

Turquoise Equities

TQ501 - Guide to Reference Data Services

Issue 4.4.2

2 November 2018



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1.0 Introduction

1.1 Purpose

The purpose of this document is to provide an overview of the reference data service available on the Turquoise Millennium Exchange platform.

Turquoise Millennium Exchange is upgrading to a new reference data service that will run in parallel with the existing reference data service. The existing reference data service will be decommissioned once all clients have migrated to the new service.

The purpose for the upgrade is to standardize the reference data model across LSEG venues and offer a solution with improved resiliency. The change is related to how the files are provided only; the files and file structure will not change on the new service.

The upgrade is only related to reference data, P&S files are not currently in scope.

Block Minimum Indication Value file will now be made available via SFTP/FTP as well as via the website.

1.2 Readership

This document outlines the reference data services available on Millennium Exchange.

When read in conjunction with the message specifications it is intended that the document provide all of the details for Turquoise customers to develop to the new services.

This document is particularly relevant to trading and technical staff within Turquoise's member firms, information vendors and other market participants interested in receiving Turquoise reference data.

1.3 Document Series

This document is part of series of technical documents providing a holistic view of full trading and information services available which can be found on the Turquoise website here ['Document Library'](#).

Interfaces and information dissemination

For further information regarding Turquoise connectivity, trading and subscription to market data, please refer to the following documentation:

- TQ102 – Connectivity Guide
- TQ103 – Trading Technical Parameters
- TQ201 – Trading Gateway (FIX 5.0) Specification
- TQ202 – Post Trade Gateway (FIX 5.0) Specification
- TQ203 – Drop Copy Gateway (FIX 5.0) Specification
- TQ301 – Trading Gateway (Native) Specification

- TQ401 – Level-2 MITCH Market Data Specification
- **TQ501 – Guide to Reference Data Services (this document)**
- TQ502 – Guide to Purchase and Sales File

Certification and Testing Services

For further information regarding Certification of Participant’s software and ongoing testing obligations with Turquoise, please refer to the following documentation:

- TQ601 – Guide to Certification
- TQ602 – Certification Report
- TQ603 – Guide to Testing Services

LSEG Group Ticker Plant

For further information regarding subscription to Turquoise market data from the Group Ticker Plant (GTP), please refer to the following documentation which can be found on the GTP website here '[GTP Documentation Library](#)':

- GTP001 – Product Guide
- GTP002 – Technical Guide
- GTP003 – Statistics Guide
- GTP004 – Parameters Guide
- GTP005 – Testing Service Guide
- GTP006 – External Source Guide
- GTP008 – Market Attributes Guide

1.4 Document History

This document has been through the follow iterations:

Issue	Date	Description
1.0	08 July 2010	First issue of this document published via the Turquoise website and distributed to customers.
1.1	03 August 2010	Addition of FTP site details.

1.2	13 August 2010	Correction of Multicast ID field name. Addition of Reference Price field.
1.3	24 August 2010	Clarification of "Access to the service"
1.4	22 September 2010	Addition of alternative Instrument and Price Tick files. Correction of IP address for Access to the Service
1.5	23 September 2010	Clarification of IP address file structure
1.6	12 October 2010	Alteration of Reference Price definition
1.7	30 March 2012	Added connectivity details for reference data via Extranex Updated login credentials for FTP/SFTP sites
1.8	25 April 2013	Updated connectivity details for new location
1.9	01 July 2013	Added new target IP 194.169.9.158
2.0	18 September 2013	Updated to include new segment structure
2.1	17 October 2013	Amendment to the following section, 2.4.1.
2.2	24 October 2014	Changed reference of ITCH to MITCH
2.3	13 July 2015	2.3 Addition of Block Discovery Minimum Indication file on SFTP/FTP 2.7 Block Discovery Minimum Indication file format

3.0	13 July 2015	<p>Guide version 3.0 details the New Reference Data Service for Turquoise Millennium Platform.</p> <p>1.0 Introduction of new service and purpose</p> <p>2.2 New Model and IP addresses</p> <p>2.3 Service Parameters</p> <p>2.4 New Directories</p> <p>2.5 MD5 Encryption</p> <p>2.6 Parallel run with existing service</p> <p>2.4, 3.6 Addition of Block Discovery Minimum Indication file on SFTP/FTP</p>
3.1	28 July 2015	2.4 Directories update as the reference data credentials are dropped into the outgoing folder
3.2	04 August 2015	2.2.3 TQ_FTP_refdata generic username will be used for both SFTP and FTP
3.3	13 August 2015	<p>Updated for Block Discovery file changes</p> <p>1.1 – Changed file name description from Minimum Block Size to Minimum Block Indication Value.</p> <p>2.4 – Changed file name of Block Discovery Min Indication Value file.</p> <p>3.6.1 – Changed file name</p> <p>3.6.1 – Added fields: Minimum Indication Value, Minimum BDN Value, Min MEV for Indication, Min MEV for BDN</p> <p>(Changes below for version 3.3 are highlighted in red and identified using a red sidebar)</p>
3.4	24 December 2015	3.6.1 – Added field: Price Test Tolerance
3.5	27 January 2016	3.6.1 – Price Test Tolerance field has been de-scoped and is reserved for future use.

