Johannesburg Stock Exchange

Trading and Information Solution

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1 DOCUMENT CONTROL

1.1 Table of Contents

1.2 Document Information

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1.3 Revision History

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30 November 2011	1.01	JSE Specification Updates
20 June 2012	1.02	JSE Specification clarifications and updates
31 January 2013	1.03	JSE Specification minor clarifications and updates
5 July 2013	2.00	Functionality updates related to the 2013 product upgrade
4 November 2013	2.01	Minor specification correction to Order Mass Cancel report message
20 February 2014	2.02	Functionality updates for the introduction of the JSE Colocation service
22 August 2014	2.03	Introducing the ability to submit Exclude Hidden Limit Orders
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26 April 2016	3.01	Cross Orders updated with more details Mass Cancellation details expanded Execution Instruction Field changed to Int8 Order Sub Type field removed from Order Cancel Replace Request message
4 August 2016	3.02	Updated relevant fields for GDX Added Display Quantity of a GDX should be zero. Updated Uint32 to Int32 of Security ID and Order Quantity fields Contra Trader field removed from Order Cancel Request message Increased length of Contra Firm field to 11 Increased length of Market Maker Firm field to 11
19 October 2016	3.03	Updated Description of Execution Instruction field
31 January 2017	3.04	Partition ID added to definitions section Definition for IRD updated Order Book field data type changed to UInt8 in Quote Request Reject and Quote Status Report messages Multi Leg Reporting Type field data type changed to UInt8 in Execution Report Descriptions added to RP and SR for Trade Sub Type field in Quote Request message Multi Leg Reporting Type field added to RFQ Execution Report Detail added to event 12 regarding the message sent out for a Quote Cancel event in Private RFQ Negotiation

19 April 2017	3.05	6.7.10 Descriptions of Near Month Type and Far Month Type fields updated 6.8.1 Descriptions of Multi Leg reporting Type field updated 8.2.1 Detail added to event 12 regarding the message sent out for a Quote Cancel event 6.6.1 Description of Execution Instruction field of Execution Report message of the Basic Native Gateway updated 6.8.1 Description of LastOptPx and Volatility fields updated 3.16.5 Details of additional clearing member instructions on Native Enhanced Gateway added 6.5.1, 6.7.1 Description for 'Expire Time' field updated 6.7.1 New field 'Secondary Trade Report ID' added to New Order message 6.7.5 New field 'Secondary Trade Report ID' added to Order Cancel/Replace Request message 6.7.10 Description for 'Strike Price' field updated 6.8.1 New field 'Secondary Trade Report ID' added to Execution Report message	
2319 July 2019	3.06	3.2.1 and 3.2.4 Details about Adjustable Cross Order added 3.6.1 Details regarding the assigning of the Client Order ID of the base order to Implied Out and Implied match orders added. 3.7.2 New section added related to configuring a time period in which user creation requests are accepted by the system 6.5.5 New enum added to Cross Type field	
01 August 2019	4.06	1.4	Definition of 'EHL" removed
		3.2	EHL Orders removed
		3.2.2	EHL reference removed
		3.16.4	Details on 'Public Order IDs' added
		6.5.1	'Execution Instruction' field updated according to changes implemented in
		6.6.1	Execution Instruction' field updated. New fields 'Display Quantity' and 'Public Order ID' added

1.4 References

None

1.5 Contact Details

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1.6 Definitions, Acronyms and Abbreviations

