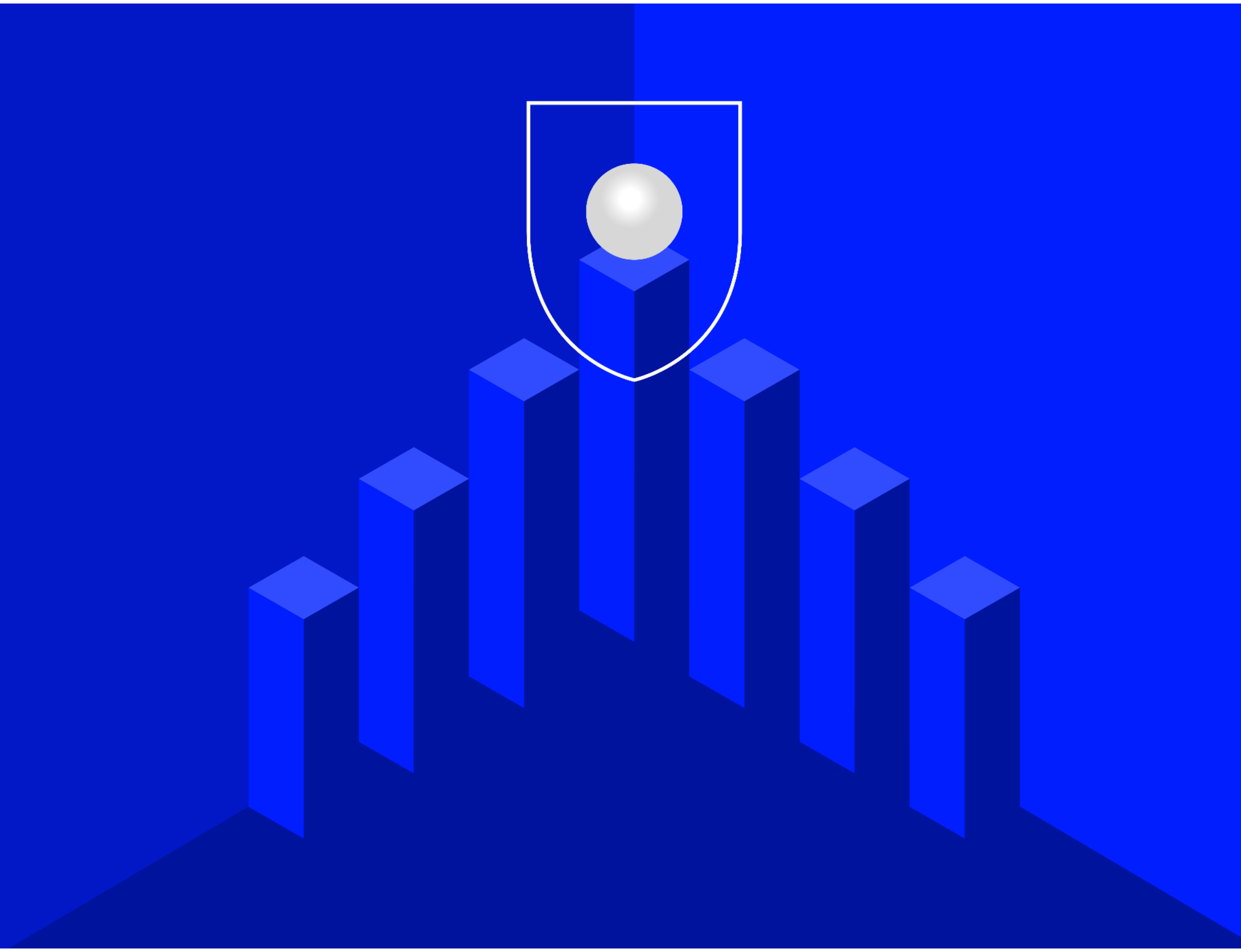
TURQUOISE BLOCK INSIGHTS

Service & Technical Description

18 February 2026

Version 2.0.0



LONDON STOCK EXCHANGE

TURQUOISE

Contents

1.0 About Turquoise

Turquoise Global Holdings Limited (TGHL or Turquoise) is an investment firm authorised and regulated by the Financial Conduct Authority (FCA) of the United Kingdom. Initially founded in 2006 by a consortium of nine investment banks, TGHL has been majority owned by London Stock Exchange Group (LSEG) in partnership with the user community since 2010.