3.6	13 May 2016	<p>2.4 – Updated to include filename for Turquoise TrackInsight™ A-list file</p> <p>3.7 – Added section for Turquoise TrackInsight™ A-list file</p> <p>3.7.1 – Added file layout for YYYYYMMDD_TRQX_TurquoiseTrackInsightETFs.csv</p>
3.7	30 August 2016	<p>Updated Turquoise to Turquoise Plato™ where appropriate for Dark Midpoint Order Book and Turquoise Plato™ Block Discovery services, and updated Turquoise to Turquoise where appropriate.</p>
3.8	20 June 2017	<p>The following changes have been made to aid clarity and to support the changes in the Release 9.2 (MiFID II compliant) upgrade:</p> <p>2.4, 3.3.2, 3.5.2 – Removed the layout and references to the legacy Tq_Eq_RefFile.csv and Tq_Eq_TickFile.csv files.</p> <p>3.3.1 – Replaced 'Trading Parameter ID' with 'Price Tick Table ID'. Replaced 'Min Reserve Order Value' with 'Pre-Trade LIS Value (Currency)'. Renamed 'ADT' to 'ADT (EUR)'. Added the following new fields to the end of the file: 'Visibility', 'Mifir Identifier', 'Mifir Subclass', 'Static Reference Price Collar Percentage', 'Dynamic Reference Price Collar Percentage', 'Liquid', 'ADT (Currency)', 'ADNT', 'RPW Allowed', 'FISN', 'Max Order Value Lit (Currency)', 'Max Order Value Dark (Currency)', 'Notional Currency', 'Price Notation', 'Denominated Par Value'.</p> <p>3.6, 3.7 – Renamed 'LIS Limit (Currency)' to 'Pre-Trade LIS Value (Currency)'. Renamed 'Tick Table' to 'Price Tick Table ID'.</p>
3.9	27 July 2017	<p>The following changes have been made to aid clarity:</p> <p>3.3.1 – Corrected enum values for the 'Liquid' field. Corrected field name 'Post Trade Parameters ID' to match the heading in the file. Clarified that the 'Country of Register' field is not in use.</p>
4.0	22 August 2017	<p>The following changes have been made to aid clarity:</p> <p>3.3.1 – Clarified 'Max Order Value Dark (Currency)' behaviour</p> <p>3.3.1, 3.7 – Clarified 'Pre-Trade LIS Value (Currency)' behaviour</p>

4.1	13 September 2017	3.3.1 – The new field “Max Order Value Lit Auction (Currency)” has been added for future use.
4.1.A	25 September 2017	3.3.1 – The new field “Max Order Value Lit Auction (Currency)” has been marked for Turquoise Lit Auctions™ use.
4.2.A	2 November 2017	3.3.1 - The description of the following fields have been updated for more clarity: ADT (EUR), ADT (Currency) and Mifir Identifier.
4.3.A	15 November 2017	3.1 – Removed the layout and references to the legacy Tq_Ed_RefFile.csv and Tq_Eq_TickFile.csv files.
4.4	18 June 2018	<p>3.3.1 – The new fields added to indicate which order books are supported per instrument and can be used instead or in addition to ‘Visibility’ field:</p> <p>Turquoise Lit Order Book Turquoise Plato Order Book Turquoise Lit Auctions Order Book Turquoise NYLON™ Cash Order Book</p> <p>3.3.1- The new field is added for the Turquoise NYLON™ Cash Order Book</p> <p>Max Order Value for the Turquoise NYLON™ Cash Order Book (Currency)</p>
4.4.1	26 July 2018	3.3.1 – The length of below fields have been corrected: Turquoise Lit Order Book Turquoise Plato Order Book Turquoise Lit Auctions Order Book Turquoise NYLON Cash Order Book

4.4.2	2 November 2018	<p>2.4, 3.3.1, 3.4, 3.5.1, 3.6.1, 3.7.1 - The files have been renamed to replace 'TRQX' with 'Turquoise'</p> <p>3.3.1 – New value has been added to the following fields:</p> <p>TQEX in 'Turquoise Lit Order Book' field</p> <p>TQEM in 'Turquoise Plato Order Book' field</p> <p>TQEA in 'Turquoise Lit Auctions Order Book' field</p> <p>TQEB in 'Turquoise NYLON Cash Order Book' field</p> <p>From this version onwards the changes will be highlighted in red instead of using the side bars.</p>
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In subsequent issues, where amendments have been made to the previous version, these changes will be highlighted in red.

