TECHNICAL USER GUIDE

Fix Conformance Test Tool

Preface

The London Stock Exchange Group 'the Group' has introduced a new FIX 5.0 Interface and all customers adopting the new interface are required to pass a FIX based conformance test to prove the interoperability between their systems and the Group's TradElect system as specified in the FIX 5.0 Interface specification.

The purpose of this document is to provide details of the new FIX Conformance Test Tool that the Group is introducing at the same time as the new FIX 5.0 Interface. It gives a brief overview of the tool and steps through the various functional tests that make up the test.

This document has been produced by the Group to assist customers and while it has been prepared on the basis of the best information available, the Group accepts no liability for decisions taken, or systems work carried out by any party, based on this document.

Further copies of this document can be found at the following link:

http://www.londonstockexchange.com/techguidenotes

The London Stock Exchange FIX 5.0 Interface specification is available on our website at:

http://www.londonstockexchange.com/information-providers/technical-library/technical-specifications/service-technical-description.pdf

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1. Overview

The Fix Conformance Test Tool (FCTT) is a web based application that can be accessed at anytime (24 hrs a day x 5 days per week) from the point a customer has been enabled for the service. It is an automated service so customers are not assigned a Customer Test Analyst for the duration of the test as they are during a 'native' interface conformance test. Customers can run scenarios, edit properties, and customize scenario assignments based upon their trading profiles.

The conformance test comprises a number of functional scenarios which simulate interactions with the exchange. Customers step through each scenario in turn following the on screen instructions as presented by the tool. The tool validates messages and provides simulated responses and feedback during the test. At the end of the test, customers have an option to submit the test results or restart the test.

Customers access the FCTT via 1) a web based front end where they select the scenarios that are appropriate for them by completing a screen based questionnaire 2) a standard FIX connection in order to test against each scenario.

2. Access to the FCTT Application

Customers can access the FCTT application by contacting the Client Implementation Team. Customers should provide all required contact details (including name, address, telephone number and email address), and can use an existing FIX tradergroups for conformance testing or new ones can be allocated to them.

An enablement information form will be sent to customers containing 2 loginIDs, one for access to the trading environment and another for access to the retransmission environment. In addition, the form will contain an XXX030 USAP (with an associated retransmission CompID) and an XXX040 USAP (with an associated trading CompID). Furthermore, details of the correct port and two TCP/IP connections are provided, one for the web based GUI and one to connect the customer's application to FCTT FIX engine.

Customers will be sent their passwords via email.

2.1. Contact details

For access to the application, customers should contact the Client Implementation Team on 0207 797 3232.

If customers have any questions about the FIX conformance test or experience any technical problems during their FIX conformance test, they should contact the Client Technology Services Helpdesk on 0207 797 3100.

Support hours for the service are between 9am and 5pm GMT.

3. Conformance Test Process

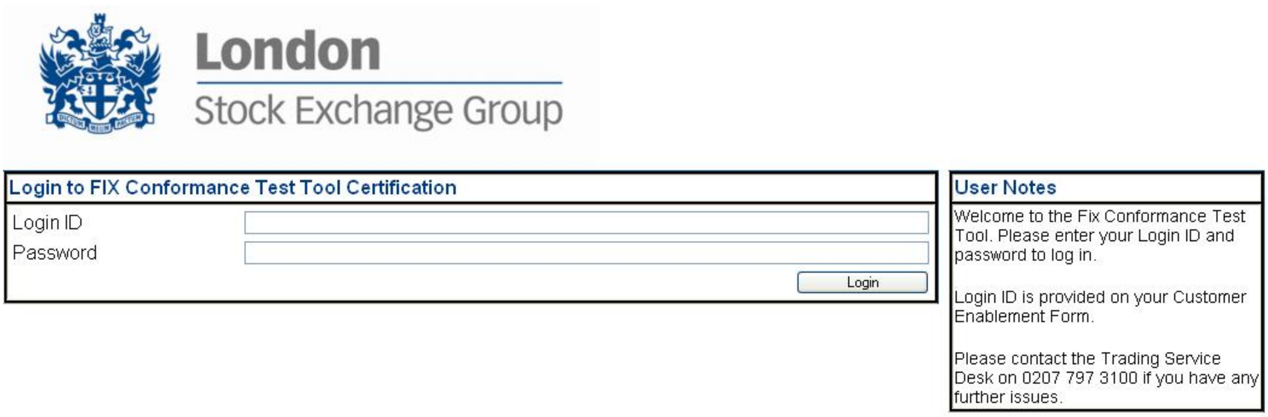
The following steps will guide customers through the FCTT application starting with establishing a connection through to running scenarios.

3.1. Connecting & Logging in to the FCTT website.

Using a web browser, customers should navigate to the following location:

https://londonstockexchange.certifix.com

The Login page is used as the entry point into the FCTT Certification Environment. The password is authenticated against an encrypted value in the FCTT database.



Customers should perform the following to log in:

- Go to the FCTT Certification Environment web site: https://londonstockexchange.certifix.com
- Enter a LOGIN ID into the “Login ID” text field.
- Enter a password into the “Password” text field.
- Select the “Login” button.
- If the login process is successful, either the last page viewed during the previous session or the “Scenario” page (if it is the first login) will now be viewable.

Customers should use the buttons at the top of the page to navigate the web site.

The navigation bar is present at all times whilst using the site except for when you are running a scenario.

When an application has logged on to the fix engine successfully the text in red will change to green and say connected to show that your application is logged on.

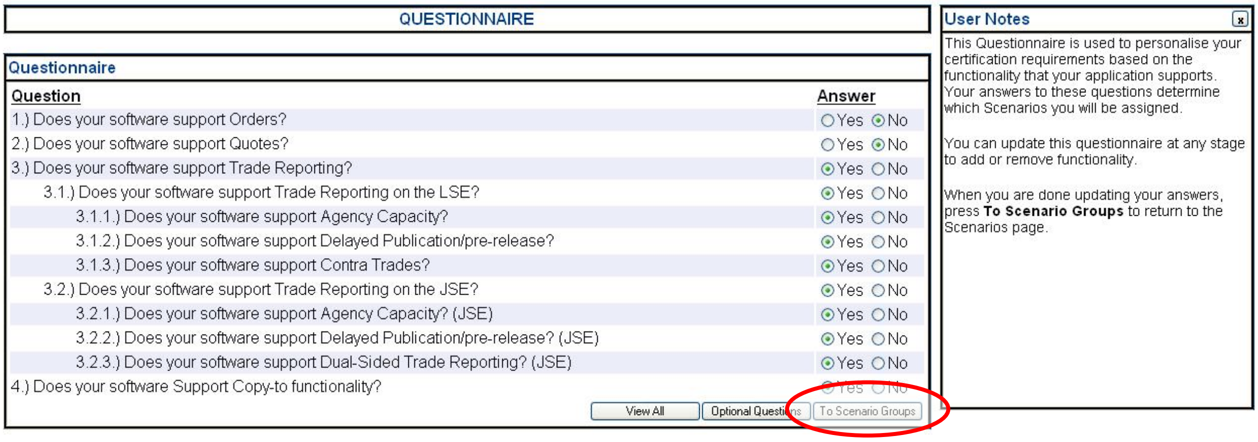
3.2. Questionnaire

The Questionnaire will be the first page presented when customers are starting their test for the very first time. All customers will need to answer the questionnaire before proceeding to their test scenarios.

Select the “Questionnaire” button at the top of the page to view the “Questionnaire” page.

