



FIX Certification

Version 2.0
December 2009

Overview

The Certification tests are intended to cover a range of functional elements in order to demonstrate that a participant can successfully interact and perform as specified with the core Burgundy architecture. The mandatory testing is designed to ensure that a robust platform is in operation between participants and Burgundy.

The purpose of this document is to provide detailed test cases for the Burgundy FIX Certification. The Burgundy Certification package consists of several parts; Session Management, Information Certification, Trading Certification, Market Maker Certification and Technical Certification.

Session Management defines the initial interaction between a member firm's application and the Burgundy Trading System. The objective of this test is to establish that the connectivity and logon requirements have been implemented correctly.

Information Certification verifies the clients handling of subscriptions, reference data and that the full range of messages generated during a daily cycle of the Burgundy Trading system can be handled.

Trading Certification tests all order types supported by Burgundy against price, time and size conditions and state changes.

Market Maker Certification tests the full range of messages for quote management.

Technical Certification verifies the clients' ability to cope with technical requirements, as failover and load.

Testing Arrangements

Prior to undertaking Certification, all participants are required to have submitted a completed and signed Testing Agreement to Technical Account Management. Furthermore the participants are required to have confirmed connectivity to the Customer Test environment. Participants requiring exemptions from certain test cases should have confirmed these with the Technical Account Management in advance.

Certification Testing is arranged between a customer and Technical Account Management. Whilst participants should provide three working days notice for test, short notice booking may be available at the discretion of Technical Account Management.

Full Certification Testing is expected to take approximately x hours. The testing session may need to be extended where there is a requirement to re-run test cases. Testing will be available between 8 and 16.30 Monday to Friday.

Session Management

The Session Management Test assesses the ability to establish a connection and login. The Session Management Test forms the initial phase of the Certifications Tests. Connection to the system must be maintained throughout the full testing schedule. A failure to maintain connection at any point during the Certification Tests will constitute a failure of the Certification Test. Please note that if at any point a heartbeat message is not received after the heartbeatInterval periods have elapsed, the Customer Test environment will logoff the user and disconnect the session. This will also constitute a failure of the Certification Test.

Test Case	Activity	Participant input	Burgundy Output	Mandatory/Optional
1	A logon message should be sent to Burgundy to establish a connection and agree on session parameters such as heartbeat intervals and sequence numbers.	Logon Message Type = A 98 = 0 108 = 15 553 = Username 554 = Password	Logon Message Type = A 98 = 0 108 = 15	M
2	After a logon has been successfully established, Burgundy and the application will send heartbeats at the times of the interval set.	Heartbeat Message Type = 0	Heartbeat Message Type = 0	M
3	The user can at any time query the sequence numbers and communication line status by sending a test request message. The response will be a test request message with a test request id.	Test Request Message Type = 1 112 = 1	Test Request Message Type = 1 112 = 1	O
4	A request to resend messages from Burgundy by specifying the beginning and end sequence numbers for events.	Resend Request Message Type = 2 7 = 1 16 = 3	Resend Request Message Type = 2 7 = 1 16 = 3 + Messages 1-3	O
5	A request to resend a single message by specifying the beginning and end sequence numbers to be the same.	Resend Request Message Type = 2 7 = 3 16 = 3	Resend Request Message Type = 2 7 = 3 16 = 3 + Message 3	O
6	Sequence Reset sent to Burgundy, specifying the new sequence number.	Sequence Reset Message Type = 4 36 = 317 123 = N	Sequence Reset Message Type = 4 36 = 317 123 = N	O
7	A logout message should be sent to burgundy to successfully terminate the connection.	Logout Message Type = 5	Logout Message Type = 5	M

Information Certification

During the Information Certification the clients' ability to setup subscriptions and receive reference data is verified. Furthermore the full range of messages that can be generated during a daily cycle is generated and disseminated.

Order books will be provided at the start of the tests.

