Agenda

• Introduction

• Hard Brexit Contingency Plan:
  • Turquoise
  • TRADEcho
  • Third Country Member Firm Transaction Reporting

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  • London Stock Exchange - Release 9.4.6
  • Market Data Updates

• SOLA 14 – IDEM and CurveGlobal Markets

• Milan Updates

• Q&A
"Hard" Brexit Contingency Plans

Ali Khaloufi
Technical Account Manager
Client Technology Services - London
Turquoise “Hard” Brexit Contingency Plans
In the event of a “Hard” Brexit, Turquoise plans to operate two Multilateral Trading Facilities (MTF).

- **Turquoise Global Holdings Limited (“TGHL”)**
  - Existing venue authorised and regulated by the Financial Conduct Authority (FCA) of the United Kingdom.
  - Trading in UK, US and European Economic Area (EEA) securities.

- **Turquoise Global Holdings Europe B.V. (“TGHE”)**
  - New venue authorised and regulated by the Autoriteit Financiële Markten (AFM) of the Netherlands
  - Trading in EEA securities only
Both markets will operate independent Turquoise Lit™, Turquoise Plato Lit Auctions™ and Turquoise Plato™ Order Books (including Turquoise Plato Block Discovery™ and dark-lit sweep).

Orders will automatically be routed to the correct venue based on the membership of the User ID.

Members should work with their CCP to ensure appropriate clearing set up for both TGHL and TGHE memberships.

Members should load relevant short/long code mapping to TGHE membership on Member Portal.

Existing CompIDs and UserIDs will remain for TGHL membership. New CompID and UserIDs should be requested for use on TGHE.

Logical connectivity charges will apply to both entities.

Connectivity for both TGHL and TGHE will remain in existing data centres. No new physical connectivity is required. Existing gateway IP ranges will remain the same.
Turquoise Release 9.4.6
Release 9.4.6 - Mandatory Changes

- Last Market will be introduced in Execution Report Messages, the Segment MIC Code will be populated to confirm which venue the execution took place.
  - Native Interface – LastMarket
  - FIX and Drop Copy Interface – LastMkt (tag 30)
- MarketID (tag 1301) on Post Trade Interface will include additional values to distinguish TGHE
GTP Mandatory Changes

- New values added to the following fields to distinguish TGHE and TGHL Order Books:
  - Venue Instrument ID
  - Source Venue
- New GTP Instrument IDs will be provided for instruments on each new Turquoise Europe Order Book.
- Market Data channels will remain the same.
- Vendors are requested to have separate identifiers for the different execution venues in line with the operating MIC.
‘Venue Instrument ID’ field in the Instrument Directory messages will identify Instruments belonging to Turquoise Europe Markets via the following suffixes:

- _EI - Turquoise Lit™ Order Book (TGHE)
- _EM - Turquoise Plato™ Order Book (TGHE)
- _EA - Turquoise Plato Lit Auctions™ Order Book (TGHE)
Three New Source Venues

Three new Source Venues added to reflect the new Turquoise European Order Book.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>London Stock Exchange</td>
</tr>
<tr>
<td>2</td>
<td>Borsa Italiana – Cash Equities and Fixed Income</td>
</tr>
<tr>
<td>3</td>
<td>Borsa Italiana – Derivatives (IDEM)</td>
</tr>
<tr>
<td>5</td>
<td>Turquoise Lit™ Order Book (TGHL)</td>
</tr>
<tr>
<td>6</td>
<td>Turquoise Plato™ Order Book (TGHL)</td>
</tr>
<tr>
<td>8</td>
<td>Borsa Italiana – Trading After Hours (TAH)</td>
</tr>
<tr>
<td>10</td>
<td>EuroTLX</td>
</tr>
<tr>
<td>11</td>
<td>TRADEcho</td>
</tr>
<tr>
<td>12</td>
<td>Turquoise Plato Lit Auctions™ Order Book (TGHL)</td>
</tr>
<tr>
<td>13</td>
<td>Reserved For Future Use</td>
</tr>
<tr>
<td>14</td>
<td>Turquoise Lit™ Order Book (TGHE)</td>
</tr>
<tr>
<td>15</td>
<td>Turquoise Plato™ Order Book (TGHE)</td>
</tr>
<tr>
<td>16</td>
<td>Turquoise Plato Lit Auctions™ Order Book (TGHE)</td>
</tr>
</tbody>
</table>
Turquoise Reference Data Files

Changes

• New files being introduced for Turquoise Europe with prefix TQEX.
• Existing files, with prefix TRQX, will be for Turquoise UK.
• File structure between the two files will be the same.
• New fields introduced to Instruments file.
• Visibility field no longer supported.
• Website File "Download.xls" is being decommissioned.
Turquoise Customer Development Service (CDS) was upgraded on 2 September 2019 with the new Brexit configuration and release 9.4.6 functional changes.

