Turquoise

Turquoise

TQ201 - FIX 5.0 Trading Gateway

Issue 3.5.5

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London Stock Exchange Group

Contents

1.0 Introduction – TQ201 Trading Gateway (FIX 5.0) 4

1.1 Purpose 4
1.2 Readership 4
1.3 Document Series 4
Interfaces and information dissemination 4
Certification and Testing Services 5
LSEG Group Ticker Plant 5
1.4 Document History 6
1.5 Enquires 14

2.0 Service Description 15

2.1 Order Handling 15
2.2 Liquidity Pools 33
2.3 Symbology Schemes 34
2.4 Market Operations 36
2.5 Timestamps and Dates 36
2.6 Party Identification 37
2.7 Information for Billing 39
2.8 Order Capacity 40
2.9 Repeating Groups (Components/Component Block) 40
2.10 Auto Cancel on Disconnect 40
2.11 Generating Reject Messages 40
2.12 MiFID II changes 41

3.0 Connectivity 42

3.1 CompIDs 42
3.2 Production IP Address and Ports 42
3.3 Failover and Recovery 42
3.4 Connectivity Policy 42
3.5 Message Rate Throttling 43

4.0 FIX Connections and Sessions 44

4.1 Establishing a FIX Connection 44
4.2 Maintaining A FIX Session 45
4.3 Terminating a FIX Session 45
4.4 Re-Establishing a FIX Session 46
4.5 Dormant Account Policy 47

5.0 Recovery 48

5.1 Resend Requests 48
5.2 Possible Duplicates 48
5.3 Possible Resends 48
5.4 Transmission of Missed Messages 48

6.0 Message Formats 49

6.1 Supported Message Types 49
6.2 Message Header and Trailer 51
6.3 Administrative Messages 52
6.4 Application Messages: Others 57
6.5 Components of Application Messages 87

7.0 Service availability 90

8.0 Appendix A 91

8.1 Order routing logic if RoutingInst (9303) not specified 91

9.0 Appendix B 94

9.1 Converting FIX TradeMatchID (880) to GTP Trade ID 94

1.0 Introduction – TQ201 Trading Gateway (FIX 5.0)

The Financial Information Exchange (FIX) protocol enables access to Turquoise using a messaging standard developed for real-time electronic exchange of security transactions.

FIX enables access to the trading services and security information within Turquoise. This specification describes a conceptual overview of the FIX 5.0 SP2 protocol as well as providing technical guidance on adopting FIX 5.0 SP2 to connect to Turquoise.

The interface is a point-to-point service based on the technology and industry standards TCP/IP, FIXT and FIX. The session and application event models and messages are based on versions 1.1 and 5.0 (Service Pack 2) of the FIXT and FIX protocols respectively.

FIX specification: http://www.fixprotocol.org

1.1 Purpose

The purpose of this document is to provide a technical description of the FIX trading gateway available at Turquoise.

1.2 Readership

This document outlines how to connect to the FIX trading gateway, the detailed message types and fields used.

When read in conjunction with the other technical specifications, it is intended that these documents provide all of the details directly connected Turquoise participants require to develop to the trading services.

This document is particularly relevant to technical staff within the MTF's member firms.

1.3 Document Series

This document is part of a series of technical documents providing a holistic view of the 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 (this document)**
- TQ202 – Post Trade Gateway (FIX 5.0) Specification

- TQ203 – Drop Copy Gateway (FIX 5.0) Specification
- TQ501 – Guide to Reference Data Services
- 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 following iterations:

Issue	Date	Description
R1 1.0	17 March 2010	First issue of this document published.
R2 1.0	24 May 2010	First issue of CDS release 2 document published.
R2 1.1	16 June 2010	Issue 1.1, Release 2 published.
R2 1.2	17 June 2010	Issue 1.2, Release 2 published.
R2.1 1.0	09 July 2010	First issue of CDS release 2.1 document published.
R2.1 1.3	13 August 2010	Issue 1.3, Release 2.1 published.
R2.1 1.4	16 September 2010	Issue 1.4, Release 2.1 published.
1.5	12 November 2010	Issue 1.5 published.
1.6	18 February 2011	Section 4.1 TCP/IP disconnection if additional Participant messages sent before exchange of Logon messages. Section 2.1.2.1 Priority of OrderID over OrigClOrdID. Section 2.1.1 Definition of an Iceberg. Appendix A Removed footnote. Section 6.4.1 Changed description of ExpireTime.
1.7	7 April 2011	Section 6.4.7 Added Partition 3.
1.8	11 May 2011	Section 2.1.1 – Clarity added for Iceberg Orders. Section 2.1.2.2 – Update added for Mass Cancellations. Section 2.1.5.3 – Clarity added. Section 2.1.5.5 – Clarity added to accommodate multiple partitions. Section 2.10 – Clarity added. Section 4.1 – Updated section for establishing a FIX connection. Section 4.4 – Updated section for re-establishing a FIX Session.

		Section 6.4.7 – Add reference to 3rd Partition. Section 7.2.1, 7.2.2 – Updated error code lists.
1.9	6 July 2011	Updated sections to 4.1 and 4.4 to remove the Test Request message sent at Logon. The Test Request message at Logon will be re-introduced in a later release. Update to 10.1 Error & Reject Messages.
2.0	31 October 2011	Support for clearing interoperability.
2.1	4 January 2012	Added section 2.8 – Order Capacity. Section 6.4.1 – Added CFD Give Up capacity.
2.2	27 April 2012	Section 2.1.1 – Updated details of minimum fill functionality and continuous only orders. Section 2.1.2.3 – added attributes of an order that can be amended. Section 2.2 – Change to matching priority in **Turquoise Plato™** Order Book. Added Section 4.4.1.3 – Dormant Account Policy. Section 6.4.1, 6.4.4, 6.4.5 – Added exec instruction. Section 6.4.5 – Added PegPriceType. Section 10.1 – added additional error messages.
2.3	04 July 2012	Appended section 3.4 Message Rate Throttling.
2.4	31 August 2012	Section 2.1.1 – Added details of Passive Only Order type. Section 2.1.2.3 – Added Passive Only Order to amendable attributes. Section 2.10 – Clarified generation of rejects. Section 6.4.1, 6.4.4 – Added PassiveOnlyOrder field. Section 6.4.5 – Added PassiveOnlyOrder and PriceDifferential fields. Added TradeLiquidityIndicator enum of 'C' for **Turquoise Plato Uncross™**

2.5	3 October 2012	6.4.1, 6.4.4 – Clarified PassiveOnlyOrder only supported for Turquoise Integrated Order Book. 6.4.5 – Removed references to 'dark'.
2.6	13 February 2013	Update contact details.
2.7	20 September 2013	The following sections have been updated; 1.3, 2.1.1; 2.1.2.1; 2.1.2.3; 2.1.2.6; 2.1.4; 2.1.5.7; 2.1.5.8; 2.3.3; 5.1; 6.4.1; 6.4.4; 6.4.5; 7.2.1; 7.2.2; 10.1.
2.8	24 October 2013	The document has been updated to reflect: Call Market will <u>not</u> be available in Production, but will be available in CDS for testing purposes. GFA (and GTT) TIF definition has been updated to reflect the non-availability of the Call Market indicator in Production. Rebranding of the Turquoise random periodic uncrossing to **Turquoise Plato Uncross ™**,
3.0	20 October 2014	The document has been updated to reflect changes for **Turquoise Plato Block Discovery™** Service Call Market will be available in Production. GFA (and GTT) TIF definition has been updated to reflect the availability of the Call Market indicator in Production. Addition of **Turquoise Plato Block Discovery™** messages. The following sections have been updated; 2.1.1; 2.1.1.1; 2.1.1.1.1, 2.1.1.1.2; 2.1.2.6; 2.1.4; 2.2; 2.3.4; 6.4.1 and 6.4.5.
3.1	16 January 2015	This document has been updated to reflect changes for Millennium 8.6 upgrade. <u>Change Highlights:</u> • TradeMatchId – changing from base 62 to base 36. • Tag 55 (Symbol) – changing from 6 to 8 characters. • New order type introduced **Turquoise Plato Uncross™** then Continuous. • Clarification around order amendment behaviour.

		The following sections. Section 2.1.1; 2.1.1.1; 2.1.21.; 2.1.2.1; 2.1.2.3; 2.1.4; 2.1.5.4; 2.1.5.5; 6.4.1; 6.4.2; 6.4.3; 6.4.4; 6.4.5; 9 and 10.1. See TQ700 – Release 8.6 Message Guidelines for full details on all changes.
3.2	15 July 2016	This following sections have been updated to reflect changes for the Millennium 9.0 upgrade: 2.1.1 –. Corrected tag OrderType (40) references to OrdType (40). Clarified behaviour of the Pegged order type. Removed the Midpoint Pegged (Dark) order type as its behaviour is identical to the Pegged order type. Clarified Minimum Fill behaviour. 2.1.1.1 – Clarified the behaviour of submitting GFA/GTD orders between a Call Market and **Turquoise Plato Uncross™.** 2.1.2.2 – Clarified Mass Cancellation behaviour. 2.1.2.3 – Clarified Amending an Order behaviour. 2.1.5.4, 6.4.5 – Clarified that we use a G offset for encoding and decoding base 36 values. 2.2 – Added a description about the new '**Turquoise Plato™** Dark Lit Sweep' functionality. 2.3.1 – Added 'S' (**Turquoise Plato™** Dark Lit Sweep) as a new RoutingInst. 2.6 – Clarified Party identification behaviour. 3.3 – Clarified Failover and Recovery behaviour. 3.4 – Clarified Connectivity Policy. 3.5 – Clarified Message Rate throttling behaviour. 4.1 – Clarified connection behaviour when additional messages are sent prior to the exchange of Logons. Clarified that we no longer send a reject message when receiving a second connection attempt whilst a user is already logged in. Clarified behaviour for inbound message sequence. Clarified rapid login/logout safety mechanism. 4.2.2 – Clarified Heartbeats behaviour. 5.5 – Removed section on resending execution reports. 6.0 – Clarified what happens when an undefined tag is sent along with Administrative and Application messages.

		6.4.1 – Added clarity to the OrdType and Price fields. Added a new enum – 'S **Turquoise Plato** Dark Lit Sweep' in the RoutingInst field to support 'Dark-Lit Sweep'. 6.4.4 – The system will now reject an ExpireTime(126) tag amendment for any orders other than GTT. 6.4.5 – Clarified ExecRestatementReason behaviour. Clarified the descriptions of OrdRejectReason and Text fields. RoutingInst field behaviour changed as a result of the new '**Turquoise Plato** Dark Lit Sweep' functionality. Removed Price Differential (27011) tag. 7.2.2 – Corrected Business Message Reject Reason 4. 8.0 – Clarified Turquoise availability times. 11.0 – Removed Appendix C 'Error and Reject Messages'.
3.3	26 October 2016	Updated Turquoise to **Turquoise Plato™** where appropriate for **Turquoise Plato™** Order Book and **Turquoise Plato Block Discovery™** services, and updated Turquoise to Turquoise where appropriate. The following sections have been amended to aid clarity and also to reflect the changes introduced in the Millennium 9.1 upgrade: 2.1.4 – Clarified Order Restatement and Order Cancellation behaviour. 2.8, 6.4.1 – Removed references to 'C – CFD Give Up' since its not a valid enum. 3.3 – Clarified Failover and Recovery behaviour. 6.3.1 – Added new SessionStatus reason '3'. 6.4.1, 6.4.4 – Clarified ExpireTime behaviour. 6.4.5 – Clarified Minimum Quantity description. Added LastLiquidityInd (851) and OrderBook(30001) tags.
3.4	07 April 2017	The following sections have been amended to aid clarity and also to reflect the changes introduced in the Millennium 9.2 (MiFID II compliant) upgrade: 2.5, 2.12.1– Clarified Timestamps and dates behaviour. 2.6.2, 2.13.4 – Clarified Party Identification behaviour.

		2.10.3, 6.4.5 – Added a new NoTrdRegPublications (2668) Repeating Group to the Execution Report for Pre-trade Waiver Flags. 2.13.2, 6.4.1, 6.4.5 – Clarified Order Capacities. 6.4.1, 6.4.5 – Clarified NoPartyIDs, PartyID, PartyIDSource, PartyRole behaviour and added new Party Identification enums. Added PartyRoleQualifier tag, Order Attribute component block and OrderOrigination tag. 6.6.1 – Removed trading party component block and included the party identification tags in the individual messages. Changed all references of enum 12 to 100 for the Trader ID PartyRole.
3.4.1	27 June 2017	The following sections have been amended to aid clarity: 6.4.1– Clarified NoPartyIDs, PartyIDSource and PartyRoleQualifier behaviour. 6.4.3 – Clarified RoutingInst behaviour. 6.4.5 – Clarified NoPartyIDs and PartyRole behaviour.
3.4.2	22 August 2017	The following sections have been amended to aid clarity: 6.3.6 – Clarified SessionRejectReason behaviour. 6.4.6 – Clarified CxlRejReason behaviour. 6.4.7 – Clarified MassCancelRejectReason behaviour 6.5.1 – Clarified BusinessRejectReason behaviour 7 – Removed Reject Code section since TQ801 has all the applicable Reject reasons and codes. Updated all references of **Turquoise®** to Turquoise**.**
3.4.3	8 September 2017	The following sections have been amended to aid clarity: 2.1.4 – Reference to order being amended by Market Operations is removed 6.4.5 – Missing ExecRestatementReason (378)=100 is added

3.4.3.A	25 September 2017	The following sections have been updated: 1.3 Document Series – reformat section & add GTP references. Throughout the document replaced the following terms (note that some of these updates are not marked with change bars): • "Lit Book" with "Turquoise Integrated Order Book" • "Call Market" with "Start of the order submission interval" • "Block Discovery" with "**Turquoise Plato Block Discovery™**" • "Dark Order" with "Hidden Order" Added changes related to the introduction of the **Turquoise Lit Auctions™** Order Book: - 2.1.1 Order Types – Added order type, clarified that GTD orders / expiration time, and iceberg are not applicable for **Turquoise Lit Auctions™** 2.1.2.2, 2.1.2.3 – Updated regarding Mass Cancellation of Orders and Amending an Order for **Turquoise Lit Auctions™** 2.1.4 Execution Reports – added **Turquoise Lit Auctions™** GFA expiry event and GTT expiry event 2.2 Liquidity Pool – Reformat and improve descriptions for **Turquoise Plato™** and **Turquoise Plato Block Discovery™.** Added **Turquoise Lit Auctions™** overview 2.3.1, 2.3.2 Symbology – added **Turquoise Lit Auctions™** 2.3.3 Routing – added **Turquoise Lit Auctions™** 2.3.4 Indicative Orders – Added applicability for **Turquoise Lit Auctions™**. 2.7 Information for billing – added target book A for **Turquoise Lit Auctions™** 6.4.1 New Order Single – Add RoutingInst A for **Turquoise Lit Auctions™** and clarified Market Orders, Passive Only Orders, Bis/BDNs are not supported/relevant. 6.4.2 Order Cancel Request – added RoutingInst A for **Turquoise Lit Auctions™**

		6.4.3 Order Mass Cancel Request – added RoutingInst A for **Turquoise Lit Auctions™** 6.4.4 Order Cancel/Replace Request – clarified that for the **Turquoise Lit Auctions™** order book Passive Only Orders are not valid and added RoutingInst A 6.4.5 Execution Report – added RoutingInst A, Tag 851 LastLiquidityInd (4), Tag 9730 TradeLiquidityInd C for **Turquoise Lit Auctions™**, plus clarity on Tag 30001 Order Book and Tag 1094 PegPriceType.
3.4.4.A	01 December	The following sections have been amended to clarify that MES is ignored for Turquoise Lit Auctions™ Order Book since it is not supported. 2.1.1 Order Types 6.4.1 New Order Single 6.4.4. Order Cancel/Replace Request
3.5	16 January	Minimum Quantity (MES) is introduced for **Turquoise Lit Auctions™** The following sections updated: 2.1.1 Order Types 6.4.1 New Order Single 6.4.4 Order Cancel/Replace Request The reference to pre MIFDII order capacities in 'Capacity' field have been removed in the sections below: 6.4.1 New Order Single 6.4.5 Execution Report Added clarification that Passive Only Order field is ignored for **Turquoise Lit Auctions™** Order in the sections below: 6.4.1 New Order Single 6.4.4 Order Cancel/Replace Request 2.1.1 Order Types- Minimum Order Value for **Turquoise Lit Auctions™** added
3.5.1	19 March 2018	Minimum Order Value of EUR2,000 is removed for **Turquoise Lit Auctions™** Order Book. The below section was updated accordingly: 2.1.1 Order Types
3.5.2	30 May 2018	The following section has been amended to aid clarity: 6.4.1 New Order Single – Clarified Order Sub Type (9020) behaviour

3.5.3	13 July 2018	2.1.4 Updated the description of PartyID (448), to reflect name change of EMCF to ECCP.
3.5.4	31 August 2018	6.4.5 Addition of new CCP 'LCH SA'
3.5.5	22 May 2019	Rebrand of Turquoise Integrated Order Book to **Turquoise Lit™** Order Book and some midpoint terms to reference **Turquoise Plato™** Order Book. From this version onwards, the changes will be highlighted in red instead of using the side bars. 1.3 - References to TQ401 – MITCH Level-2 Market Data Specification were removed 2.1.5.4, 2.1.5.5, 9.1 – TVTIC field - MITCH Trade Match ID is replaced with GTP Trade ID Section 6.4.7 – Added reference to 4th Partition

In subsequent issues, where amendments have been made to the previous version, these changes will be highlighted in red.

