ESMA's Transaction Reporting Validation Rules before automatic onward submission to the relevant NCA. TC Member Firms will be notified of ESMA validation errors or NCA rejection errors via response files generated by the ARM. Any ARM validation errors must be corrected by 9am London local time, one working day after Trade Day (T+1).

Trading Venues will in addition reconcile TC Member Firms' report submissions in the ARM against its own internal records and provide feedback to the member if discrepancies exist.

TC Member Firms are required to provide any corrections indicated by the Trading Venue by 5pm London local time, on (T+2).

2.2 Operational steps

2.2.1 London Stock Exchange, Turquoise and TRADEcho

The following table outlines the timeline for the TR process:

Step	Description	London time specified
#1	TC Member Firm submits transaction reports to Trading Venue for all trades executed under its member codes on Day T.	From anytime on T By 9:00am (T+1)
#2	Validation of transaction reports submitted by the TC Member Firm. Transaction reports that pass validation are submitted directly to the NCA.	On receipt from the TC Member
#3	TC Member Firm submits corrections for ARM validation errors	By 5:00pm (T+1)
#4	TV reconciles member activities from the last 24 hours.	10am (T+1)
#5	TC Member Firm is notified via **SFTP** if reconciliation errors have occurred and **response files** in the member's SFTP folder. Applicable to both UV and non-UV members. TC Member Firm contacts the Transaction Reporting team for any assistance.	From 6am (T+2)
#6	TC Member Firm submits corrections for reconciliation errors.	By 5pm (T+2)

Note

If the UV TC member does not have SFTP access, the Member must contact the TV to register for access. The member will NOT be able to receive response files if they do not have SFTP access.

3   File transfer service

3.1   Non-UnaVista TC Members

File transfer between TVs and the TC Member Firm for all submission and response files will be via the TVs SFTP portal.

TC Members should contact the Market Access team and supply necessary details to set up their SFTP connection.

Non-UV TC Members will be required to supply the following information to set up SFTP:

- First name
- Last name
- Organization
- LEI
- Email address
- Phone number
- Source IP address (Separate multiple IP's with ;)
- Public Key (Optional. Name the key Username_key)

The non-UV TC Member will be provided with an SFTP login and their public IP's will be configured on their accounts. When created, an automated email will be sent to the email address registered to the account with the username and password. The default password needs to be changed on HTTPS first before connecting via SFTP. The UK TV will supply Member with details of:

- SFTP address
- Port
- Member login ID
- Member SFTP folder

Notes

The Member login ID will contain the member LEI.

The member must only submit transaction report files to this SFTP login where the Executing Entity ID in the transaction reports matches the Member LEI used in this SFTP login ID. In the case of a Member trading as a different Legal Entity on different venues, an SFTP login must be created for each Legal Entity the Member trades as, and the Member must submit their transaction reports for the Executing Entity ID using the matching SFTP login for that LEI.

3.2 UnaVista Third Country Members

UV TC Members will be able to use their existing UnaVista SFTP portal to receive response files from the TV. If the UV TC member does not have SFTP access, the member must contact the Technical Customer Relationship Management team to register for access in order to receive their TV response files.

3.3 SFTP Folder Structure

SFTP Folder	Non-UV TC Members	UV TC Members
Incoming / To_LSEG	Submission Files	n/a
Outgoing / From_LSEG	UnaVista ARM response files UnaVista NCA response files TV Summary Report TV Exceptions Report	UnaVista NCA response files TV Summary Report TV Exceptions Report

4 Transaction Reporting Guidelines

4.1 Submission Files (non-UV members)

1. All submission files must be compliant with the XML ISO20022 schema supplied by the UnaVista UK/EU ARM and schemas defined within the XSD files included in the UnaVista MiFIR ARM documentation pack. Or in CSV format [8]. The file structure and format are described within the MiFIR ARM Technical Specification [5]. Sample files are also provided.

2. A maximum limit of **100,000** transaction reports will be accepted in a single file. If the number of reports for the day is more than the limit, multiple files must be submitted populated up to the maximum row count for each file.