- Member ID’s and technical configuration for TGHE and TGHL has been updated to permit order entry in all available securities.

- No new physical connectivity is required. Existing gateway IP addressing will remain the same.
• Certification test is mandatory for all Native software

• Certification test is required for any other software which is modified in order to support the release.

• All application certifications must be completed in order to be allowed to take part in the mandatory Customer Dress Rehearsals.

• Sign-off that all software and market data software has been tested is required before production go-live.
The commencement of Turquoise Global Holdings Europe B.V. ("TGHE") operations is subject to a final decision of both TGHE and Turquoise Global Holdings Limited ("TGHL"). The timing and outcome of that decision will depend on considerations related to the various implementations of Brexit. This could include a 'no deal' Brexit as well as other scenarios that may arise such as a change to the date that the UK is due to leave the EU, other transitional arrangements that may be agreed, or equivalence decisions that may be granted by authorities.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 September 2019</td>
<td>Functional Release CDS Go-Live</td>
</tr>
<tr>
<td>tbc</td>
<td>Customer Dress Rehearsal</td>
</tr>
<tr>
<td>28 October 2019</td>
<td>Functional Release Technical Go-Live</td>
</tr>
<tr>
<td>tbc</td>
<td>Turquoise Europe Production Go-Live*</td>
</tr>
</tbody>
</table>
TRADEcho “Hard” Brexit

Contingency Plans
TRADEcho Hard Brexit

- TRADEcho has established an EU APA service based in Amsterdam, approved by the Autoriteit Financiële Markten (AFM).

- Customers will be granted access to the EU APA service in addition to the UK APA service under their current agreements.

- Customers will indicate which APA they are reporting to via the incoming message or within the APA preference section in the TRADEcho Portal.
TRADEcho Mandatory Changes

- Clients will decide which APA a report is submitted to:
  - FIX - tag 25011 ‘TargetAPA’
    - ECHO (UK)
    - ECEU (EU)
    - If left blank – APA only clients will be defaulted to ‘ECHO’, SRR clients the firms APA
      Preferences will be checked to see which APA to use
    - GUI/CSV – ‘TargetAPA’ available for trade report entry

- SI Registry updates for SIs to indicate which regime a firm is an SI in

- SRR Customers will need to check/change their rules configuration via the
  TRADEcho Web Portal in the event of Hard Brexit
TRADEcho GTP Mandatory Changes

Enabling Venue of Publication to below Messages Types, to identify the regulatory regime which the transaction was published on:

- Message Type (0x54) – MiFID Trade Report
- Message Type (0x47) – SI Quote

  Available values:
  - ‘ECHO’ – for UK APA
  - ‘ECEU’ – for EU APA
  - MIC code of relevant venue under which transaction was published

- Message length increase on both messages
Timeline – TRADEcho Brexit

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 September 2019</td>
<td>GTP Venue of Publication Enabled</td>
</tr>
<tr>
<td>1 November 2019</td>
<td>Production Business Go-Live*</td>
</tr>
</tbody>
</table>

*The timeline above sets out the expected timeframe to support TRADEcho in a "hard" Brexit scenario. Dates are dependent on the outcome of Brexit negotiations and any agreed transitional agreements.

For additional information, please refer to our TRADEcho Brexit Readiness Pack:

Transaction Reporting “Hard”
Brexit  Contingency Plans
Transaction Reporting Overview

• Post-Brexit, all member firms located outside of the UK will be considered to be Third Country members for UK trading venues; similarly, UK-based member firms will be considered to be Third Country members for EU trading venues.

• Third Country Member Firms should submit transaction reports for all on-book and off-book trade executed on the LSEG trading venues for submission to the relevant National Competent Authority (NCA).