1.5 Enquires

Please contact either the Technical Account Management Team or your Technical Account Manager if you have any questions about the Millennium Exchange services outlined in this document: Client Technology Services (UK) can be contacted at:

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

2.0 Service Description

2.1 Order Handling

2.1.1 Order Types

Participants may submit the order types outlined below via the New Order Single message.

Order Type	Description	Relevant FIX Tags
Market	Market orders will execute at the best available prices in the **Turquoise Lit™** Order Book and any remainder will be cancelled. Market orders in the **Turquoise Plato™** Order Book will execute at the PBBO midpoint. Hidden or Iceberg Market orders are not permitted on the **Turquoise Lit™** Order Book. Market Orders are not permitted in the **Turquoise Lit Auctions™** Order Book.	OrdType (40) = 1
Limit	Limit orders will execute at or better than the specified price in the **Turquoise Lit™** Order Book. Limit orders will execute in the **Turquoise Plato™** Order Book at the PBBO midpoint only if the midpoint is equal to or better than the limit price. Limit orders will execute at or better than the specified price in the **Turquoise Lit Auctions™** Order book.	OrdType (40) = 2 Price (44)

<table>
<tr>
<td>Pegged</td>
<td>All orders in the Turquoise Plato™ Order Book are pegged to the midpoint of the Primary Best Bid and Offer. These Hidden Orders may be submitted as below:

<table>
<tr><th>OrdType (40)</th><th>Price (44)</th><th>Meaning</th></tr>
<tr><td>1 (Market)</td><td>Not specified</td><td rowspan="2">Pegged Market Order</td></tr>
<tr><td>P (Pegged)</td><td>Not specified</td></tr>
<tr><td>2 (Limit)</td><td>Limit Price</td><td rowspan="2">Pegged Limit Order</td></tr>
<tr><td>P (Pegged)</td><td>Limit Price</td></tr>
</table>

Pegged orders are not applicable to the Turquoise Lit™ Order Book.

Orders in the Turquoise Lit Auctions™ Order Book may optionally be pegged to the midpoint of the Primary Best Bid and Offer.

<table>
<tr><th>OrdType (40)</th><th>Price (44)</th><th>Meaning</th></tr>
<tr><td rowspan="2">P (Pegged)</td><td>Not specified</td><td>Pegged Market Order</td></tr>
<tr><td>Limit Price</td><td>Pegged Limit Order</td></tr>
</table>
</td>
<td>RoutingInst=M

OrdType (40)=1/2/P</td>
</tr>
<tr>
<td>Iceberg</td>
<td>Iceberg Orders are supported in the Turquoise Lit™ Order Book only.

An order that contains a disclosed quantity which will be the maximum quantity displayed on the order book and smaller than the total order quantity. Once the displayed quantity is reduced to zero, the display quantity can either be refreshed as an explicit quantity or, where enabled, Participants can elect to have their refreshed peak size randomised for their Order. Details of the randomisation range can be found in the Turquoise Trading Services Description. Once the remaining size falls below the refresh size, the full remaining size will be used as the disclosed quantity. Iceberg orders cannot be un-priced and must have a minimum order value of EUR10,000.</td>
<td>DisplayQty (1138)

OrderQty (38)

Or, for randomised peak,

DisplayQty (1138)

OrderQty (38)

DisplayMethod (1084) = 3</td>
</tr>
<tr>
<td>Hidden</td>
<td>An order that meets MiFID large in scale requirements that is not displayed in the order book. These orders will receive the lowest priority within a price point when executing in the Turquoise Lit™ Order Book.

All orders in the Turquoise Plato™ Order Book and Turquoise Lit Auctions™ Order Book and are hidden.</td>
<td>DisplayQty (1138) = 0</td>
</tr>
</table>

Minimum Fill	In the **Turquoise Lit™** Order Book, MAQ (Minimum Acceptable Quantity) will be used. This means that a firm can execute against multiple counterparties if the order's MAQ requirement is satisfied. For the **Turquoise Lit™** Order Book this quantity is valid for non persistent orders only. In the **Turquoise Plato™** Order Book, MES (Minimum Execution Size) will be used. This means that a firm will only execute against another order if that order alone meets the order's MES requirement. For the **Turquoise Plato™** Order Book this quantity is valid for both persistent and non-persistent orders. Firms can also specify whether they want the Minimum Fill to apply for the first execution only or to persist for the lifetime of the order. For further details, please refer to sections 9.2.1 and 9.6 of the Turquoise Trading Service Description, Where MAQ/MES is greater than remaining Order Quantity, the MAQ/MES will be reduced to equal the remaining Order Quantity. A **Turquoise Plato™** Dark Lit Sweep Order which has a non-zero Minimum Fill value will therefore apply a MES to the **Turquoise Plato™** Order Book and a MAQ to the **Turquoise Lit™** Book (subject to persistence preference). In the **Turquoise Lit Auctions™** Order Book, MES (Minimum Execution Size) will be used. A firm will only execute against another order if that order alone meets the order's MES requirement.	MinQty (110)
Turquoise Plato Uncross™ Only	These orders will only execute during a **Turquoise Plato Uncross™** in the **Turquoise Plato™** Order Book. Please see section 2.1.1.1. for details of **Turquoise Plato Uncross™** Orders' behaviour around the Start of the Order Submission Interval. This instruction will be ignored for the **Turquoise Lit™** Order Book and **Turquoise Lit Auctions™** Order Book.	ExecInst (18) = z

Continuous Only	These orders will only execute during continuous trading and will not match during **Turquoise Plato Uncross™** events. This instruction will be ignored for the **Turquoise Lit™** Order Book and **Turquoise Lit Auctions™** Order Book.	ExecInst (18) = y
Continuous & **Turquoise Plato Uncross™**	These orders will execute both in continuous matching and in the **Turquoise Plato Uncross™** events in the **Turquoise Plato™** Order Book. Please see section 2.1.1.1. for details of **Turquoise Plato Uncross™** Orders' behavior around the start of the Order Submission Interval. This instruction will be ignored for the **Turquoise Lit™** Order Book and **Turquoise Lit Auctions™** Order Book.	ExecInst (18) = x
Turquoise Plato Uncross™ then Continuous	These orders will execute first in the nearest **Turquoise Plato Uncross™** and then in Continuous trading in the **Turquoise Plato™ Order Book**. All the **Turquoise Plato Uncross™** then Continuous orders will be parked until the next immediate **Turquoise Plato Uncross™** which it will participate in. Once it participates in the immediate **Turquoise Plato Uncross™,** it will then behave similar to a Continuous and **Turquoise Plato Uncross™** order. This instruction will be ignored for the **Turquoise Lit™** Order Book and **Turquoise Lit Auctions™** Order Book.	ExecInst (18) = w
Day	An order that will expire at the end of the day.	TimeInForce (59) = 0
Immediate or Cancel (IOC)	**Only applicable to Turquoise Lit™ Order Book and Turquoise Plato™ Order Books.** An order that will be executed on receipt and the remainder immediately expired. **Not applicable to BIs or BDNs.**	TimeInForce (59) = 3

Fill or Kill (FOK)	**Only applicable to Turquoise Lit™ Order Book and Turquoise Plato™ Order Books.** An order that will be fully executed on receipt or immediately expired. An IOC order with MAQ set to order size will behave as a FOK order. **Not applicable to BIs or BDNs.**	TimeInForce (59) = 4 OR TimeInForce (59) = 3 and MinQty (110) = OrderQty (38)
Good Till Time (GTT)	**Only applicable to Turquoise Lit™ Order Book and Turquoise Plato™ Order Books.** An order that will expire at a specified time during the current day, or at the end of day, which ever occurs earliest. When specifying the expiry time for a GTT order, a date component will also be specified along with the expiry time. The server takes the date component into consideration when validating the expiry time. i.e. If a GTT order is sent with an already elapsed expiry time but with a future date in the date component, the order will be rejected. Same behaviour is applied when an expiry time outside current day's trading hours is specified. Please see section 2.1.1.1. for details of **Turquoise Plato Uncross™** GTT Orders' behaviour around the start of the Order Submission Interval.	TimeInForce (59) = 6 ExpireTime (126)

Good For Auction (GFA)	Only applicable to **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books**.** **Turquoise Lit Auctions™** Order Book**:** All GFA orders are good for a single **Turquoise Lit Auctions™** event. **Turquoise Plato™** Order Book**:** All GFA orders only take part in **Turquoise Plato Uncross™** events. They are expired either after attempting to match during the **Turquoise Plato Uncross™** it is scheduled to participate in or at the time of the scheduled **Turquoise Plato Uncross™** if the **Turquoise Plato Uncross™** fails to happen due to a WFMC failure for example. Please see section 2.1.1.1. for details of **Turquoise Plato Uncross™** GFA Orders' behaviour around the start of the Order Submission Interval. **Not applicable to BIs.**	TimeInForce (59) = 9
Passive Only Order	Only applicable to persistent Limit Orders in the **Turquoise Lit™** Order Book**.** These orders will not match with visible orders upon entry, and will expire if they will aggress. These orders can match on entry against large in scale hidden orders sat within the BBO.	PassiveOnlyOrder (27010) = 0, 99, 100, 1, 2, 3
Block Indication (BI)	BIs will only match in **Turquoise Plato Block Discovery™**. Participants who submit BIs have to submit a corresponding firm QBO to the **Turquoise Plato™** Order Book within a predefined time if their BI matches in **Turquoise Plato Block Discovery™**.	OrderSubType (9020) = 1
Order + Block Discovery Notification (BDN)	Matches at both the **Turquoise Plato™** Order Book (Order) and in **Turquoise Plato Block Discovery™** (BDN).	OrderSubType (9020) = 3

Qualifying Block Order (QBO)	QBOs are OSR Responses; i.e. they are orders with OrderSubType Order+BDN that contain a valid ClOrdLinkID, and fall under the following criteria: • Matching Instruction "Continuous and **Turquoise Plato Uncross™** and TIF GFA • Matching Instruction "**Turquoise Plato Uncross™** Only" and TIF GFA Please see section 2.1.1.1 for details of these orders' behaviour around the start of the Order Submission Interval.	

2.1.1.1 Behaviour of an Order's TIF and Execution Instruction around the start of the Order Submission Interval

At the start of the Order Submission Interval, a Call Market is sent by Turquoise to indicate to Participants that there is an impending **Turquoise Plato Uncross™** in the **Turquoise Plato™** Order Book. Orders with the following Execution Instructions and TIF behave differently if submitted after a **Turquoise Plato Uncross™** but before the next start of an Order Submission Interval and when submitted after the start of an Order Submission Interval and before the next **Turquoise Plato Uncross™**:

Order Details (Combination of TIF and Execution Instructions)	Behaviour if the Order is submitted between a Turquoise Plato Uncross™ and the start of the Order Submission Interval	Behaviour if the Order is submitted between the start of the Order Submission Interval and its Turquoise Plato Uncross™
GFA – Continuous and **Turquoise Plato Uncross™**	Acts as IOC Order in Continuous trading with any remainder expired. Orders are not amendable and cannot be cancelled.	The Order will not participate during Continuous trading and will wait to take part in the next immediate **Turquoise Plato Uncross™**. Any remainder will be expired after the **Turquoise Plato Uncross™**. Orders are not amendable and cannot be cancelled.
GFA – **Turquoise Plato Uncross™** Only	The Order will expire immediately. Orders are not amendable and cannot be cancelled.	The Order will take part in the next immediate **Turquoise Plato Uncross™** .Any remainder will be expired after the **Turquoise Plato Uncross™.** Orders are not amendable and cannot be cancelled.
GFA - **Turquoise Plato Uncross™** then Continuous	The Order will not participate during Continuous trading and will wait to take part in the next immediate **Turquoise Plato Uncross™**. Any remainder will be expired after the **Turquoise Plato Uncross™**. Orders are amendable and can be cancelled.	
GTT- **Turquoise Plato Uncross™** Only	The Order will take part in the next immediate **Turquoise Plato Uncross™**. If the order's expiry time elapses before participation in any **Turquoise Plato Uncross™** it will be expired immediately. Any remainder will persist, participating in subsequent **Turquoise Plato Uncross™** events until the Order's expiry time is reached. Orders are amendable and can be cancelled.	

2.1.2 Order Management

2.1.2.1 Cancellation

The remainder of a live order may be cancelled via the Order Cancel Request message. The server will respond with an Execution Report or Order Cancel Reject to confirm or reject the cancellation request respectively.

An order can be cancelled either by specifying the OrderID (37) or by specifying the OrigClOrdID (41) in the Order Cancel Request message. Only the OrderID will be considered if both OrderID and OrigClOrdID are included in the message. The order book always needs to be explicitly specified using RoutingInst (9303). If an order submitted under a different SenderCompID (49) is being cancelled, the Order Cancel Request should include its OrderID (37).

2.1.2.2 Mass Cancellation

A Participant may mass cancel live orders via the Order Mass Cancel Request message. The server will respond with an Order Mass Cancel Report to indicate, via the Response (531) field, whether the request is successful or not. Participants may receive more than one Mass Cancel Report having different AppIDs to distinguish the order cancellations carried out for each partition.

A mass cancellation request sent without the RoutingInst (9303) will only cancel orders in the Turquoise **Lit™** Order Book. If a Participant wishes to cancel orders in the **Turquoise Lit Auctions™** Order Book, 'A' should be specified, or **Turquoise Plato™** Order Book, 'M' should be specified in the RoutingInst (9303) or individual cancel requests must be sent as described in section 2.1.2.1 Cancellation above.