3. Separate files are required for each **operating MIC** traded on:
    - LSE plc file   operating MIC XLON
    - Turquoise UK file   operating MIC TRQX
    - Turquoise EU file   operating MIC TQEX

4. The order in which files are loaded by the MiFIR ARM is determined by the order in which the TC Member uploads their files into the SFTP folder. **Therefore, it is important if multiple files are being submitted to upload them in the required order of processing.**

5. Filename must be **unique**.

6. Filename length including the file extension must not exceed **40 characters**.

7. A member mnemonic (usually 4 characters long) must be used in the filename as specified below.

8. The file naming convention and contents the member must supply are as follows:

XML Files

Venue	File name format	File contents

LSE plc	XLON_<Member mnemonic>_yyyyMMddHHmmss.xml
	Example:
	`XLON_ABCD_20190401223000.xml`
	`XLON_ABCD_20190402010599.xml`
	`XLON_ABCD_20190402010600.xml`
		Transaction reports for all segment MICs:
		XLON, XLOM, AIMX, XLOD

Venue	File name format	File contents
Turquoise UK	TRQX_<Member mnemonic>_yyyyMMddHHmmss.xml Example: `TRQX_ABCD_20190401230000.xml`	Transaction reports for all segment MICs: TRQX, TRQA, TRQM, TRQB, TRQS, TRQC
Turquoise EU	TQEX_<Member mnemonic>_yyyyMMddHHmmss.xml Example: `TQEX_ABCD_20190401201555.xml`	Transaction reports for all segment MICs: TQEX, TQEM, TQEA, TQEB, TQES, TQEC

CSV Files

Venue	File name format	File contents

LSE plc	XLON_<Member mnemonic>_yyyyMMddHHmmss.csv
	Example:
	`XLON_ABCD_20190401223000.csv`
	`XLON_ABCD_20190402010599.csv`
	`XLON_ABCD_20190402010600.csv`
		Transaction reports for all segment MICs:
		XLON, XLOM, AIMX, XLOD

Turquoise UK	TRQX_<Member mnemonic>_yyyyMMddHHmmss.csv Example: `TRQX_ABCD_20190401230000.csv`	Transaction reports for all segment MICs: TRQX, TRQA, TRQM, TRQB, TRQS, TRQC
Turquoise EU	TQEX_<Member mnemonic>_yyyyMMddHHmmss.csv Example: `TQEX_ABCD_20190401201555.csv`	Transaction reports for all segment MICs: TQEX, TQEM, TQEA, TQEB, TQES, TQEC

Notes:

The timestamp in filename is the current system date and time for when the file was created. As indicated previously, each submitted filename must be unique.

The Member mnemonic in the filename must be the member identifier, **usually 4 characters** long and maximum 16 characters to comply with the 40 character limitation on the filename. The member mnemonic will **not be used for reconciliation** purposes.

The member must only submit transaction report files to this SFTP login where the Executing Entity ID in the transaction reports matches the Member LEI used in this SFTP login ID. In the case of a Member trading as a different Legal Entity on different venues, an SFTP login must be created for each Legal Entity the Member trades as, and the Member must submit their transaction reports for the Executing Entity ID using the matching SFTP login for that LEI.

4.2   Key fields for consideration

In addition to complying the ESMA Validation rules and ESMA Guidelines on transaction reporting, Member firms must populate the fields below as outlined:

Field Definition	ISO20022 Field Name	CSV Field Name
Investment Firm	MiFIDInvestmentParty <MiFIDInvstmtPty>	Investment Firm Indicator
Submitting Entity ID	SubmittingParty <SubmitgPty>	Submitting Entity ID
Executing Entity ID	ExecutingParty <ExctgPty>	Executing Entity ID
Trading Venue Transaction Identification Code (TVTIC)	TradePlaceMatchingIdentifiation <TradPlcMtchgID>	Venue Transaction ID
Transaction Reference Number	TransactionIdentification <TxId>	Transaction Reference Number
Trading Date Time	TradeDate <TradDt>	Trading Date Time
Price	Price <Pric>	Price
Buyer Identification Code	Buyer *<Buyr>*	Buyer ID
Buyer decision maker code	DecisionMaker *<DcsnMkr>*	Buyer DOB
Seller identification code	Seller *<Sellr>*	Seller ID

Field Definition	ISO20022 Field Name	CSV Field Name
Seller decision maker code	DecisionMaker *<DcsnMkr>*	Seller DOB
Investment decision within firm	InvestmentDecisionPerson *<InvstmtDcsnPrsn>*	Investment Decision ID
Execution within firm	ExecutingPerson *<ExctgPrsn>*	Firm Execution ID

4.2.1 Investment Firm

Set to 'false.'