The Questionnaire is used to personalise conformance requirements based on the certifying user’s trading profile. Answers to these questions determine which scenarios are assigned to a particular user.

Customers are required to select all scenarios that are applicable to their application and should update this page should their trading profile change. By default the questions are set to ‘No’. Each question should be answered initially to ensure the correct scenarios are generated.



Customers should refer to the questionnaire section in the test structure section of this document for information on which questions unlock which scenarios.

Customers should select the “To Scenario Groups” button once the questionnaire is complete to progress to the Scenario Groups Page.

3.3. Scenarios

Once selected, the “Scenario Groups” button at the top of the page enables customers to view the “Scenario Groups” page.

This page contains currently assigned customer Scenario Groups. A customer must pass all scenarios in the groups marked “Mandatory” to reach 100% test completion. The percentage of the scenarios passed is shown for each group. Overall progress is shown in the top right corner of the screen; if the user has passed ten of twenty scenarios, for example, the status bar will show 50% complete.

Scenarios Groups marked “Optional” are not required for conformance.

SCENARIO GROUPS			
Scenario Groups			
Group Name	**Protocol Version**	**Type**	**Progress**
A01 - Are You Ready To Start Conformance	Orders-Quotes-Trades (5.0)	MANDATORY	0%
T30 - LSE Trade Reporting	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T31 - LSE Trade Reporting, Agency Capacity	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T32 - LSE Trade Reporting, Pre-releasing	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T33 - LSE Trade Reporting, Contra-trading	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T34 - JSE Trade Reporting	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T35 - JSE Trade Reporting, Agency Capacity	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T36 - JSE Trade Reporting, Pre-releasing	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T37 - JSE Dual-Sided Trade Reporting	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T38 - Copy To	Orders-Quotes-Trades (5.0)	MANDATORY	100%
T39 - Session Level	Orders-Quotes-Trades (5.0)	MANDATORY	75%
T40 - Negative	Orders-Quotes-Trades (5.0)	MANDATORY	35%
Z01 - Inform Progress To Account Manager	Orders-Quotes-Trades (5.0)	OPTIONAL	50%

To see the individual scenarios, customers should select the desired scenario group. From this link, a list of available scenarios for that group that includes the pass/fail status, as well as other links to view past results, will be displayed.

A scenario is designated as “Passed” if it was successfully completed on the last non cancelled attempt. If a scenario is taken twice, with a pass on the first time and a fail on the second, the scenario will be designated as “Failed”.

SCENARIOS		
Orders-Quotes-Trades (5.0): T40 - Negative (MANDATORY)		35%
Scenario	Status	Options
T40 - N01 Invalid Sequence Number Range	Not Taken	View Logs
T40 - N02 Too Many Re-requests Outstanding	Not Taken	View Logs
T40 - N03 Period Authorisation Failed	Canceled	View Logs
T40 - N05 Order Must be Modified	Not Taken	View Logs
T40 - N06 Deletion Only as Below Min Order Size	Passed	View Logs
T40 - N07 ClientRef Must be Entered	Passed	View Logs
T40 - N08 Quote Spread must be less than or equal to Maximum for Security-Role	Passed	View Logs
T40 - N09 Trade Time Invalid	Not Taken	View Logs
T40 - N10 Trade Date Invalid	Not Taken	View Logs
T40 - N11 Not in Trade Reporting Period	Failed	View Logs
T40 - N12 TraderGroup Invalid for Member	Not Taken	View Logs
T40 - N13 No Trade Report Exists for trade Code	Not Taken	View Logs
T40 - N14 Inst_Seg_Curr Combination Invalid	Not Taken	View Logs
T40 - N15 No Unsuspended Role for Market Mechanism Type	Passed	View Logs
T40 - N16 FIX Gateway Conversion Failed	Passed	View Logs
T40 - N17 FIX Session for USAP is Currently Active	Not Taken	View Logs
T40 - N18 Suspended Line Connection Attempt	Passed	View Logs
T40 - N19 Market Closed	Not Taken	View Logs
T40 - N20 Invalid Segment Code	Not Taken	View Logs
T40 - N21 Order Size Field Invalid	Passed	View Logs

3.3.1. Viewing Logs

Customers should select the "View Logs" button next to the desired scenario to view past conformance results. This will open up a table containing each of the certification attempts. This table shows the status of the test attempt, the start date/time, the end date/time, and a link to the detailed logs.

Orders-Quotes-Trades (5.0) T30 - LSE Trade Reporting Logs:			
Status	Start Time	End Time	Action
Passed	Apr 3, 2009 2:45:20 PM	2:46:56 PM	View Log
Failed	Apr 3, 2009 2:41:33 PM	2:41:47 PM	View Log
Canceled	Apr 1, 2009 4:33:11 PM	4:34:52 PM	View Log
Failed	Apr 1, 2009 4:15:07 PM	4:32:19 PM	View Log

Within this form, the "View Log" button should be selected to see the log for a given scenario run.

Orders-Quotes-Trades (5.0) T30 - LSE Trade Reporting (Apr 3, 2009 2:45:20 PM - 2:46:56 PM)

Type	Time	Text
Scenario Passed	2:46:55 PM	Scenario finished.
Incoming Administrative	2:46:54 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=dbtest2^56=CertiFIX^34=479^52=20090403-13:41:21.075^10=035^
Outgoing Administrative	2:46:38 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=Server^56=dbtest2^115=A^34=479^52=20090403-13:46:38^10=021^
Incoming Administrative	2:46:24 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=dbtest2^56=CertiFIX^34=478^52=20090403-13:40:51.073^10=034^
Outgoing Business	2:46:08 PM	AR - Trade Capture Report Ack: 8=FIXT.1.1^9=188^35=AR^49=Server^56=admin^1128=8^34=478^52=20090403-13:46:08.869^571=TRep257^1003=Test408^856=6^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^573=0^58=Cancel^552=1^54=2^10=014^
System Action	2:46:08 PM	Send Message from Template (T30 - Trade Capture Report Cancel Ack) - MQ Reset
System Action	2:46:00 PM	Message successfully received and validated
System Action	2:46:00 PM	Wait for Inbound Message of Type(s) (AE) (Msgs Removed from MQ Until Found)
Incoming Business	2:45:54 PM	AE - Trade Capture Report: 8=FIXT.1.1^9=207^35=AE^49=dbtest2^56=CertiFIX^1128=8^34=477^52=20090403-13:40:21.058^571=TRep257^1003=Test408^856=6^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^32=1000^31=125^552=1^54=2^528=P^58=Cancel^10=183^
Outgoing Business	2:45:41 PM	AR - Trade Capture Report Ack: 8=FIXT.1.1^9=217^35=AR^49=Server^56=admin^1128=8^34=477^52=20090403-13:45:41.828^571=TRep255^1003=Test408^856=0^828=30^829=1000^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^573=0^58=Portfolio Rebalance^552=1^54
System Action	2:45:41 PM	Send Message from Template (T30 - Trade Capture Report Ack) - MQ Reset
System Action	2:45:36 PM	Message successfully received and validated
System Action	2:45:36 PM	Wait for Inbound Message of Type(s) (AE) LinkID=AE (Msgs Removed from MQ Until Found)
Incoming Business	2:45:30 PM	AE - Trade Capture Report: 8=FIXT.1.1^9=389^35=AE^49=dbtest2^56=CertiFIX^1128=8^34=476^52=20090403-13:39:57.761^571=TRep255^856=0^828=30^829=1000^1123=0^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^918=EUR^32=1000^31=125^60=20090403-13:39:57^64=20090406^552=2^54=2^453=2^448=DBMEMBER^447=D^452=1^448=ClientRefSell^447=D^452=3^526=343453^528=P^775=0^58=Portfolio Rebalance^54=1^453=1^448=MemberID256^

If a customer had failed the above scenario, there will be an error message displayed (in red).