If the cancellation request is accepted, the server will then immediately transmit Execution Reports for each order that is cancelled.

The ClOrdID(11) of all such messages will be the ClOrdID (11) of the Order Mass Cancel Request.

If the mass cancel request is rejected, the reason will be specified in the MassCancelRejectReason(532) field of the Order Mass Cancel Report.

When mass cancelling by instrument, the order book needs to be explicitly specified using RoutingInst (9303). Mass cancellation of all orders across the **Turquoise Lit™, Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books requires four mass cancel messages to be submitted, one for each book.

Participants may use the Order Mass Cancel Request to mass cancel all orders or only those for a particular instrument or segment. A mass cancel request may apply to all the orders of the member firm or only to those of a particular Trader Group. If the target party is not specified, the server will apply the request to the orders of the trading party that the Order Mass Cancel Request is submitted under. The FIX fields relevant to each of the supported mass cancel combinations are outlined below.

In a scenario where the Order Mass Cancel Request message is submitted by a different user from the user who submitted the original orders, the Execution Reports will be sent to the submitted user whereas the Order Mass Cancel Report will be sent to the cancelling user.

	Target Party	
	Other Party	**Member Firm**
All Orders	MassCancelRequestType (530) = 7 TargetPartyRole (1464) = 76 TargetPartyID (1462)	MassCancelRequestType (530) = 7 TargetPartyRole (1464) = 1 TargetPartyID (1462)
All Orders for an Instrument	MassCancelRequestType (530) = 1 Symbol (55) RoutingInst (9303) OR SecurityID (48) SecurityIDSource (22) = 4 RoutingInst (9303) TargetPartyRole (1464) = 76 TargetPartyID (1462)	MassCancelRequestType (530) = 1 Symbol (55) RoutingInst (9303) OR SecurityID (48) SecurityIDSource (22) = 4 RoutingInst (9303) TargetPartyRole (1464) = 1 TargetPartyID (1462)
All Orders for a Segment	MassCancelRequestType (530) = 9 MarketSegmentID (1300) TargetPartyRole (1464) = 76 TargetPartyID (1462)	MassCancelRequestType (530) = 9 MarketSegmentID (1300) TargetPartyRole (1464) = 1 TargetPartyID (1462)

Example

- To cancel all orders of VODl **Turquoise Plato™** Order Book of the party submitting the request
    - MassCancelRequestType (530) = 1
    - Symbol (55)= VODl
    - RoutingInst (9303) = M

- To cancel all orders of VODl **Turquoise Lit™** Order Book of the party submitting the request
    - MassCancelRequestType (530) = 1
    - Symbol (55) = VODl
    - RoutingInst (9303) = I

- To cancel all orders of VODl **Turquoise Lit Auctions™** Order Book of the party submitting the request
    - MassCancelRequestType (530) = 1
    - Symbol (55) = VODl
    - RoutingInst (9303) = A
- To cancel all orders of VODl **Turquoise Plato™** Order Book of TraderGroup "TQ001". The request can be sent by a Participant having privileges to mass cancel firm orders.
    - MassCancelRequestType (530) = 1
    - Symbol (55) = VODl
    - RoutingInst (9303) = M
    - TargetPartyID (1462) = TQ001
    - TargetPartyRole (1464) = 76

2.1.2.3 Amending an Order

An open order may be amended via the Order Cancel/Replace Request message. The server will respond with an Execution Report or Order Cancel Reject to confirm or reject the amendment request respectively.

An order can be cancelled or amended either by specifying the OrderID (37) or by specifying the OrigClOrdID (41) in the Order Cancel/Replace Request message. Only the OrderID will be considered if both OrderID and OrigClOrdID are included in the message. The order book always needs to be explicitly specified using RoutingInst (9303).

Please note that QBO's with GFA TIF and Continuous and **Turquoise Plato Uncross™** or **Turquoise Plato Uncross™** Only Execution instructions cannot be amended.

The following attributes of a live order may be amended via the Order Cancel/Replace Request message:

(i) Order quantity

(ii) Displayed quantity *

(iii) Price

(iv) Expiration time (GTT orders, not valid for the **Turquoise Lit Auctions™** Order Book)

(v) Client reference

(vi) Minimum Execution Size (MES) (valid for the **Turquoise Plato™** Order Book)

(vii) Execution Instruction (valid for the **Turquoise Plato™** Order Book)

(viii) Passive Only Order

* The following restrictions apply. Participants may not:

(i) amend a hidden order to become an Iceberg order (By specifying a Display Qty >0 on amend when Display Qty = 0 on original Order Submission to **Turquoise Plato™** Order Book or **Turquoise Lit™** Order Book)

(ii) amend an Iceberg order to become a hidden order (By specifying a Display Qty = 0 on amend when Display Qty > 0 and <Order Qty on original Order Submission to **Turquoise Lit™** Order Book)

(iii) amend a visible order to a hidden order (By specifying a Display Qty = 0 on amend when Display Qty = Order Qty on original Order Submission to **Turquoise Lit™** Order Book)

(iv) amend a hidden order to a visible order (By specifying a Display Qty = Order Qty on amend when Display Qty =0 on original Order Submission to **Turquoise Lit™** Order Book)

Participants may:

(i) amend a fully visible order to become an Iceberg order (By specifying a Display Qty < Order Qty and on amend when Display Qty = Order Qty on original Order Submission to **Turquoise Lit™** Order Book)

(ii) amend an Iceberg order to become a visible order (By specifying a Display Qty = Order Qty on amend when Display Qty < Order Qty on original Order Submission to **Turquoise Lit™** Order Book)

Whilst the field being amended will have to be filled with the new value, Participants must fill in the current values of all the mandatory fields that are not being amended as well.

For details on which order attributes can be amended in the **Turquoise Lit™** and the **Turquoise Plato™** Order Books, please refer to section 10.3 of the Turquoise Trading Service Description. For details on which indication attributes can be amended in **Turquoise Plato Block Discovery™**, please refer to section 10.3 of the **Turquoise Plato Block Discovery™** Trading Service Description.

The server will respond with an Execution Report or Order Cancel Reject to confirm or reject the amendment request respectively.

When an order amended for price re-aggresses the order book where it gets fully filled, the sender will receive only an Execution Report acknowledging the trade and not the amendment.

An Order's Passive Only Order value will not be re-evaluated unless the Order's price is amended. It may also expire due to amended Order falling into a worse price point or being in danger of matching with a contra visible price point.

If a Participant tries to amend the Order Quantity and/or Display Quantity, and if the request cannot be completely fulfilled due to edge conditions, the server will do the amendment to the maximum possible extent. Here the system will not allow order quantity to be amended below filled quantity, nor display quantity to be amended below leaves quantity. In order to allow order fills that are yet to be notified to the Participant, the system will automatically adjust the quantities where necessary.

For example if an order is sent with order quantity and display quantity as 800 and then tries to amend the display quantity to 500 two scenarios can happen:

(i) The Participant may have already received a partial fill for 400 and tries to amend the leaves quantity via the display quantity which is not permitted.

(ii) While the amend request is on the wire, there may be a partial fill of 400 which is not known to the Participant at the point of generating the amend request; at this case, rejecting the amend request is not ideal. The server cannot differentiate the two scenarios hence it has implemented fairer option which is to execute the amend request to the maximum possible extent.

2.1.2.4 Identifying Own Orders

Participants can use the value specified under SecondaryOrderID (198) of the Execution Report message to identify own orders on the market data feed.

2.1.2.5 Cancellation by Market Supervision

An unsolicited Execution Report will be sent to the Participant if an order is cancelled by Market Supervision. The ExecRestatmenetReason (378) of such a message will be Market (Exchange) option (8). It will not include an OrigClOrdID (41).

2.1.2.6 Order Submission Requests

OSRs are sent by the system, in the form of Execution Reports to notify the Participant that their BI matched in **Turquoise Plato Block Discovery™**. An OSR will contain the following information:

- Exec Type = L,
- Order Status = 0 (New),
- Client Order ID,
- An Order ID (Same OrderID stamped on new BI ack Execution Report, which needs to be sent back in the ClOrdLinkID field as part of a QBO),
- Limit price of order to be submitted (unless the BI was unpriced i.e. a Market Order),
- Executed Price,
- MES of Order to be submitted,
- Size of Order to be submitted (This will be the size of the BI irrespective of the size matched in **Turquoise Plato Block Discovery™**),
- Instrument and side of the Order to be submitted,
- Reputational Score of the Participant (Only on OSRs for matched BIs); and
- Time the message was generated.

2.1.3 Order Status

As specified in the FIX protocol, the OrdStatus (39) field is used to convey the current state of an order. If an order simultaneously exists in more than one order state, the value with highest precedence is reported as the OrdStatus (39). The relevant order statuses are given below from the highest to lowest precedence.

Value	Meaning
2	Filled
4	Cancelled
C	Expired
1	Partially Filled
0	New
8	Rejected

2.1.4 Execution Reports

The Execution Report message is used to communicate many different events to Participants. The events are differentiated by the value in the ExecType (150) field as outlined below.

ExecType	Usage	Ord Status
0	**Order Accepted** Indicates that a new order has been accepted. This message will also be sent unsolicited if an order was submitted by Market Operations on behalf of the Participant.	0
8	**Order Rejected** Indicates that an order has been rejected. The reason for the rejection is specified in the field OrdRejReason (103).	8
F	**Order Executed** Indicates that an order has been partially or fully filled. The execution details (e.g. price and quantity) are specified.	1, 2

C	**Order Expired** Indicates that an order has expired in terms of its time qualifier or due to an execution limit. This message will also be sent in the following scenarios: (i) When orders are expired upon entering the order book when the number of orders in the order book is at the maximum allowed level. The reason for the expiration is specified in the Text (58) field. (ii) When the remaining orders are expired at market close. (iii) When orders are expired based on the auto cancellation on disconnect/log out feature. (iv) When the incoming order is configured with the self execution prevention specifying CIO or CRO. (v) When a **Turquoise Plato Uncross™** Only GFA Order has not been fully executed in the **Turquoise Plato Uncross™** to which it was expected to participate, (vi) When a Continuous and **Turquoise Plato Uncross™** GFA Order has not been fully executed in the **Turquoise Plato Uncross™** to which it was expected to participate, (vii) When a GTT Order's expiry time elapses before it has been fully executed. (viii) When a Continuous and **Turquoise Plato Uncross™** GFA Order is submitted between a **Turquoise Plato Uncross™** and the start of an Order Submission Interval, it will act as an IOC, with any remaining quantity being expired. (ix) When a **Turquoise Plato Uncross™** GFA Order is submitted between a **Turquoise Plato Uncross ™** and the start of an Order Submission Interval, it will be immediately expired. (x) When BIs are successfully matched by **Turquoise Plato Block Discovery™**. (xi) When a **Turquoise Plato Uncross™** then Continuous GFA Order participates in a **Turquoise Plato Uncross™**. (xii) When a **Turquoise Lit Auctions™** GFA Order has not been fully executed in the auction it was expected to participate in. The reason for expiration is specified in the Text (58) field.	C

4	**Order Cancelled** Indicates that an order cancel request has been accepted and successfully processed. This message will also be sent unsolicited if the order was cancelled by Market Operations or by the system. In such a scenario the Execution Report will include an ExecRestatementReason (378) of Market Option (8). It will not include an OrigClOrdID (41). This message will also be sent if Market Operations has cancelled a trade that previously fully filled the order (which would also result in a Trade Cancel Execution Report for that trade).	4
5	**Order Cancel/Replaced** Indicates that an order cancel/replace request has been accepted and successfully processed.	0, 1
D	**Order Restatement** This is sent when: • Market Operations cancel a trade that previously partially filled the order; ExecRestatement Reason (378) will be Market Option (8). It will not include an OrigClOrdID (41) and will not be assigned a new Client Order ID. • When there is an iceberg order replenishment, which happens after an aggressing order has fully exhausted first the visible, and then any hidden quantities of passive iceberg orders.	0, 1
H	**Trade Cancel** Indicates that an execution has been cancelled by Market Operations. An ExecRefID (19) to identify the execution being cancelled will be included.	0, 1, 4, C
L	**Triggered** Stamped on OSRs sent to Participant indicating that their BI has matched in **Turquoise Plato Block Discovery™** and a corresponding firm QBO should be submitted to the **Turquoise Plato™** Order Book.	0

2.1.5 Order and Execution Identifiers

2.1.5.1 Client Order IDs

The server does not validate the ClOrdID (11) for uniqueness. Participants should comply with the FIX protocol and ensure unique ClOrdIDs across all messages (e.g. New Order – Single, Order Cancel Request, etc.) sent under a particular SenderCompID (49).

ClOrdID (11) does not have to be unique across trading days. If a Participant submits multiple orders with the same ClOrdID on the same day, they will only be able to cancel/amend the most recent Order.

Participants must, in terms of the FIX protocol, either specify the ClOrdID (11) or OrderID (37) when submitting an Order Cancel Request, Order Mass Cancel Request or Order Cancel/Replace Request. Only the OrderID will be considered if they send both IDs. Participants also need to specify RoutingInst (9303).

2.1.5.2 Order IDs

The server will use the OrderID (37) field of the Execution Report to affix the order identification numbers of the trading engine. Order IDs will be unique across trading days.

This is an 11 character 62 base string with an 'O' prefix. After removal of the prefix, when converted to an 8 byte binary format, it will match the corresponding Order ID. This will be identical to the SecondaryOrderID (198) when converted to a 16 character hexadecimal format. Thus, FIX OrderID (37), FIX SecondaryOrderID (198), and OrderID (37) are all representations of the same identifier [in base 62 (plus 'O' prefix), hexadecimal, and binary formats respectively].

In terms of the FIX protocol, unlike ClOrdID (11) which requires a chaining through cancel/replace requests and cancel requests, the OrderID (37) of an order will remain constant throughout its life.

Participants have the option of specifying the OrderID (37) when submitting an Order Cancel Request or Order Cancel/Replace Request.

2.1.5.3 Execution IDs

The server will use the ExecID (17) field to affix a unique identifier for each Execution Report. ExecIDs will be unique across trading days.

TradeMatchID (880) will correspond to the unique trade identifier sent with each trade to the CCPs. The unique trade identifier sent to the CCPs will contain an additional prefix to indicate the side and a '1' to indicate if the trade was cancelled. Participants are expected to derive this information by looking at the Side (54) and ExecType (150).

2.1.5.4 Trade Match ID (TVTIC)

The TradeMatchID (880) in the FIX trading gateway matches exactly with the TradeID (1003) on the Trade Capture Report of Post Trade gateway. This also matches the TradeMatchID field from the Native Trading gateway as well as the GTP Trade ID which are in binary format. However this is in base 36 (G offset) and needs converting to an 8 byte integer for comparison.

2.1.5.5 Mapping FIX TradeMatchID to GTP Trade ID

Example:

ASCII trade ID for FIX	G5DIF33YV0
Binary trade ID (decimal) for	73120274710544

TradeMatchID generated above for a normal trade being disseminated through each gateway.

FIX Trading	Native Trading	Drop Copy	Post Trade	GTP Trade ID
TrdMatchID (880)	TradeMatchID	TrdMatchID (880)	TradeID (1003)	Trade ID
G5DIF33YV0	73120274710544	G5DIF33YV0	G5DIF33YV0	73120274710544

2.1.5.6 Application ID (AppID)

The trading system consists of a series of parallel partitions each of which services an exclusive set of instruments. Each application message transmitted by the server will include the identity of the partition that generated the message. The number of partitions could increase/decrease in the future.