1.5 Enquiries

Please contact either Market Operations or your Technical Account Manager if you have any questions about the Millennium Exchange services outlined in this document.

Market Operations can be contacted at:

- Telephone: +44 (0)20 7382 7676
- Email: market.operations@tradeturquoise.com

Technical Account Managers can be contacted at:

- Telephone: +44 (0)20 7797 3939
- Email: londontam@lseg.com

2.0 Reference Data Service

2.1 Calendar and Service hours

Market Reference Data files are available on published trading days. This data will be available by 06:00 a.m. UK time.

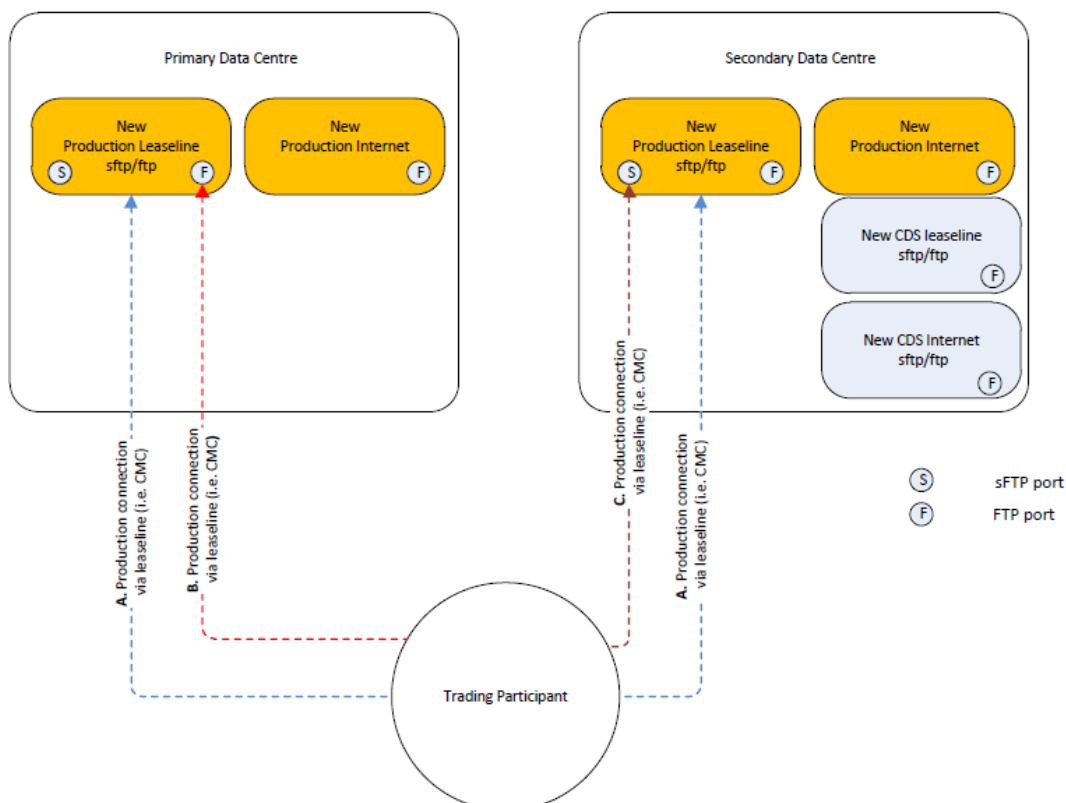
2.2 Access to the Service

Turquoise Reference Data files can be downloaded via either File Transfer Protocol (FTP) or Secure File Transfer Protocol (SFTP). Customers can access the Turquoise FTP/SFTP servers via Extranex, Hosting, CMC as well as via the internet.

2.2.1 Availability Model

The reference data servers will operate on a **hot-hot configuration** at our Primary Data Centre (PDC) and Secondary Data Centre (SDC). As reference data is readily available at both sites, clients can choose whether they wish to retrieve the reference data from PDC and/or SDC. Clients can be simultaneously connected to both PDC and SDC.

Diagram of Hot-Hot Configuration for the New Reference Data Service



Clients downloading production reference data (a leaseline example same principle applies to Internet connections):

Example A – Client connects to both PDC + SDC

Example B - Client connects to PDC only

Example C – Client connects to SDC only

2.2.2 Target IP addresses

The below list details the target IP and ports for the New Reference Data Service.