Turquoise Global Holdings Europe B.V. (TGHE or Turquoise Europe and together with TGHL, Turquoise) is an investment firm authorised and regulated by the Autoriteit Financiële Markten (AFM) of the Netherlands. TGHE is a wholly-owned subsidiary of TGHL.

Turquoise operates two Multilateral Trading Facilities (MTF); One by TGHL, and one by TGHE. TGHL supports the trading of UK, Swiss, US and EEA Financial Instruments, whilst TGHE supports the trading of EEA instruments. With a single connection, members of TGHL and TGHE can trade shares, depository receipts, ETFs, ETCs, and European Rights Issues in up to 19 European countries, with an Open Access model that allows members to choose from 3 different CCPs to clear these trades on an interoperable basis.

Membership to TGHL and TGHE is open to eligible firms, with members including banks, brokers, specialist trading firms and retail intermediaries. Sponsored Access and Direct Market Access are available to non-member participants. Turquoise participants benefit from fully risk-managed clearing solutions, and market surveillance to ensure fair and orderly operations.

TGHL and TGHE both feature three Order Books:

- **Turquoise Lit** combines simple limit and iceberg orders with Large In Scale hidden Orders.
- **Turquoise Periodic Auctions**[1] are price forming auctions, operating frequently and with pre-trade transparency throughout the trading day, supporting simple limit and PBBO bid/midpoint/offer pegged orders, and allows users to configure a Minimum Execution Size.
- **Turquoise Retail Max** matching provides the opportunity for Retail Liquidity Providers to provide liquidity for Retail Brokers (within **Turquoise Periodic Auctions**, with pre-trade transparency throughout the trading day.
- **Turquoise Dark**[2] non-displayed midpoint prioritises orders by size and allows users to configure a Minimum Execution Size; it features two distinct mechanisms, each executing at the midpoint of the PBBO: Continuous matching and **Turquoise Dark Uncross**, an innovation that provides randomised uncrossings during the trading day, ideal for larger and less time sensitive passive orders.
- **Turquoise Block Discovery** matches undisclosed electronic Block Indications and manual Client Block Indications and that execute in **Turquoise Dark Uncross**.
- **Turquoise Dark Lit Sweep** provides the opportunity for price improvement (with no loss of queue priority) by matching against contra liquidity in the Turquoise Dark Order Book at the Primary market’s midpoint, before aggressing available liquidity in the Turquoise Lit Order Book.
- **Turquoise Dark Trade At Last** matching, provides the opportunity to continue matching at the Primary market’s Closing Price at the end of the trading day.

The Turquoise securities trading platform is hosted in 3rd party datacentres and features interfaces common to other LSEG markets, including London Stock Exchange, ensuring that customers accessing other LSEG markets can enjoy access to Turquoise with little incremental cost or effort.

[1] From 4 July 2025, Turquoise rebranded its Turquoise Plato Lit Auctions™ services as **Turquoise Periodic Auctions.**
[2] From 4 July 2025, Turquoise rebranded its non-displayed Turquoise Plato™ services as **Turquoise Dark**.

2.0 About this Document

The objective of this document is to describe the technical, operational and business features of **Turquoise Block Insights** which supports two Multilateral Trading Facilities (MTFs) being; Turquoise (TGHL) and Turquoise Europe (TGHE).

Turquoise Block Insights is based on publication of **Turquoise Dark Uncross** trades and aggregated trade data using FDC3 standards; most of which originate from **Turquoise Block Discovery** and occur within **Turquoise Dark Order Books**.

This Service and Technical Description will provide guidance on connecting directly to **Turquoise Block Insights** WebSocket API and Turquoise Post Trade only market data licence requirements, as well as considering an option for Participants to utilise OKTA to connect directly to this service.

For further information this document should be read in conjunction with the Turquoise Trading Service Description and **Turquoise Block Discovery** Service Description, which are available within the Turquoise Document Library.

Turquoise Document Library Securities trading resources | London Stock Exchange

For any feedback or queries about this document please contact: sales@tradeturquoise.com.