AnyDay	An AnyDay contract is a Futures instrument with a non-standard expiry day.
CDM	Commodity Derivatives Market
Client	A member firm connected to the trading gateway.
Client Account	This is the Client Account as reflected in the JSE back office system for whom the order is submitted by the Firm.
CPP Session	Closing Price Publication is the session where the Closing Price is calculated and published to the Market
CPX Session	Closing Price Cross is the session where automated trading can occur at the Closing Price calculated during the CPP session
CPX TIF	Closing Price Cross is a Time In Force where respectively submitted orders are only executed during the CPX session at the Closing Price calculated and published during the Closing Price Publication session. CPX TIF Orders submitted before the CPX session are parked until the start of the CPX Session
Delta Option	A Delta Option is a two legged strategy that consist of a future as leg 1 and an option as leg 2.
EDM	Equity Derivatives Market
~~**EHL**~~	~~Exclude Hidden Limit order is an order that will only match with existing Visible Orders in the order book and will expire if the remainder is not filled within a period of time. At no point will these orders execute with Hidden Limit orders.~~
Forward Forward	A self-contained instrument logically comprised of a long and short position in an underlying currency pair.
FX	Foreign Currency Market
Inverse Calendar Spread	A two legged futures strategy that consist of buying the near future and selling the far future.
IRD	Interest Rate Derivatives Market
JSE	Johannesburg Stock Exchange.
MES	Minimum Execution Size is the minimum volume of the Hidden Limit order which is permitted to execute.
MRS	Minimum Reserve Size MRS is the minimum order volume needed for orders to qualify as Hidden Limit orders.
Naked Option	An options instrument created on top of a future or a spot instrument
NSX	Namibian Stock Exchange.
Open Order	Identifies an order which has a remaining quantity in the order book. An amendment or a cancellation can be done for an Open Order.
Parked Order	Identifies an order which is not yet been activated. GFA, GFX, ATC orders will be parked until the relevant auction call phase is started. Unelected Stop and Stop Limit orders will be parked until the stop price is reached.
Passive Order	An order residing in the order book.
Server	The native trading gateway at the JSE for the JSE and NSX markets.
Trader Mnemonic	Each order must be submitted under a particular trading mnemonic. On the Native Trading Gateway this will be the concatenated identifier of the JSE Trader Group and the JSE Trader ID e.g. GR1_001215.

Visible Order	Identifies an order that is visible to the market. The order has a Disclosed Quantity that is equal to Order Quantity.
Pegged Order	A hidden order pegged to the mid-point of the best bid and offer price or pegged to the best bid(offer) for instrument
Pegged Limit Order	A pegged order with a stop price also known as a hard limit.
EOD Volume Uncrossing Auction	A dark auction call which is triggered at end of the day after the CPX session. The uncrossing will happen at the closing price.
Cross Order Trade	A trade resulting from the submission of a Cross Order by market participants that results only in a trade and has no impact to orders.
Hidden (Limit) Orders	Pegged and Pegged Limit orders are hidden orders on the central order book and not visible to the market. Hidden (Limit) Orders will be synonymous with Pegged and Pegged Limit Orders.
Partition ID	Identity of the matching partition. Partition 1 has been allocated for Equity instruments while Partition 2 has been allocated for Derivative instruments.

2 Overview

The System offers multiple low latency native trading gateways that allow member firms to submit and manage orders and quotes.

The interface is a point-to-point service based on the TCP/IP standard. It uses a series of fixed-length binary messages. The encryption of messages between the client and server is not supported.

2.1 Types of Native Gateways

The System offers a Basic and an Enhanced Native Trading Gateway.

a) Basic Native Trading Gateway – supports the trading of equity instruments of the JSE and NSX markets.

b) Enhanced Native Trading Gateway – supports the trading of derivatives and bond instruments of the Derivative and Bond Markets, private RFQs and intra-day instrument creations.

2.2 Order management, Quote Management and other services

Two Native Trading Gateways will support trading of equity instruments for the JSE and NSX Equity Markets, while another three native gateways will support trading of derivatives instruments for the Derivative and Bond Markets. Each interface enables clients to perform the activities outlined below.

The Basic Native Trading Gateway interface enables clients to perform the activities outlined below.