Environment	Extranex/Hosting/CMC Target IP				Internet Target IP	
	sFTP	Port	FTP	Port	FTP	Port
CDS	194.169.9.157	51101	194.169.9.157	21	194.169.1.29	21
Production PDC	194.169.9.42	59101	194.169.9.42	21	194.169.1.26	21
Production SDC	194.169.9.43	59101	194.169.9.43	21	194.169.1.27	21

2.2.3 User Credentials

Below are the user credentials to be used to authenticate to either SFTP or FTP.

FTP Username:	TQ_FTP_refdata
Password:	tt5public82

2.3 Service Parameters

2.3.1 FTP parameters

Name	Description	Parameter
Log-in grace time	Time allowed to authenticate after connecting before being automatically disconnected by the system	For FTP this is handled by "Idle session timeout"
Max login attempts	Number of failed login attempts allowed before being automatically disconnected by the system	3
Max sessions	Number of concurrent authenticated sessions allowed per source IP	10
Idle session timeout	Time an authenticated session can be left idle before being automatically disconnected by the system	300 s

2.3.2 SFTP Parameters

Name	Description	New
Log-in grace time	Time allowed to authenticate after connecting before being automatically disconnected by the system	60 s
Max login attempts	Number of failed login attempts allowed before being automatically disconnected by the system	3
Max sessions	Number of concurrent authenticated sessions allowed per source IP	10
Idle session timeout	Time an authenticated session can be left idle before being automatically disconnected by the system	300 s

2.4 Directory Structure

The service provides a number of separate market reference data files needed to provide all the necessary data for the Turquoise market on Millennium Exchange. There is a single directory for these files on each of the Production and CDS reference data services. Within this directory clients will see the 6 current day files and an archive folder with historic files:

TYPE	FILE NAME	DIRECTORY
Instrument	YYYYMMDD_Turquoise_Instrument	/PublicRefData
Calendar	YYYYMMDD_Turquoise_Calendar	/PublicRefData
Price Tick	YYYYMMDD_Turquoise_PriceTick	/PublicRefData
Turquoise Plato Block Discovery™ Min Indication Value	YYYYMMDD_Turquoise_BlockDiscoveryMinValues	/PublicRefData
Turquoise TrackInsight™ A-list	YYYYMMDD_Turquoise_TurquoiseTrackInsightETFs	/PublicRefData

2.5 Additional Features

MD5 Encryption – Each file will have an MD5 encrypted checksum for clients to use for their information systems to ensure data integrity. This is an optional feature for clients to use.

3.0 Data Files

3.1 Data layout

The files of the format YYYYMMDD_TRQX are created in accordance with the following specifications:

File format	Csv
Fields delimiter	; (semicolon)
Decimal symbol	. (point)
Digit grouping symbol (thousands separator)	None
Date Fields format	yyyymmdd

The field lengths identified in the record layout below are maximum lengths. As the data is delimited, fields can be shorter than the maximum length defined.

Note: Turquoise may amend these values at anytime following one week's prior written notice. Any changes will be communicated via a Market Notice.

3.2 File Formats

3.2.1 Key to Field Type

STRING	An alphanumeric field
ENUM	A look-up value against a table of options
F64	Floating point 64-bit number encoded as ASCII
I32	32-bit Integer number encoded as ASCII
Decimal	12 character integer with up to 2 decimal places.

3.3 Instrument File Record Layout

The following sections provide details on instrument data available within the service.

3.3.1 YYYYMMDD_Turquoise_Instrument.csv

Field	Type (Length)	Description
Instrument ID	STRING (20)	Instrument ID, unique identifier across the system.
Calendar ID	STRING (30)	Unique key used to link the instrument to the market calendar to be used. The details of the calendar are maintained in the Calendar file.
Segment Code	STRING (4)	The code identifying the segment. Turquoise segments are currently split by settlement location.
Post Trade Parameters ID	STRING (30)	Not currently in use by Turquoise.
Price Tick Table ID	STRING (30)	Identifier for the Price Tick which is used by the Instrument.
ISIN Code	STRING (12)	The International Security Identification Number (ISIN). This will be in line with ISO 6186.

Deletion Date	STRING (8)	Date on which the instrument will be deleted. Format yyyyymmdd. This field may be blank.										
First Trading Date	STRING (8)	Instrument's First Trading Date. Format yyyyymmdd.										
Instrument Status	ENUM	<p>Whether the instrument is active for trading, suspended from trading or not available for trading (inactive).</p> <p>Possible values:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Active</td> </tr> <tr> <td>1</td> <td>Suspended</td> </tr> <tr> <td>2</td> <td>Inactive</td> </tr> <tr> <td>3</td> <td>Halted</td> </tr> </tbody> </table>	Value	Meaning	0	Active	1	Suspended	2	Inactive	3	Halted
Value	Meaning											
0	Active											
1	Suspended											
2	Inactive											
3	Halted											
Clearing Type	ENUM	<p>Indicates whether the instrument is cleared or not.</p> <p>Possible values:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Not Cleared</td> </tr> <tr> <td>1</td> <td>Cleared</td> </tr> </tbody> </table>	Value	Meaning	0	Not Cleared	1	Cleared				
Value	Meaning											
0	Not Cleared											
1	Cleared											
Delete Orders at EOD	ENUM	<p>Delete orders from the order book at the End of the day (EOD)</p> <p>Possible values:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No</td> </tr> <tr> <td>1</td> <td>Yes</td> </tr> </tbody> </table>	Value	Meaning	0	No	1	Yes				
Value	Meaning											
0	No											
1	Yes											
Exchange Market Size	I32	Not currently in use by Turquoise.										