4.2.2 Submitting Entity ID

Populate this field with the LEI of the ARM: 213800D1EI4B9WTWWD28

4.2.3 Executing Entity Identification Code

Members must fill this field with the TC Member Firm's LEI.

4.2.4 Trading Venue Transaction Identification Code (TVTIC)

Members must use the transaction identifier supplied by the venue:

The TVTIC field must be populated in every transaction report submitted by the Third Country Member Firm.

The TVTIC is a critical field used by the trading venue to reconcile the transaction reports submitted by the Third Country Member Firm. In the event this field does not reconcile with the trading venue's records, the Member Firm will be required to cancel and resubmit the report(s) according to TVTIC requirements stipulated by the trading venue.

Third Country Member Firms must use the transaction identifier supplied by the venue in the transaction report for specific trade. **The TVTIC submitted in the transaction report must be in Base 10 numbering system i.e. the universe of permitted characters is 0123456789;**

Depending on the member firms type of connection to the venue (FIX or Native), the transaction identifier may be received in alphanumeric or numeric form. In all cases, the

transaction identifier must be supplied to the TV in Base 10 numeric form and the necessary conversion performed as follows:

4.2.4.1 London Stock Exchange

Exchange Protocol	Field	Format Received	Conversion
Native	"TradeMatchID"	Native numeric Base 10	No conversion required
FIX	Tag 27020 (DecimalTVTIC)	Base 10	No conversion required
	Tag 880 (TradeMatchID)[1]	Base 36	Convert to Base 10
	Tag 1003 (TradeID)[2]	Base 36	Convert to Base 10

1 - FIX Trading and Drop Copy protocol in Execution Report Message. Only needed if not using Tag 27020 (DecimalTVTIC)

2 - FIX Post Trade protocol in Trade Capture Report Message. Only needed if not using Tag 27020 (DecimalTVTIC)

4.2.4.2 TRADEcho

Exchange Protocol	Field	Format Received	Conversion
FIX	Tag 27020 (DecimalTVTIC)	Base 10	No conversion required
	Tag 1003 (TradeReportID)[3]	Base 64	Convert to Base 10
	Tag 25008 (APATradeID)[4]	Base 64	Convert to Base 10

3– Available in TRADEcho APA protocol

4 – Available in TRADEcho SRR protocol

4.2.4.3 Turquoise and Turquoise Europe

Exchange Protocol	Field	Format Received	Conversion
Native	"TradeMatchID"	Native numeric Base 10	No conversion required

Exchange Protocol	Field	Format Received	Conversion
FIX	Tag 27020 (DecimalTVTIC)	Base 10	No conversion required
	Tag 880 (TradeMatchID)[5]	Base 36	Convert to Base 10
	Tag 1003 (TradeID)[6]	Base 36	Convert to Base 10

5 - FIX trading and Drop Copy protocols in the Execution Report message

6 - Post Trade protocol in the Trade Capture Report message

Refer to the [Appendix A](#) for Base 36 and Base 64 decoding alphabets.

4.2.5 Transaction Reference Number (TRN)

Members may choose to enter the TRN in their own existing format OR the member may use the format of the TV as follows:

[YYYYMMDDHHMMSSxxxx][Segment MIC][TVTIC][B or S for buy or sell]

Notes:

The TVTIC conversion must have occurred before generating the TRN with the TVTIC.

4.2.6 Trading Date Time

Members must enter the exact time sent in the execution notice from the TV. This time is sent in UTC and must be kept as is:

4.2.7 Price

Where price is reported in monetary terms, it shall be provided in the major currency unit. Members must convert the price from pence to pounds for instruments denominated in Sterling:

4.2.8 Venue

Members must enter the segment MIC and not the operating MIC of the TV.

4.2.9 Reporting National Identifier Fields

In line with Article 6 of Commission Delegated Regulation (EU) 2017/590, a natural person should be identified within a transaction report using the designation resulting from the concatenation of the ISO 3166-1 alpha-2 (2 letter country code) of the nationality of the person, followed by the national client identifier listed in Annex II based on the nationality of the person.