2.1.5.7 MDEntryID

MDEntryID(278) is a secondary order ID that will be maintained by the matching engine, which will be unique for each replenishment of a particular iceberg order.

For example for a single iceberg order, the Order ID will be the same, but a unique new Public Order ID will be generated for each replenishment.

2.1.5.8 Order ID tag length.

The system will accept a maximum length of 20 characters. If the ID is longer than 20 characters then it will be rejected. This is valid for the following.

NewOrderSingle – ClOrdID (11); SecondaryClOrdID (526)

OrderCancelRequest – OrigClOrdID (41); ClOrdID (11)

NewOrderSingle – SecondaryClOrdID (526)

NewOrderSingle – ClOrdLinkID (583)

OrderMassCancelRequest - ClOrdID (11)

OrderCancelReplaceRequest - OrigClOrdID (41); ClOrdID (11)

2.2 Liquidity Pools

The Turquoise MTF supports the following liquidity pools for Participants to execute their interest:

(i) **Turquoise Lit™** Order Book – The **Turquoise Lit™** Order Book will execute orders in a continuous price-time method with large in scale hidden orders getting the lowest priority. Participants have the option to specify the minimum fill size per order for non-persistent orders only. The **Turquoise Lit™** Order Book is also referred to as the 'Lit' or 'Integrated' Order Book.

(ii) **Turquoise Lit Auctions™** Order Book – The **Turquoise Lit Auctions™** Order Book will execute orders in frequent transparent auctions with a volume maximising price algorithm, equal to or within a Reference Price Collar (PBBO). Participants can only use DAY or GFA time in force, either as simple limit orders or as orders pegged to the PBBO midpoint (with or without a limit price). There is no support for GTT/GTD orders or market orders. Each auction lasts up to 100ms (made up from a 50ms fixed call period plus a 50ms randomised uncross period). Auctions are triggered on the arrival of any GFA order (unless an Auction has already started), or whenever a crossed book occurs where the PBBO is well formed, and the book can be uncrossed within the Reference Price Collar (PBBO). Once the Auction price has been determined, Orders in the **Turquoise Lit Auctions™** Order Book will be matched and prioritised on a Member then Time basis honouring the MES of each order.

(iii) **Turquoise Plato™** Order Book – The **Turquoise Plato™** Order Book accepts only hidden Orders. Orders will execute at the Primary Market Midpoint, on entry and during **Turquoise Plato Uncross™** events which occur when there is a **Turquoise Plato Block Discovery™** match or at randomized time intervals, midpoint changes or when a firm amends order price, order size or MES. Participants have the option of specifying a minimum fill size per order. Orders in the **Turquoise Plato™** Order Book will be matched and prioritised on a Size[1] then Time basis starting with the largest order on the buy side of the book. Optional Member Priority matching is available upon request.

(iv) **Turquoise Plato Block Discovery™** – **Turquoise Plato Block Discovery™** will perform the matching of BIs and eligible BDNs[2] periodically. BIs and BDNs in **Turquoise Plato Block Discovery™** will be matched and prioritised on a Size then Time basis starting with the largest BI/BDN on the buy side of the book. Optional Member Priority matching is available upon request. Upon identifying a match, **Turquoise Plato Block Discovery™** will match BIs and eligible BDNs in its book and send OSRs to relevant Participants. The parties should then respond by submitting firm QBOs to the **Turquoise Plato™** Order Book, to match in the **Turquoise Plato Uncross™**.

Participants can submit Orders to the **Turquoise Lit™**, **Turquoise Plato™** or **Turquoise Lit Auctions™** Order Books by explicitly specifying the order book in the RoutingInst (9303) tag. They can target both **Turquoise Lit™** and **Turquoise Plato™** Order Books by specifying 'S' (**Turquoise Plato™** Dark Lit Sweep) in the RoutingInst (9303) tag; this instruction will first target the **Turquoise Plato™** Order Book (TIF=IOC), and any remaining quantity in the order will be transferred to the **Turquoise Lit™** Order Book (also TIF=IOC). If the RoutingInst (9303) tag is not specified the Order will be routed as described in section 2.3.3 Routing Orders when RoutingInst (9303) is not specified.

2.3 Symbology Schemes

Participants can use one or both of the following symbology schemes to manage their trading interest.

2.3.1 MTF Common Symbol

Participants can submit and manage orders by specifying the MTF Common Symbol. If using the MTF Common Symbol, the Participant:

- Must specify the Common Symbol in the Symbol (55) tag.

[1] Size is defined as the Order's original quantity. When the original order quantity is amended up, the Order's size priority may increase and when amended down, the Order's priority may decrease (depending upon other Orders resting in the Order book at the time).
[2] An eligible BDN has a remaining value equal to or greater than 25% of LIS.

- Optionally specify the order book in the RoutingInst (9303) tag as 'I' for the **Turquoise Lit™** Order Book, 'A' for the **Turquoise Lit Auctions™**, 'M' for the **Turquoise Plato™** Order Book or 'S' for **Turquoise Plato™** Dark Lit Sweep.

- Optionally specify the corresponding ISIN (48) with IDSource (22) set to '4', Currency (15) and Security Exchange (207).

The system will validate ISIN, Currency and Security Exchange values with the MTF Common Symbol for consistency.

2.3.2 ISIN, Currency and Security Exchange

Participants wishing to use only the ISIN, Currency and Security Exchange to uniquely identify an instrument:

(i) Must not specify a value for Symbol (55)

(ii) Must specify the ISIN value as the SecurityID (48) with SecurityIDSource (22) set to '4'

(iii) Must specify the Currency (15)

(iv) Must specify the SecurityExchange (207)

(v) Optionally specify the order book in the RoutingInst (9303) tag as 'I' for the **Turquoise Lit™** Order Book, 'A' for the **Turquoise Lit Auctions™** or M' for the **Turquoise Plato™** Order Book.

2.3.3 Routing Orders when RoutingInst (9303) is not specified

Orders without a RoutingInst (9303) will be sent to the **Turquoise Lit™** and **Turquoise Plato™** Order Book based on values specified for TIF (59), OrdType (40), DisplayQty (1138), Price (44), OrderQty (38), MinQty (110).

DisplayQty = 0

(i) With one exception, any order with DisplayQty=0 (irrespective of OrdType, TIF, MinQty) will be routed to the **Turquoise Plato™** Order Book.

(ii) The exception is for Limit orders with a MinQty of Zero or Null, a TIF of DAY/GTD, and a value (OrderQty x Price) greater than the LIS threshold – these will be routed to the **Turquoise Lit™** Order Book as hidden orders.

DisplayQty <> 0 (including Null values)

(i) Any order with OrdType=Peg will be routed to the **Turquoise Plato™** Order Book

(ii) All other orders will be routed to the **Turquoise Lit™** Order Book

2.3.4 Indicative Orders

Orders with Order SubType 1(BI) and 3(BDN) are rejected when routed to the **Turquoise Lit™** and **Turquoise Lit Auctions™** Order Books. This includes scenarios with RoutingInst (9303) = I or A or B and scenarios where RoutingInst (9303) is not stamped but resulting order is routed to the Lit Book (i.e. when Order Value > LIS and MES = 0)

2.4 Market Operations

2.4.1 Order Deletion

Market Operations are able to cancel orders on behalf of a Participant in accordance with the Turquoise Rulebook.

The Participant will be notified of the Order Cancel Request submitted on its behalf if and when it is accepted. The Participant will not be notified if the action is rejected.

This feature is intended to help a Participant manage an emergency situation and should not be relied upon as a normal business practice.

2.4.2 Trade Cancellations

Market Operations may cancel any on-book trade. The server will transmit Execution Report messages to the relevant Participants to notify them of a trade cancellation.

If an execution that partially filled an order is cancelled the order will be restated to reduce its order quantity by the cancelled quantity. The Participant will receive two notifications in such a scenario; one for the trade cancel and another for the restatement. The LeavesQty (151) and CumQty (14) of a live order will always add up to its OrderQty (38).

If an execution that fully filled an order is cancelled, the order will be cancelled. The Participant will also receive two notifications in such a scenario; one for the trade cancel and another for the order cancel.

2.5 Timestamps and Dates

The matrix below clarifies the expectations for timestamps and dates.

<table>
<tr><th>FIX Tag</th><th>Client Generated tag– accepted format</th><th>Server Generated tag – sent format</th></tr>
<tr><td>SendingTime (52)</td><td rowspan="3">UTC,

YYYMMDD-HH:MM:SS.uuuuuu and YYYYMMDD-HH:MM:SS.sss</td><td rowspan="3">UTC,

YYYYMMDD-HH:MM:SS.uuuuuu</td></tr>
<tr><td>OrigSendingTime (122)</td></tr>
<tr><td>TransactTime (60)</td></tr>
<tr><td>ExpireTime (126)</td><td colspan="2">UTC, YYYYMMDD-HH:MM:SS</td></tr>
</table>

2.6 Party Identification

ID	Description	Relevant FIX Tags
Member ID	Identifier of the member the interest is submitted under.	PartyRole (452) = 1 PartyIDSource=D PartyID (448)
Trader Group	Identifier of the trader group the interest is submitted under.	PartyRole (452) = 76 PartyIDSource (447)=D PartyID (448)
Trader ID	Identifier of the trader the interest is submitted under.	PartyRole (452) = 100 PartyIDSource (447)=D PartyID (448)
Client Reference	Client reference information applicable to an order	Account (1)
Counterparty Firm	Identifier of the counterparty firm in a trade.	PartyRole (452) = 17 PartyIDSource=D PartyID (448)
Executing Trader	Identifier of the Executing Trader relevant to the order	PartyRole (452) = 12 PartyIDSource (447)=P PartyID (448)
Client ID	Identifier of the client of the order	PartyRole (452) = 3 PartyIDSource (447)=P PartyID (448)
Investment Decision Maker	Identifier of the investment decision relevant to the order	PartyRole (452) = 122 PartyIDSource (447)=P PartyID (448)

2.6.1 Trader Group, Trader ID, Counterparty Firm

Trading privileges are, depending on how the participant is set up, assigned at the level of the SenderCompID (49) or Trader Group.

It will be mandatory to specify a Trader Group (Party Role (452) = 76) in New Order – Single, Order Cancel and Order Cancel/Replace messages; it will be optional to specify a Trader ID (Party Role (452) = 100) in these messages. Counterparty Firm (Party Role (452) = 17) should never be specified in New Order – Single, Order Cancel and Order Cancel/Replace messages.

For the New Order Single (D), Order Cancel Request (F) and Order Cancel/Replace Request (G) messages, the message will be rejected if the Trading Party Component does not include a Party ID (448) Tag without a corresponding Party Role (452) Tag equal to 76 (Trader Group) within the same repeating group. Any messages rejected will be acknowledged to the Participant with a Business Message Reject (j) message with the following tags specified:

Business Reject Reason (380) = ‘0’

Text (58) = “Trader Group not specified on message”

New Order Single (D), Order Cancel Request (F) and Order Cancel/Replace Request (G) messages will be rejected if the Party ID (448) corresponding to the Party Role (452) of 76 (Trader Group) is invalid. The rejected messages will be acknowledged with an Execution Report (8) message with the following tags specified:

OrdRejReason (103) = 9100

Text (58) = Unknown user (Owner ID)

It should be noted that the party block with the invalid Trader Group (76) will not be included in the rejected Execution Report. In a scenario where a request was submitted with multiple party blocks, only the party block with the invalid Trader Group (76) will be dropped from the rejected Execution Report. The other party blocks will be included in the message.

In Execution Report messages, if the Exec Type (150) is F (Trade) or H (Trade Cancel), both the Trader Group (Party Role (452) = 76) and Counterparty Firm (Party Role (452) = 17) will be populated; if the Exec Type (150) is not F, G or H, then only the Trader Group (Party Role (452) = 76) will be populated. All the time Trader ID (Party Role (452) = 100) will be populated in the Execution Report message if the Participant has specified one in the New Order Single message.

2.6.2 Client ID, Investment Decision Maker, Executing Trader

The participants should provide the short code in the PartyID (448) tag to identify the Client, Investment Decision Maker or Executing Trader in the New Order Message.

A short code must be in the range from 4 to 4294967295.

The below table shows the valid combinations of the Party Role Qualifier and Party Role tags, including the use of reserved Party ID values (0-3). Note; other combinations outside of the ranges below maybe accepted but this is not advised.

Party identifier	FIX Tags
1. Client - Legal entity (LEI)	Party Role (452)=3 , PartyRoleQualifier (2376)= 23, PartyID (448) = <Short Code>, PartyIDSource (447)=P
2. Client - Natural person	Party Role (452)=3 , PartyRoleQualifier (2376)= 24, PartyID (448) = <Short Code>, PartyIDSource (447)=P
3. An aggregation of multiple client orders	Party ID (448) = 1 (AGGR), Party Role (452)=3, PartyIDSource (447)=P
4. Clients are pending allocation	Party ID (448) =2 (PNAL), Party Role (452)=3, PartyIDSource (447)=P
5. No client for the order	Party ID (448) = 0 (None), Party Role (452)=3, PartyIDSource (447)=P
6. Investment Decision Maker - Natural person	Party Role (452)=122 , PartyRoleQualifier (2376)= 24, PartyID (448) = <Short Code>, PartyIDSource (447)=P
7. Investment Decision Maker – Algorithm	Party Role (452)=122 , PartyRoleQualifier (2376)= 22, PartyID (448) = <Short Code>, PartyIDSource (447)=P

Party identifier	FIX Tags
8. No Investment Decision Maker	Party ID (448) = 0 (None), Party Role (452)=122, PartyIDSource (447)=P
9. Executing Trader - Natural person	Party Role (452)=12 , PartyRoleQualifier (2376)= 24, PartyID (448) = <Short Code>, PartyIDSource (447)=P
10. Executing Trader is Algorithm	Party Role (452)=12 , PartyRoleQualifier (2376)= 22, PartyID (448) = <Short Code>, PartyIDSource (447)=P
11. Executing Trader on behalf of a client	Party ID (448) =3 (CLIENT), Party Role (452)=12, PartyIDSource (447)=P
12. No Executing Trader	Party ID (448) = 0 (None), Party Role (452)=12, PartyIDSource (447)=P

2.7 Information for Billing

Customers may use the FIX Execution Report to estimate billing. For the current Turquoise rebates and fees, please refer to the Turquoise Tariff Schedule.

In general, rebates and fees can be determined via FIX tags 9303 (RoutingInst) and 9730 (TradeLiquidityIndicator):

(i) **Turquoise Lit™** Order Book – aggressive trades

- 9303=I and 9730=R

(ii) **Turquoise Lit™** Order Book – passive trades

- 9303=I and 9730=A

(iii) **Turquoise Lit Auctions™** Order Book – all trades

- 9303=A only (tag 9730 is not required for calculation)

(iv) **Turquoise Plato™** Order Book – all trades

- 9303=M only (tag 9730 is not required for calculation)

(v) In addition, the following FIX tags may be relevant for rebates during new market segment promotions:

- 55 (MTF Common Symbol)
- 48 (Security ID)
- 207 (Security Exchange)

2.8 Order Capacity

Details about order Capacity can be found in section 2.12.2.

2.9 Repeating Groups (Components/Component Block)

If a repeating group is used in a message, the NoXXX field (for example NoPartyIDs field in the trading party repeating group) should be specified first before the repeating group starts. This is applicable for both the messages generated by the Participant and the server.

The messages generated by the server will have the fields within a repeating group in order.

The messages generated by a Participant should have the first field in a repeating group in order. If the first field in a repeating group is in order, a message generated by a Participant will be accepted; else the message will be rejected.