Pre-Trade LIS Value (Currency)	F64	The pre-trade LIS threshold of the instrument, specified in the instrument's trading currency. The minimum consideration value for hidden orders.														
Minimum Order Size	F64	Not currently in use by Turquoise.														
Last Trading Day	STRING (8)	Not currently in use by Turquoise.														
Lot Size	F64	This field defines the size increment of an order entered by a participant. Orders may be entered only in multiples of the Order Lot Size for a particular instrument ID.														
Security Type	STRING (2)	Provides more granular groupings of instruments Possible values: <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>CO</td> <td>Exchange Traded Commodity</td> </tr> <tr> <td>CU</td> <td>Exchange Traded Currency</td> </tr> <tr> <td>DR</td> <td>Depository Receipt</td> </tr> <tr> <td>EQ</td> <td>Equity</td> </tr> <tr> <td>TF</td> <td>Exchange Traded Fund</td> </tr> <tr> <td>RT</td> <td>Rights</td> </tr> </tbody> </table>	Value	Meaning	CO	Exchange Traded Commodity	CU	Exchange Traded Currency	DR	Depository Receipt	EQ	Equity	TF	Exchange Traded Fund	RT	Rights
Value	Meaning															
CO	Exchange Traded Commodity															
CU	Exchange Traded Currency															
DR	Depository Receipt															
EQ	Equity															
TF	Exchange Traded Fund															
RT	Rights															
TIDM	STRING (4)	Not currently in use by Turquoise.														
Description	STRING (30)	This field is used to specify the name of a tradable instrument.														
SEDOL	STRING (7)	Not currently in use by Turquoise.														
ADT (EUR)	F64	Defines the average daily turnover of the instrument specified in Euros.														

Currency	STRING (4)	This field contains the currency in which prices for a tradable instrument must be expressed. A list of all codes is contained in ISO 4217 - Codes for the representation of currencies and funds, except that, for SEAQ compatibility, GBX has been retained.
Bid Status	ENUM	Not currently in use by Turquoise.
DOL Indicator	ENUM	Not currently in use by Turquoise.
DOL Section Number	STRING (4)	Not currently in use by Turquoise.
Expiry Source	STRING (8)	Not currently in use by Turquoise.
Issuer Code	STRING (6)	Not currently in use by Turquoise.
Issuer Name	STRING (255)	Not currently in use by Turquoise.
Normal Market Size	I10	Not currently in use by Turquoise.
Ratio	STRING (8)	Not currently in use by Turquoise.
Settlement Type	STRING	Not currently in use by Turquoise.
Standard Market Size	I10	Not currently in use by Turquoise.
Instrument Name	STRING (40)	Not currently in use by Turquoise.
DOL Symbol	STRING (36)	Not currently in use by Turquoise.
Unit of Quotation	I10	Not currently in use by Turquoise.
Max Spread Floor	F64	Not currently in use by Turquoise.
Max Spread Percentage	F64	Not currently in use by Turquoise.

Country of Register	STRING (2)	Not currently in use by Turquoise.
Covered Warrant Strike Price	STRING (8)	Not currently in use by Turquoise.
Covered Warrant Expiry	STRING (8)	Not currently in use by Turquoise.
Sector	STRING (4)	Not currently in use by Turquoise.
Multicast ID	ENUM	This specifies the multicast channel through which market data for the instrument is broadcast.
Covered Warrant Strike Currency	STRING (TBC)	Not currently in use by Turquoise.
Covered Warrant Type	STRING (TBC)	Not currently in use by Turquoise.
Covered Warrant Style	STRING (TBC)	Not currently in use by Turquoise.
Reference Price	F64	The Reference Price is used as a starting point for Price Bands. This will be set to the Primary Market Last Trading Price subject to alterations due to corporate actions, etc. The Reference Price may be changed during the day subject to market movements.
Market ID	STRING (4)	MIC code
Visibility	STRING (1)	This field will populate with either