3.0 Changes History

<table>
<tr><th>Date</th><th>Version</th><th>Changes</th></tr>
<tr><td>27/10/2022</td><td>1.0</td><td>Turquoise Block Insights™ Service and Technical Description – First version for Production.</td></tr>
<tr><td>26/01/2024</td><td>1.1</td><td>Section 1.0 the decommissioning of Turquoise NYLON Cleared Contract™ and Turquoise NYLON™ Cash Order Book.</td></tr>
<tr><td>26/07/2024</td><td>1.2</td><td>Section 1.0 updated to reflect the decommissioning of LCH SA as a CCP.</td></tr>
<tr><td>14/03/2025</td><td>1.3</td><td>Section 1.0 updated to reflect the launch of Turquoise Retail Max™ to support Retail Brokers for TGHL.</td></tr>
<tr><td>04/07/2025</td><td>1.3.1</td><td>Various sections updated to reflect the rebrand following the end of the Turquoise Plato Partnership.

Turquoise® and Turquoise Europe™ have been rebranded to Turquoise and Turquoise Europe.
Turquoise Plato™ and Turquoise Plato™ Order Books have been rebranded to Turquoise Dark and Turquoise Dark Order Books, respectively.

Turquoise Plato Uncross™ has been rebranded to Turquoise Dark Uncross
Turquoise Plato Block Discovery™ has been rebranded to Turquoise Block Discovery
Turquoise Plato Trade At Last™ has been rebranded to Turquoise Dark Trade At Last
Turquoise Plato Continuous™ has been rebranded to Turquoise Dark Continuous
Turquoise Plato Dark Lit Sweep™ has been rebranded to Turquoise Dark Lit Sweep

Turquoise Plato Lit Auctions™ and Turquoise Plato Lit Auctions™ Order Books have been rebranded to Turquoise Periodic Auctions and Turquoise Periodic Auctions Order Books, respectively.
Turquoise Lit™ and Turquoise Lit™ Order Books have been rebranded to Turquoise Lit and Turquoise Lit Order Books, respectively.
Appital Turquoise BookBuilder™ has been rebranded to Appital Turquoise BookBuilder
Turquoise Block Insights™ has been rebranded to Turquoise Block Insights
</td></tr>
<tr><td>18/02/2026</td><td>2.0.0</td><td>Various sections updated to reflect the following enhancements/changes:

Application has faced a significant change on the authorization method. The service has now abandoned the deprecated token authentication via the websocket to introduce OKTA Authorization where the connection between the client and the WebSocket is established via an API Gateway, which ensures a single-entry point for all API calls that come into Turquoise Block Insights application. It also assures the security and scalability of the connections.
The Field PrimaryMarket (MIC) is been populated in the output.
</td></tr>
</table>

4.0 Terms and Acronyms

Term	Meaning
EEA	means European Economic Area.
ESMA	means European Securities and Markets Authority.
FDC3	The Financial Desktop Connectivity and Collaboration Consortium (FDC3) standards are created and used by leading organizations across the financial industry
Financial Instrument	means a Financial Instrument eligible for trading on Turquoise in accordance with Section 4 of the Turquoise Rule Book and Section 4 of the Turquoise Europe Rule Book. *A Financial Instrument can also be referred to as an "Instrument" or "Security".*
Hidden Order	An Order which is Non-displayed and not made transparent pre-trade. Note: All **Turquoise Dark** Orders are hidden.
Large in Scale (LIS)	means a size of Order as compared to the normal market size for the share or type of share in question and as determined by MiFIR.
Large in Scale (LIS) Waiver	is a waiver used by the **Turquoise Dark Order Books**, which permits Turquoise and Turquoise Europe to support Hidden Orders which are LIS without making them pre-trade transparent to the market.
Market Identifier Codes (MIC)	are ISO10383 codes used by Turquoise and Turquoise Europe to recognise its Order Books (Segment MICs) as follows: Segment MIC for Turquoise Global Holdings Limited: • **Turquoise Dark Order Book (TRQM)** Segment MIC for Turquoise Global Holdings Europe B.V.: • **Turquoise Dark Order Book (TQEM)**
MiFID	means the Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.
MiFIR	means the Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012.
Multi-lateral Trading Facility (MTF)	as defined in article 4(1)(22) of MiFID.
Order	means an Order to buy or sell a Financial Instrument specified by the Participant.