2.10 Auto Cancel on Disconnect

In enabling the feature Mass Cancel on Disconnect, all open orders belonging to the respective Participant would get cancelled.

With the subsequent login the Participant will receive execution reports for each order with the ExecType: ‘Expired’, as opposed to ‘Cancelled’ which would be for orders manually cancelled by the Participant.

2.11 Generating Reject Messages

If a required tag is missing in a message sent by a Participant, the server will send a session reject message.

If a conditionally required tag is missing in a message sent by a Participant, the server will send a business reject message.

The server will also send a session reject message if the same FIX tag has been repeated within the Participant request.

If an unsupported value is sent with a tag, an Execution Report or an Order Cancel Reject is sent by the server.

Session level validations are done first, and Business Rejects and rejections via Execution Reports follow in that order.

2.12 MiFID II changes

2.12.1 Timestamping at microsecond granularity

All server generated timestamps will now be in microsecond granularity. It is not mandatory for client generated timestamps to be in microsecond granularity. Further details are described in the Timestamps and dates section.

2.12.2 Order Capacity

The Order capacities are shown below.

Pre-MiFID II name	MiFID II name
Principal	Dealing on own account (DEAL)
Agency	Any other trading capacity (AOTC)
Riskless Principal	N/A
N/A	Matched Principal (MTCH)

Until MiFID II go-live, tag OrderCapacity(528) = R will be treated as Riskless Principal. After MiFID II go-live, it will be treated as Matched Principal (MTCH).

2.12.3 Pre-Trade Waiver Flags

Transactions executed under the reference price waiver will be flagged with the 'RFPT' Waiver Flag in the Execution Report message.

2.12.4 Order Record Keeping Information

The participants should provide the short code with PartyRole (452) = 'Client ID (3)', 'Investment Decision Maker (122)' or 'Executing Trader (12)'. These new party identifiers are named as 'Client ID', 'Investment decision within firm' and 'Execution within firm' in the MiFID II/MiFIR RTS 24 regulatory documentation. Further information about these new party identifiers has been added in the Party identification section.

3.0 Connectivity

3.1 CompIDs

The CompID of each Participant must be registered with Turquoise before FIX communications can begin. A single Participant may have multiple connections to the server (i.e. multiple FIX sessions, each with its own CompID).

The CompID of the server will be FGW. The messages sent to the server should contain the CompID assigned to the Participant in the field SenderCompID (49) and FGW in the field TargetCompID (56). The messages sent from the server to the Participant will contain FGW in the field SenderCompID (49) and the CompID assigned to the Participant in the field TargetCompID (56).

3.1.1 Passwords

Each new CompID will be assigned a password on registration. Participants are strongly encouraged to change the password to one of their choosing via the Logon message. The status of the new password (i.e. whether it is accepted or rejected) will be specified in the SessionStatus (1409) field of the Logon sent by the server to confirm the establishment of a FIX connection. The new password will, if accepted, be effective for subsequent logins.

In terms of the password policy of Turquoise, the password of each CompID should be changed. If not, the password will expire and the Participant will be unable to login to the server. In such a case, the Participant should contact Turquoise to have its password reset. The SessionStatus (1409) of the server's Logon message will be 'Password Due to Expire (2)'.

3.2 Production IP Address and Ports

The IP addresses and ports for the trading gateway will be published in a separate configuration document.

3.3 Failover and Recovery

The system has been designed with fault tolerance and disaster recovery technology that ensures that trading should continue in the unlikely event of a process or site outage.

If the Participant is unexpectedly disconnected from the server, it should attempt to re-connect to primary site within a few seconds. The Participant should only attempt to connect to the secondary IP address and port if so requested by Turquoise.

The Participant will receive Business Rejects with reject reason 'Application Unavailable' for requests that were submitted during a failover.

In case of a failover, the system will send all messages If the participant has not logged in to the gateway within the trading day, the gateway will send all available messages upon login.

3.4 Connectivity Policy

An application should attempt to connect a maximum of 3 times to the primary gateway with a minimum time out value of 3 seconds between attempts before attempting to connect to the secondary gateway – and this should be retried a maximum of a further 3 times. After 6 failed connection attempts (3 on each gateway) the clients should contact London Stock Exchange for further guidance.

3.5 Message Rate Throttling

Turquoise has implemented a scheme for throttling message traffic where each Participant is only permitted to submit up to a specified number of messages per second.

Every message which exceeds the maximum rate of a CompID will be rejected via a Business Message Reject (with BusinessRejectReason (380) of Other (0) and Text (58) field = “Message rate exceeded”). A client’s connection will be disconnected by the server if its message rate exceeds the maximum rate for a specific time duration. The rates can be seen in the Turquoise Trading Technical Parameters document. In such a case, the server will transmit a Logout message (with SessionStatus (1409) = 102 (Logout by market operations) and Text (58) = "Maximum Message Rate Exceeded”) and 5 seconds afterwards will terminate the TCP/IP connection.

Please note that client Heartbeat messages, reject messages and any other client-initiated administrative messages are not counted towards the throttling limits.

4.0 FIX Connections and Sessions

4.1 Establishing a FIX Connection

FIX connections and sessions between the Participant and server are maintained as specified in the FIX protocol.

Each Participant will use the assigned IP address and port to establish a TCP/IP session with the server. The Participant will initiate a FIX session at the start of each trading day by sending the Logon message. The Participant will identify itself using the SenderCompID (49) field. The server will validate the CompID, password and IP address of the Participant.

Once the Participant is authenticated, the server will respond with a Logon message. The SessionStatus (1409) of this message will be Session Active (0). If the Participant's Logon message included the field NewPassword (925) and the Participant is authenticated, the SessionStatus (1409) of the Logon sent by the server will be Session Active (0).

When the Participant sends a logon with a sequence number higher than expected by the FIX Gateway, the FIX gateway will send a Resend Request and once the response/s to the Resend Request is processed by the FIX Gateway, the FIX Gateway would send a Test Request to make sure both the Participant and server is in sync before sending out any missed or new application messages.

The Participant must wait for the server's Logon response before sending additional messages. If the Participant sends messages prior to sending the Logon message or prior to receiving the Logon response, the server will break the TCP/IP connection with the Participant without sending any message.

If a logon attempt fails because of an invalid SenderCompID, TargetCompID, IP address, invalid password or because the Participant does not have the appropriate privileges, the server will break the TCP/IP connection with the Participant without sending a Logout or Reject message.

If a logon attempt fails because of an invalid or expired password, a locked CompID or if logins are not currently permitted, the server will send a Logout message and then break the TCP/IP connection with the Participant..

If a logon attempt fails because of a session level failure (e.g. due to invalid EncryptMethod or DefaultApplVerID…etc) the inbound sequence number and the outbound sequence number both will not be incremented. In this scenario the message sequence number 1 will be sent with the Logout message.

However if a session level failure occurs due to a message sent by a Participant which contains a sequence number that is less than what is expected and the PossDupFlag (43) not being set to "Y", then the server will send a Logout message and terminate the FIX connection. In this scenario the inbound sequence number will not be incremented but the outbound sequence number will be incremented.

If during a logon, the server receives a second connection attempt via the same TCP/IP connection while a valid FIX session is already underway for that same SenderCompID, the server will break the TCP/IP connection with the Participant without sending a Logout or Reject message. The server will not increment the next inbound message sequence number expected from the Participant as well as its own outbound message sequence number.

A protection mechanism is in place in order to protect the gateway from rapid login/logouts. If a user reaches the thresholds for rapid login/logouts, any future logins/logouts will be delayed exponentially.

4.2 Maintaining A FIX Session

4.2.1 Message Sequence Numbers

As outlined in the FIX protocol, the Participant and server will each maintain a separate and independent set of incoming and outgoing message sequence numbers. Sequence numbers should be initialized to 1 (one) at the start of the FIX session and be incremented throughout the session.

Monitoring sequence numbers will enable parties to identify and react to missed messages and to gracefully synchronize applications when reconnecting during a FIX session.

If any message sent by the Participant contains a sequence number that is less than what is expected and the PossDupFlag (43) is not set to "Y", the server will send a Logout message and terminate the FIX connection. The Logout will contain the next expected sequence number in the Text (58) field.

A FIX session will not continue to the next trading day. The server will initialize its sequence numbers at the start of each day. The Participant is expected to employ the same logic.

4.2.2 Heartbeats

The Participant and server will use the Heartbeat message to exercise the communication line during periods of inactivity and to verify that the interfaces at each end are available. The heartbeat interval will be the HeartBtInt (108) specified in the Participant's Logon message.

The server will send a Heartbeat anytime it has not transmitted a message for the heartbeat interval. The Participant is expected to employ the same logic.

As a safety mechanism, the system will not allow the user to login if the HeartBtInt is set to 0. Therefore, if the server receives a logon with HeartBtInt = 0, the user will receive a logout message with SessionStatus = 101 (Logout due to session level failure) and Text = 'HeartBtInt should be greater than zero'.

If the server detects inactivity for a period longer than three heartbeat intervals it will send a Test Request message to force a Heartbeat from the Participant. If inactivity continues for another three heartbeat intervals, the server will send a Logout and break the TCP/IP connection with the Participant. The Participant is expected to employ similar logic if inactivity is detected on the part of the server.

4.2.3 Increasing Expected Sequence Number

The Participant or server may use the Sequence Reset message in Gap Fill mode if it wishes to increase the expected incoming sequence number of the other party. The Participant or server may also use the Sequence Reset message in Sequence Reset mode if it wishes to increase the expected incoming sequence number of the other party. The Sequence Reset mode should only be used to recover from an emergency situation. It should not be relied upon as a regular practice.

4.3 Terminating a FIX Session

The Participant is expected to terminate each FIX connection at the end of each trading day before the server shuts down. The Participant will terminate a connection by sending the Logout message. The

server will respond with a Logout to confirm the termination. The Participant will then break the TCP/IP connection with the server.

All open TCP/IP connections will be terminated by the server when it shuts down (a Logout will not be sent). Under exceptional circumstances the server may initiate the termination of a connection during the trading day by sending the Logout message.

If, during the exchange of Logout messages, the Participant or server detects a sequence gap, it should send a Resend Request.

4.4 Re-Establishing a FIX Session

If a FIX connection is terminated during the trading day it may be re-established via an exchange of Logon messages.

Once the Participant is authenticated, the server will respond with a Logon message. The SessionStatus (1409) of this message will be Session Active (0). If the Participant's Logon message included the field NewPassword (925) and the Participant is authenticated, the SessionStatus (1409) of the Logon sent by the server will be Session Active (0).

When the Participant sends a logon with a sequence number higher than expected by the FIX Gateway, the FIX gateway will send a Resend Request and once the response/s to the Resend Request is processed by the FIX Gateway, the FIX Gateway would send a Test Request to make sure both the Participant and server is in sync before sending out any missed or new application messages.

The Participant must wait for the server's Logon before sending additional messages. If additional messages are received from the Participant before the exchange of Logon messages, the TCP/IP connection with the Participant will be disconnected.

Once the FIX session is re-established successfully, the message sequence numbers will continue from the last message successfully transmitted prior to the termination.

4.4.1 Resetting Sequence Numbers

4.4.1.1 Reset Initiated by the Participant

If the Participant requires both parties to initialize (i.e. reset to 1) sequence numbers, it may use the ResetSeqNumFlag (141) field of the Logon message. The server will respond with a Logon with the ResetSeqNumFlag (141) field set to "Y" to confirm the initialization of sequence numbers.

A Participant may also manually inform Market Operations that it would like the server to initialize its sequence numbers prior to the Participant's next login attempt.

These features are intended to help a Participant manage an emergency situation. Initializing sequence numbers on a re-login should not be relied upon as a regular practice.

4.4.1.2 Reset Initiated by the Server

The system has been designed with fault tolerance and disaster recovery technology that should ensure that the server retains its incoming and outgoing message sequence numbers for each Participant in the

unlikely event of an outage. However, Participants are required to support a manual request by Turquoise to initialize sequence numbers prior to the next login attempt.

4.5 Dormant Account Policy

Participants are advised that CompIDs for both the Native and FIX Trading services will automatically be deactivated after a period of 100 days without a successful logon.

If a Participant is unable to connect because a CompID has been marked as inactive, they should contact Turquoise Market Operations who will reactivate CompIDs as required.

Participants that may have allocated specific Trading CompIDs for a disaster recovery site are strongly advised to take note of the above.

5.0 Recovery

5.1 Resend Requests

The Participant may use the Resend Request message to recover any lost messages. As outlined in the FIX protocol, this message may be used in one of three modes:

(i) To request a single message. The BeginSeqNo (7) and EndSeqNo (16) should be the same.

(ii) To request a specific range of messages. The BeginSeqNo (7) should be the first message of the range and the EndSeqNo (16) should be the last of the range.

(iii) To request all messages after a particular message. The BeginSeqNo (7) should be the sequence number immediately after that of the last processed message and the EndSeqNo (16) should be zero (0).

The server caches the last 65,000 messages transmitted to each CompID. Participants are unable to use a Resend Request to recover messages not in the server's cache. If the Participant requests for a range of messages that have sequence numbers falling outside the cache size, a Sequence Reset message in Gap Fill mode will be sent for the missing messages and will send the available messages as per the request after that.

5.2 Possible Duplicates

The server handles possible duplicates according to the FIX protocol. The Participant and server will use the PossDupFlag (43) field to indicate that a message may have been previously transmitted with the same MsgSeqNum (34).

5.3 Possible Resends

5.3.1 Participant-Initiated Messages

The server does not handle possible resends for the Participant-initiated messages (e.g. New Order Single) and ignores the value in the PossResend (97) field of such messages.

5.3.2 Server-Initiated Messages

The server may, in the circumstances outlined in section 5.4 Transmission of Missed Messages use the PossResend (97) field to indicate that an application message may have already been sent under a different MsgSeqNum (34). The Participant should validate the contents (e.g. ExecID) of such a message against those of messages already received during the current trading day to determine whether the new message should be ignored or processed.

5.4 Transmission of Missed Messages

The Execution Report, Order Cancel Reject, Order Mass Cancel Report, and Business Message Reject messages generated during a period when a Participant is disconnected from the server will be sent to the Participant when it next reconnects. In the unlikely event the disconnection was due to an outage of the server, all such messages will include a PossResend (97) of "Y".

The application messages (e.g. Execution Report, Order Cancel Reject etc.) are automatically generated when a Participant reconnects. Participants are not required to explicitly request for the messages. The resend request applies only when the server has sent messages that a Participant has not received.

6.0 Message Formats

This section provides details on the header and trailer, the seven administrative messages and eight application messages utilized by the server. The system will ignore an undefined tag sent along with any Administrative message and will process the rest of the message. However if an undefined tag is sent along with an Application message, then the system will completely reject the message.

6.1 Supported Message Types

6.1.1 Administrative Messages

All administrative messages may be initiated by either the Participant or the server.

Message	MsgType	Usage
Logon	A	Allows the Participant and server to establish a FIX session.
Logout	5	Allows the Participant and server to terminate a FIX session.
Heartbeat	0	Allows the Participant and server to exercise the communication line during periods of inactivity and verify that the interfaces at each end are available.
Test Request	1	Allows the Participant or server to request a response from the other party if inactivity is detected.
Resend Request	2	Allows for the recovery of messages lost during a malfunction of the communications layers.
Reject	3	Used to reject a message that does not comply with FIXT.
Sequence Reset	4	Allows the Participant or server to increase the expected incoming sequence number of the other party.