		<table> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>Turquoise Lit™ Order Book only</td> </tr> <tr> <td>M</td> <td>Turquoise Plato™ Order Book</td> </tr> <tr> <td>B</td> <td>Both Turquoise Turquoise Lit™ Order Book and Turquoise Plato™ Order Book</td> </tr> </tbody> </table>	Value	Meaning	I	Turquoise Lit™ Order Book only	M	Turquoise Plato™ Order Book	B	Both Turquoise Turquoise Lit™ Order Book and Turquoise Plato™ Order Book
Value	Meaning									
I	Turquoise Lit™ Order Book only									
M	Turquoise Plato™ Order Book									
B	Both Turquoise Turquoise Lit™ Order Book and Turquoise Plato™ Order Book									
Mifir Identifier	STRING (4)	<p>Mifir Identifier for the type of instrument</p> <p>SHRS – Shares ETFS – ETFs ETCS – Exchange-traded-commodities ETNS – Exchange-traded notes DPRS – Depositary receipts</p>								
Mifir Subclass	STRING (4)	Mifir Subclass of instrument								
Static Reference Price Collar Percentage	F64	Defines the spread between the reference price and the price band in terms of the percentage of the reference price. The Turquoise Static Reference Price (TSRP) will be used as the reference price. Please refer to the Turquoise Trading Service Description for more details about the TSRP.								
Dynamic Reference Price Collar Percentage	F64	Defines the spread between the reference price and the price band in terms of the percentage of the reference price. The Turquoise Dynamic Reference Price (TDRP) will be used as the reference price. Please refer to the Turquoise Trading Service Description for more details about the TDRP.								
Liquid	STRING (1)	<p>Indicates whether the instrument is liquid or illiquid . Possible values are:</p> <table> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Liquid</td> </tr> <tr> <td>N</td> <td>Illiquid</td> </tr> </tbody> </table>	Value	Meaning	Y	Liquid	N	Illiquid		
Value	Meaning									
Y	Liquid									
N	Illiquid									
ADT (Currency)	F64	Defines the average daily turnover of the instrument specified in the instruments trading currency.								
ADNT	F64	Defines the average daily number of transactions for the instrument.								
RPW Allowed	STRING (1)	Defines if execution under Reference Price Waiver for equity is allowed.								

		<table> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Allowed</td> </tr> <tr> <td>N</td> <td>Not Allowed</td> </tr> </tbody> </table>	Value	Meaning	Y	Allowed	N	Not Allowed
Value	Meaning							
Y	Allowed							
N	Not Allowed							
FISN	STRING (35)	Financial Instrument Short Name for the instrument.						
Max Order Value Lit (Currency)	F64	Defines the maximum order value allowed for an instrument in the Integrated Book, specified in the instrument's trading currency.						
Max Order Value Dark (Currency)	F64	Defines the maximum order value allowed for an instrument in Turquoise Plato™ Order Book and Block Indication value for an instrument in Turquoise Plato Block Discovery™ , specified in the instrument's trading currency.						
Notional Currency	STRING (3)	Defines the currency of the Notional Amount. Only populated for non-equity instruments.						
Price Notation	STRING (4)	Indicates whether the price is expressed in monetary value, a percentage or yield. MONE will be populated for equity like instruments.						
Denominated Par Value	STRING (0)	Not currently in use by Turquoise.						
Max Order Value Lit Auctions (Currency)	F64	Maximum permitted order value to the Turquoise Lit Auctions™ Order Book.						
Max Order Value NYLON Cash Order Book (Currency)	F64	Maximum permitted order value to the Turquoise NYLON™ Cash Order Book.						
Turquoise Lit Order Book	STRING (4)	<p>Indicates whether the Turquoise UK (TRQX) or Turquoise Europe (TQEX) order book is supported for the instrument.</p> <table> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>TRQX or TQEX</td> <td>Turquoise Lit™ Order Book is supported</td> </tr> </tbody> </table>	Value	Meaning	TRQX or TQEX	Turquoise Lit™ Order Book is supported		
Value	Meaning							
TRQX or TQEX	Turquoise Lit™ Order Book is supported							
Turquoise Plato Order Book	STRING (4)	Indicates whether the Turquoise UK (TRQM) or Turquoise Europe (TQEM) order book is supported for the instrument.						