The national client identifier should be assigned in accordance with the priority levels provided in Annex II using the highest priority identifier available to the participant. Other identifiers can be assigned strictly in accordance with the priority levels provided in the table.

Effective 4 January 2021, Turquoise Europe trading participants should identify all UK natural persons using the "all other countries" taxonomy which requires the "National Passport Number" to be used or, where that is not available, the "CONCAT". Accordingly, this change should be reflected in the associated short code and long code mappings submitted via the member portal.

Consider below identifiers for UK nationals as applicable for respective markets:

LSE and Turquoise UK markets

ISO 3166 – 1 alpha 2	Country name	1st priority identifier	2nd priority identifier	3rd priority identifier
GB	United Kingdom	UK National Insurance number	CONCAT	

Turquoise Europe market

ISO 3166 – 1 alpha 2	Country name	1st priority identifier	2nd priority identifier	3rd priority identifier
All other countries		National Passport Number	CONCAT	

4.3   Data quality & Reconciliation fields

TVs will reconcile members transactions reports. The total number of transactions reported to the ARM corresponding to on-venue executions must match the total number of trades recorded in the TV's records for the trading date. Values submitted in the trade reports must match the values on the trades. Reports will be matched on the following:

Field	Description
TVTIC	Base 10 Trading Venue Identification Code
Quantity	Total quantity of the instrument being acquired or disposed
Price	Trade price of the transaction
Instrument Identification Code	ISIN
Execution Venue	Segment TVTIC
Buyer Identification Code*	Code used to identify the buyer of the financial instrument (LEI, National_ID, MIC, 'INTC')
Seller Identification Code*	Code used to identify the seller of the financial instrument (LEI, National_ID, MIC, 'INTC')
Trading Capacity	DEAL – Dealing on own account MTCH – Matched principal AOTC – Any other capacity
Price Currency	ISO Currency value
Instrument Classification	CFI Code
Investment Decision within Firm*	Code used to identify the person or algorithm within the investment firm who is responsible for the investment decision

Field	Description
Execution Decision within Firm*	Code used to identify the person or algorithm within the firm responsible for the execution
Waiver Indicator	Indication as to whether the transaction was executed under a pre-trade waiver. RFPT – Reference Price NLIQ – Negotiated (Liquid) OLIQ – Negotiated (Illiquid) PRIC – Negotiated (conditions) SIZE – Above specified Size ILQD – Illiquid Instrument

*Codes entered should be the long code value corresponding to the short code entered on the order. Long Code and Short code mappings must be present in Member Portal prior to submitting trade reports.

Exceptions on these fields could be incorrect for multiple reasons. List is below along with corrective actions

1. The value is incorrect on the Transaction Report submitted to UnaVista – *cancel and rebook the TR(s)*
2. The short code is incorrect on the order/trade on the trading system – *correct the short code(s)*
3. The short long code mapping is incorrect in Member Portal – *amend the mapping(s) in member portal*

Any errors or missing reports will be sent back to the TC Member and should be rectified by 17:00 UK Time on T+2.

4.3.1   INTC (Grouped Orders) Reports

As per the "Guidelines" (ESMA Guidelines of Transaction Reporting under MIFID II section 5.23) and according to fields 7 – Buyer identification code and 16 – Seller identification code of RTS22, INTC should be used for executions that have taken place from aggregated or grouped client orders.

The Guidelines set out that INTC should not be used for reporting an order for one client executed in a single execution or for an order for one client executed in multiple executions.

Where there is a transfer into an INTC there should be a comparable transfer out of the aggregate client account within the same business day so that the aggregated client account is flat.

The convention is used to provide a link between the market side and the client sides of transactions and does not indicate that a client account exists or that the ownership of the investment passes through an investment firm's books. There can be one or more reports for the transaction with the trading venue (market leg). There should always be more than one client leg reported so that the sum volume on market leg(s) and client legs is equal.