6.1.2 Application Messages: Order Handling

6.1.2.1 Participant-Initiated

Message	MsgType	Usage
New Order Single	D	Allows the Participant to submit a new order.
Order Cancel Request	F	Allows the Participant to cancel a live order.

Order Mass Cancel Request	q	Allows the Participant to mass cancel: i) All live orders. ii) All live orders for a particular instrument. iii) All live orders for a particular segment. The mass cancel may apply to the orders of a particular trading party or to all orders of the member.
Order Cancel/Replace Request	G	Allows the Participant to cancel/replace a live order.

6.1.2.2 Server-Initiated

Message	MsgType	Usage
Execution Report	8	Indicates one of the following: i) Order accepted. ii) Order rejected. iii) Order executed. iv) Order expired. v) Order cancelled. vi) Order cancel/replaced. vii) Trade cancel. viii) BI triggered.
Order Cancel Reject	9	Indicates that an order cancel request or order cancel/replace request has been rejected.
Order Mass Cancel Report	r	Indicates one of the following: i) Mass order cancel request accepted. ii) Mass order cancel request rejected.
Business Message Reject	j	Indicates that an application message could not be processed.

6.2 Message Header and Trailer

6.2.1 Message Header

Tag	Field Name	Req	Description
8	BeginString	Y	FIXT.1.1
9	BodyLength	Y	Number of characters after this field up to and including the delimiter immediately preceding the CheckSum.
35	MsgType	Y	Message type.
49	SenderCompID	Y	CompID of the party sending the message.
56	TargetCompID	Y	CompID of the party the message is sent to. **Value** **Meaning** FGW FIX Trading Gateway
34	MsgSeqNum	Y	Sequence number of the message.
43	PossDupFlag	N	Whether the message was previously transmitted under the same MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N). **Value** **Meaning** Y Possible Duplicate N Original Transmission
97	PossResend	N	Whether the message was previously transmitted under a different MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N). **Value** **Meaning** Y Possible Resend N Original Transmission
52	SendingTime	N	Time the message was transmitted. Not required for incoming messages sent by the Participants (even if sent by a Participant, no validation will be done). Required for outgoing messages sent by the server.

122	OrigSendingTime	N	Time the message was originally transmitted. If the original time is not available, this should be the same value as SendingTime (52). Required if PossDupFlag (43) is Possible Duplicate (Y).
1128	ApplVerID	N	Version of FIX used in the message. Required if the message is generated by the server. **Value** **Meaning** 9 FIX50SP2
115	OnBehalfOfCompID	N	The ID of the party on whose behalf the message is sent; will only be used in Participant initiated messages
128	DeliverToCompID	N	The value specified in the OnBehalfOfCompID(115) field will be stamped; will only be used in server initiated messages

6.2.2 Message Trailer

Tag	Field Name	Req	Description
10	CheckSum	Y	

6.3 Administrative Messages

6.3.1 Logon

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	A = Logon
Message Body			
98	EncryptMethod	Y	Method of encryption. **Value** **Meaning** 0 None
108	HeartBtInt	Y	Indicates the heartbeat interval in seconds.

141	ResetSeqNumFlag	N	Indicates whether the Participant and server should reset sequence numbers. Absence of this field is interpreted as Do Not Reset Sequence Numbers (N). **Value** **Meaning** Y Reset Sequence Numbers N Do Not Reset Sequence Numbers
554	Password	N	Password assigned to the CompID. Required if the message is generated by the Participant.
925	NewPassword	N	New password for the CompID.
1409	SessionStatus	N	Status of the FIX session or the request to change the password. Required if the message is generated by the server. **Value** **Meaning** 0 Session Active 2 Password Due to Expire 3 New session password does not comply with policy
1137	DefaultApplVerID	Y	Default version of FIX messages used in this session. **Value** **Meaning** 9 FIX50SP2
Standard Trailer			

6.3.2 Logout

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	5 = Logout
Message Body			

1409	SessionStatus	N	Status of the FIX session. Required if the message is generated by the server. **Value** **Meaning** 4 Session logout complete 5 Invalid password 6 Account locked 7 Logons are not allowed at this time 8 Password expired 100 Other 101 Logout due to session level failure 102 Logout by Market Operations
58	Text	N	The field will contain the next expected sequence number if the server terminated the connection after receiving a sequence number that was less than what was expected. In other cases the field will contain the reason for the logout.
Standard Trailer			

6.3.3 Heartbeat

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	0 = Heartbeat
Message Body			
112	TestReqID	N	Required if the heartbeat is a response to a Test Request. The value in this field should echo the TestReqID (112) received in the Test Request.
Standard Trailer			

6.3.4 Test Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	1 = Test Request
Message Body			
112	TestReqID	Y	Identifier for the request.
Standard Trailer			

6.3.5 Resend Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	2 = Resend Request
Message Body			
7	BeginSeqNo	Y	Sequence number of first message in range.
16	EndSeqNo	Y	Sequence number of last message in range.
Standard Trailer			

6.3.6 Reject

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	3 = Reject
Message Body			
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	N	MsgType (35) of the rejected message.

371	RefTagID	N	If a message is rejected due to an issue with a particular field its tag number will be indicated.
373	SessionRejectReason	N	Code specifying the reason for the reject. Refer to TQ801 for a list of reject codes.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

6.3.7 Sequence Reset

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	4 = Sequence Reset
Message Body			
36	NewSeqNo	Y	Sequence number of the next message to be transmitted.
123	GapFillFlag	N	Mode in which the message is being used. Absence of this field is interpreted as Sequence Reset (N). Value Meaning Y Gap Fill N Sequence Reset
Standard Trailer			

6.4 Application Messages: Others

6.4.1 New Order Single

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	D = New Order - Single
Message Body			
11	ClOrdID	Y	Participant specified identifier of the order. (Max length 20 bytes)
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be '4' or '5'.
➡ 448	PartyID	Y	Identifier of the party. If the optional field TraderID (PartyRole=100) is specified in New Order or Order Cancel/Replace Request message, Execution Report message will stamp the value specified in the New order or the latest order modification request. However, TraderID specified in Order Cancel Request messages are ignored by the system. Short code in a range from 4 to 4294967295 can be used to identify the Client, Investment Decision Maker or Executing Trader. Value '0' is valid only for Client ID (3) and Investment Decision Maker (452 = 122) party roles. Value '1' and '2' are valid only for Client ID (3) party role. Value '3' is valid only for Executing Trader (12). Short Code is valid only for Client ID (3) Investment Decision Maker (122) and Executing Trader (12) party roles

Value	Meaning
0	None
1	AGGR (Aggregated Order)
2	PNAL (Pending Allocations)
3	CLIENT

<table>
<tr><td>➡</td><td>447</td><td>PartyIDSource</td><td>Y</td><td>Value ‘P’ is applicable for Client ID (452=3), Investment Decision Maker (452=122) and Executing Trader (452=12) party roles, otherwise Value ‘D’ is considered.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>D</td><td>Proprietary/Custom Code</td></tr><tr><td>P</td><td>Short Code</td></tr></table></td></tr>
<tr><td>➡</td><td>452</td><td>PartyRole</td><td>Y</td><td>Role of the specified PartyID (448).

It is mandatory to have PartyRole Trader Group (76). The value specified in the Trader ID (100) will not be validated by the system.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>100</td><td>Trader ID</td></tr><tr><td>76</td><td>Trader Group</td></tr><tr><td>3</td><td>Client ID</td></tr><tr><td>122</td><td>Investment Decision Maker</td></tr><tr><td>12</td><td>Executing Trader</td></tr></table></td></tr>
<tr><td>➡</td><td>2376</td><td>PartyRoleQualifier</td><td>N</td><td>Provides a further qualification for the value specified in the PartyRole (452).

Required only if PartyRole (452) is set to 3, 122 or 12 when the PartyID is a short code (i.e. 4-4294967295),), otherwise the value will be ignored.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>22</td><td>Algorithm</td></tr><tr><td>23</td><td>Firm or Legal Entity</td></tr><tr><td>24</td><td>Natural Person</td></tr></table>Value ‘22’ is applicable for Investment Decision Maker (122) and Executing Trader (12) party roles.
Value ‘23’ is applicable for Client ID (3) party role.
Value ‘24’ is applicable for Client ID (3) Investment Decision Maker (122) and Executing Trader (12) party roles.</td></tr>
<tr><td>1</td><td></td><td>Account</td><td>N</td><td>Participant reference information.

(Max length: 10 bytes)</td></tr>
</table>

55	Symbol	N	MTF Common Symbol. (Max. length 8 bytes) Not required if 15, 48, 22 and 207 are specified.
48	SecurityID	N	Identifier of the instrument. Not required if 55 is specified
22	SecurityIDSource	N	Identifier of the source of the SecurityID (48) value. **Value** **Meaning** 4 ISIN
9303	RoutingInst	N	Indicates the liquidity pool **Value** Meaning I **Turquoise Lit™** Order Book **(TRQX)** A **Turquoise Lit Auctions™** Order Book **(TRQA)** M **Turquoise Plato™** Order Book **(TRQM)** S **Turquoise Plato™** Dark Lit Sweep **(TRQX AND TRQM)**
15	Currency	N	Currency Code as per ISO 4217 Currency Code List Not required if 55 is specified
207	SecurityExchange	N	Market Identifier Code as per ISO 10383 Not required if 55 is specified

<table>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Applicable to the Turquoise Plato™ Order Book only.

Indicates if the order should participate in the Turquoise Plato Uncross™ Only or in Continuous trading Only or both.

If unspecified the order will participate in both continuous and Turquoise Plato Uncross™ events (by default), unless an election has been made by the Participant to change the default Execution Instruction applied to their Order when omitted (for that Participant).

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>w</td><td>Turquoise Plato Uncross™ then Continuous</td></tr><tr><td>x (default)</td><td>Continuous and Turquoise Plato Uncross™</td></tr><tr><td>y</td><td>Continuous only</td></tr><tr><td>z</td><td>Turquoise Plato Uncross™ only</td></tr></table></td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>Type of the order.

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Market</td></tr><tr><td>2</td><td>Limit</td></tr><tr><td>P</td><td>Pegged</td></tr></table>
Note that a Pegged order can be either a market order if there is no price or a limit order if a price is provided (see tag Price(44)).

Market Orders (1) will be rejected by the Turquoise Lit Auctions™ Order Book.</td></tr>
</table>

59	TimeInForce	N	Time qualifier of the order. Absence of this field is interpreted as DAY (0). **Value** **Meaning** 0 DAY 3 Immediate or Cancel (IOC) 4 Fill or Kill (FOK) 6 Good Till Date (GTD) 9 Good for Auction (GFA)
126	ExpireTime	N	Time the order expires which must be a time during the current trading day. Participants who want to submit GTT orders must specify the time in this field and specify TimeInForce (59) as GTD (6). The value specified for this field will be ignored for TIFs other than GTD.
54	Side	Y	Side of the order. **Value** **Meaning** 1 Buy 2 Sell
38	OrderQty	Y	Total order quantity.
1138	DisplayQty	N	Maximum quantity that may be displayed.

<table>
<tr><td>1084</td><td>DisplayMethod</td><td>N</td><td>Value Meaning
4 Undisclosed (Hidden Order)
3 Random (randomize value)

If this is populated with value “4” while a value which is greater than 0 is populated in DisplayQty (1138), the order will be considered as a Hidden (Reserve) Order.

If this is populated with value “3” while a value which is greater than 0 and less than the Order Quantity is populated in DisplayQty (1138), the DisplayQty (1138) after a replenishment will be random.

If blank while a value which is greater than 0 and less than the Order Quantity is populated in DisplayQty (1138), the DisplayQty (1138) after a replenishment will be “fixed peak”</td></tr>
<tr><td>110</td><td>MinQty</td><td>N</td><td>Minimum Fill size. Please reference 2.1.1 for further description.</td></tr>
<tr><td>44</td><td>Price</td><td>N</td><td>Limit price. Required if OrdType (40) is Limit (2) and optional if OrdType (40) is Pegged (P).</td></tr>
<tr><td>581</td><td>AccountType</td><td>Y</td><td>Type of account associated with the order.

Value Meaning
1 Client
3 House</td></tr>
<tr><td>528</td><td>OrderCapacity</td><td>Y</td><td>Capacity of the order.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>A</td><td>Any other trading capacity (AOTC)</td></tr><tr><td>P</td><td>Dealing on own account (DEAL)</td></tr><tr><td>R</td><td>Matched Principal (MTCH)</td></tr></table></td></tr>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time the order was created.</td></tr>
<tr><td>526</td><td>SecondaryClOrdID</td><td>N</td><td>A secondary ID assigned by the trading party.

(Max length 20 bytes)</td></tr>
</table>

<table>
<tr><td>583</td><td>ClOrdLinkID</td><td>N</td><td>Permits order originators to tie together groups of orders in which trades resulting from orders are associated for a specific purpose.

e.g.. Calculation of average execution price.

This field has a maximum of 20 characters.</td></tr>
<tr><td>27010</td><td>PassiveOnlyOrder</td><td>N</td><td>Used to specify whether an order will rest prior to execution, with flexibility for visible orders to rest at a specified price level on the book.

No protection is provided against order execution with large in scale hidden orders sat within the BBO.

A hidden order will be rejected if it does not have a value of 0 or 99 (if tag 27010 is specified).

A Turquoise Plato™ Order will be rejected if it does not have a value of 0 (if tag 27010 is specified).

The value will be ignored for Turquoise Lit Auctions™ Order.

Value — Meaning
0 (default) — No constraint (i.e. aggressive or passive)
99 — Accept order only if passive upon order entry. Otherwise expire.
100 — Accept order if setting new BBO. Otherwise expire.
1 — Accept order if setting new BBO or joining existing BBO. Otherwise expire.
2 — Accept order if joining existing BBO or within one visible price point. Otherwise expire.
3 — Accept order if joining existing BBO or within two visible price points. Otherwise expire.</td></tr>
</table>

<table>
<tr><td>9020</td><td>OrderSubType</td><td>N</td><td>Used to specify the order type.
Types 1 and 3 are not accepted to the Turquoise Lit™ and Turquoise Lit Auctions™ Order Books, so they will be rejected if accompanied with RoutingInst(9303) “I” or “A” or “B”, or if RoutingInst(9303) is undefined and has an Order Value > LIS and MES = 0.