		<table border="0"> <tr> <td>Value</td> <td>Meaning</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>TRQM or TQEM</td> <td>Turquoise Plato™ Order Book is supported</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Blank</td> <td>Turquoise Plato™ Order Book is not supported</td> </tr> </table>	Value	Meaning	<hr/>		TRQM or TQEM	Turquoise Plato™ Order Book is supported	<hr/>		Blank	Turquoise Plato™ Order Book is not supported
Value	Meaning											
<hr/>												
TRQM or TQEM	Turquoise Plato™ Order Book is supported											
<hr/>												
Blank	Turquoise Plato™ Order Book is not supported											
Turquoise Lit Auctions Order Book	STRING (4)	<p>Indicates whether the Turquoise UK (TRQA) or Turquoise Europe (TQEA) order book is supported for the instrument.</p> <table border="0"> <tr> <td>Value</td> <td>Meaning</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>TRQA or TQEA</td> <td>Turquoise Lit Auctions™ Order Book is supported</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Blank</td> <td>Turquoise Lit Auctions™ Order Book is not supported</td> </tr> </table>	Value	Meaning	<hr/>		TRQA or TQEA	Turquoise Lit Auctions™ Order Book is supported	<hr/>		Blank	Turquoise Lit Auctions™ Order Book is not supported
Value	Meaning											
<hr/>												
TRQA or TQEA	Turquoise Lit Auctions™ Order Book is supported											
<hr/>												
Blank	Turquoise Lit Auctions™ Order Book is not supported											
Turquoise NYLON Cash Order Book	STRING (4)	<p>Indicates whether the Turquoise UK (TRQB) or Turquoise Europe (TQEB) order book is supported for the instrument.</p> <table border="0"> <tr> <td>Value</td> <td>Meaning</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>TRQB or TQEB</td> <td>Turquoise NYLON™ Cash Order Book is supported</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Blank</td> <td>Turquoise NYLON™ Cash Order Book is not supported</td> </tr> </table>	Value	Meaning	<hr/>		TRQB or TQEB	Turquoise NYLON™ Cash Order Book is supported	<hr/>		Blank	Turquoise NYLON™ Cash Order Book is not supported
Value	Meaning											
<hr/>												
TRQB or TQEB	Turquoise NYLON™ Cash Order Book is supported											
<hr/>												
Blank	Turquoise NYLON™ Cash Order Book is not supported											

3.4 Calendar File Record Layout

The following sections provide details on calendar reference data available within the reference data service.

YYYYMMDD_**Turquoise**_Calendar.csv

Field	Type (Length)	Description
Calendar ID	STRING (30)	Unique code used to identify the calendar. This code is used to link the calendar to the instrument.

Calendar Date	STRING (8)	Calendar Date, format yyyyymmdd.						
Description	STRING (30)	Name used to identify the calendar.						
Early Closing	ENUM	Whether the calendar allows early closing or not. Possible values: <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No</td> </tr> <tr> <td>1</td> <td>Yes</td> </tr> </tbody> </table>	Value	Meaning	0	No	1	Yes
Value	Meaning							
0	No							
1	Yes							
Trading Allowed	ENUM	Whether Trading is allowed on this day. Possible values: <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No</td> </tr> <tr> <td>1</td> <td>Yes</td> </tr> </tbody> </table>	Value	Meaning	0	No	1	Yes
Value	Meaning							
0	No							
1	Yes							

3.5 Price Tick File Record Layout

3.5.1 YYYMMDD_Turquoise_PriceTick.csv

Field	Type (Length)	Description
Price Tick Table ID	STRING (30)	Unique identifier for the Price Tick that links the data in the file to other reference data files.
Decimals	I32	Maximum number of decimals supported by the Tick Structure.
Description	STRING (100)	Name used to identify the Price Tick.
Max Value	F64	Upper price band value for that tick size.

Min Value	F64	Lower price band value for that tick size.
Tick Value	F64	The code to identify the valid format in which prices can be entered/displayed. The price must be a multiple of this Tick Size.

3.6 Block Minimum Indication Value Layout

3.6.1 YYYYMMDD_Turquoise_BlockDiscoveryMinValues.csv

Field	Type (Length)	Description														
Name	STRING (30)	This field is used to specify the name of a tradable instrument.														
Market ID	STRING (4)	MIC code														
Market Name	STRING (30)	Full name of MIC														
ISIN	STRING (12)	The International Security Identification Number (ISIN). This will be in line with ISO 6186.														
Symbol	STRING (20)	Instrument ID, unique identifier across the system.														
Currency	STRING (4)	This field contains the currency in which prices for a tradable instrument must be expressed. A list of all codes is contained in ISO 4217 - Codes for the representation of currencies and funds, except that, for SEAQ compatibility, GBX has been retained.														
Visibility	STRING (1)	This field will populate with either <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left; width: 100px;">Value</td> <td style="text-align: left;">Meaning</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td style="text-align: left;">I</td> <td>Turquoise Lit™ Order Book only</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td style="text-align: left;">M</td> <td>Turquoise Plato™ Order Book</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td style="text-align: left;">B</td> <td>Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book</td> </tr> </table>	Value	Meaning	<hr/>		I	Turquoise Lit™ Order Book only	<hr/>		M	Turquoise Plato™ Order Book	<hr/>		B	Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book
Value	Meaning															
<hr/>																
I	Turquoise Lit™ Order Book only															
<hr/>																
M	Turquoise Plato™ Order Book															
<hr/>																
B	Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book															