Below key fields should be considered when reporting 'INTC' transactions:

1. Quantity – Sum quantity in market side reports should match the sum quantity in client side reports.
2. Price – Price should be the same on both sides of the report or an average price of the market side executions where multiple market fills are concerned.
3. Trading date and time – Time should be the same on both sides of the report or the earliest executed time in market side where multiple market fills are concerned.
4. Trading capacity – capacity should be the same in both sides. Only 'AOTC' or 'MTCH' values would be allowed. 'DEAL' should not be used.

Example of an INTC report below:

Dealing on any other capacity (AOTC)

Two clients of Investment Firm X, Client A and Client B place orders for 50 and 50 shares respectively.

Investment Firm X aggregates the orders and executes them on 1 July 2021 at 09:20:15.37777 on Trading Venue M in one transaction of 100 at Euro 1.1.

Market Leg

Venue	Transaction Reference Number	TVTIC	Trading Capacity	Report Status	Buyer ID	Seller ID	Trade Date	Price	Quantity
XLON	XLON46800053108756S	485054	AOTC	NEWT	XLON	INTC	01/07/2021 09:20:15.37777	1.1	100

Client Legs

Venue	Transaction Reference Number	TVTIC	Trading Capacity	Report Status	Buyer ID	Seller ID	Trade Date	Price	Quantity
XOFF	XLON806251542357		AOTC	NEWT	INTC	LEI/Nati onal ID of client A	01/07/2021 09:20:15.37 777	1.1	50

Venue	Transaction Reference Number	TVTIC	Trading Capacity	Report Status	Buyer ID	Seller ID	Trade Date	Price	Quantity
XOFF	XLON806251542359		AOTC	NEWT	INTC	LEI/Nati onal ID of client B	01/07/2021 09:20:15.37 777	1.1	50

If investment firm were to deal in matched principal capacity, the reports would be identical except that the trading capacity field would be populated with 'MTCH'.

Executions achieved across multiple venues

Where client orders are executed across multiple venues, only the business executed on any of the LSEG venues should be reported. For example, 1000 shares executed as 600 on London Stock Exchange, and 400 on another venue, should result only in the 600 being reported to London Stock Exchange, both on the market side as well as client side.

4.4   Reconciliation Files

Exceptions may be generated from file errors, content validation by the MiFIR ARM, reconciliation by the TV, or from NCA processing. The following table describes the management of each type:

Error Type	Description	Handling	Action Required
File Errors	High-level errors including file naming errors and schema validation.	Members will be notified via the **File Error Response Files**	The whole file must be re-submitted.

Error Type	Description	Handling	Action Required
Content Errors	Validation errors reported by the MiFIR ARM, for example required fields not populated or content of field does not pass ESMA validation.	The Member will be notified of validation errors via the **MiFIR ARM Response File**	The Member must generate a corrections file to replace the reported transactions with exceptions and submit via the SFTP portal or follow their usual corrections procedure in the case of UV members.
Reconciliation Errors	TV will reconcile transaction reports sent to the MiFIR ARM post submission. Errors will be reported if the number of submitted transaction reports does not match UK/EU TV trades and if there are discrepancies in reconciling key transaction fields.	These will be assessed before the end of T+1 and if errors exist, both UV and non-UV Member will be notified via the **TV Reconciliation Response File Exceptions Report**	The Member must generate a corrections file and submit via the SFTP portal for non-UV members and via the UV member's current process.
NCA Rejections	Validation errors reported by the NCA for example an invalid instrument in the reference data for a particular transaction date.	These will be detected post submission and may occur on any day after T+1. Both UV and non-UV Member will be notified via the **NCA Rejection File.**	The LSEG Transaction Reporting team will liaise with the Member for any corrections required.

4.4.1 File errors

In the event of a submission file rejection due to filename format error, the original file will be moved to the non-UV TC Member's outgoing folder and renamed with the following filename format:

```
VTR_INVALID_FILENAME_<original file name>
```

The Member will be required to re-submit the file with the correct naming format.

In the event of a submission file rejection from the MiFIR ARM due to file format errors, UV member will be notified by the MiFIR ARM process.

Please refer to the UnaVista MiFIR Technical specification for more details [5].

4.4.2 Content errors

In the case of transactions loaded by the ARM failing validation within the ARM, a response file from the ARM containing any failed transaction reports.