Orders-Quotes-Trades (5.0) T31 - LSE Trade Reporting, Agency Capacity (Mar 13, 2009 7:24:23 AM - 7:24:54 AM)

Type	Time	Text
Scenario Failed	7:24:54 AM	Answer(s) did not match the expected result.
Outgoing Business	7:24:44 AM	AR - Trade Capture Report Ack: 8=FIXT.1.1^9=209^35=AR^49=Server^56=admin^34=2^52=20090313-12:24:44.613^571=TrRepID80^1003=Test153^856=0^828=0^829=1000^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008034141GBGBPTC1M^22=8^573=0^58=Portfolio Rebalance^552=1^54=2^
System Action	7:24:44 AM	Send Message from Template (T31 - Trade Capture Report Ack) - MQ Reset
System Action	7:24:41 AM	Message successfully received and validated
System Action	7:24:41 AM	Wait for Inbound Message of Type(s) (AE) (Msgs Removed from MQ Until Found)
Incoming Business	7:24:39 AM	AE - Trade Capture Report: 8=FIXT.1.1^9=382^35=AE^49=dbtest^56=CertiFIX^34=2^52=20090313-11:01:45.373^571=TrRepID80^856=0^828=30^829=1000^1123=0^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008034141GBGBPTC1M^22=8^918=EUR^32=1000^31=125^60=20090313-11:01:45^64=20090316^552=2^54=2^453=2^448=MemberID81^447=D^452=1^448=ClientRefSell^447=D^452=3^526=343453^528=A^775=0^58=Portfolio Rebalance^54=1^453=1^448=MemberID82^447=D

3.3.2. Running a Scenario

Customers should select the Scenario's name (which is a link) to run a scenario. The scenario will load in the "Scenario Runner" page.

The "Scenario Runner" page has three options: "Start", "Cancel", and "Toggle Logs'. Selecting the "Cancel" button quits the scenario and returns to the "Scenarios" page. The "Toggle Logs" button allows customers to enable the real-time scenarios logs at the bottom of the page. When enabled, this frame will refresh according to the rules specified in customers' Settings page.

Orders-Quotes-Trades (5.0) T30 - LSE Trade Reporting (Apr 3, 2009 2:45:20 PM - 2:46:56 PM)

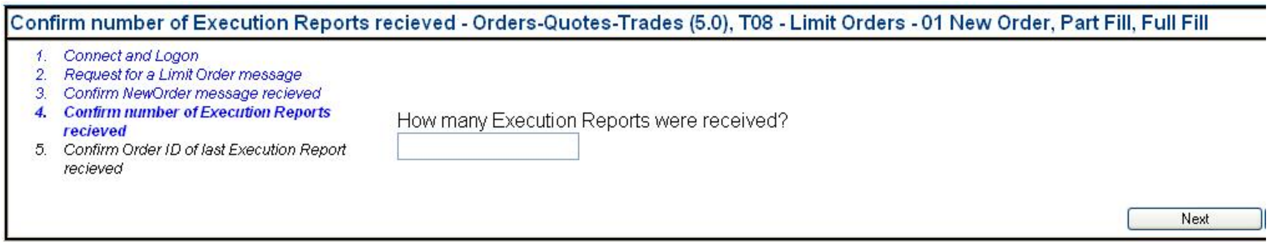
Type	Time	Text
Scenario Passed	2:46:55 PM	Scenario finished.
Incoming Administrative	2:46:54 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=dbtest2^56=CertiFIX^34=479^52=20090403-13:41:21.075^10=035^
Outgoing Administrative	2:46:38 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=Server^56=dbtest2^115=A^34=479^52=20090403-13:46:38^10=021^
Incoming Administrative	2:46:24 PM	0 - Heartbeat: 8=FIXT.1.1^9=60^35=0^49=dbtest2^56=CertiFIX^34=478^52=20090403-13:40:51.073^10=034^
Outgoing Business	2:46:08 PM	AR - Trade Capture Report Ack: 8=FIXT.1.1^9=188^35=AR^49=Server^56=admin^1128=8^34=478^52=20090403-13:46:08.869^571=TRep257^1003=Test408^856=6^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^573=0^58=Cancel^552=1^54=2^10=014^
System Action	2:46:08 PM	Send Message from Template (T30 - Trade Capture Report Cancel Ack) - MQ Reset
System Action	2:46:00 PM	Message successfully received and validated
System Action	2:46:00 PM	Wait for Inbound Message of Type(s) (AE) (Msgs Removed from MQ Until Found)
Incoming Business	2:45:54 PM	AE - Trade Capture Report: 8=FIXT.1.1^9=207^35=AE^49=dbtest2^56=CertiFIX^1128=8^34=477^52=20090403-13:40:21.058^571=TRep257^1003=Test408^856=6^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^32=1000^31=125^552=1^54=2^528=P^58=Cancel^10=183^
Outgoing Business	2:45:41 PM	AR - Trade Capture Report Ack: 8=FIXT.1.1^9=217^35=AR^49=Server^56=admin^1128=8^34=477^52=20090403-13:45:41.828^571=TRep255^1003=Test408^856=0^828=30^829=1000^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^573=0^58=Portfolio Rebalance^552=1^54
System Action	2:45:41 PM	Send Message from Template (T30 - Trade Capture Report Ack) - MQ Reset
System Action	2:45:36 PM	Message successfully received and validated
System Action	2:45:36 PM	Wait for Inbound Message of Type(s) (AE) LinkID=AE (Msgs Removed from MQ Until Found)
Incoming Business	2:45:30 PM	AE - Trade Capture Report: 8=FIXT.1.1^9=389^35=AE^49=dbtest2^56=CertiFIX^1128=8^34=476^52=20090403-13:39:57.761^571=TRep255^856=0^828=30^829=1000^1123=0^1116=1^1117=DBTRADER^1118=D^1119=76^48=GB0008847096GBGBPSET1^22=8^918=EUR^32=1000^31=125^60=20090403-13:39:57^64=20090406^552=2^54=2^453=2^448=DBMEMBER^447=D^452=1^448=ClientRefSell^447=D^452=3^526=343453^528=P^775=0^58=Portfolio Rebalance^54=1^453=1^448=MemberID256^

The scenario will begin once the “Start” button has been selected. An outline of the scenario steps is shown on the left side of the screen. The current step is emphasized for easy identification. The Scenario Runner will display directives, informational messages, or questions to the certifying customer. Customers must complete the directives, answer any questions, and select the “Next” button to continue to the next step. The Scenario Runner is independent of the back-side FIX connection.

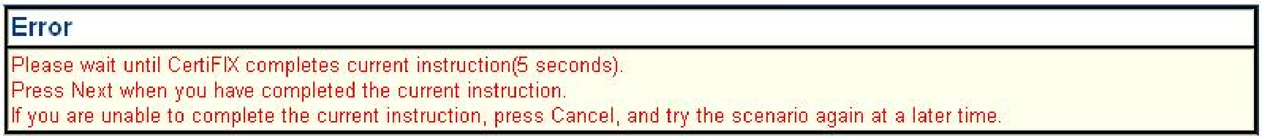
If help is enabled, a help box will be displayed on the right side of the screen.