Order Management for Equities Markets

(i) Submit an order

(ii) Cancel an order

(iii) Mass cancel orders

(iv) Amend an order

Market announcements for Equities instruments

(i) News

The Enhanced Native Trading Gateway interface enables the clients to perform the following activities outlined below:

Order Management for Derivatives and Bonds Markets

(i) Submit an order

(ii) Cancel an order

(iii) Mass cancel orders

(iv) Amend an order

Quotes and Private RFQs Management for Derivatives and Bonds Markets

(i) Submit and amend quotes/private RFQs

(ii) Rejecting private RFQ requests

(iii) Submit quotes in response to private RFQs.

(iv) Submit an indication of whether the terms in RFQ Quote from a market maker are accepted or not.

(v) Request for instrument creations intra-day.

Market announcements for Derivatives and Bonds instruments

(i) News

2.3 Throttled and Un-throttled services

The JSE offers a throttled and an un-throttled Native Trading Gateway service to members of the equities and derivative/bonds markets. The availability of such services are as follows:

Market	Throttled Gateway Instances	Un-throttled Gateway Instances
Equity – JSE	2	2
Equity – NSX		
Equity Derivatives	3	3
Currency Derivatives		
Interest Rate Derivatives		
Bonds		
Commodities Derivatives		

3 Service Description

3.1 System Architecture

Two Native Trading servers will be available to Clients per Gateway instance A Throttled and an Un-throttled Gateway instance. Each server consists of two channels: a Real-Time channel and a Recovery channel.

Clients will use the Real-Time channel to submit orders, cancellation requests and cancel/replace requests. Real-time updates to orders (e.g. acknowledgement, reject, fill, etc.) will be transmitted on this channel.

Clients will use the Recovery channel to request for messages missed during periods it was disconnected from the Real-Time channel.

The trading system can consist of a series of parallel partitions each of which services an exclusive set of instruments. Each application message transmitted by the server will include the identity of the partition that generated the message.

3.2 Order Handling

The Basic and Enhanced Native Trading Gateways will facilitate the clients to manage orders of equities and derivatives/bonds instruments respectively. An order submitted for an equity instrument will be rejected if the request is sent to the Enhanced Native Trading Gateway. On the other hand, an order submitted for a derivative or a bonds instrument will be rejected if the request is sent to the Basic Native Trading Gateway.

The Clients will use the Basic Native Trading Gateway New Order Message when trading equities instruments while using the Enhanced Native Trading Gateway New Order message when trading derivatives and bonds instruments. Similarly, the system will use a Basic Execution Report and Enhanced Execution Report message when acknowledging or rejecting the new order requests of the Clients, respectively.

Please refer to Section 3.5 for instances where a Basic New Order or an Enhanced New Order message will be rejected via another message.

3.2.1 Order Types

Given below is a list of all the order types supported by the system for both Equities and Derivatives/Bonds markets.

Order Type	Applicability		Description	Relevant Fields
	Equity	Derivatives		
Market	Y	Y	An order which will be executed at the best possible prices on the contra side. Market Orders entered during the Continuous Trading session will execute against each contra order in the order book until it is fully filled. If, after executing against all orders in the order book there is a remainder, it will expire. Market Orders which are submitted during an auction call session will reside in the order book until the uncrossing is performed at which point the remainder of unexecuted Market Orders will be expired.	Order Type = 1
Limit	Y	Y	An order which will contain a limit price and will execute at prices equal to or better than its limit price. If, after executing against all appropriately priced orders in the order book there is a remainder, it will be added to the order book or expired based on the time in force (TIF).	Order Type = 2 Limit Price
Stop	Y	Y	A Stop Order is a Market Order that will remain unelected (without entering the order book) until the stop price is reached. This is used to exit from a loss making position. Once elected, it will be treated similar to a regular new Market Order.	Order Type = 3 Stop Price
Stop Limit	Y	Y	A Stop Limit Order is a Limit Order that will remain unelected (without entering the order book) until the stop price is reached. Once elected, a Stop Limit Order will be treated similar to a regular new Limit Order.	Order Type = 4 Stop Price Limit Price
Market If Touched	N	Y	A market order that remains inactive until the market reaches a specified stop price..	Order Type = 6 Stop Price
Trailing Stop	N	Y	A market order with a moving stop price that remains inactive until the stop price is reached.	Order Type = 3 Limit Price Trailing Offset