Field	Type (Length)	Description
CSD	STRING (2)	This specifies the country of Register for a specific tradable instrument. This will be in line with ISO 3166.
ADT (EUR)	F64	Used to define thresholds for hidden order entry.
Pre-Trade LIS Value (Currency)	F64	The minimum consideration value for an order to be hidden (Large In Scale).
Price Tick Table ID	STRING (30)	Unique identifier for the Price Tick that links the data in the file to other reference data files.
Closing Price	F64	The Reference Price used to calculate LIS and the starting point for Price Bands. This will be set to the Primary Market Last Trading Price subject to alterations due to corporate actions, etc. The Reference Price may be changed during the day subject to market movements.
Lower Limit	F64	Lower price band value for that tick size.
Tick Size	F64	The code to identify the valid format in which prices can be entered/displayed. The price must be a multiple of this Tick Size.
Minimum Indication Value	Decimal	Minimum value for a Block Indication (BI) to be accepted into the system in the trading currency of the instrument.
Minimum BDN Value	Decimal	Minimum value for a Block Discovery Notification (BDN) to be accepted into the system in the trading currency of the instrument.
Min MEV for Indications	Decimal	Minimum Execution Value for a Block Indication (BI) <i>Reserved for future use. Will be populated with 0</i>
Min MEV for BDN	Decimal	Minimum Execution Value for a Block Discovery Notification (BDN) <i>Reserved for future use. Will be populated with 0</i>
Price Test Tolerance	Decimal	Price test tolerance used in reputational scoring. <i>Reserved for future use. Will be populated with 0</i>

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3.7 Turquoise TrackInsight™ A-list

3.7.1 YYYYMMDD_Turquoise_TurquoiseTrackInsightETFs.csv

Field	Type (Length)	Description								
Name	STRING (30)	This field is used to specify the name of a tradable instrument.								
Market ID	STRING (4)	MIC code								
Market Name	STRING (30)	Full name of MIC								
ISIN	STRING (12)	The International Security Identification Number (ISIN). This will be in line with ISO 6186.								
Symbol	STRING (20)	Instrument ID, unique identifier across the system.								
Currency	STRING (4)	This field contains the currency in which prices for a tradable instrument must be expressed. A list of all codes is contained in ISO 4217 - Codes for the representation of currencies and funds, except that, for SEAQ compatibility, GBX has been retained.								
Visibility	STRING (1)	This field will populate with either <table border="1"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>Turquoise Lit™ Order Book only</td> </tr> <tr> <td>M</td> <td>Turquoise Plato™ Order Book</td> </tr> <tr> <td>B</td> <td>Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book</td> </tr> </tbody> </table>	Value	Meaning	I	Turquoise Lit™ Order Book only	M	Turquoise Plato™ Order Book	B	Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book
Value	Meaning									
I	Turquoise Lit™ Order Book only									
M	Turquoise Plato™ Order Book									
B	Both Turquoise Lit™ Order Book and Turquoise Plato™ Order Book									
CSD	STRING (2)	This specifies the country of Register for a specific tradable instrument. This will be in line with ISO 3166.								
ADT (EUR)	F64	Used to define thresholds for hidden order entry.								

Field	Type (Length)	Description
Pre-Trade LIS Value (Currency)	F64	The pre-trade LIS threshold of the instrument, specified in the instrument's trading currency. The minimum consideration value for hidden orders.
Price Tick Table ID	STRING (30)	Unique identifier for the Price Tick that links the data in the file to other reference data files.
Closing Price	F64	The Reference Price used to calculate LIS and the starting point for Price Bands. This will be set to the Primary Market Last Trading Price subject to alterations due to corporate actions, etc. The Reference Price may be changed during the day subject to market movements.
Lower Limit	F64	Lower price band value for that tick size.
Tick Size	F64	The code to identify the valid format in which prices can be entered/displayed. The price must be a multiple of this Tick Size.
Rating	Integer	Integer rating out of a total of 5 assigned to ETF by Turquoise TrackInsight™ , based on the Turquoise TrackInsight™ ETF Ratings Methodology.
Category	String (50)	ETF category, assigned by Turquoise TrackInsight™ . Possible Values: Developed Market Europe Large Cap Equities Developed Market North America Large Cap Equities Global Market Large Cap Equities Developed Market Asia Large Cap Equities Global Market Small Cap Equities Emerging Market Equities Developed Market Government Bonds Emerging Market Bonds Developed Market Corporate Investment Grade Bonds Developed Market Corporate High Yield Bonds

Field	Type (Length)	Description
		Commodities

4.0 Customer Testing

The purpose of the CDS files is to facilitate any future changes to the format of the files. CDS reference data is refreshed regularly on Turquoise.

Disclaimer

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