Term	Meaning
Order Book	Turquoise supports market data from the following Order Books: **Turquoise Dark Order Books** (TRQM / TQEM)
Participant	A Participant is a user who accesses Trading Services provided by TGHL and/or TGHE. A Participant may also be a Member of TGHL and/or TGHE.
Primary market	means the market on which the Financial Instrument was first admitted to trading.
Primary market Best Bid and Offer (PBBO)	the Primary market's Best Bid and Offer price for a Financial Instrument.
Primary market Closing Price (PCP)	is defined as being equal to the close price published by the Primary markets.
Primary market Midpoint Price (PMP)	is the Midpoint Price of the PBBO for a Financial Instrument.
Reference Price Waiver (RPW)	is a waiver used by the **Turquoise Dark Order Book**, which permits Turquoise and Turquoise Europe to support trading at the PBBO midpoint when the LIS Waiver is not used.
Trade	means an agreement between 2 counterparties to Buy/Sell shares in a Financial Instrument at a specific Price.
Trade Liquidity Indicator	identifies the trading session the Trade was executed in. i.e. **Turquoise Dark Uncross** or **Turquoise Dark Continuous**.
Turquoise Dark Continuous and Turquoise Dark Uncross *(previously known as Periodic Uncrossing)*	means the execution instruction selected by the Participant on Order entry whereby its Order is open to matching during **Turquoise Dark Continuous** Trading and any unexecuted volume will rest in the **Turquoise Dark Order Book** open to '**Turquoise Dark Continuous**' matching and matching during the randomised **Turquoise Dark Uncross** events.
Turquoise Dark Continuous Only	means the execution instruction selected by the Participant on order entry whereby its Order will only be open to matching against contra-side Orders resting during the Continuous trading sessions. Note: **Turquoise Dark Continuous** trade data is not published via the **Turquoise Block Insights** Service.
Turquoise Global Holdings Limited (TGHL)	TGHL is majority owned by London Stock Exchange Group (LSEG) in partnership with the user community and operates an MTF trading UK, Swiss and US Financial Instruments. TGHL is also referred to as Turquoise.

Term	Meaning
Turquoise Global Holdings Europe B.V. (TGHE)	TGHE is a wholly-owned subsidiary of TGHL and operates an MTF trading EEA Financial Instruments. *It does not support the trading of UK, Swiss or US Financial Instruments.* TGHE is also referred to as Turquoise Europe.
Turquoise Block Discovery	facilitates the trading of larger "Parent" or "Block" Orders by seeking and identifying block matching opportunities, between Block Indications (with a quantity above or equal to the Minimum Indication Size threshold) and Block Discovery Notifications. Where matches are identified, Participants are required to convert their Block Indications by submitting firm Qualifying Block Orders, designated as eligible for existing **Turquoise Dark Uncross** events that already exist as part of the **Turquoise Dark Order Book** to trade at the Midpoint of the PBBO 'PMP', then PCP once published by the Primary market, until the end of the trading day. For further information, please see the **Turquoise Block Discovery** Trading Services Description.
Turquoise Dark Order Book	means the Order Book containing only non-displayed Orders pegged to the PMP, then PCP once published by the Primary market, until the end of the trading day.
Turquoise Dark Trade At Last	is a matching phase within the trading session within the **Turquoise Dark Order Book** (including **Turquoise Block Discovery**), which matches Orders (and Block Indications) at the PCP once published by the Primary market, until the end of the trading day.
Turquoise Dark Uncross *(previously known as Periodic Uncrossing)*	means the execution instruction selected by the Participant on Order entry whereby its Order will only be open to matching against contra-side Orders resting in the **Turquoise Dark Order Book** during the randomised **Turquoise Dark Uncross** events.
Uniform Multilateral Trading Facility (UMTF)	Uniform Symbology (also known as UMTF), in the context of European financial markets, refers to a common scheme to refer to securities ("symbols"), adopted by European markets in 2008.

For Turquoise and Turquoise Europe terms, as defined in the respective Rulebooks, please refer to:

Turquoise Document Library Securities trading resources | London Stock Exchange

5.0 Turquoise Block Insights

5.1 Introduction to Turquoise Block Insights

The **Turquoise Block Insights** WebSocket API consumes **Turquoise Dark Uncross** trades that take place within **Turquoise Dark Order Books**, (most of which originates from **Turquoise Block Discovery,** including **Turquoise Luminex**) from London Stock Exchange Group (LSEG) market data system, Group Ticker Plant (GTP). Trades that occur within the **Turquoise Dark Uncross** within the **Turquoise Dark Trade At Last** matching phase are also included. **Turquoise Dark Continuous** trade data is not included in the **Turquoise Block Insights** WebSocket API service.