Trailing Stop Limit	N	Y	A limit order with a moving stop price that remains inactive until the stop price is reached.	Order Type = 4 Trailing Offset
Named	N	Y	An order for which the identity of the submitting member is disclosed in the market data feed.	Anonymity = 1
Cross Orders	Y	N	The details of both sides of a trade are entered by a single member firm. The matching of the submitted sides of the Cross Order will happen upon submission if all relevant validations are successful. A submitted Cross Order will not execute against other orders in the order book.	Cross Type = 5 Order Type = 2 Time In Force = 0
Cross Orders (With Adjustable Price)	Y	N	Should the price of the Cross Order not fall within the BBO, execution will occur at the prevailing mid-price.	Cross Type = 50 Order Type = 2 Time In Force = 0
Pegged Orders	Y	N	Large-in-size orders can be pegged to the mid-point of the visible BBO, pegged to the best Bid (if it is buy pegged order) and best Offer (if it is a sell pegged order). These orders will not be visible to the market but would be able to interact with other hidden pegged orders or aggressing visible orders	Order Type = 50 Order Sub Type Display Quantity = 0 Minimum Quantity >= MRS
Pegged Limit Order	Y	N	A pegged order with an order time “pegged limit” and limit price will be considered as a pegged order with a hard limit. If the hard limit of a pegged order is breached, it will not trade.	Order Type = 51 Order Sub Type Limit Price Display Quantity = 0 Minimum Quantity >= MRS

3.2.2 Order Time in Force (TIF)

Order Type	Applicability		Description	Relevant Fields
	Equity	Derivatives/ Bonds		
Day	Y	Y	Orders with the DAY time in force will be expired at Market End of the trading on the day they are submitted	Time In Force = 0
Immediate or Cancel (IOC)	Y	Y	Orders with the IOC time in force (except for Stop and Stop Limit orders) will be executed on receipt and the remainder, if any, will be immediately expired. An IOC order may be partially filled.	Time In Force = 3
Fill or Kill (FOK)	Y	Y	Orders with the FOK time in force (except for Stop and Stop Limit orders) will either be fully executed on receipt or immediately expired.	Time In Force = 4
At the Open (OPG)	Y	Y	An order that may only be entered and executed in the opening auction.	Time In Force = 5
At the Close (ATC)	Y	Y	An order that may only be executed in the closing auction.	Time In Force = 10
Good For Auction (GFA)	Y	Y	An order that may only be executed in the next auction (which may or may not be scheduled e.g. opening, closing, re-opening, volatility, etc.).	Time In Force = 9
Good For Intraday Auction (GFX)	Y	N	An order that may only be executed in the Intraday auction.	Time In Force = 51
Good Till Time (GTT)	Y	Y	An order that will expire at a specified time during the current day or at Market End.	Time In Force = 8 Expire Time
Good Till Date (GTD)	Y	Y	An order that will expire at Market End of the specified day. Maximum order duration is applicable for GTD orders and will be set at 90 days.	Time In Force = 6 Expire Time
Good Till Cancelled (GTC)	Y	Y	An order that will expire at Market Start on the trading day after the maximum order duration. Maximum order duration is applicable for GTC orders and will be set at 90 days.	Time In Force = 1