• LSEG trading venues (Borsa Italiana, EuroTLX, London Stock Exchange, Turquoise UK, Turquoise Europe and CurveGlobal) have partnered with UnaVista’s ARM.

• Third Country member firms that use UnaVista for their own transaction reporting under MiFIR should contact UnaVista to discuss additional details around its Venue Collection Service which can deliver the member firm’s transaction report data to the relevant LSEG trading venue.

• Third Country Members that do not use UnaVista Venue Collection Service will be required to submit their transaction reports to the Trading Venues via sFTP.
Transaction Reporting Process

- LSEG trading venues will use the UnaVista ARM to validate Third Country member transaction report details against ESMA/ FCA Transaction Reporting Validation Rules before submission to the relevant NCA.

- ESMA validation errors and NCA rejection errors will be generated by the ARM.

- Third Country Member Firms are expected to submit transaction reports for all trades executed on T and resolve any ARM validation errors by 9 am London local time, on T + 1.

- Trading Venues will in addition reconcile report submissions in the ARM against its own internal records.

- Any discrepancies against the trading venue’s own records must be corrected by 5pm London local time on T+ 1.
Transaction Reporting Process

Member uploads TRs to UK/EU ARM
[Anytime on T]

Member submits corrections for ARM validation errors
[by 9am T+1]

Member is notified via email if reconciliation errors exist
Member contacts TR team for assistance
[from 10am T+1]

London time specified

UK/EU ARM validates TRs and submits valid TRs to NCA
UK/EU ARM generates response files for TR status
[on receipt from Member]

TV reconciles member transactions with TV trades
[10am T+1]

Member submits corrections
[by 5pm T+1]
Transaction Reporting – Actions

• Third Country Members must request, complete and return the ‘Member Firm Declaration Form’ to the Membership team (membership@lseg.com) unless they have already done so.

• EEA member firms that will be trading on UK venues via a UK Branch office only should contact the Membership Team to update their membership details to reflect this.

• For SFTP set up, please contact your Technical Account Manager or the Technical Account Management team at, londontam@lseg.com.

• Third country member firms must have completed transaction reporting testing and certified by the close of business on Friday 18 October 2019.
Transaction Reporting - Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction Reporting CDS</td>
<td>16 September 2019</td>
</tr>
<tr>
<td>Transaction Reporting Production Go-Live</td>
<td>28 September 2019</td>
</tr>
</tbody>
</table>

Customers currently using the existing Assisted Reporting process can continue to do so, though this is expected to be decommissioned at a later date.

For additional information on Transaction reporting post Brexit, please refer to the document link below:

LSE Release 9.4.6

- Trading interfaces – new field “Last Market” added to the Execution Report message
- Request For Quotes enhancement – new Auto-complete model for ETPs
- Reference data changes to the XLON Instrument file
Trading interfaces - new field

- New field “LastMarket” available in the Execution Report message
- Provides the segment MIC to confirm on which market the execution took place
- Native – no change to the format of the Execution Report message as previous reserved field reused
- New LastMkt (tag 30) added to the FIX Trading and Drop Copy Execution Report messages
- MarketID (tag 1301) already available via the Post Trade interface
RFQ enhancements – New model

- No change to the two RFQ models for Equities and Deposit Receipts

- Current Auto-Complete (Winner Takes All) model applicable to ETPs in sizes above ESMA Large In Scale (LIS) thresholds

- New Auto-Complete “Anonymous to All” Auction RFQ Model with Order Book Sweep model available for ETPs in sizes below ESMA Large In Scale (LIS) thresholds only

- When an Auto-Complete RFQ is sent for an ETP, Millennium will automatically choose the relevant model based on the LIS threshold
RFQ enhancements – New model

- Both Lit and Hidden order book orders are consolidated with RFQ Quotes as available liquidity

- Only orders at the prevailing visible Best Bid Offer (BBO) or better are considered

- RFQ Quotes and order book orders will be prioritised based on a combined Price-Time priority basis

- All existing order book rules for maintaining and losing priority due to quote replacement will be applied to the combined book