Turquoise Block Insights will provide the following data sets:

- **Instrument:** currency, isin, mic, primaryMic and symbol;
- **Trades:** id, price, shares, value and transactionTime;
- **Statistics data:** counter, maxPrice, maxShares, maxValue, totalShares and totalValue.

Data	Definition
isin	An International Securities Identification Number (ISIN) is a code that uniquely identifies a specific securities issue
symbol	The common symbology naming scheme; a string that consists of the Primary market symbol, plus an identifier for the Primary market e.g. "RDSAl" and "RDSAa" Also known as the Turquoise 'Instrument ID' / 'UMTF' for a particular Instrument on Turquoise and Turquoise Europe.
mic	Market Identifier Codes (MIC), ISO10383 codes used by Turquoise to recognise its Order Books (Segment MICs) are as follows: Segment MIC for Turquoise: • **Turquoise Dark Order Book** (TRQM) Segment MIC for Turquoise Europe: • **Turquoise Dark Order Book** (TQEM)
primaryMic	Market Identifier Codes (MIC), ISO10383 codes used by Turquoise to recognise Primary Markets are as follows: • London Stock Exchange (XLON, XLOM) • London Stock Exchange Alternative Investment Market (AIMX) • Bolsa De Madrid (XMAD) • Euronext Paris (XPAR) • Deutsche Börse Xetra (XETR) • SIX Swiss Exchange (XSWX) • Oslo Bors (XOSL) • Irish Stock Exchange (XDUB)

Data	Definition
	• Budapest Stock Exchange (XBUD) • Prague Stock Exchange (XPRA) • Euronext Amsterdam (XAMS) • Euronext Brussels (XBRU) • Euronext Lisbon (XLIS) • Nasdaq Helsinki (XHEL) • Nasdaq Stockholm (XSTO) • Borsa Italiana Equity (MTAH) • Prague Stock Exchange (XPRM) • Electronic Share Market (MTAA) • Nasdaq Copenhagen A/S (XCSE) • Wiener Boerse Ag Amtlicher Handel (WBAH) • Euronext Growth Paris (ALXP) *The following markets are not currently supported on TGHL or TGHE, as they do not have **Turquoise Dark Order Books**.* • *Luxembourg Stock Exchange (XLUX)* • *Nasdaq/NGs (Global Select Market) (XNGS)* • *New York Stock Exchange (XNYS)* • *Warsaw Stock Exchange/Equities/Main Market (XWAR)*
currency	Currency in which prices for a tradable instrument is expressed. A list of all codes is contained in ISO 4217 - Codes for the representation of currencies and funds, except that, for SEAQ compatibility, GBX has been retained.
Id	Unique identifier of the trade.
price	Execution Price.
shares	Number of Shares traded. This is on a per instrument basis and per Execution Venue MIC basis (TRQM / TQEM)
value	Value of a single Trade (Price X Shares = Value) Instruments with a currency of GBX we convert value to GBP. All other currencies retain their Currency code and no conversion happens. Rounding is to 2 decimal places.
transactionTime	Time the trade took place Unix Timestamp. X seconds after 1 January 1970

Data	Definition
counter	Total Number of Trades that occurred within the Trading day. This is on a per instrument basis and per Execution Venue (MIC) basis (TRQM / TQEX)
maxPrice	Largest Trade (by Value) Price for the instrument for the current trading day. This is on a per instrument basis and per Execution Venue (MIC) basis (TRQM / TQEM)
maxShares	Largest Trade (by Value) in number of Shares for the current trading day. This is on a per instrument basis and per Execution Venue (MIC) basis (TRQM / TQEM)
maxValue	Largest Trade by Value for the instrument for the current trading day. MaxPrice x MaxShares = MaxValue This is on a per instrument basis and per Execution Venue (MIC) basis (TRQM / TQEM) Instruments with a currency of GBX we convert value to GBP. All other currencies retain their Currency code and no conversion happens. Rounding is to 2 decimal places.
totalShares	Total number of Shares that has been traded for the current day This is on a per instrument and per Execution Venue (MIC) basis (TRQM / TQEM)
totalValue	Total Value has been traded for the current day. Expressed in the currency of Instrument. This is on a per instrument and per Execution Venue (MIC) basis (TRQM / TQEM)

Statistics data is always the latest value/aggregated value. Statistics data is updated for an instrument each time a new trade/execution occurs in the **Turquoise Dark Uncross** (per Execution Venue).