Closing Price Cross (CPX)	Y	Y	Orders with this time qualifier can only participate in the Closing Price Cross session. They may be entered during other sessions that accept orders but they stay parked in the parked queue until the Closing Price Cross session starts. At the start of the Closing Price Cross session, parked CPX orders are injected into the order book. CPX orders expire at the end of the CPX session.	Time In Force = 12
~~Exclude Hidden Limit (EHL)~~	~~Y~~	~~N~~	~~An order that will only match with existing Visible Orders in the order book and will expire if the remainder is not filled within a period of time defined. At no point will these orders execute with Hidden Limit orders~~	~~Time In Force = 8 Expire Time Execution Instruction = 1~~
Good for Volume Auction Uncross (GDX)	Y	N	An order that will only participate in the End of Day 'Volume Auction Uncross'	Time In Force = 50

~~3.2.3 EHL Orders~~

~~EHL order will only be enabled for the equity instruments. The functionality will be disabled for derivatives and bonds markets.~~

~~An EHL order can only be a Visible Limit Order. Furthermore, it can only be submitted with a TIF (Time In Force) of GTT (Good Till Time). Any other Order Type or TIF will not be allowed with this attribute. This attribute will only be present in new order submissions. The ability to amend this attribute or to amend an existing order to be an EHL order or vice versa will not be allowed.~~

~~EHL orders will carry an expiry time defined by JSE. The default expiry time configured is 2 seconds. JSE will notify market participants of any changes made to the expiry time. Any unexecuted EHL order submitted by a Trader or Market Operations User on behalf of a Trader will expire within the time period.~~

~~It is required for Traders or Market Operations Users on behalf of Traders to specify an expiry time in the order upon submission. Time should be specified in the same format when submitting a GTT order i.e. YYYYMMDD-HH:MM:SS. However it should be noted that the expiry time defined by a Trader or Market Operations User on behalf of a Trader in an EHL order can be overridden (Time will be replaced with Current Time + EHL EXPIRY TIME (S)).~~

~~The expiry time will be replaced by the time defined by JSE given that the difference between the order submission time and expiry time submitted is greater than the defined number of seconds, order submission time is considered as the time the order enters the system. The updated expiry time will be sent in the Execution Reports for the EHL order.~~

~~3.2.4~~3.2.3 Cross Orders

Cross Orders will only be enabled for Equity Market instruments. The functionality will be disabled for the Derivatives and Bonds markets.

Cross Orders enable participants to report pre-negotiated trades to the trading system as on-book trades through the central order book.

Internal Cross Orders are submitted when a trade is agreed within a single member firm. The details of both sides of the trade are entered by a single member firm. Privileged users can submit Cross Orders via the Native order management gateway.

The matching of the submitted Cross Orders will happen immediately, should all the order validations be successful. Hence, the internal Cross Orders submitted are not available for execution with any other orders in the regular order book.

Clients will receive an Execution Report per side once a Cross Order has been successfully submitted and accepted by the system. Each Execution Report generated by the system will be sent back to the originating Comp ID that submitted the Cross Order.

Cross Orders with Adjustable Price

Clients are able to flag whether a Cross Order being submitted is fixed price or adjustable price.

If the Cross Order is identified as a 'fixed price' Cross Order, and the submitted price does not conform to the applicable price range, the Cross Order will be rejected. However, if the Cross Order is identified as an 'adjustable price' Cross Order, the following will apply:

a) When the BBO is available, the system will validate the price against the spread within the Best Bid and Best Offer price of the instrument. If the price is out of the BBO spread, then the system will update the price of the Cross Order to be the mid-point of Best Bid and Best Offer (The system will adjust the Cross Order price to half a tick if the BBO spread is only 1 tick).

b) If only the Best Bid (or Best Offer) is available, the Cross Order should be better than the available Best Bid (best offer). If Cross Order price is worse than best bid (or best offer), system will adjust the price of the Cross Order to be half a tick (value defined in the 'PriceImproveTks' parameter for the instrument) better than the Best Bid (or Best Offer).

c) If both the Best Bid and Best Offer are not available, the Cross Orders will be checked against a range defined around the Dynamic Reference Price (value defined in the Ref Price Allowance (%) parameter of the instrument). The system will accept Cross Orders with a price within but not including the boundary values.