Note, Pegged/BI OrderType/OrderSubType combination is not valid and will be treated by the system as Pegged/Order and will not be sent to the Turquoise Plato Block Discovery ™

Value — Meaning
0/undefined — Order
1 — BI
3 — Order + BDN</td></tr>
<tr><td colspan="2">Component Block <Order Attributes></td><td>N</td><td>Please refer to section 6.5.2</td></tr>
<tr><td>1724</td><td>OrderOrigination</td><td>N</td><td>Whether the order was generated via Direct Electronic Access (DEA) or not. Only the following value can be sent by the customer.
Value — Meaning
5 — DEA</td></tr>
<tr><td colspan="4">Standard Trailer</td></tr>
</table>

6.4.2 Order Cancel Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	F = Order Cancel Request
Message Body			
11	ClOrdID	Y	Participant specified identifier of the cancel request. (Max length 20 bytes)

41	OrigClOrdID	N	ClOrdID (11) of the order being cancelled. Required if OrderID (37) is not specified. (Max length 20 bytes)
37	OrderID	N	Server specified identifier of the order being cancelled. Required if OrigClOrdID (41) is not specified. This is an 11 character base 62 string with an 'O' prefix. After removal of the prefix, when converted to an 8 byte binary format, it will match the corresponding Order ID. This will be identical to the SecondaryOrderID when converted to a 16 character hexadecimal format
55	Symbol	N	MTF Common Symbol. (Max. length 8 bytes) Not required if 15, 48, 22 and 207 are specified.
48	SecurityID	N	Identifier of the instrument. Not required if 55 is specified
22	SecurityIDSource	N	Identifier of the source of the SecurityID (48) value. **Value** **Meaning** 4 ISIN
15	Currency	N	Currency Code as per ISO 4217 Currency Code List Not required if 55 is specified
207	SecurityExchange	N	Market Identifier Code as per ISO 10383 Not required if 55 is specified

9303	RoutingInst	Y	Indicates the liquidity pool **Value** **Meaning** I **Turquoise Lit™** Order Book **(TRQX)** A **Turquoise Lit Auctions™** Order Book **(TRQA)** M **Turquoise Plato™** Order Book **(TRQM)**
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be '1' or '2'.
➡ 448	PartyID	Y	Identifier of the party.
➡ 447	PartyIDSource	Y	Required if PartyID (448) is specified. **Value** **Meaning** D Proprietary/Custom Code
➡ 452	PartyRole	Y	Role of the specified PartyID (448). It is mandatory to have PartyRole Trader Group (76). The value specified in the Trader ID (100) will not be validated by the system. **Value** **Meaning** 100 Trader ID 76 Trader Group
54	Side	Y	Must match the value in the order.
60	TransactTime	Y	Time the order cancel request was created.
Standard Trailer			

6.4.3 Order Mass Cancel Request

Tag	Field Name	Req	Description
Standard Header			

35	MsgType	Y	q = Order Mass Cancel Request
Message Body			
11	ClOrdID	Y	Participant specified identifier of mass cancel request. (Max length 20 bytes)
530	MassCancelRequestType	Y	Scope of the mass cancel request. **Value** **Meaning** 1 Cancel All Orders for Instrument 7 Cancel All Orders 9 Cancel All Orders for Segment
55	Symbol	N	MTF Common Symbol. (Max. length 8 bytes) Not required if 15, 48, 22 and 207 are specified.
48	SecurityID	N	Identifier of the instrument. Not required if 55 is specified
22	SecurityIDSource	N	Identifier of the source of the SecurityID (48) value. **Value** **Meaning** 4 ISIN
15	Currency	N	Currency Code as per ISO 4217 Currency Code List Not required if 55 is specified
207	SecurityExchange	N	Market Identifier Code as per ISO 10383 Not required if 55 is specified

9303	RoutingInst		N	Indicates the liquidity pool Required if MassCancelRequestType (530) = 1. Will be ignored for if MassCancelRequestType (530) = 7 and 9 **Value** **Meaning** I **Turquoise Lit™** Order Book **(TRQX)** A **Turquoise Lit Auctions™** Order Book **(TRQA)** M **Turquoise Plato™** Order Book **(TRQM)**
1461	NoTargetPartyIDs		Y	Number of parties the mass cancel relates to. The value in this field can be '1' or '2'.
➡	1462	TargetPartyID	Y	Identifier of the party the mass cancel relates to. Required if NoTargetPartyIDs (1461) is specified. Maximum supported is 11 characters. Any characters above 11 will be truncated and ignored.
➡	1463	TargetParty IDSource	Y	The value in this field will always be "D". **Value** **Meaning** D Proprietary/Custom Code
➡	1464	TargetPartyRole	Y	Role of the TargetPartyID (1462). **Value** **Meaning** 1 Member ID (Firm) 76 Trader Group
1300	MarketSegmentID		N	Identifier of the segment the mass cancel relates to. Required if MassCancelRequestType (530) is Cancel All for Segment (9).
60	TransactTime		Y	Time the mass cancel request was created.
Standard Trailer				

6.4.4 Order Cancel/Replace Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	G = Order Cancel/Replace Request
Message Body			
11	ClOrdID	Y	ClOrdID (11) of the order being amended. Required if OrderID (37) is not specified. (Max length 20 bytes)
41	OrigClOrdID	N	ClOrdID (11) of the order being amended. Required if OrderID (37) is not specified. Will be ignored if OrderID is specified (Max length 20 bytes)
37	OrderID	N	Server specified identifier of the order being amended. Required if OrigClOrdID (41) is not specified. This is an 11 character base 62 string with an 'O' prefix. After removal of the prefix, when converted to an 8 byte binary format, it will match the corresponding Order ID. This will be identical to the SecondaryOrderID when converted to a 16 character hexadecimal format
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be '1' or '2'.
➡ 448	PartyID	Y	Identifier of the party. Maximum supported is 11 characters. Any characters above 11 will be truncated and ignored.
➡ 447	PartyIDSource	Y	Required if PartyID (448) is specified. **Value** / **Meaning** D / Proprietary/Custom Code

➡	452	PartyRole	Y	Role of the specified PartyID (448). It is mandatory to have PartyRole Trader Group (76). The value specified in the Trader ID (100) will not be validated by the system. Value: 100 — Meaning: Trader ID Value: 76 — Meaning: Trader Group
1		Account	N	Participant reference information.
55		Symbol	N	MTF Common Symbol. (Max. length 8 bytes) Not required if 15, 48, 22 and 207 are specified.
48		SecurityID	N	Identifier of the instrument. Not required if 55 is specified.
22		SecurityIDSource	N	Identifier of the source of the SecurityID (48) value. **Value** — **Meaning** 4 — ISIN
15		Currency	N	Currency Code as per ISO 4217 Currency Code List Not required if 55 is specified
207		SecurityExchange	N	Market Identifier Code as per ISO 10383 Not required if 55 is specified
9303		RoutingInst	Y	Indicates the liquidity pool **Value** — **Meaning** I — **Turquoise Lit™** Order Book **(TRQX)** A — **Turquoise Lit Auctions™** Order Book **(TRQA)** M — **Turquoise Plato™** Order Book **(TRQM)**

<table>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Applicable to the Turquoise Plato™ Order Book Only.

Indicates if the order should participate in the Turquoise Plato Uncross™ Only or in Continuous trading Only or both.

If unspecified the order will participate in both continuous and Turquoise Plato Uncross™ events (by default), unless an election has been made by the Participant to change the default Execution Instruction applied to their Order when omitted (for that Participant).

Value — Meaning
w — Turquoise Plato Uncross™ then Continuous
x (default) — Continuous and Turquoise Plato Uncross™
y — Continuous only
z — Turquoise Plato Uncross™ only</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>Must match the value in the order.</td></tr>
<tr><td>126</td><td>ExpireTime</td><td>N</td><td>Time the order expires which must be a time during the current trading day. Participants who want to submit GTT orders must specify the time in this field and specify TimeInForce (59) as GTD (6). The value specified for this field will be ignored for non-GTT orders.</td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td>Must match the value in the order.</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Total order quantity.</td></tr>
<tr><td>1138</td><td>DisplayQty</td><td>Y</td><td>Maximum quantity that may be displayed. It is mandatory to specify the intended display quantity.</td></tr>
</table>

1084	DisplayMethod	N	Whether the order was a hidden order and if the order was randomized. Please note that, when amending a randomized iceberg order, the amend request must contain 3 on this field, even if the amend would be converting the order to a fully visible one. If the order is not a randomized iceberg order, it cannot be amended to be one. Enum 3 will be accepted on Cancel/Replace Request only if the original order contained 1084 = 3. **Value** **Meaning** 4 Undisclosed (Hidden Order) 3 Random (randomize value)
110	MinQty	N	Minimum Fill size. Please reference 2.1.1 for further description.
44	Price	N	Limit price. Required if OrdType (40) is Limit (2) and optional if OrdType(40) is Market (1) or Pegged (P)
60	TransactTime	Y	Time the cancel/replace request was created.

<table>
<tr>
<td>27010</td>
<td>PassiveOnlyOrder</td>
<td>N</td>
<td>Used to specify whether an order will rest prior to execution, with flexibility for visible orders to rest at a specified price level on the book.

No protection is provided against order execution with large in scale hidden orders sat within the BBO.

A hidden order will be rejected if it does not have a value of 0 or 99.

A Turquoise Plato™ Order will be rejected if it does not have a value of 0.

The value will be ignored for Turquoise Lit Auctions™ Order.

<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>0

(default)</td><td>No constraint</td></tr>
<tr><td>99</td><td>Accept order only if passive upon order entry. Otherwise expire.</td></tr>
<tr><td>100</td><td>Accept order if setting new BBO. Otherwise expire.</td></tr>
<tr><td>1</td><td>Accept order if setting new BBO or joining existing BBO. Otherwise expire.</td></tr>
<tr><td>2</td><td>Accept order if joining existing BBO or within one visible price point. Otherwise expire.</td></tr>
<tr><td>3</td><td>Accept order if joining existing BBO or within two visible price points. Otherwise expire.</td></tr>
</table>
</td>
</tr>
<tr>
<td colspan="4">Standard Trailer</td>
</tr>
</table>

6.4.5 Execution Report

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	8 = Execution Report
Message Body			
17	ExecID	Y	Server specified identifier of the message.
880	TradeMatchID (TVTIC)	N	This is the unique identifier of the Trade. This is a base 36 (G offset) encoded value in ASCII format.
11	ClOrdID	Y	Participant specified identifier of the order.
41	OrigClOrdID	N	OrigClOrdID (41), if any, which was submitted with the order cancel or cancel/replace request.
37	OrderID	Y	Server specified identifier of the order. This is an 11 character base 62 string with an 'O' prefix. After removal of the prefix, when converted to an 8 byte binary format, it will match the corresponding Order ID. This will be identical to the SecondaryOrderID when converted to a 16 character hexadecimal format
198	SecondaryOrderID	Y	Indicates the corresponding Market Data (M) Order ID. This is 16 characters long, in the hexadecimal format. Since the order ID will be disseminated in binary format via the gateway, this hexadecimal value needs to be converted to the binary format to compare against it.

<table>
<tr><td>150</td><td>ExecType</td><td>Y</td><td>Reason the execution report was generated.

Value Meaning
0 New
4 Cancelled
5 Replaced
8 Rejected
C Expired
D Restated
F Trade
H Trade Cancel
L Triggered</td></tr>
<tr><td>19</td><td>ExecRefID</td><td>N</td><td>Reference to the execution being cancelled. Required if ExecType (150) is Trade Cancel (H).</td></tr>
<tr><td>378</td><td>ExecRestatementReason</td><td>N</td><td>Reason the order was restated. Required if ExecType (150) is Restated (D) or the order is cancelled by Market Operations.

Value Meaning
8 Market Option (Order/Trade is cancelled by Market operations)
100 Order replenishment (with a new Public Order ID)</td></tr>
</table>

<table>
<tr><td>39</td><td>OrdStatus</td><td>Y</td><td>Current status of the order.

Value Meaning
0 New
1 Partially Filled
2 Filled
4 Cancelled
8 Rejected
C Expired</td></tr>
<tr><td>103</td><td>OrdRejReason</td><td>N</td><td>Code specifying the reason for the reject. Populated always if ExecType (150) is Rejected (8) and in certain cases for expirations (ExecType = C).

The value in this field should be disregarded if Exec Type is not Rejected (8) or Expired(C).

Please refer to TQ801 for the Reject Codes and Reasons.</td></tr>
<tr><td>58</td><td>Text</td><td>N</td><td>Text specifying the reason for the rejection, cancellation or expiration.</td></tr>
<tr><td>32</td><td>LastQty</td><td>N</td><td>Quantity executed in this fill. Required if ExecType (150) is Trade (F).</td></tr>
<tr><td>31</td><td>LastPx</td><td>N</td><td>Price of this fill. Required if ExecType (150) is Trade (F).</td></tr>
<tr><td>151</td><td>LeavesQty</td><td>Y</td><td>Quantity available for further execution. Will be “0” if OrdStatus (39) is Filled (2), Cancelled (4), Rejected (8) or Expired (C).</td></tr>
<tr><td>14</td><td>CumQty</td><td>Y</td><td>Total cumulative quantity filled.</td></tr>
<tr><td>55</td><td>Symbol</td><td>N</td><td>MTF Common Symbol.

(Max. length 8 bytes)</td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>Identifier of the instrument.</td></tr>
</table>

22	SecurityIDSource	N	Identifier of the source of the SecurityID (48) value. **Value** **Meaning** 4 ISIN
9303	RoutingInst	Y	Indicates the book that generated the execution report. **Value** **Meaning** I **Turquoise Lit™** Order Book **(TRQX)** A **Turquoise Lit Auctions™** Order Book **(TRQA)** M **Turquoise Plato™** Order Book **(TRQM)**
15	Currency	N	Currency Code as per ISO 4217 Currency Code List
207	SecurityExchange	N	Market Identifier Code as per ISO 10383
18	ExecInst	N	Applicable to the **Turquoise Plato™** Order Book only. Indicates if the order should participate in the **Turquoise Plato Uncross™** Only or in Continuous trading Only or both. If unspecified the order will participate in both continuous and **Turquoise Plato Uncross™** events (by default), unless an election has been made by the Participant to change the default Execution Instruction applied to their Order when omitted (for that Participant). **Value** **Meaning** w **Turquoise Plato Uncross™** then Continuous x (default) Continuous and **Turquoise Plato Uncross™** y Continuous only z **Turquoise Plato Uncross™** only

30001	OrderBook	Y	Populated for all execution reports generated from the **Turquoise Lit™**, **Turquoise Lit Auctions™** and the **Turquoise Plato™** Order Books. **Value** **Meaning** 1 Regular
20000	TypeOfTrade	N	Indicates whether the executed portion of a passive order is visible or hidden. Aggressive orders will only ever be stamped with value = 2.Required only if ExecType (150) = F - Trade. **Value** **Meaning** 0 Visible 1 Hidden 2 Not specified
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be '4', '5' or '6'.

➡	448	PartyID	Y	Identifier of the party. Maximum supported is 11 characters. Any characters above 11 will be truncated and ignored. If a trade is cleared when the PartyRole = CounterPartyFirm (17), PartyID will be stamped with the CCP value. ECCP LCH X-Clear LCH SA If a trade is internalized when PartyRole = CounterPartyFirm (17), PartyID will be stamped with the Executing Firm. If a trade is not cleared when PartyRole = CounterPartyFirm (17), PartyID will be stamped with Contra Broker Firm. If the optional field TraderID (PartyRole=100) is specified in New Order or Order Cancel/Replace Request message, Execution Report message will stamp the value specified in the New order or the latest order modification request. However, TraderID specified in Order Cancel Request messages are ignored by the system. Short code in a range from 4 to 4294967295 can be used to identify the Client, Investment Decision Maker or Executing Trader. Value '0' is valid only for Client ID (PartyRole = 3) and Investment Decision Maker (PartyRole = 122) party roles. Value '1' and '2' are valid only for Client ID (PartyRole = 3) party role. Value '3' is valid only for Executing Trader (PartyRole = 12). Short Code is valid only for Client ID (3) Investment Decision Maker (122) and Executing Trader (12) party roles

Value	Meaning
0	None
1	AGGR (Aggregated Order)
2	PNAL (Pending Allocations)
3	CLIENT

<table>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>➡</td><td>447</td><td>PartyIDSource</td><td>Y</td><td>Value ‘P’ is applicable for Client ID (452=3), Investment Decision Maker (452=122) and Executing Trader (452=12) party roles.
<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>D</td><td>Proprietary/Custom Code</td></tr><tr><td>P</td><td>Short Code</td></tr></table></td></tr>
<tr><td>➡</td><td>452</td><td>PartyRole</td><td>Y</td><td>Role of the specified PartyID (448).

Counterparty Firm (17) will only be populated if Exec Type (150) is set to Trade (F) or Trade Cancel (H).