Turquoise Block Insights will only publish data during trading hours and business days **Turquoise Dark Order Books** operate, further details can be seen in Section 8.0.

6.0 Turquoise Block Insights Data Licensing, Access & URLs

6.1 Turquoise Market Data Licensing

To be able to receive access, customers will need to ensure they (and where applicable their software provider) have the appropriate market data licences in place.

Customers can use the London Stock Exchange Market Data Portal for any new licensing applications that may be required (and can refer to the Customer Notification for more information).

Further information can be found on the Market Data, Pricing and Policies Page below:

Pricing and Policies | London Stock Exchange

If you'd like to find out more about Market Data, please use the 'Contact us' at the bottom of the above page.

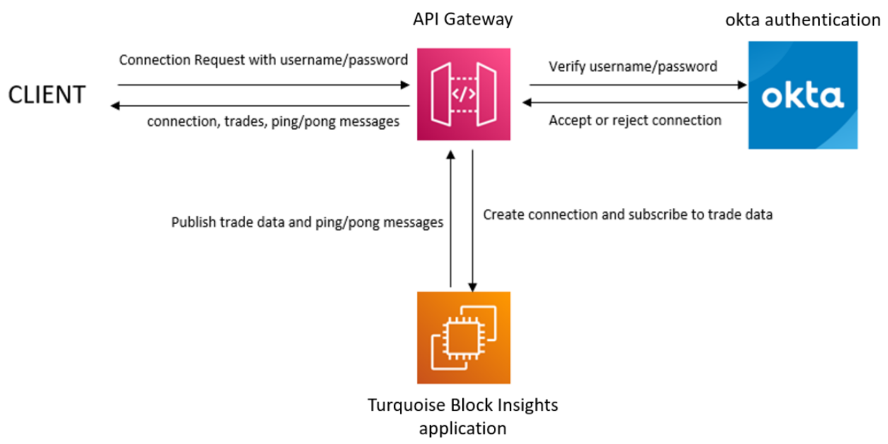
6.2 WebSocket API

WebSocket API is a bidirectional protocol used to facilitate the communication between a server and a user. The connection between the server and the client is kept alive until it is deliberately terminated from both ends.

Turquoise Block Insights application implements such technology provided by AWS, allowing a client to receive continuous market data, without closing the connection after each update. Therefore, it allows the client to receive price fluctuation and movement data, as well as up to date statistics, without the need to reconnect to the server.

The connection between the client and the WebSocket is established via an API Gateway, which ensures a single-entry point for all API calls that come into **Turquoise Block Insights** application. It also assures the security and scalability of the connections. Therefore, the client requests are first going through an API Gateway to ensure the connection with the WebSocket. Using the API Gateway, clients can get more flexible and easier access to specific REST endpoints to communicate with the server.

An over simplistic representation of how the application communicates with the server is shown below:



Okta is used to authorise all connection requests. Equities Technical Onboarding team (eqtechonboarding@lseg.com) will assist you in obtaining access to an okta account. The username and password must be provided in all connection requests. The EQ Technical Onboarding Team will create the user in OKTA. Once the user is added in OKTA, the user will receive a welcome email from OKTA to complete the user setup. This requires the user to setup their password and the multifactor authentication. After the OKTA setup has been completed, the okta credentials will be verified by the API Gateway.

When a client start a connection to the application, the application attempts to connect to the server. The connection is established through the API Gateway and it is successful only if the client provides valid login credentials. To establish a connection and subscribe to a service**, the client needs to use a public URL and their login credentials**, which should be provided by the EQ Technical Onboarding Team upon request. The EQ Technical Onboarding Team should also be able to provide further instructions to help the client connect to the server.

EndPoint – Public URL

Location	Endpoint Source URL	Region
PROD	wss://s51nqd0bki.execute-api.eu-west-2.amazonaws.com	eu-west-2
PRODDR	wss://9ntztjon73.execute-api.eu-west-1.amazonaws.com	eu-west-1
PROD_UAT	wss://goqj1gdn3i.execute-api.eu-west-2.amazonaws.com	eu-west-2

Customers may utilise either the Production 'PROD' environment or the PROD_UAT environment for testing purposes, both of which will stream production data to support customer testing activities; however please note the PROD_UAT service will only be available when new functionality is introduced.

