BTS 2 – Technical Guide #3

BTS2 Component & Site Failovers

BURSA MALAYSIA

Scenarios

	Failover Type	Description
1	**Main Site Component Failover**	**Primary FIX Gateway fail to Secondary FIX Gateway on Bursa Malaysia <u>Main Site</u>**
2	**DR Site Component Failover**	**Primary FIX Gateway fail to Secondary FIX Gateway on Bursa Malaysia <u>DR Site</u>**
3	**Main to DR Site Failover**	**Primary/Secondary FIX Gateway in Bursa <u>Main Site</u>, fail to Primary FIX Gateway on Bursa Malaysia <u>DR Site</u>**

BURSA MALAYSIA

Scenario 1 & 2 : Component Failover

		Impact
1	**Target IP Address & Port (BTS2 FIX Gateways)**	• The IP address of the secondary BTS2 FIX Gateway differs from the primary gateway. However, port configurations remain identical for both gateways. In summary, target IP address must be changed to point to the secondary gateway but not the port numbers.
2	**FIX Username, Password, SenderCompID & TargetCompID**	• FIX IDs will remain the same. This is because both the primary and secondary gateways share the same repository.
3	**Trades & Orders**	• Trades and outstanding orders remain valid and accessible via secondary gateway.
4	**Market Data subscription**	• All subscriptions for incremental updates will be dropped. Upon connecting to the Secondary BTS2 FIX gateway, new subscriptions are required in order to receive snapshot/incremental market data.
5	**Trade Capture Report subscription**	• Trade Capture Report subscriptions will be dropped. Upon connecting to the Secondary BTS2 FIX gateway, new subscriptions are required in order to receive Trade Capture Reports.
6	**Incoming & Outgoing Sequence Numbers**	• Applicable to FIXTRADER, FIXNEGDEAL, FIXMDFULL, DROPCOPY or any FIX connection. • Connect to secondary gateway with the NEXT SEQUENCE NUMBERs. **If incoming sequence number is higher than expected upon connecting to the secondary server, send "RESEND REQUEST" to request for the missing messages.**

Component failover is a one-way failover. Once the primary FIX gateway fails to the secondary gateway, the secondary gateway will stay operational till the end of the day. The primary FIX gateway will be back in service the following day.

BURSA MALAYSIA

Scenario 1 & 2 : Failover Strategy

	FIX Connection Type	Approach
1	FIXTRADER	Follow this sequence: 1. Connect to secondary BTS2 FIX Gateway with next sequence numbers 2. Send any FIX subscription if it was sent earlier to the primary BTS2 FIX Gateway.
2	FIXNEGDEAL	Follow this sequence: 1. Connect to secondary BTS2 FIX Gateway with next sequence numbers 2. Send the Trade Capture Report Request.
3	DROPCOPY	Follow this sequence: 1. Connect to secondary BTS2 FIX Gateway with next sequence numbers 2. Send any FIX subscription if it was sent earlier to the primary BTS2 FIX Gateway.
4	FIXMDFULL or any other FIX market data connection	Follow this sequence: 1. Connect to secondary BTS2 FIX Gateway with next sequence numbers 2. Send any FIX subscription if it was sent earlier to the primary BTS2 FIX Gateway.

Scenario 3: Main to DR Site Failover

		Impact
1	**Target IP Address & Port (BTS2 FIX Gateways)**	• The IP address of the DR-Site BTS2 FIX gateway differs from the Main-Site. However, port configurations remain identical. In summary, target IP address must be changed to point to the DR-Site BTS2 FIX Gateway but not the port numbers.
2	**FIX Username, Password, SenderCompID & TargetCompID**	• FIX IDs will remain the same. This is because the Main-Site configurations are replicated to the DR-Site.
3	**Trades & Orders**	• Trades and outstanding orders remain valid and accessible via DR-Site BTS2 FIX gateway.
4	**Market Data subscription**	• All subscriptions for incremental updates will be dropped. Upon connecting to the DR-Site BTS2 FIX gateway, new subscriptions are required in order to receive snapshot/incremental market data.
5	**Trade Capture Report subscription**	• Trade Capture Report subscriptions will be dropped. Upon connecting to the DR-Site BTS2 FIX gateway, new subscriptions are required in order to receive Trade Capture Reports.
6	**Incoming & Outgoing Sequence Numbers**	• Applicable to FIXTRADER, FIXNEGDEAL, FIXMDFULL, DROPCOPY or any FIX connection. • Connect to the DR-Site BTS2 FIX gateway with the BOTHSEQUENCE NUMBERs = 1. DO NOT SEND LOGON with ResetSeqNumFlag. **If incoming sequence number is higher than expected upon connecting to the secondary server, send "RESEND REQUEST" to request for the missing messages.**

BURSA MALAYSIA

Scenario 3: Failover Strategy

	FIX Connection Type	Approach
1	**FIXTRADER**	Follow this sequence: 1. **Connect to DR-Site BTS2 FIX Gateway with both incoming and outgoing sequence numbers equal to "1". DO NOT SEND LOGON with ResetSeqNumFlag.** 2. **The incoming sequence number would probably be higher than 1 because all the Execution Reports received in Main-Site BTS2 FIX Gateway are replicated to the DR-Site. Upon connection, and if the incoming sequence number is 2001, as an example; send a RESEND REQUEST for missing messages from 1 to 2000, and all the Executions Reports will be replayed.** 3. **Wait for the completion of receiving all the missing messages.** 4. **Send any FIX subscription if it was sent earlier to the Main-Site BTS2 FIX Gateway.**
2	**FIXNEGDEAL**	Follow this sequence: 1. **Connect to DR-Site BTS2 FIX Gateway with both incoming and outgoing sequence numbers equal to "1". DO NOT SEND LOGON with ResetSeqNumFlag.** 2. **Send the Trade Capture Report Request. Upon receiving this request, the DR-Site BTS2 FIX gateway will replay all the statuses of Trade Capture Reports.**
3	**DROPCOPY**	Follow this sequence: 1. **Connect to DR-Site BTS2 FIX Gateway with both incoming and outgoing sequence numbers equal to "1". DO NOT SEND LOGON with ResetSeqNumFlag.** 2. **Upon connection, and if the incoming sequence number is 2001, as an example; send a RESEND REQUEST for missing messages from 1 to 2000, and all the Executions Reports and all the Trade Capture Reports received by FIXTRADER and FIXNEGDEAL connected to the BTS2 DR-Site FIX gateway will be replayed.**
4	**FIXMDFULL or any other FIX market data connection**	Follow this sequence: 1. **Connect to DR-Site BTS2 FIX Gateway with both incoming and outgoing sequence numbers equal to "1".** 2. **Send any FIX subscription if it was sent earlier to the Main-Site BTS2 FIX Gateway.**

BURSA MALAYSIA

End of Guide