Test Case	Activity	Participant input	Burgundy Output
1	A request to receive the list of tradable instruments on Burgundy.	Security List Request Message Type = x 320 = Test1 559 = 4	Security List Message Type = y 320 = Test1 393 = Containing a lot of instruments.
2	Set up a subscription for Security Status for instrument for OB1.	Security Status Request Message Type = e 324 = Test3 55 = [OB1] 263 = 1	
3	Market Operations halts the trade in OB1.		Security Status Message Type = f 324 = Test3 326 = 2 58 = Test of Trade Halt 55 = [OB1]
4	Market Operations lifts the trade halt.		Security Status Message Type = f 324 = Test3 326 = 3 58 = Test of Trade Halt 55 = [OB1]
Await Continuous Trade			
5	Set up a full MBL5 subscription for OB1.	Market Data Request Message Type = V 262 = Test5 263 = 1 264 = 5 265 = 0 267 = 2 269 = 0 269 = 1 146 = 1 55 = OB1	
6	Market Operations inserts a bid 100@10 in OB1.		Market Data Snapshot Full Refresh Message Type = W 262 = Test5 55 = [OB1] 268 = 1 269 = 0

			270 = 10 271= 100
7	Market Operations inserts an offer 100@11 in OB1.		Market Data Snapshot Full Refresh Message Type = W 262 = Test5 55 = [OB1] 268 = 2 269 = 0 270 = 10 271= 100 269 = 1 270 = 11 271 = 100
8	Unsubscribe to MBL5 for OB1.	Market Data Request Message Type = V 262 = Test5 263 = 2 264 = 5 265 = 0 267 = 2 269 = 0 269 = 1 146 = 1 55 = [OB1]	
9	Subscribe to incremental MBL5 for OB1 including trades.	Market Data Request Message Type = V 262 = Test9 263 = 1 264 = 5 265 = 1 267 = 3 269 = 0 269 = 1 269 = 2 146 = 1 22 = 4 48 = [OB1] 55 = [N/A]	Market Data Snapshot Full Refresh Message Type = W 262 = Test9 22 = 4 48 = [OB1] 55 = [N/A] 268 = 2 269 = 0 270 = 10 271= 100 269 = 1 270 = 11 271 = 100
10	Market Operations inserts a bid 200@9 in OB1.		Market Data Incremental Refresh Message Type = X 262 = Test9 22 = 4 48 = [OB1] 55 = [N/A] 268 = 1 279 = 0 269 = 0 270 = 9 271= 200
11	Market Operations inserts an offer 200@9 resulting in trades on both 10 and 9 and update of the order book.		Market Data Incremental Refresh Message Type = X 262 = Test9 22 = 4 48 = [OB1] 55 = [N/A] 268 = 4 279 = 0 269 = 2

			270 = 10 271= 100 279 = 0 269 = 2 270 = 9 271= 100 279 = 2 269 = 0 270 = 10 279 = 1 269 = 0 270 = 9 271 = 100
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Trading Certification

Trading certification tests the trading User functionality. The tests focus on management of trade reports and the different types of orders available on Burgundy.

Order books will be provided at the start of the tests.

Test Case	Activity	Participant input	Burgundy Output
	Pre-Trading		
1	Enter a Limit Order. Sell 10000@10	New Single Order Message Type = D	Execution Report Message Type = 8
2	Enter a Trade Report.	Trade Report Capture Message Type = AE	Trade Report Capture Ack Message Type = AR
3	Cancel Trade Report 2	Trade Report Capture Message Type = AE	Trade Report Capture Ack Message Type = AR
	Opening Call		
4	Enter a Dark Limit Order with minimum volume. Sell 500000@10 min. volume 1000	New Single Order Message Type = D	Execution Report Message Type = 8
5	Enter a Limit Order valid for the opening call. Buy 500000@10	New Single Order Message Type = D	Execution Report Message Type = 8
	Continuous Trading		Execution Report Message Type = 8
6	Enter a Limit Order which is valid for the session. Buy 100000@9	New Single Order Message Type = D	Execution Report Message Type = 8
7	Enter an Iceberg Limit Order. Sell 100000@11 Open qty 1000	New Single Order Message Type = D	Execution Report Message Type = 8
8	Enter an Order pegged to best bid. Buy 10000 Peg offset +2 Peg cap 11	New Single Order Message Type = D	Execution Report Message Type = 8
9	Enter a Dark Order pegged to midpoint. Buy 500000 Peg offset 0	New Single Order Message Type = D	Execution Report Message Type = 8