Non-UV TC Members will receive ARM response files in their SFTP folder in **csv** format. The filename will be the original file name **excluding** the original file extension in the name with *_UVRes* appended to it as described in the UnaVista Technical Specification, section *UnaVista MiFIR ARM Validation Response Files.*

Example:

```
TQEX_ABCD_20190401201555_UVRes.csv
```

UV TC Members will receive ARM responses via their UnaVista process.

4.4.3 TV Reconciliation Response Files

UV and non-UV Members will receive reconciliation feedback files from the TV in their SFTP folder.

On a daily basis, the TV will generate 1 or 2 files for every operating MIC the member has traded on:

- Summary Report   generated every day
- Exceptions Report   only generated if reconciliation errors have been identified

All TV Reconciliation response files will be sent to the Member unzipped and in **CSV format.**

4.4.3.1 Summary Report

A single file will be generated per operating MIC the Member has traded on in CSV format with a header row of column names followed by rows of summary details for transaction reports received from the member for each segment MIC traded on, on **T.** The Member may also receive in the file summary entries for previous trading dates up to **T-30** if reconciliation breaks exist for those previous trading dates.

4.4.3.2 Exceptions Report

For each operating MIC the TC Member has traded on, in the event the TC Member submissions on that operating MIC could not be reconciled successfully or if reconciliation breaks still exist for historical trading dates up to **T-30**, a single file will be generated for that operating MIC. The Member will receive an exception list for all transaction reports with errors. A file will NOT be generated if reconciliation was completely successful for all dates up to T-30.

The exceptions file will contain a header row of column names followed by:

- A list of exceptions for each reconciliation error encountered for the submitted transaction reports including unrecognised transaction reports, transaction reports that failed key field content validation and transaction reports that have an ARM validation exception reported in the UnaVista MiFIR ARM. The list may be empty if there were no reconciliation errors for the reports received.

- A list of execution notices for which transaction reports are missing. The list may be empty if there were no transaction reports missing.

Notes:

- There may be multiple rows per transaction report if more than one reconciliation check failed on the report.

- Transaction reports that reconciled successfully will not be listed in the file

Please see Appendix B for naming conventions, file formats and error codes for Summary Reports and Exception Reports

4.4.4 NCA rejection

In this case transactions reports that have been rejected by the NCA. The UV / non-UV member will be supplied with a response file in their respective SFTP folders with details of the errors.

The filename will be the original file name **excluding** the file extension in the name with _NCARes_ appended to it as described in the UnaVista Technical Specification, section *UnaVista MiFIR NCA Validation Response.*

Example:

```
TQEX_ABCD_20190401201555_NCARes_GB_20190408103000999.csv
```

4.5 Back Reporting

If the TC Member firm needs to back report or provide corrections for historical transaction reports, the member can submit as part of their in their daily process and notify the Transaction Reporting team by email so that their reconciliation status for previous trading dates can be updated.

Members must keep track of missing reports and work to eliminate any outstanding reports as quickly as possible.

4.6 Transaction Amendments

All amendment files from members must be supplied in ISO20022 or CSV format. Members are expected to submit two files in the event of amendments:

XML Format:
- o CXL file for cancellations to original submitted transactions
- o NEW file for the amended trades

CSV Format:
- o CANC file for cancellations to original submitted transactions
- o NEWT file for the amended trades

<u>Notes</u>
1. Transactions that are cancelled on the same day must not be reported.
2. In case of T+n cancellations without amendments, only one file (CANC/CXL) must be generated for the cancellations.
3. CANC/CXL files for cancellations to transaction reports must be loaded into the ARM before NEWT/NEW files for subsequent amendments to the cancelled transaction reports.
4. In the event an amendment of a trade occurs on T, only the most recent amendment should be reported.
5. The TRN for CANC/CXL reports must exactly match the TRN of the original NEWT/NEW.

5   Registration and Testing

Members who will be classified as Third Country firms in relation to their trading activity on either LSE PLC, Turquoise UK and/or Turquoise EU are asked to complete certain registration and testing steps prior to go-live.

All members are required to complete the Member Firm Declaration Form and return this to the Membership team at membership@lseg.com.

UnaVista Customers

Members utilising the UnaVista Venue Reporting Service and therefore deemed UV customers, kindly contact your UnaVista account manager to agree on-boarding / set up requirements.