- The quote value must be equal to or greater than the Min Auction RFQ Quote Value (found in the Xلون Instrument reference data file)
# RFQ enhancements - Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Manual Winner Takes All</th>
<th>Auto-Complete Winner Takes All</th>
<th>Auto-Complete with Order Book Sweep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instrument type</strong></td>
<td>Equities, DRs &amp; ETPs</td>
<td>Equities, DRs &amp; ETPs (above LIS RFQs)</td>
<td>ETPs (below LIS RFQs)</td>
</tr>
<tr>
<td><strong>Anonymity</strong></td>
<td>Anonymous or named</td>
<td>Equities, DRs: Anonymous or named</td>
<td>Anonymous</td>
</tr>
<tr>
<td><strong>Market Maker Quotes</strong></td>
<td>RFQ Quotes are sent to the Requester: Best Execution or Select and Match models</td>
<td>RFQ quotes are NOT sent to the requester: execution against the best quote</td>
<td>RFQ quotes are NOT sent to the requester: execution against the best quote(s) and/or order(s)</td>
</tr>
<tr>
<td><strong>Post Trade – Trade Type</strong></td>
<td>RFQ Trade</td>
<td>RFQ Trade</td>
<td>RFQ Trade if the RFQ executed against a Quote, and Regular Trade if executed against an order</td>
</tr>
<tr>
<td><strong>Post Trade – Quote publication</strong></td>
<td>Opened Quotes published if trade is below LIS</td>
<td>Equities, DRs: Opened Quotes published if trade is below LIS</td>
<td>Opened Quotes published as trade is below LIS</td>
</tr>
</tbody>
</table>

**Instrument type:**
- Equities, DRs & ETPs

**Anonymity:**
- Anonymous or named

**Market Maker Quotes:**
- RFQ Quotes are sent to the Requester: Best Execution or Select and Match models

**Post Trade – Trade Type:**
- RFQ Trade

**Post Trade – Quote publication:**
- Opened Quotes published if trade is below LIS
RFQ enhancements – New model

Auto-Complete “Anonymous to All” Auction RFQ Model with Order Book Sweep
(available for ETPs in sizes below ESMA Large In Scale (LIS) thresholds only)

<table>
<thead>
<tr>
<th>Event 1 - Initiation</th>
<th>Event 2 - Response</th>
<th>Event 3 - Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requester</td>
<td>1.0 Participant submits quote request</td>
<td>3.1c Requestor gets an update on the trades or session expiry</td>
</tr>
<tr>
<td>1.1 RFQ process validity period starts</td>
<td>1.2 Quote request is disseminated to dealers</td>
<td>3.0 Execution criteria are checked consolidating both the RFQ book and the BBO or better orders/quotes in the normal Order book. System automatically executes if the conditions are met.</td>
</tr>
<tr>
<td>Trading Venue</td>
<td>2.1 Responses are not disseminated to the participant</td>
<td>3.1a Relevant dealers get an update on the trade or expiry. Others receive a notification.</td>
</tr>
<tr>
<td>2.0a Dealers submit quotes equal to or greater than the Min Auction RFQ Quote Value</td>
<td>2.0b Order book liquidity is put in direct competition with dealer quotes</td>
<td>3.1b Relevant trading participants in the order book get an update on the trade.</td>
</tr>
<tr>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
</tr>
<tr>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
</tr>
<tr>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
<td>RFQ Market Maker</td>
</tr>
</tbody>
</table>

Trading Venue

1.2 Quote request is disseminated to dealers

Requester

1.0 Participant submits quote request

1.1 RFQ process validity period starts
Instrument Reference data file

- Update existing “RFQ Price Deviation %” header to “RFQ Quote and Execution Price Deviation Threshold %”

- Two new columns added:
  - “RFQ Tick Structure ID”
  - “Min Auction RFQ Quote Value”
## LSE Release 9.4.6

<table>
<thead>
<tr>
<th>Service</th>
<th>Release Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Stock Exchange – Release 9.4.6 - CDS</td>
<td>23 July 2019</td>
</tr>
<tr>
<td>London Stock Exchange – Release 9.4.6 – Production go-live</td>
<td>TBC</td>
</tr>
</tbody>
</table>

- Updated technical documents, including the Service and Technical Description Request for Quote (RFQ) document, are available at:

Market Data Updates
MITCH Decommission

• London Stock Exchange MITCH will be decommissioned on 11 November 2019.

• Please ensure you have fully migrated to Group Ticker Plant. Technical Account Management team are working with any firms that have not yet migrated to GTP.
The following Group Ticker Plant (GTP) upgrades are presently live in the GTP CDS environment.