Information on the FIX connection is displayed in the central table. The table displays connection status, inbound sequence numbers, outbound sequence numbers, Scenario progress, and contains a link to reset the FIX session.

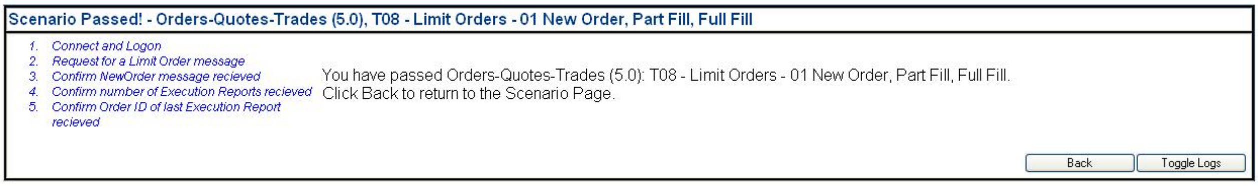
Depending on how the scenarios are created (with or without dynamic values), customers will either have to select an answer from a drop down or type in the correct answer.



In the event of a failure, an error box will be displayed to notify the certifying customer. Within the error box, recommended corrective measures will be provided to help the certifying customer continue with the scenario. These measures must be taken before the certifying customer can proceed to the next step of the scenario.



Upon successful completion, customers should select the "Back" button to return to the Scenarios page.



3.4. Connecting to the Fix Conformance Test Tool with a Client Application

In order to connect a FIX client to FCTT customers should first ensure that the client is set up with the correct sender and target CompIDs.

Sender CompID: Provided by the Exchange

Target CompID: **LSE01**

Connection Address: **206.65.180.151**

Connection Port: **51100**

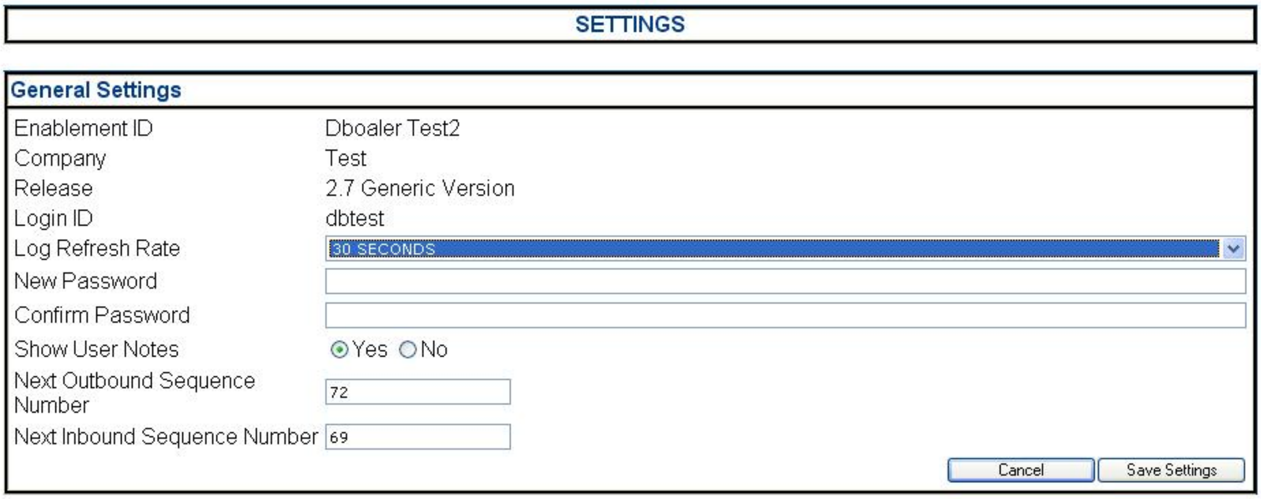
Please note that the Login ID associated with a given CompID must be logged onto the Fix Conformance Test Tool Website before the corresponding client application can login.

All FCTT scenarios will check that the customer is logged in before starting and will prompt the customer to login if not already logged in.

3.5. Customer Settings

Customers' configurable "Settings" can viewed by selecting the "Settings" button.

This page contains the certifying customer's personal settings.



The Log Refresh Rate is the interval at which the log is automatically refreshed while running a scenario. Select the refresh rate from the drop-down list. If customer prefers to refresh the logs manually, set the Log Refresh Rate to NO-REFRESH. The browser's refresh feature (F5 for Internet Explorer) can be used to refresh the logs at any time.

To change a password, values should be entered into the "New Password" and "Confirm Password" text fields. Their contents must match.

A password must be at least 8 characters long.

Customers can also set their next Inbound and Outbound sequence numbers in order to help them connect to the counter party without any issues.

If "Show Help" is set to "Yes", help text will appear throughout the application when available. This setting can also be changed by pressing the Help link in the top right corner of any page, or the "x" button in the top left corner of a help message.

To save modified settings, customers should select the "Save Settings" button. The new settings will be saved to the database and will be available immediately.

To cancel any changes, customers should select the "Cancel" button. Any changes will be aborted and will not be saved to the database.

3.6. Special Scenarios – Reset Progress and Generate Reports

There are two special scenarios which form part of every test.

3.6.1. Reset Progress

This is the first scenario in the scenario group's view. The name of this scenario is: **A01 – Are You Ready To Start Conformance.**

The Reset Progress or reset logs scenario allows customers to reset their logs at any time.

Please be aware that using this scenario will erase any progress. There is no way to recover your previous data if you choose to reset progress.

This scenario should be used when a customer has completed developing and testing scenarios and is ready to go through the conformance test from end-to-end.

This Scenario is mandatory – customers must ensure this is completed before starting the test.

3.6.2. Generate Reports

The Generate Reports/Inform Progress Scenario should be the last scenario that is run once the test has been fully completed. The name of this scenario is: **Z01 – Inform Progress to Account Manager.**

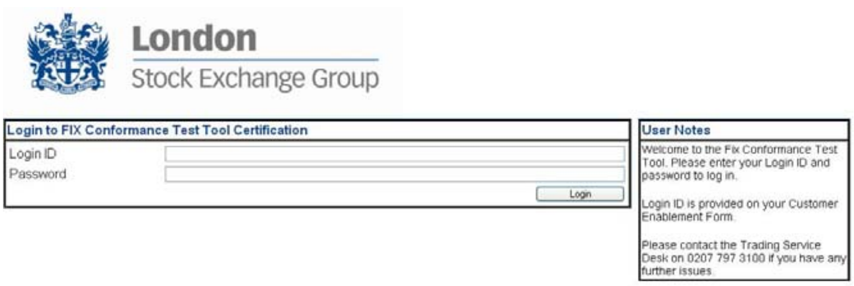
This scenario will generate a report of the test that will be sent to the Exchange for review.

Current test progress and logs will be captured in this report. This scenario is optional and so will not count towards your overall progress percentage.

3.7. Logout

Click the "Logout" button at the top of the page to end the certification session.

Logging out will return you to the Login page.



4. Test Structure

The Fix Conformance Test is structured so that a customer commences the test by answering a number of questions in the Initial Questionnaire. Depending on which questions the customer answers a number of set scenarios become available for the customer to complete. The test is divided into five main functional areas.