7.0 Turquoise Block Insights Connection & Data Format

Connect

To connect to the websocket you must send a websocket upgrade request to the application URL. You must include your username and password as Headers attached to your request. You can optionally specify the sequence number you would like to start receiving trades from by adding this value to the end of the connection URL:

```
'?startSeqNo=<sequence number>'
```

for example: `'wss://example-url.com?startSeqNo=15'`

If the request is successful, the user will receive an OK response and will then start receiving trade data through the websocket connection.

Connect response:

```
{
  "action": "AUTH_SUCCESS"
}
```

Data will be provided based on the given start sequence number following these rules:

1. **sequenceNumber** that is lower than the lowest seqNo in TBI Kafka topic.
   Messages will start from the first message of the current day.
2. **sequenceNumber** that is in the TBI Kafka topic.
   Messages will start from this seqNo.
3. **sequenceNumber** that is too high or **sequenceNumber** that is null.
   Messages will start from the current live trade.
4. Decimal **sequenceNumber**
   Decimals will be truncated and the integer sequenceNumber will be used.

If no error is thrown by the server and user provides the correct details, the server should return the desired trades, which would come as a JSON file, like the following example:

```
{
  "action": "TRADES",
  "seqNo": 20,
  "prevSeqNo": 15,
  "data": [
    {
      "instrument": {
        "currency": "EUR",
        "isin": "FR0000120578",
        "mic": "TRQM",
         "primaryMic":"XLON",
        "symbol": "SANp"
      },
      "statistics": {
        "counter": 23,
        "maxPrice": 78.5879,
        "maxShares": 551547,
        "maxValue": 43344920.48,
        "totalShares": 4115409,
        "totalValue": 322926181.59
      },
      "trades": [
        {
          "id": 301472956853018,
          "price": 78.52285,
          "shares": 188872,
          "value": 14830767.73,
          "transactionTime": 1619006192751471000
        },
        {
          "id": 301472956853019,
          "price": 78.52285,
          "shares": 1.707E+4,
          "value": 1340385.05,
          "transactionTime": 1619006192751471000
        }
      ]
```

```
    }
  ]
}
```

Each user can maintain only one active websocket connection with the service at a time, if new connection is created by a user that has a currently open websocket connection the old connection will be disconnected and the new connection will be processed.

Ping/Pong behaviour

Every five minutes the application will send a **ping** message to all open connections. Please configure your client to respond to **ping** messages with **pong** messages, any connections that do not respond to a **ping** sent by the server will be closed. **Ping/Pong** expects timestamp in milliseconds. When the server receives a **ping** it will respond with a pong containing the current server timestamp in milliseconds, when the server receives a **pong** it will not send any response.

Ping format:

```
{
  "action": "PING",
  "timestamp":"1762250926904"
}
```

Pong format:

```
{
  "action": "PONG",
  "timestamp":"1762250926904"
}
```

Disconnect

Finally, due to the nature of the connection to a WebSocket, it does not end until the client disconnects. To execute this final command, the user must send a disconnect request to the server. If this request is processed successfully, the client will be disconnected and will not receive any more trade data.

Disconnect request:

```
{
  "action": "DISCONNECT"
```

```
}
```

Disconnect response:

```
{
  "action": "AUTH_SUCCESS"
}
```

Data Formats - Instrument

<table>
<tr><th>Name</th><th>Description</th><th>Example</th></tr>
<tr><td>symbol</td><td>Instrument symbol/UMTF</td><td>LSEGI</td></tr>
<tr><td>isin</td><td>International Securities Identification Number</td><td>GB00B0SWJX34</td></tr>
<tr><td>mic</td><td>Execution Venue (MIC)
<table><tr><th>Value</th><th>Description</th></tr><tr><td>TRQM</td><td>Turquoise Dark Order Book (TGHL)</td></tr><tr><td>TQEM</td><td>Turquoise Europe Dark Order Book (TGHE)</td></tr></table></td><td>TRQM</td></tr>
<tr><td>primaryMic</td><td>Market Identifier Codes (MIC), ISO10383 codes used by Turquoise to recognise Primary Markets are as follows:
London Stock Exchange (XLON, XLOM)
London Stock Exchange Alternative Investment Market (AIMX)
Bolsa De Madrid (XMAD)
Euronext Paris (XPAR)
Deutsche Börse Xetra (XETR)
SIX Swiss Exchange (XSWX)
Oslo Bors (XOSL)
Irish Stock Exchange (XDUB)
Budapest Stock Exchange (XBUD)
Prague Stock Exchange (XPRA)
Euronext Amsterdam (XAMS)
Euronext Brussels (XBRU)
Euronext Lisbon (XLIS)
Nasdaq Helsinki (XHEL)
Nasdaq Stockholm (XSTO)</td><td>XLON
XPAR, MTAA</td></tr>
</table>