- Three new Source Venues.

- Venue Instrument ID field will indicate the Turquoise instrument’s respective European order book.

- New field, ‘Venue of Publication’ added to the MiFID II Trade Report message and the Systematic Internaliser (SI) Quotes message.

- New field, ‘Hidden Execution Indicator’ added to the Trade message
Hidden Execution Indicator

- New field ‘**Hidden Execution Indicator**’ added to the GTP Trade message.
- Hidden Execution Indicator indicates if the executed quantity was part of a hidden order or visible/displayed order.
- Reserved Field used, no increase in message length.
<table>
<thead>
<tr>
<th>Functionality</th>
<th>CDS</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turquoise Brexit</td>
<td>2 September 2019</td>
<td>TBC</td>
</tr>
<tr>
<td>- EU Source Venues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EU Instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hidden Execution Indicator</td>
<td>17 September 2019</td>
<td>Turquoise *</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 October 2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LSE *</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 November 2019</td>
</tr>
<tr>
<td>TRADEcho Venue of Publication</td>
<td>17 September 2019</td>
<td>TBC</td>
</tr>
</tbody>
</table>

* Dates are subject to internal testing and customer readiness. Final dates will be confirmed in due course.
SOLA Platform Upgrade

Flavio Ravotto
Manager, Customer Relationship Management Technology
Client Technology Services Italy
SOLA - Q4 2019

- **Reference Data File service (for IDEM)**
  - Technical Specifications: September 2019
  - Go-Live: October 2019
  - Specs and dates for the equivalent service for CurveGlobal Markets will be communicated in due course

- **SOLA 14 Updates and new HSVF Multicast Service**
  - Technical Specifications: September 2019
  - CDS availability: end of September 2019
  - Mandatory Conformance Test before the go-live
  - Go-Live *(dates TBC)*:
    - Curve: 25 November 2019 (CDR 9 November)
    - IDEM: 7 December 2019 (CDRs 16 and 23 November)
SOLA 14 will introduce some enhancements to the execution rules for Bilateral Negotiated Transactions (when part of a Bundle Order under the package transaction waiver) at sizes below MiFIR / MiFID 2 pre-trade “large in scale” threshold

- The **Price** of a Low-Sized NT:
  - will not be subject to Y and Z validations (circuit breakers will never be triggered)
  - will not update the last trading price for the instrument (and will not contribute to end-of day statistics, will not trigger stop orders and will not influence the potential triggering of future CBs)
  - will not be anymore constrained within the available best bid-offer spread available in the order book (new configurable price deviation percentage table will be introduced)

- the go-live date for this change (subject to regulatory approval) may be later than the technical go-live Version 14 of the SOLA® trading system, and will be separately communicated
SOLA 14 (2)

— Introduction of **Liquidity Status** (maker/taker) indicator field in SAIL and FIX execution reports messages
  
  This field indicates whether a trade derives from the execution of a passive or aggressive order; the field is blank in case of trades executed during auctions; in the currently live SOLA version this information is available in the Drop Copy only

— Introduction of the **Execution Source Code** field in trading protocols
  
  SOLA 14 will introduce support to the Futures Industry Association’s (“FIA”) simplified “Execution Source Code” schema; the field is a 1 character field added to the order entry, order modification, bulk quote data and related Execution Report messages (in both SAIL native and FIX protocols)
— **TVTIC** dissemination

   - TVTIC is not currently provided in Execution Reports but must be calculated according to the rules provided by Borsa Italiana in official docs

   - with SOLA 14 the TVTIC value will be added to the SAIL and FIX Execution Reports (16 bytes alphanumeric field)

— **It is important to point out that the TVTIC calculation rule will change together with SOLA 14**

   - Current rule:

     \[
     \{ [\text{Instrument ID}] \text{(4 chars)} + [\text{Group ID}] \text{(2 chars)} + [\text{Trade Number}] \text{(8 chars)} \} \text{ converted into numeric format via Base 62-> Base10 decoding}
     \]

   - New rule:

     \[
     [\text{Instrument ID}] \text{(4 chars)} + [\text{Group ID} – 2 \text{ characters} – converted into numeric format via Base 62-> Base10 decoding] \text{(4 chars)} + [\text{Trade Number}] \text{(8 chars)}
     \]
New HSVG Multicast Service (1)