4.1. Functional Areas

Functional Area	Description
Retransmission Services	Tests concerning the Interactive Rerequest Interface - OTBD, OOBD, Market Data Rerequesting
Orders	All Order tests including Market Orders, Limit Orders, Iceberg Orders, Named Orders, Validity types (GTT, FOK, ENE)
Quotes	Tests concerning Firm and Executable Quotes
Trade Reporting	Trade Reporting tests - Enter, Cancel, Pre-release, Dual Sided (JSE)
OSLO Tests	Tests pertaining to specific fixed income market requirements for OSLO Børs
Other	Copy-to, Miscellaneous Errors, Session Level Tests

The overall test has been split up into 5 sections – Retransmissions, Orders, Quotes, Trade Reporting and Other (session-Level, copy-to and negative tests). Session Level testing is the only mandatory section of testing. The other five sets of tests form the initial five questions on the questionnaire with more specific tests and questions becoming available if a customer chooses to use that functionality.

Note: Each customer will receive 2 Login IDs, one for retransmission services tests and one for all trading functionality. This will allow customers that need to login to both Trading and Retransmission Services Tests to do so at the same time.

4.1.1. Retransmission Services Tests

Own Trades Book Download, Own Order Book Download and market data Rerequesting are covered under the retransmission services section of tests. Cancelling a Rerequest scenario is optional if the customer does perform rerequesting.

4.1.2. Order Tests

If a customer chooses to do orders then Limit Orders becomes a mandatory test. All other tests under this cycle are optional.

4.1.3. Quote Tests

Once a customer has chosen to do quotes they can choose Firm or Executable Quotes (or both). Under firm and executable quotes there is an option of modifying each type of quote. Updating one side of the book by entering a bid price and size of zero is offered as an optional test under executable quotes.

4.1.4. Trade Reporting Tests

If the customer chooses to trade report they get presented with the option to do LSE or JSE (or both) trade reporting.

4.1.5. Copy-to Test

The copy-to test case will test if the customer can receive “drop-copies” of acknowledgements and execution reports.

4.1.6. Session Level Tests

Fix session level testing will be mandatory for all conformance participants. A number of mandatory negative “E-series” advisory codes tests will also be included as part of this test case.

4.2. Questionnaire

The initial questionnaire will be presented to the customer before they start their conformance test. Depending on how each customer answers the initial questionnaire certain tests will become part of the customer’s test. The initial questionnaire will only contain five questions. Answering yes to the initial five questions will unlock further questions under each of the five main functional areas.

4.2.1. Retransmission Services

If a customer logs in with the retransmission CompID then only the below two questions will be available.

#	Question	Unlocks Cycle
Q1	Does your software support Re-requesting Market Data?	T3
Q1.1	Does your software support cancelling re-requests?	T4

4.2.2. Trading Services

If a customer logs in with their Trading Services CompID then the below series of questions will be available.

#	Question	Unlocks Cycle
Q1	**Does your software support Rerequesting Market Data?**	T3
Q1.1	Does your software support cancelling Rerequests?	T4
Q2	**Does your software support Orders?**	T8
Q2.1	Does your software support Market Orders?	T5, T7
Q2.1.1	Does your software modify Market Orders?	T6
Q2.2	Does your software modify Limit Orders?	T9
Q2.3	Does your software support Hidden Limit Orders?	T10
Q2.4	Does your software support Agency Capacity?	T11
Q2.5	Does your software support Orders At The Close?	T12
Q2.6	Does your software support Good Till Time Orders?	T13
Q2.7	Does your software support Good for Day Orders?	T14
Q2.8	Does your software support Good Till Cancel Orders?	T15
Q2.9	Does your software support Execute and Eliminate Orders?	T16
Q2.10	Does your software support Fill or Kill Orders?	T17
Q2.11	Does your software support Iceberg Orders?	T18
Q2.11.1	Does your software modify Iceberg Orders?	T19
Q2.12	Does your software support Named Orders?	T20
Q2.12.1	Does your software modify Named Orders?	T21
Q2.13	Does your software support Pegged Orders?	T22
Q2.14	Does your software support Mass Order Deletes?	T23
Q2.15	Does your software support Modifying Client Reference? (JSE)	T24
Q3	**Does your software support Quotes?**	
Q3.1	Does your software support Firm Quotes?	T25
Q3.1.1	Does your software replace (modify) Firm Quotes?	T26
Q3.2	Does your software support Executable Quotes?	T27
Q3.2.1	Does your software replace (modify) Executable Quotes?	T28
Q3.2.2	Does your software support replacing one side of a Quote?	T29
Q4	**Does your software support Trade Reporting?**	
Q4.1	Does your software support Trade Reporting on the LSE/BIT?	T30

Q4.1.1	Does your software support Agency Capacity?	T31
Q4.1.2	Does your software support Delayed Publication/pre-release?	T32
Q4.1.3	Does your software support Contra Trades?	T33
Q4.1.4	Does your software support Dual-Sided Trade Reporting?	T33b
Q4.2	Does your software support Trade Reporting on the JSE?	T34
Q4.2.1	Does your software support Agency Capacity? (JSE)	T35
Q4.2.2	Does your software support Delayed Publication/pre-release? (JSE)	T36
Q4.2.3	Does your software support Dual-Sided Trade Reporting? (JSE)	T37
Q4.3	Does your software support OSLO fixed income Trade Reporting?	T52
Q4.3.1	Does your software support OSLO fixed income repo Trade Reporting?	T53
Q5	**Does your software Support Copy-to functionality?**	T38
Q6	**Does your software Support Bond Trading functionality (OSLO)?**	T50
Q6.1	Does your software support Repo Trades	T50

4.3. Test Case Overview

#	Name	Functionality Tested	Optional	New
T1	Own Trades Book Download	Request OTBD, empty book and full book	N	N
T2	Own Order Book Download	Request OTBD, empty book and full book	N	N
T3	Rerequesting Market Data	Rerequest Market Data	Y	Y
T4	Cancelling a Rerequest	Rerequest Market Data, cancel Market Data Rerequest	Y	Y
T5	Market Orders - Pre-Market	Enter MO, cancel, pre-market	Y	N
T6	Market Orders - Pre-Market, Modify	Modify Market Orders	Y	N
T7	Market Orders - Open Market	MO - Best price execution	Y	Y
T8	Limit Orders	Enter, cancel Limit Orders	N*	N
T9	Modify Limit Orders	Modify Limit Orders	Y	N
T10	Hidden Limit Orders	Enter Hidden Limit Orders	Y	Y
T11	Agency Capacity Orders	Enter Agency Capacity LO	Y	N
T12	At the Close Order	Enter ATC LO	Y	N
T13	Good Till Time Order	Enter GTT LO	Y	N
T14	Good For Day Orders	Enter GFD LO	Y	N
T15	Good Till Cancel Orders	Enter GTC LO	Y	N
T16	Execute and Eliminate Orders	Enter ENE LO	Y	N
T17	Fill or Kill Orders	Enter FOK LO	Y	N
T18	Iceberg Orders	Enter Iceberg Orders	Y	N
T19	Mod Iceberg	Modify Iceberg Orders	Y	N
T20	Named (Committed Principle) Orders	Enter Named Orders, Cancel EQ	Y	N
T21	Modify Named Orders	Modify Named Orders	Y	N
T22	Pegged Orders	Enter Mid Price, Offer Price and Bid Price Pegged Orders	Y	Y
T23	Mass Order Delete	Delete all orders in a segment (covers OBO deletes)	Y	N
T24	Modify Client Reference (JSE)	Modify the Client Reference of an Order	Y	N
T25	Firm Quotes	Enter FQ, cancel FQ	Y	N
T26	Replacing Firm Quotes	Replace a FQ	Y	N
T27	Executable Quotes	Enter, cancel EQ	Y	N
T28	Replacing Executable Quotes	Replace EQ	Y	N
T29	Executable Quotes, update one side only	Enter an EQ, Bid price and size = 0	Y	N
T30	Trade Reporting	Enter, cancel a Trade Report	N+	N
T31	Trade Reporting, Agency Capacity	Enter Agency Capacity Trade Report	Y	N
T32	Trade Reporting, Delayed publication, Pre-releasing	Enter delayed Trade Report, pre-release Trade Report	Y	N
T33	Trade Reporting, Contra Trade	Enter Contra Trade Report	Y	Y
T33b	Dual-Sided Trade Reporting (LSE/BIT)	Dual Sided trade reporting for LSE/BIT (tbc)	Tbc	Y
T34	Trade Reporting (JSE)	Enter JSE Trade report	N+	N
T35	Trade Reporting, Agency Capacity (JSE)	Enter Agency Capacity JSE Trade Report	Y	N
T36	Trade Reporting, Delayed publication, Pre-releasing (JSE)	Report	Y	N
T37	Dual Sided Trade Reporting (JSE)	Request, Confirm, Cancel Trade reports	Y	N
T38	Copy-to	Receive "drop-copy" messages.	Y	Y
T39	Fix Session Testing	from Greenline default test.	N	Y
T40	Negative Tests	Negative Tests that do not fall under a specific category	N	N
T50	Bond Orders	Enter Bond Order or Repo Order,ack,full fill	Y	Y
T52	Oslo Dual-Sided Trade Reporting	Request, Confirm, Cancel and Deny Trade reports	Y	Y
T53	Oslo Repo Trade Reporting	Enter, cancel Repo Trade report	Y	Y