It is mandatory to have PartyRole Trader Group (76). The value specified in the Trader ID (100) will not be validated by the system.

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>100</td><td>Trader ID</td></tr><tr><td>17</td><td>Counterparty Firm</td></tr><tr><td>76</td><td>Trader Group</td></tr><tr><td>3</td><td>Client ID</td></tr><tr><td>122</td><td>Investment Decision Maker</td></tr><tr><td>12</td><td>Executing Trader</td></tr></table></td></tr>
<tr><td>➡</td><td>2376</td><td>PartyRoleQualifier</td><td>N</td><td>Provides a further qualification for the value specified in the PartyRole (452).

Required only if PartyRole (452) is set to 3, 122 or 12 when the PartyID is a short code (i.e. 4-4294967295).

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>22</td><td>Algorithm</td></tr><tr><td>23</td><td>Firm or Legal Entity</td></tr><tr><td>24</td><td>Natural Person</td></tr></table>
Value ‘22’ is applicable for Investment Decision Maker (122) and Executing Trader (12) party roles.
Value ‘23’ is applicable for Client ID (3) party role.
Value ‘24’ is applicable for Client ID (3) Investment Decision Maker (122) and Executing Trader (12) party roles.</td></tr>
</table>

<table>
<tr><td>9730</td><td>TradeLiquidityIndicator</td><td>N</td><td>Whether the order added or removed liquidity.

Required only for messages generated for a trade or trade cancellations. Possible values are:

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>A</td><td>Added Liquidity</td></tr><tr><td>R</td><td>Removed Liquidity</td></tr><tr><td>C</td><td>• Turquoise Plato Uncross™ in Turquoise Plato™ Order Book Execution

• Turquoise Lit Auctions™ Order Book Execution</td></tr><tr><td>S</td><td>Turquoise Plato Block Discovery™ Execution - Turquoise Plato Uncross™</td></tr><tr><td>T</td><td>Turquoise Plato Block Discovery™ Execution – Continuous Trading</td></tr></table></td></tr>
<tr><td>1</td><td>Account</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>Value submitted with the order.</td></tr>
<tr><td>59</td><td>TimeInForce</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>126</td><td>ExpireTime</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td>Value submitted with the order.</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Value submitted with the order.</td></tr>
<tr><td>1138</td><td>DisplayQty</td><td>Y</td><td>Quantity currently displayed in the order book.</td></tr>
</table>

<table>
<tr><td>1084</td><td>DisplayMethod</td><td>N</td><td>
<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>4</td><td>Undisclosed (Hidden Order)</td></tr>
<tr><td>3</td><td>Random (randomize value)</td></tr>
</table>
If this is populated with value “4” while a value which is greater than 0 is populated in DisplayQty (1138), the order will be considered as a Hidden (Reserve) Order.

If this is populated with value “3” while a value which is greater than 0 and less than the Order Quantity is populated in DisplayQty (1138), the DisplayQty (1138) after replenishment will be random.

If blank while a value which is greater than 0 and less than the Order Quantity is populated in DisplayQty (1138), the DisplayQty (1138) after a replenishment will be “fixed peak”
</td></tr>
<tr><td>110</td><td>MinQty</td><td>N</td><td>Minimum Quantity of the order.

If the MES is set to be applicable for the first fill only, then the minimum quantity will be set to zero after the first execution.

If the MES is set to apply for every fill, and the remaining quantity of an order is < MES specified in the order, then minimum quantity = remaining quantity.

If the remaining quantity of an order becomes zero due to the order being removed from the system (fill/cancellation/expiration etc.) then MinQty, if applicable, will be set to zero.</td></tr>
<tr><td>44</td><td>Price</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>581</td><td>AccountType</td><td>Y</td><td>Type of account associated with the order.
<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>1</td><td>Client</td></tr>
<tr><td>3</td><td>House</td></tr>
</table>
</td></tr>
<tr><td>528</td><td>OrderCapacity</td><td>Y</td><td>Capacity of the order.
<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>A</td><td>Any other trading capacity (AOTC)</td></tr>
<tr><td>P</td><td>Dealing on own account (DEAL)</td></tr>
<tr><td>R</td><td>Matched Principal (MTCH)</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time the transaction represented by the Execution Report occurred.</td></tr>
<tr><td>526</td><td>SecondaryClOrdID</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>583</td><td>ClOrdLinkID</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>1094</td><td>PegPriceType</td><td>Y</td><td>Only applicable to Turquoise Turquoise Plato™ Order Book, will not be sent for Turquoise Lit™ or Turquoise Lit Auctions™ executions.

Value Meaning
0 Midpoint</td></tr>
<tr><td>27010</td><td>PassiveOnlyOrder</td><td>N</td><td>Value submitted with the order.</td></tr>
<tr><td>27012</td><td>ReputationalScore</td><td>N</td><td>Reputational Score for the BI Participant at the time of the Turquoise Plato Block Discovery™ match</td></tr>
<tr><td>278</td><td>MDEntryID</td><td>Y</td><td>Public Order ID</td></tr>
<tr><td>851</td><td>LastLiquidityInd</td><td>N</td><td>Whether the order added or removed liquidity. Required only for messages generated for a trade or trade cancellations. For other execution types, the value in this tag should be ignored. Possible values are:

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Added Liquidity</td></tr><tr><td>2</td><td>Removed Liquidity</td></tr><tr><td>4</td><td>Turquoise Lit Auctions™,
or Turquoise Plato Uncross™
Execution</td></tr><tr><td>8</td><td>Turquoise Plato Block Discovery™
Execution – Continuous Trading</td></tr><tr><td>9</td><td>Turquoise Plato Block Discovery™
Execution- Turquoise Plato Uncross™</td></tr></table></td></tr>
<tr><td>2668</td><td colspan="2">NoTrdRegPublications</td><td>N</td><td>The number of regulatory publication rules in the repeating group. Will be set to 1 for the RFPT Pre-trade flag.</td></tr>
<tr><td>➡</td><td>2669</td><td>TrdRegPublicationType</td><td>N</td><td>Specifies the type of regulatory trade publication.

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>Pre-trade transparency waiver</td></tr></table></td></tr>
</table>

<table>
<tr><td>➡</td><td>2670</td><td>TrdRegPublicationReason</td><td>N</td><td>Populated when Execution Type is F or H. The Pre-trade Waiver Flags section describes in which scenarios the values are populated.

<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>3</td><td>RFPT</td></tr></table></td></tr>
<tr><td colspan="3">Component Block <Order Attributes></td><td>N</td><td>Please refer to section 6.5.2</td></tr>
<tr><td>1724</td><td>OrderOrigination</td><td>N</td><td>Whether the order was generated via Direct Electronic Access (DEA) or not. Only the following values will be sent.
<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>5</td><td>DEA</td></tr></table></td></tr>
<tr><td colspan="5">Standard Trailer</td></tr>
</table>

6.4.6 Order Cancel Reject

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	9 = Order Cancel Reject.
Message Body			
11	ClOrdID	Y	ClOrdID (11) that was submitted with the order cancel or cancel/replace request being rejected.
41	OrigClOrdID	N	OrigClOrdID (41), if any, which was submitted with the order cancel or cancel/replace request being rejected.
37	OrderID	Y	Server specified identifier of the order for which the cancel or cancel/replace was submitted. Will be “NONE” if the order is unknown. This is an 11 character base 62 string with an ‘O’ prefix. After removal of the prefix, when converted to an 8 byte binary format, it will match the corresponding Order ID. This will be identical to the SecondaryOrderID when converted to a 16 character hexadecimal format
39	OrdStatus	Y	Current status of the order. Will be Rejected (8) if the order is unknown. **Value** **Meaning** 0 New 1 Partially Filled 2 Filled 4 Cancelled 8 Rejected C Expired
434	CxlRej ResponseTo	Y	Type of request being rejected. **Value** **Meaning** 1 Order Cancel Request 2 Order Cancel/Replace Request

102	CxlRejReason	Y	Code specifying the reason for the rejection. Please refer to TQ801 for a list of reject codes.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

6.4.7 Order Mass Cancel Report

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	r = Order Mass Cancel Report
Message Body			
1369	MassActionReportID	Y	Server specified identifier of the message.
11	ClOrdID	Y	Participant specified identifier of mass cancel request.
530	MassCancelRequestType	Y	Value specified in the mass cancel request.
531	MassCancelResponse	Y	Action taken by server. **Value** **Meaning** 0 Mass Cancel Request Rejected 1 Cancelled All Orders for Instrument 7 Cancelled All Orders 9 Cancelled All Orders for Segment
532	MassCancelRejectReason	N	Code specifying the reason for the rejection. Refer to TQ801 for a list of reject codes. Required if MassCancelResponse (531) is Mass Cancel Request Rejected (0).

1180	AppID	Y	Partition ID to which the Order Mass Cancel Report corresponds to. **Value** **Meaning** 1 Partition 1 2 Partition 2 3 Partition 3 4 Partition 4
Standard Trailer			

6.5 Components of Application Messages

6.5.1 Business Message Reject

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	j = Business Message Reject.
Message Body			
379	BusinessReject RefID	N	Participant specified identifier (e.g. ClOrdID) of the rejected message if it is available.
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	Y	MsgType (35) of the rejected message.
371	RefTagID	N	If a message is rejected due to an issue with a particular field its tag number will be indicated.
380	BusinessRejectReason	Y	Code specifying the reason for the reject. Refer to TQ801 for a full list of reject codes.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

6.5.2 Order Attributes

Tag	Field Name		Req	Description
2593	NoOrderAttributes		N	Number of order attributes.
➡	2594	OrderAttributeType	N	Indicates if the order was generated via an algorithm or is submitted as a part of liquidity provision (i.e. as a part of the market making strategy). **Value** **Meaning** 4 Algorithm 2 Liquidity Provision
	2595	OrderAttributeValue	N	Mandatory if OrderAttributeType (2594) is specified. **Value** **Meaning** Y Yes

7.0 Service availability

Customer Activity	Availability
Telnet Access	04.00 – 20:15
Login Access	04.00 – 20:15

8.0 Appendix A

8.1 Order routing logic if RoutingInst (9303) not specified

Orders without a RoutingInst (9303) will be sent to the **Turquoise Lit™** and **Turquoise Plato™** Order Book based on values specified for TIF (59), OrdType (40), DisplayQty (1138), Price (44), OrderQty (38), MinQty (110).

DisplayQty = 0

- With one exception, any order with DisplayQty=0 (irrespective of OrdType, TIF, MinQty) will be routed to the **Turquoise Plato™** Order Book.
- The exception is for Limit orders with a MinQty of Zero or Null, a TIF of DAY, and a value (OrderQty x Price) greater than the LIS threshold – these will be routed to the **Turquoise Lit™** Order Book a hidden order.

DisplayQty <> 0 (including Null values)

- Any order with OrdType=Peg will be routed to the **Turquoise Plato™** Order Book
- All other orders will be routed to the **Turquoise Lit™** Order Book

The below matrix describes the order routing logic if RoutingInst (9303) is not specified on the **New Order Single** message.

(RoutingInst (9303) is a mandatory tag for **Order Cancel Request** and **Order Cancel/Replace Request** messages.)

#	TIF (59)	OrdType (40)	DisplayQty (1138)	Price (44) x OrderQty (38)	MinQty (110)	Destination
1	DAY GFA	Limit	0	< LIS	> 0	Turquoise Plato™
2					0 or Null	Turquoise Plato™
3				>= LIS	> 0	Turquoise Plato™
4					0 or Null	Turquoise Lit™ **, as hidden order
5			> 0	< LIS	> 0	Rejected
6					0 or Null	Turquoise Lit™ **
7				>= LIS	> 0	Rejected
8					0 or Null	Turquoise Lit™ **
9			Null	< LIS	> 0	Rejected
10					0 or Null	Turquoise Lit™ **
11				>= LIS	> 0	Rejected

#	TIF (59)	OrdType (40)	DisplayQty (1138)	Price (44) x OrderQty (38)	MinQty (110)	Destination
12					0 or Null	**Turquoise Lit™ ****
13		Market	0	< LIS	> 0	**Turquoise Plato™**
14					0 or Null	**Turquoise Plato™**
15				>= LIS	> 0	**Turquoise Plato™**
16					0 or Null	**Turquoise Plato™**
17			> 0	< LIS	> 0	**Turquoise Lit™ ****
18					0 or Null	**Turquoise Lit™ ****
19				>= LIS	> 0	**Turquoise Lit™ ****
20					0 or Null	**Turquoise Lit™ ****
21			Null	< LIS	> 0	**Turquoise Lit™ ****
22					0 or Null	**Turquoise Lit™ ****
23				>= LIS	> 0	**Turquoise Lit™ ****
24					0 or Null	**Turquoise Lit™ ****
26		Peg	0	< LIS	> 0	**Turquoise Plato™**
27					0 or Null	**Turquoise Plato™**
28				>= LIS	> 0	**Turquoise Plato™**
29					0 or Null	**Turquoise Plato™**
30			> 0	< LIS	> 0	Rejected*
31					0 or Null	Rejected*
32				>= LIS	> 0	Rejected*
33					0 or Null	Rejected*
34			Null	< LIS	> 0	**Turquoise Plato™**
35					0 or Null	**Turquoise Plato™**
36				>= LIS	> 0	**Turquoise Plato™**
37					0 or Null	**Turquoise Plato™**
38	IOC FOK	Any (Limit, Market, Peg)	0	< LIS	> 0	**Turquoise Plato™**
39					0 or Null	**Turquoise Plato™**
40				>= LIS	> 0	**Turquoise Plato™**
41					0 or Null	**Turquoise Plato™**
42			> 0	< LIS	> 0	**Turquoise Lit™**
43					0 or Null	**Turquoise Lit™**

#	TIF (59)	OrdType (40)	DisplayQty (1138)	Price (44) x OrderQty (38)	MinQty (110)	Destination
44				>= LIS	> 0	**Turquoise Lit™**
45					0 or Null	**Turquoise Lit™**
46			Null	< LIS	> 0	**Turquoise Lit™**
47					0 or Null	**Turquoise Lit™**
48				>= LIS	> 0	**Turquoise Lit™**
49					0 or Null	**Turquoise Lit™**

*Order will be routed to the **Turquoise Plato™** Order Book and will be rejected by matching engine since the **Turquoise Plato™** Order Book does not accept Orders with disclosed quantity.

****** Order will be rejected if Time In Force (TIF) = Good For Auction (GFA)

9.0 Appendix B

9.1 Converting FIX TradeMatchID (880) to GTP Trade ID

Worked Example

TradeMatchID (880) in FIX (ASCII base 36 characters)	G5DIF33YV0
Same TradeMatchID in gateway (Binary ID converted to decimal)	73120274710544

Steps to follow

1. Convert using base 36 in to decimal as depicted below.
2. The derived decimal value should be read in Binary format to match the GTP Trade ID.

Note: Please refer to the base 36 conversion table attached below

Ascii Character	Corresponding decimal value	Multiplier		Multiplied decimal value
		62^x	value	
0	20	36^0	1	20
V	15	36^1	36	540
Y	18	36^2	1296	23,328
3	23	36^3	46656	1,073,088
4	24	36^4	1679616	38,631,168
F	35	36^5	60466176	2,116,316,160
I	2	36^6	2176782336	4,353,564,672
D	33	36^7	78364164096	2,586,017,415,168
5	25	36^8	2821109907456	70,527,747,686,400
G	0	36^9	101559956668416	
Decimal value of the TradeMatchID generated in				**73,120,274,710,544**

Base 36 Mapping Table

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

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Turquoise