- Borsa Italiana Equity (MTAH)
- Prague Stock Exchange (XPRM)
- Electronic Share Market (MTAA)
- Nasdaq Copenhagen A/S (XCSE)
- Wiener Boerse Ag Amtlicher Handel (WBAH)
- Euronext Growth Paris (ALXP)

currency	Instrument currency	GBX

Data Formats - Statistics

Name	Description	Example
counter	Total Number of Trades	90
maxPrice	Largest Trade (by Value) – Price	10.75
maxShares	Largest Trade (by Value) – Number of Shares	2500000
maxValue	Largest Trade by Value	26875000.00
totalShares	Total Number of Shares Traded	12000000
totalValue	Total Value of Trades	125160000.00

Data Formats - Trades

Name	Description	Example
id	TradeID	301472956853018
price	Price of Shares Traded	10.5
shares	Number of Shares Traded	10
value	Value of Trade	105.00
transactionTime	Unix Timestamp: X seconds after 1 January 1970	1620825159000

8.0 Turquoise Block Insights Operating Times

The **Turquoise Block Insights** service will only publish data during business days and hours when **Turquoise Dark Order Books** are operational as detailed below; however connectivity to the WebSocket API is always available from 6am up to 8pm, 5 days a week.

8.1 Trading Calendar

Turquoise typically observes the domestic market practice for open business days. Therefore, where the Primary market of a Financial Instrument is closed on a business day, Turquoise will also be closed for that Market (for example, the Norwegian 'Oslo' market is closed on 24 December so Turquoise is also closed for the Norwegian 'Oslo' Market). This applies to all Turquoise trading services.

Where there is cause for doubt a Turquoise Notice is sent out to Participants for clarification. The up-to-date Turquoise Trading Calendar can be found on the Turquoise website.

8.2 Turquoise Daily Trading Schedule

Each of the trading days within Turquoise is divided into the sessions shown in the following table and diagram.

Time (UK)	Session Name	Order Book Type	Summary
	System Start-up	**Turquoise Dark Order Books**	*System connectivity allowed.* *No Order entry/amendment allowed.*
08:00-16:45	Normal Trading	**Turquoise Dark Order Books**	**Turquoise Block Insights** trade data and aggregated statistics are published.
Ad-Hoc	Trading Halt	**Turquoise Dark Order Books**	*No Matching allowed.* *No Order entry/amendment allowed.* *Cancellation of Orders is permitted but amendments are not.*
16:45	Close	**Turquoise Dark Order Books**	*No Order management.* *No matching.* *Persistent Orders are cancelled.*
16:45:01	End of Day	**Turquoise Dark Order Books**	*Turquoise Market End.*

9.0 Turquoise and Group Ticker Plant (GTP) Documentation

9.1 Detailed information regarding Turquoise

For further information regarding Turquoise and Turquoise Europe markets, and **Turquoise Block Discovery**, please refer to the following documentation which can be found in the Turquoise Document Library:

- **Turquoise Trading Services Description**
- **Turquoise Block Discovery Service Description**

9.2 Detailed information regarding LSEG's Group Ticker Plant and Turquoise

For further information regarding interfacing with LSEG's Group Ticker Plant (GTP) to receive Turquoise market data, please refer to the following documentation which can be found in the GTP Documentation Library.

10.0 Turquoise Block Insights Support

Technical Account Management

For functional queries, client on-boarding and technical advice about the **Turquoise Block Insights** service:

- Telephone: +44 (0)20 7797 3939
- Email: londontam@lseg.com
- Hours: 7:00 – 18:00

EQ Technical Onboarding

For any OKTA related queries and issues:

- Telephone: +44 (0)20 7797 3939
- Email: eqtechonboarding@lseg.com
- Hours: 7:00 – 18:00

Client Support

For assistance with technical support queries:

- Telephone: +44 (0)20 7797 1500
- Email: Support@lseg.com
- Hours: 7:00 – 18:00

Contact Details

Turquoise Global Holdings Limited
10 Paternoster Square, London, EC4M 7LS

E: sales@tradeturquoise.com
T: +44 (20) 7382 7600

Disclaimer