* - mandatory if customer enters orders

\+ - mandatory if customer enters trade reports (LSE/JSE or Both

4.4. Negative Testing

No.	Name	Description
T40.1	E720I - Fix Gateway Conversion Failed	Customer enters message with a field set to a value which is not recognised by the trading gateway
T40.2	E136A - Suspended Line Connection Attempt	Customer tries to logon when line suspended
T41.1	Q002I – Period Authorisation Failed	Customer Enters an order outside a valid period
T41.2	Q449I - Deletion Only As Below Min Order Size	Customer attempts to modify order below minimum order size
T41.3	Q327I – ClientRef must be Entered	Customer enters a buy order with agency capacity but does not enter a client reference
T41.4	Q474I - No Unsuspended Role for Market Mechanism Type	Customer does not have any valid roles for use with the specific market mechanism type
T41.5	Q138I - Order Size Field Invalid	Customer submits an order with an order size which is either not valid, greater than max size or smaller than the min size
T42.1	Q487I – Quote Spread Must Be Less Than or Equal to Maximum for Security/Role	Customer enters a quote with spread wider than the maximum allowed for that instrument.
T42.2	Q474I - No Unsuspended Role for Market Mechanism Type	Customer does not have any valid roles for use with the specific market mechanism type
T43.1	Q217I – Not in Trade Reporting Period	Customer Enters a Trade Report outside the trade reporting period
T43.2	Q474I - No Unsuspended Role for Market Mechanism Type	Customer does not have any valid roles for use with the specific market mechanism type

5. Detailed Functional Scenario Descriptions

The following section covers the design of each scenario and explains the functionality covered by each test case. The actual Conformance Test Tool scenarios and scenario groups will be implemented using the VeriFIX design tool.

5.1. T01 - Own Trades Book Download

5.1.1. Trades Book Download, Empty Book

Customer performs an Own Trades Book Download and receives an empty trades book response.

5.1.2. Trades Book Download, Unknown Trades

Customer performs an Own Trades Book Download and receives a trades book containing a mix of automatic and manual trades.

5.2. T02 - Own Order Book Download

5.2.1. Empty Own Order Book Download

Customer performs an Own Order Book Download and receives an empty own order book response.

5.2.2. Order Book Download, Unknown Orders

Customer performs an Own Order Book Download and receives a response containing an order book with a number of unknown orders. This script simulates when a customer needs to recover their position or order book.

5.2.3. Order Book Download, Known Orders

Customer enters 4 Orders and receives 2 partial fills, 1 full fill and 1 no fill response. Customer then performs an own order book download and receives an order book with the orders just entered.

5.3. T03 - Rerequesting Market Data

Customer Rerequests a valid range on a valid channel (defined) and receives a number of messages back.

5.4. T04 - Cancelling a Rerequest

Customer initiates a valid Rerequest. Conformance Test Tool begins sending the customer messages. The customer cancels their Rerequest and Conformance Test Tool stops sending messages.

5.5. T05 - Market Orders – Pre-Market

Customer enters a number of market orders, acknowledgements are sent back by Conformance Test Tool, no immediate executions. The customer then cancels one of the market orders. Conformance Test Tool then simulates a market open scenario by sending the customer a number of fills and expiries.

5.6. T06 - Market Orders – Pre-Market, Modify

Customer Enters a market order, the customer modifies the market order just entered. The market then opens and the customer receives some executions.

5.7. T07 - Market Orders – Open Market

Customer enters a number of market orders and immediately receives 2 partial fills and 1 full fill. This scenario simulates the customer entering market orders in a non-auction period.

5.8. T08 - Limit Orders (Enter, Cancel)

Customer enters 4 Limit orders which receive no fill, a single full fill and multiple partial fills. The customer then cancels 3 limit orders – cancel after no fill, partial fill and full fill.

5.9. T09 - Limit Orders (Enter, Modify)

Customer enters a limit order and then modifies the size and price of the order. The customer then modifies the price to zero and receives an order cancelled response.

5.10. T10 - Hidden Limit Orders

Customer enters 1 Limit Order (Hidden) with display method = 4 and a minimum execution size set. The customer receives an acknowledgement and the order is partially filled.

5.11. T11 - Agency Capacity Limit Order

Customer enters an Agency Capacity order and must populate the Client Reference for this order.

5.12. T12 - Order at the Close

Customer enters an “At the Close” Limit Order and receives an acknowledgement (the order is parked). Conformance Test Tool then simulates a closing auction and sends the customer an order update as if the order has become live. The order executes and an execution report is sent to the customer.

5.13. T13 - Good Till Time Order

Customer enters a Good Till Time order. Customer sends a modify order modifying time validity to one minute in the future. Conformance Test Tool sends an order expiry to the customer in one minute.

5.14. T14 - Good for Day Orders

Customer enters a Good for Day limit order.

5.15. T15 - Good till Cancel Orders

Customer enters a Good Till Cancel limit order.

5.16. T16 - Execute and Eliminate Orders

- Customer enters an Execute and Eliminate order, no fill, expires.
- Customer enters an Execute and Eliminate order, a partial fill occurs, the rest of the order is eliminated.
- Customer enters an Execute and Eliminate order and receives multiple partial fills to fully fill the order.

5.17. T17 - Fill or Kill Orders

- Customer enters one FOK order that fully fills.
- Customer enters one FOK order that cannot be filled and so is killed.

5.18. T18 - Iceberg Orders

Customer enters an Iceberg Order which receives 2 partial fills. One partial fill at the peak value and one partial fill at half the peak value.

5.19. T19 - Modify Iceberg Orders

- Customer enters an Iceberg Order which is partially filled at peak.
- Customer enters a modify order – modifying the quantity of the order.

5.20. T20 - Committed Principal (Named) Orders

Customer enters 2 named orders, one fills one does not fill.

5.21. T21 - Modifying Named Orders

Customer enters a Named Order, no fill and then modifies the named order.