- Current Market Data Feed for LSEG Derivatives Markets:
  - via HSVG (native feed of SOLA platform) – IDEM and CurveGlobal
  - GTP/GTP Lite service (service provided by LSEG) - IDEM

- Currently, HSVG service is provided via TCP protocol only

- In order to improve performances, we are introducing a new HSVG service based on UDP protocol that will be provided in parallel to the services already available (that will not be decommissioned)

- New HSVG Multicast will be available for IDEM and CurveGlobal Markets
New HSVF Multicast Service (2)

- HSVF UDP service will disseminate all the existing HSVF messages on UDP protocol (without the possibility to subscribe a subset of messages), and will have a recovery mechanism (TCP based); such recovery mechanism will be implemented using the existing HSVF (TCP) feed.

- The new service will have two different UDP Feeds (A and B feed) for resiliency purposes. The recovery mechanism will give customers the possibility to retrieve missed message from the real time channel.

- Customers will subscribe to a new Multicast Group dedicated to the service to receive the feed.

- The existing HSVF (TCP) service will remain unchanged. Customers not interested in the UDP service are not supposed to implement any change to the existing set up.
Milan Updates

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Client Technology Services Italy
Sponsored Access
Scope & Timeline

- The **Sponsored Access** allows **Sponsored Users** to trade under **Sponsoring Firm**’s Trading Code(s) without passing through the Sponsoring Firm’s Order Management Systems

- Documentation published in July 2019

- Go-live 23 September 2019
Features (1)

- Sponsored Clients will use dedicated Native Comp IDs
- Unpriced (e.g. Market) orders will not be enabled for SU
- Restricted Instrument List (upload via sFTP)
- Sponsor Portal:
  - Set-Up Max Gross Consideration
  - Set-Up Max Gross Consideration Alerts
  - SU connection monitoring
  - Kill switch
  - Suspension/Reactivation
  - access via 2 factors Authentication (RSA Token & Password) with Source IP filtering
Features (2)

— **Sponsored Access Controls:**
  - Max Order Value (set at Comp ID level entered/modified via Member Portal)
  - Max Gross Consideration ($\Sigma$ Value of trades executed during the day + $\Sigma$ Value of open orders)
  - Cancel On Disconnect (optional)
  - Kill Functionality

— **FIX Drop Copy:**
  - SU transactions Drop Copy
  - SU connection monitoring
  - Kill switch
  - Suspension/Reactivation
  - Optionally, if disconnected, the SU will be suspended
MIT Hardware Refresh, GTP Upgrade & MITCH Decommission
MIT Hardware Refresh (1)

— In **Q4 2019**, the Hardware on which the MIT platform runs (for **Borsa Italiana** and **EuroTLX**) will be replaced

— **No changes to Native and FIX Trading Protocols** will happen together with the Hardware Refresh

— **No changes to Native/FIX gateways IP and ports** will happen together with the Hardware Refresh
Together with the go-live of the Hardware Refresh, the MITCH service will be decommissioned

- Market Data for markets running on the MIT platform will be disseminated by the GTP and GTP Lite services only

- Customer Dress Rehearsals will be organized prior the go-live

- One of the key objectives of the project is to provide customers with a significant improvement of performances and to support new services
MIT Hardware Refresh (3) – Dates

— **Go-Live:**
  - **Saturday, 19 October 2019 (1\textsuperscript{st} Trading Day Monday, 21 October 2019)**

— **Customer Dress Rehearsals:**
  - **1\textsuperscript{st} CDR:** Saturday 28 September 2019
  - **2\textsuperscript{nd} CDR:** Saturday 5 October 2019

— **Participation to at least 1 CDR is to be considered mandatory**

— **Disaster Recovery scenario will be tested in at least 1 CDR**
Platform Failover

— Currently, the MIT platform runs in *Active-Active* mode (warm back-up)
  – the Secondary (Disaster Recovery) Instance of the Matching Engine is always active and is aligned in real-time with the Primary one
  – In case of Failover/Disaster Recovery the Secondary Instance does not need to be re-started (warm back-up)