Contact the Technical Customer Relationship Management team at: londontam@lseg.com for access to the SFTP for response files.

Non-UnaVista Customers

For non-UV customers wishing to submit their transaction files via the SFTP process can contact the Technical Customer Relationship Management team at: londontam@lseg.com

Testing

Before go-live, customers will need to successfully test the full end to end process on the Customer Development Service (CDS) of the relevant venues. Testing requirements can be found in the LSEG Third Country Member Transaction Reporting Testing Guide at the following link:
https://docs.londonstockexchange.com/sites/default/files/documents/tr_reporting_certification_issue_1.0.pdf

6   Contact Details

Transaction Reporting Team

Functional Queries, Support Queries, Testing

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Technical Customer Relationship Management

On-boarding

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Appendix A

Base 36 and Base 64 decoding alphabets

Base 36 with G Offset

HEX	ASCII	HEX	ASCII
0	G	18	Y
1	H	19	Z
2	I	20	0
3	J	21	1
4	K	22	2
5	L	23	3
6	M	24	4
7	N	25	5
8	O	26	6
9	P	27	7
10	Q	28	8
11	R	29	9
12	S	30	A
13	T	31	B
14	U	32	C
15	V	33	D
16	W	34	E
17	X	35	F

Base 64

HEX	ASCII	HEX	ASCII	HEX	ASCII	HEX	ASCII
0	A	18	S	36	k	54	2
1	B	19	T	37	l	55	3
2	C	20	U	38	m	56	4
3	D	21	V	39	n	57	5
4	E	22	W	40	o	58	6
5	F	23	X	41	p	59	7
6	G	24	Y	42	q	60	8
7	H	25	Z	43	r	61	9
8	I	26	a	44	s	62	-
9	J	27	b	45	t	63	_
10	K	28	c	46	u		
11	L	29	d	47	v		
12	M	30	e	48	w		
13	N	31	f	49	x		
14	O	32	g	50	y		
15	P	33	h	51	z		
16	Q	34	i	52	0		
17	R	35	j	53	1		

Appendix B

Summary Report

File naming convention:

Venue	File name format	File contents
LSE plc	VTR_RECON_XLON_SUMMARY_<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_XLON_SUMMARY_20190401_20190402.csv`	Reconciliation summary for trades executed on segment MICs: XLON, XLOM, AIMX, XLOD
Turquoise UK	VTR_RECON_TRQX_SUMMARY_<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_TRQX_SUMMARY_20190401_20190402.csv`	Reconciliation summary for trades executed on segment MICs: TRQX, TRQA, TRQM, TRQB, TRQS, TRQC
Turquoise EU	VTR_RECON_TQEX_SUMMARY_<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_TQEX_SUMMARY_20190401_20190402.csv`	Reconciliation summary for trades executed on segment MICs: TQEX, TQEM, TQEA, TQEB, TQES, TQEC

Summary Report File Format:

Column name	Description	Comments
Segment MIC	The segment MIC traded on in the TV	
Report Date	Date reconciliation report generated Format: dd/MM/yyyy	
Trading Date	Trading date for which report has been generated Format: dd/MM/yyyy	
Member Firm ID	Firm ID of Member in TV	
Reconciliation Status	Overall status of reconciliation Values: 'SUCCESS' if no exceptions occurred 'ERROR' if exceptions occurred	Status will be ERROR if any errors occurred in matching transaction report totals or field validation
Total Expected	The total number of execution notices in the TV on trading date and for the segment MIC for which transaction reports are expected	
Total Received	The total number of transaction reports received from the TC Member for trading date and segment MIC	
Total Missing	Total number of transaction reports that were found missing for the trading date and segment MIC	This is the difference between total expected and total received
Total Unknown	Total number of transaction reports that could not be matched to an execution notice in the TV for trading date and segment MIC	
Total Field Errors	Total number of transaction reports that had one or more errors in reconciling core transaction fields with the execution notice on the TV for the trading date and segment MIC	Includes total transaction reports that failed UnaVista ARM validation

Exceptions Report

Naming Convention:

Venue	File name format	File contents
LSE plc	VTR_RECON_XLON_EXCEPTIONS_<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_XLON_EXCEPTIONS_ 20190401_20190402.csv`	Reconciliation exceptions for executions on segment MICs: XLON, XLOM, AIMX, XLOD
Turquoise UK	VTR_RECON_TRQX_ EXCEPTIONS _<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_TRQX_EXCEPTIONS_ 20190401_20190402.csv`	Reconciliation exceptions for executions on segment MICs: TRQX, TRQA, TRQM, TRQB, TRQS, TRQC
Turquoise EU	VTR_RECON_TQEX_ EXCEPTIONS _<trading date>_<TV import date yyyyMMdd>.csv Example: `VTR_RECON_TQEX_EXCEPTIONS_ 20190401_20190402.csv`	Reconciliation exceptions for executions on segment MICs: TQEX, TQEM, TQEA, TQEB, TQES, TQEC

Exception Report File Format:

Column name	Description	Comments
Report Date	Date reconciliation report generated Format: dd/MM/yyyy	
Trading Date Time	Trading date for which report has been generated Format: yyyy-MM-dd hh:mm:ss.SSSSSS	
Member Firm ID	Firm ID of Member in TV	
Import Date	Date transaction report was imported into UnaVista's MiFIR ARM Format: dd/MM/yyyy HH:mm:ss	Received by the TV from the MiFIR ARM OR Blank in case of missing transaction report
Transaction Status	Status of transaction report in the UnaVista MiFIR ARM	Received by the TV from the MiFIR ARM Refer to UnaVista MiFIR User Guide for a full list of values OR Blank in case of missing transaction report
Report Status	Indication if transaction report is new or a cancellation submitted by TC Member	Received by the TV from the MiFIR ARM OR Blank in case of missing transaction report
Transaction Reference Number	Unique identifier for transaction report submitted by TC member	Received by the TV from the MiFIR ARM OR Blank in case of missing transaction report

Column name	Description	Comments
TVTIC	Trading Venue Transaction Identification Code on the transaction report submitted by TC member	Received by the TV from the MiFIR ARM OR TVTIC on execution notice in TV in case of missing transaction report
Venue	Segment MIC on the transaction report submitted by TC member	Received by the TV from the MiFIR ARM OR Segment MIC on execution notice in TV in case of missing transaction report
Instrument ID	Instrument identifier on the transaction report submitted by TC member	Received by the TV from the MiFIR ARM OR Instrument ID in case of missing transaction report
Error Code	TV Error code for the exception	Refer to the Error codes section for a description of values
Error Description	TV Error description for the exception	Refer to the Error codes section for a description of values
Error Field Name	Transaction report field name for which exception was raised	Refer to the Error codes section for a description of values
Received Value	Value received from TC Member for the field in which error occurred	
Expected Value	Value TV expects to see as given in execution notice on TV	

Exception Report Error Codes:

Code	Description	Example	Comments
R001	Unknown TR	TVTIC = 292938 and Venue = XLON combination does not exist in the execution notice list for XLON OR Venue = XABC is an unknown MIC	Will occur if execution notice cannot be found for the TVTIC and segment MIC combination on the TR or the segment MIC supplied is not recognised by the venue. On the exception report: **Error Field Name** = 'TVTIC/Venue' **OR** 'Venue' (unrecognised MIC) **Received Value** = TVTIC '/' Venue field values received in the TR **OR** Venue field value received in the TR (unrecognised MIC) **Expected Value** = blank
R002	Field error	Quantity = 345 when it should be 133 OR Price = 43.5 when it should be 48.5 OR ISIN is 'DBABCDEFG' when it should be 'FRABCDEFG'	On the exception report: Error Field Name = Name of field: 'Quantity' / 'Price' / 'ISIN' Received Value = value received in corresponding TR field Expected Value = value received in corresponding TV execution notice field Note: Expected Value column will not be populated for identifier fields due to data restrictions.

Code	Description	Example	Comments
R004	ARM error	ARM Valid field on TR is set to 'False' instead of 'True'	On the exception report: **Error Field Name** = blank **Received Value** = blank **Expected Value** = 'Check UnaVista ARM response file'
R005	Missing TR	Trade exists for which TR does not exist	On the exception report: **Error Field Name** = blank **Received Value** = blank **Expected Value =** blank

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