	Peg cap 12		
10	Enter a Fill And Kill Limit Order. Sell 25000@10	New Single Order Message Type = D	Execution Report Message Type = 8
11	Enter a Fill Or Kill Limit Order. Sell 24000@9 Min volume 24000	New Single Order Message Type = D	Execution Report Message Type = 8
12	Update the price of Order 6. Price 9.5	New Cancel Replace Request Message Type = G	Execution Report Message Type = 8
13	Cancel Order 8.	Order Cancel Request Message Type = F	Execution Report Message Type = 8
14	Enter a Limit Order valid for Closing Call. Buy 10000@10	New Single Order Message Type = D	Execution Report Message Type = 8
15	Enter a Limit Order with validity Good Till Date Sell 10000@10 Date Today + 2	New Single Order Message Type = D	Execution Report Message Type = 8
16	Enter a Dark Order with validity Good Till Cancel Buy 50000@10	New Single Order Message Type = D	Execution Report Message Type = 8
17	Enter an Order Pegged to Best Offer. Sell 10000 Peg offset -10 Peg cap 9	New Single Order Message Type = D	Execution Report Message Type = 8
18	Enter a Trade Report.	Trade Report Capture Message Type = AE	Trade Report Capture Ack Message Type = AR
19	Market Operations enter a matching Trade Report.		Execution Report Message Type = 8
20	Enter a Trade Report.	Trade Report Capture Message Type = AE	Trade Report Capture Ack Message Type = AR
	Termination		TradeEventPrivate
29	Update Order 25. Validity Good Till Date Date Today + 2	New Cancel Replace Request Message Type = G	Execution Report Message Type = 8
30	Cancel Trade Report 20	Trade Report Capture Message Type = AE	Trade Report Capture Ack Message Type = AR
	Post-Trading		
31	Cancel all remaining Orders	Order Mass Cancel Request	Order Mass Cancel Report Message Type = r

		Message Type = q	
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Market Maker Certification

Market Maker certification tests the management of quotes.

Order books will be provided at the start of the tests.

Test Case	Activity	Participant input	Burgundy Output
	Pre-Trading		
1	Enter a two-sided Quote in OB1. Buy 500000@1.00 Sell 500000@1.10	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
2	Replace Quote 1. Buy 500000@1.05 Sell 500000@1.10	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
3	Cancel Quote 1	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
	Opening Call		
4	Enter two-sided Quotes in OB1 and OB2. OB1 Buy 500000@1.00 Sell 500000@1.10 OB2 Buy 500000@0.01 Sell 500000@0.02	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
5	Replace Quote 4. OB1 Buy 500000@0.95 Sell 500000@1.00 OB2 Unchanged	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
6	Cancel Quote 4	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
	Continuous Trading		
7	Enter multi level two-sided Quotes in OB1 and OB2. OB1 Buy 500000@1.00 Buy 500000@0.95 Sell 500000@1.10 Sell 500000@1.15 OB2 Buy 500000@0.01 Buy 500000@0.02 Sell 500000@0.03 Sell 500000@0.04	Mass Quote Message Type = i	Mass Quote Ack Message Type = b

8	Replace Quote 7 OB1 Buy 500000@1.00 Buy 500000@0.95 Sell 500000@1.10 Sell 500000@1.15 OB2 Cancel all prices.	Mass Quote Message Type = i	Mass Quote Ack Message Type = b
9	Cancel Quote 4	Mass Quote Message Type = i	Mass Quote Ack Message Type = b

Technical Certification

The technical certification is aimed at verifying fail-over and performance during load.

Burgundy will provide load testing in the Stage environment Monday, Wednesday and Friday at 14-15 CET. It will be in the same order books as used for light background load. The load test will be run in four (4) steps. Starting at a low level and increasing up to 1000 orders. Between each step we will make room for clean up and recovery. First test step will be 15 minutes long, next step will last for 10 minutes and the last 2 steps will be 2 minutes long. A 2 minute period with 1000 orders per second will generate 120 000 orders and 12 000 trades. This test shall simulate a large opening or closing call, or important market news that would make the market move rapidly.

Load test schedule

- 14:00-14:15 (15 min load test) 250 orders per second with a trade ratio 1:10, spread out on order books according to separate document; prices should be as realistic as possible.
- 14:15-14:25 (10 min) No load
- 14:25-14:30 (5 min) 500 orders per second (same set up as above)
- 14:30-14:40 (10 min) No load
- 14:40-14:42 (2 min) 750 orders per second (same set up as above)
- 14:42-14:58 (16 min) No load
- 14:58-15:00 (2 min) 1000 orders per second (same set up as above)

When performing the failover test case you should only connect to one site at a time. This is to make it possible for us to verify that you have been able to do reconnect and recovery.