— *After the HW refresh, the MIT platform will run in Active-Passive mode (cold back-up)*
  – the Secondary Instance of the Matching Engine is not active and needs to be re-started in case of Failover/Disaster Recovery
  – System will be back available within 30 minutes since the failover invocation (Markets will be restarted after all the internal checks will be completed)

— Together with the MIT HW refresh, as the Matching Engine will not run in *Active-Active* mode anymore, **the GTP Feed C will no longer be available**
  – In case of Failover, **only the B feed will be available from the Secondary Datacentre**
  – This functioning is the same currently in place for IDEM market
GTP Upgrade (Introduction of FPGA)

— Together with the MIT HW refresh, FPGA (Gen3) technology will be introduced for GTP FDI Multicast Channels for

  – Borsa Italiana channels disseminating data for markets running on the MIT platform (channels H, I, J, K)
  – EuroTLX (channels Q, R and S)

— No protocol changes are planned to happen together with the FPGA introduction

— No changes to Multicast Groups, TCP and UDP IP and ports will happen together with the FPGA introduction

— One of the key objectives of the project is to provide customers with a significant improvement of performances

— Bandwidth requirement for FDI Multicast Channels >= 1 Gbps
Millennium IT – Release 9.4
Scope & Timeline

• The new MIT release 9.4 is planned to go live in Q1 2020

• Documentation is planned to be published in Q4 2019

• Changes to RFQ mechanism will be introduced, in particular
  — Deferred publication of RFQ trades
  — Auction RFQ
  — Trade Summary Message (GTP and GTP Lite)
Deferred publication of RFQ Trades

— The Trading Platform will evaluate whether the publication of RFQ Trade is eligible to be delayed (according to the trade value and the capacity of counterparties) and, if so:
  - RFQ trades will be disseminated via GTP after the calculated delay (after N minutes, End of Day, T+2)
  - Information on the intended publish time will be sent to the delayed trade’s counterparties via Execution Reports (for both Native and FIX protocols)
  - Trade Publication will be communicated to delayed trade’s counterparties via TCR only (disseminated by the Post Trade Gateway)
— the Venue might decide to publish a delayed trade before the intended publishing time (in this case the relevant information will be sent to the counterparties of the delayed trade)
Auction RFQ (1)

— At present, auto RFQs are only executed against a single market maker quote in the RFQ book only and the market makers are expected to quote at least the requested quantity.

— With the new Auction RFQ model

  – the market makers can respond to an RFQ with quotes with a quantity less than (or equal to) the requested quantity

  – the RFQ can be executed against more than one market maker quote

  – interactions with the normal order book will be allowed
Auction RFQ (2)

Strategies:

— *Winner Takes All* without *Order Book Sweep*

— *Winner Takes All* with *Order Book Sweep*

— *Auction* without *Order Book Sweep*

— *Auction* with *Order Book Sweep*
Auction RFQ on Milan Markets

The following strategies, whose approval is still being defined, will be adopted for the markets supporting the RFQ model:

— on ETFPlus market the following strategies will be applied:
  – Winner Takes All with Order Book Sweep when RFQs will be above LIS
  – Auction with Order Book Sweep when RFQs will be below LIS

— on MOT (and ExtraMOT) market the Winner Takes All without Order Book Sweep strategy will be applied (independently on the RFQ value)
Brexit – Transaction Reporting
Brexit – Transaction Reporting (1)

- The Transaction Reporting model and process that will be applied for reporting transactions executed by UK Firms on Borsa Italiana and EuroTLX to the Italian regulator is equivalent to the *Third Country Member Firm Transaction Reporting* one described in the previous slides
  - Dedicated sFTP usernames and passwords will be assigned for Borsa Italiana and EuroTLX respectively

- **Testing are currently in progress**, UK Firms that intend to keep trading on Milan markets after Brexit that did not start testing yet are asked to contact the Customer Relationship Management Technology team ([Clients-Services@borsaitaliana.it](mailto:Clients-Services@borsaitaliana.it), +39 02 72 42 6 512) asap
Brexit – Transaction Reporting (2)

- The Transaction Reporting Manual is available at the following link:

- Transaction Reporting (and Reconciliation) Tests will be performed with **production** data in TR **UAT** environment

- Data will **not** be sent to the regulator during tests
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— **Service-Desk** (customer support desk)

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— **Market Access** (configurations, enablements, conformance tests, etc.)

  +39 02 72 42 6 668

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