5.22. T22 - Pegged Orders

Customer enters 6 pegged orders – a buy and a sell for mid price, offer price and bid price pegged orders.

5.23. T23 - Mass Order Delete

- Customer enters 6 orders – 3 orders in segment 1 and 3 orders in segment 2.
- Customer enters a Mass Order Delete for segment 1 and receives 3 individual order cancelled response messages.
- Conformance Test Tool simulates the Exchange deleting the customer's orders in segment 2 and the customer is sent 3 order cancelled response messages.

5.24. T24 - Modify Client Reference (JSE)

- Customer Enters a Limit Order, no fill.
- Customer modifies the client reference of the order.
- An execution occurs and the order is filled – customer receives an execution report.
- Customer modifies the client reference of the executed order.

5.25. T25 - Firm Quotes

Customer enters a Firm Quote and cancels the Firm Quote.

5.26. T26 - Replacing Firm Quotes

Customer enters a Firm Quote and then re-enters another Firm Quote for the same instrument replacing the already existing quote.

5.27. T27 - Executable Quotes

Customer enters an Executable Quote and cancels the Executable Quote.

5.28. T28 - Replacing Executable Quotes

Customer enters an Executable Quote and then re-enters another Executable Quote for the same instrument replacing the already existing quote.

5.29. T29 - Executable quotes, update one side only

Customer Enters an Executable Quote with the Bid Price and Size set to zero.

5.30. T30- Trade Reporting

- Customer enters manual trade report with trade type indicatory = o (ordinary).
- Customer then cancels the trade report just entered.

5.31. T31 - Trade Reporting, Agency Capacity

Customer enters an Agency Capacity trade report – ClientRef BUY/SELL must be present.

5.32. T32 - Trade Reporting, Pre-releasing

- Customer enters a trade report with trade type indicator set to NK (delayed publication).
- Customer pre-releases the trade report.

5.33. T33 – Contra Trade Reporting

Customer enters trade report with trade type indicator set to CT (contra trade).

5.34. T33b – Dual Sided Trade Reporting for LSE/BIT Markets

Functionality and test cases tbc.

5.35. T34 – JSE Trade Reporting

- Customer enters manual trade report with trade type indicatory = OP (ordinary).
- Customer then cancels the trade report just entered.

5.36. T35 – JSE Trade Reporting, Agency Capacity

Customer enters an Agency Capacity trade report – ClientRef BUY/SELL must be present.

5.37. T36 – JSE Trade Reporting, Pre-releasing

- Customer enters a trade report with trade type indicator set to delayed publication.
- Customer pre-releases the trade report.

5.38. T37 - JSE Dual-Sided Trade Reporting

4 Scenarios are presented in dual-sided trade reporting based on the native conformance test.

5.38.1. Scenario 1 – Request Dual Sided, confirmed, cancel

- Customer Enters a dual sided trade report, request status set to R (request), receives acknowledgement.
- Exchange confirms dual sided trade report, confirm sent to customer.
- Customer cancels dual-sided trade report successfully.

5.38.2. Scenario 2 – Confirm Dual Sided, cancel

- Exchange initiates dual sided trade report – confirmation request sent to customer.
- Customer enters dual-sided trade report confirmation, acknowledgement received.
- Customer attempt to cancel dual-sided trade report and receives Q007I advisory code.

5.38.3. Scenario 3 – Request Dual Sided, cancel before confirmation

- Customer enters dual-sided trade report, request status set to R (request), receives acknowledgement.
- Customer cancels trade report.

5.38.4. Scenario 4 – Try to confirm a cancelled Dual-Sided Trade report

- Exchange enters dual-sided trade report and then cancel it immediately (only a confirm dual sided request will be sent to customer).
- Customer tries to confirm the trade report and receives a Q134I (message contains invalid field) advisory code.

5.39. T38 - Copy-to

3 execution reports with no client ID are sent (copied) to the customer.

5.40. T39 - Fix Session Testing

5.40.1. Logon Test – Begin trading day reset

Customer logs on setting sequence number to 1.

5.40.2. Logoff and intra-day reset

After message activity customer logs out then sends a logon setting the sequence number to 1.

5.40.3. Heartbeat

Customer sends a heartbeat within the heartbeat interval.

5.40.4. Test request (send)

Customer sends a test request message and receives a heartbeat.

5.40.5. Test request (received)

Customer receives a test request and sends a heartbeat.

5.40.6. Out of sequence Low

Customer sends a message with a sequence number lower than expected.

5.40.7. Out of sequence High

Customer sends a message with a sequence number higher than expected.

5.41. T40 – Negative Tests

5.41.1. T40 Negative Session

5.41.1.1. T40.1 Negative Session - FIX Gateway Conversion Failed

Customer enters message with a field set to a value which is not recognised by the trading gateway.

5.41.1.2. T40.2 Negative Session - FIX CompID suspended intraday

Customer tries to logon when line suspended.

5.41.2. T41 Negative Orders

5.41.2.1. T41.1 Negative Orders - Period Authorization Failed

Customer enters an order outside a valid period.

5.41.2.2. T41.2 Negative Orders - Deletion Only as Below Min Order Size

Customer attempts to modify order below minimum order size.

5.41.2.3. T41.3 Negative Orders - ClientRef Must be Entered.

Customer enters a buy order with agency capacity but does not enter a client reference.

5.41.2.4. T41.4 Negative Orders - No Unsuspended Role for Market Mechanism Type

Customer does not have any valid roles for use with the specific market mechanism type.

5.41.2.5. T41.5 Negative Orders - Order Size Field Invalid

Customer submits an order with an order size which is either not valid, greater than max size or smaller than the min size.

5.41.3. T42 Negative Quotes

5.41.3.1. T42.1 Negative Quotes - Quote Spread must be less than or equal to Maximum for Security-Role.

Customer enters a quote with spread wider than the maximum allowed for that instrument.

5.41.3.2. T42.2 Negative Quotes - No Unsuspended Role for Market Mechanism Type

Customer does not have any valid roles for use with the specific market mechanism type.

5.41.4. T43 Negative Trades

5.41.4.1. T43.1 Negative Trades - Not in Trade Reporting Period

Customer Enters a Trade Report outside the trade reporting period.

5.41.4.2. T43.2 Negative Trades - No Unsuspended Role for Market Mechanism Type

Customer does not have any valid roles for use with the specific market mechanism type.

5.42. T50 – Bond Orders

Customer sends a bond order, customer receives an execution report that includes the yield and fills yield. Customer sends a bond order; customer receives an execution that includes yield field.

5.43. T52 – Oslo Dual-Sided Trade Reporting

6 Scenarios are presented in dual-sided trade reporting for Oslo Børs fixed income markets.

5.43.1. Scenario 1 - Participant 1 sends Trade Capture Report, gets matched, and then cancels.

- Customer sends trade report
- Customer receives trade report status ack message ‘unmatched’.
- Customer receives trade report status ack message ‘matched’
- Customer sends a trade report cancel
- Customer receives trade report acknowledgement message ‘cancelled’

5.43.2. Scenario 2 - Participant 2 in response to Scenario 1

- Customer receives trade report message (unmatched)
- Customer sends a trade report confirmed message
- Customer receives a trade report ack message (matched)

5.43.3. Scenario 3 - Participant 1 sends Trade Report and then cancels.

- Customer sends trade report
- Customer receives trade report status ack message ‘unmatched’.
- Customer sends a trade report cancel
- Customer receives trade report ack message ‘cancelled’

5.43.4. Scenario 4 - Participant 2 in response to Scenario 3

- Customer receives trade report status ack message ‘matched’
- Customer sends a trade report confirmed message
- Customer receives a trade report cancel message (tag 856=6)

5.43.5. Scenario 5 - Participant 1 sends trade capture report, then denied.

- Customer sends trade report
- Customer receives trade report status ack message ‘unmatched’
- Customer receives trade report denied message (tag 856=6)

5.43.6. Scenario 6 – Participant 2 in response to Scenario 5

- Customer receives bond trade report status alleged unmatched
- Customer sends trade report denial message (tag 856=6)
- Customer receives a trade report denial acknowledgment

5.44. T53 – Oslo Repo Trade Reporting

Customer sends a repo trade report, customer receives ack message 'unmatched' that includes start date and end date. Customer receives ack message 'matched' that includes start date and end date.

5.45. Session Errors (T39)

5.45.1. E720I - Fix Gateway Conversion Failed

Customer enters message with a field set to a value which is not recognised by the trading gateway. The customer receives a response message containing the E720I Advisory Code.

5.45.2. E921E – CompID Already Logged on

Customer attempts to log on after already being logged on and receives an E921E advisory code.

5.45.3. E920E – Invalid COMPID & Connection Address Combination

Customer's attempt to login with an invalid CompID.

5.45.4. E023E – Market Closed

Customer enters a message when the market is closed.

5.45.5. E668E – Invalid Segment Code

Customer enters a message containing an invalid segment code.

5.46. Application Advisory Codes

5.46.1. Q015E – Invalid Message Sequence Number Range

Customer Rerequests a range of messages outside of the range published – typically a number too high. The customer receives a response message containing the Q015E advisory code.

5.46.2. Q016E – Too Many Rerequests Outstanding

Customer enters more than 10 Rerequests and for each Rerequest placed after the first 10 a response containing the Q016E advisory code is returned to the customer.

5.46.3. Q002I – Period Authorisation Failed

Customer enters an order when the segment that the instrument is entered on is not in a valid period.

5.46.4. Q006I – Order Not Found

Customer attempts to delete or modify or modify the client reference of an order that does not exist.

5.46.5. Q451I - Order Must Be Modified

Customer attempts to modify an order without changing any of the details.

5.46.6. Q449I - Deletion Only As Below Min Order Size

Customer attempts to modify an order to a size below the minimum allowed order size for that particular instrument.

5.46.7. Q327I – ClientRef must be Entered

Customer enters an agency capacity buy order without specifying a client reference.

5.46.8. Q487I – Quote Spread Must Be Less Than or Equal To Maximum for Security/Role

Customer enters a quote with spread wider than the maximum allowed for that instrument.

5.46.9. Q249I - Trade Time Invalid

Customer submits a trade report with an invalid trade time.

5.46.10. Q248I – Trade Date Invalid

Customer submits a trade report with an invalid trade date.

5.46.11. Q217I – Not in Trade Reporting Period

Customer submits a trade report outside the permitted trade reporting period (simulated).

5.46.12. Q469I – Tradergroup Invalid for Member

Customer uses a Tradergroup which is not associated with their member ID.

5.46.13. Q219I – No Trade Report Exists for Trade Code

Customer attempts to delete/pre-release a trade code that does not exist.

5.46.14. Q112I – Inst/Seg/Curr Combination Invalid

Customer enters an order/trade/report/quote with an instrument in the wrong segment.

5.46.15. Q474I – No Unsuspended Role for Market Mechanism Type

Customer attempts to enter order/quote/trade report when their role is suspended.

6. Example Test Messages

Example messages are provided below. Specific instructions are provided with each scenario on the Fix Conformance Test Tool website.

6.1. Order

The following is an example order from scenario T08.

Sent Message	Response Message
8=FIXT.1.1	8=FIXT.1.1
9=376	9=255
35=D	35=8
49=ABC01	49=LSE01
56=LSE01	56=ABC01
34=40	34=38
52=20090421-15:56:20.273	52=20090421-15:56:20.860
37=OrderID476	37=OrderID476
11=CO301	11=CO301
17=Exe481	17=Exe477
150=F	150=0
39=2	39=0
48=GB0002723046GBGBXSET1	48=GB0002723046GBGBXSET1
22=8	22=8
528=P	528=P
54=1	54=1
38=500	38=500
40=2	40=2
44=15.5	44=15.5
15=GBX	15=GBX
59=0	59=0
32=250	151=500
31=15.5	14=0
151=0	1362=0
14=500	60=20090421-15:56:20.860
1362=1	453=1
1363=Fill482	448=DBTRADER
1364=15.5	447=D
1365=250	452=76
1443=2	581=1
1414=2	10=096
1415=MemberID483	
1416=D	

1417=1
1415=DBMEMBER
1416=D
1417=17
60=20090421-15:56:21.273
453=1
448=DBTRADER
447=D
452=76
581=1
10=082

6.2. Trade Report

The following is an example trade report from scenario T30.

Trade Report	Trade Report Response
8=FIXT.1.1	8=FIXT.1.1
9=378	9=209
35=AE	35=AR
49=dbtest2	49=Server
56=LSE001	56=admin
34=33	34=33
52=20090421-15:11:25.485	52=20090421-15:24:21.861
571=TRep298	571=TRep298
856=0	1003=Test475
828=30	856=0
829=1000	828=30
1123=0	829=1000
1116=1	1116=1
1117=DBTRADER	1117=DBTRADER
1118=D	1118=D
1119=76	1119=76
48=GB0008847096GBGBPSET1	48=GB0008847096GBGBPSET1
22=8	22=8
918=EUR	573=0
32=200000	58=Portfolio Rebalance
31=125	552=1
60=20090421-15:11:25	54=2
64=20090424	10=119
552=2	
54=2	
453=2	
448=DBMEMBER	
447=D	

452=1
448=ClientRefSell
447=D
452=3
58=Portfolio Rebalance
526=343453
528=P
775=0
54=1
453=1
448=DBMEMBER
447=D
452=17
10=047

6.3. Quote

The following is an example trade report from scenario T25.

Sent Message	Response Message
8=FIXT.1.1	8=FIXT.1.1
9=221	9=239
35=i	35=b
49=dbtest2	49=Server
56=LSE001	56=admin
34=131	34=136
52=20090421-16:48:56.098	52=20090421-17:01:52.548
117=Quote304	117=Quote304
537=0	297=0
453=1	537=0
448=DBTRADER	453=1
447=D	448=DBTRADER
452=76	447=D
296=1	452=76
302=1	296=1
309=GB0009605022GBEURSET1	302=1
305=8	309=GB0009605022GBEURSET1
304=2	305=8
295=2	304=2
299=QEID305	295=2
132=100	299=QEID305
134=500	132=100
299=QEID306	134=500

133=105	15=EUR
135=500	299=QEID306
10=083	133=105
	135=500
	15=EUR
	10=207

6.4. Mass Order Delete

The following is an example trade report from scenario T23.

Sent Message	Response Message
8=FIXT.1.1	8=FIXT.1.1
9=137	9=152
35=q	35=r
49=dbtest2	49=Server
56=LSE001	56=admin
34=178	34=183
52=20090421-17:08:50.020	52=20090421-17:21:50.030
11=CXL341	11=CXL341
530=9	1369=MAR528
453=1	530=9
448=DBTRADER	531=9
447=D	453=1
452=76	448=DBTRADER
1300=SET1	447=D
60=20090421-17:08:50	452=76
10=028	48=GB0002723046GBGBXSET1
	22=8
	10=102

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