NOTE: Clients will be able to determine what pricing method should be applicable to the Cross Order. If traders do not want the Cross Order price to be modified they can select the 'Fixed Price' option when submitting the Cross Order. This will reject the Cross Order.

~~3.2.5~~3.2.4 Pegged Orders (Hidden)

Pegged orders will only be enabled for Equity Market instruments. The functionality will be disabled for the Derivatives and Bonds Markets.

Large-in-size hidden orders can be pegged to the mid-point of the visible BBO, pegged to the best Bid (if it is buy pegged order) and best Offer (if it is a sell pegged order). These orders will not be visible to the market, but will be able to interact with other hidden pegged orders or aggressing visible orders within the central order book.

It will be mandatory to specify a Minimum Execution Size (MES) for all pegged orders submitted to the system. All new pegged orders and pegged order amendments will be validated against the Minimum Reserve Size of the instrument.

A pegged order with an order time "pegged limit" and limit price will be considered as a pegged order with a hard limit. If the hard limit of a pegged order is breached, it will not trade.

~~3.2.6~~3.2.5 Named Orders

Named orders will only be enabled for the derivatives and bonds instruments. The functionality will be disabled for equities instruments.

In general, all orders submitted to the system will be anonymous from a market data perspective, i.e. except for the submitter of the order and market operations, the identity behind an order is unknown to market participants. However the system provides the capability for the clients to submit orders which are "named", i.e. client is able to instruct the trading venue to disclose the identity behind his order.

~~3.2.7~~3.2.6 Order Capacity

The server recognises two order capacities; agency and principal. Clients are responsible for indicating the capacity an order is submitted under and is mandatory. The functionality is the same for equities and derivatives/bonds markets.

~~3.2.8~~3.2.7 Order Management

a) **Order Ownership**

The Server will associate the JSE Trader Group and JSE Trader ID combination as the owner of the order. No capacity will be provided to enter orders on behalf of another trader via Native Trading Gateway. The functionality is the same for equities and derivatives/bonds markets.

b) **Cancellation**

The remainder of an Open or Parked order may be cancelled via the Order Cancel Request message of the Basic Native Trading Gateway for equity instruments and via the Order Cancel Request message of the Enhanced Native Trading Gateway for the derivatives and bonds instruments.

The server will generally respond with an Execution Report or Order Cancel Reject to confirm or reject the cancellation request respectively via the Basic or Enriched Native Trading Gateways accordingly. The Client Order ID specified in the message will be that of the Order Cancel Request.

The client should identify the order being cancelled by either the Original Client Order ID or Order ID. If an Order Cancel Request contains values for both Original Client OrderID and Order ID, the server will only process the Order ID.

c) **Mass Cancellation**

A client may mass cancel Open or Parked orders via the Order Mass Cancel Request message with an Order Sub Type of Order (0).

Clients may use the Order Mass Cancel Request message of the Basic Native Trading Gateway to mass cancel:

a) All orders for a Firm
b) All Firm orders for a particular instrument
c) All Firm orders for a particular segment
d) All orders for a given Comp ID (Interface User ID)
e) All orders for a given Comp ID (Interface User ID) for a given instrument
f) All orders for a given Comp ID (Interface User ID) for a given segment

The Order Mass Cancel Request message of the Enhanced Native Gateway supports the following two types of mass cancellations in addition to the list specified above.

a) All orders for a Firm for a given underlying
b) All orders for a given Comp ID (Interface User ID) for a given underlying

The server will generally respond with an Order Mass Cancel Request to indicate, via the Status field, whether the request is successful or not. If the mass cancel is processed by multiple partitions, an Order Mass Cancel Request will be transmitted for each partition. Refer section 3.21 for any associated limitations.

The server will then transmit Execution Reports for each order that is cancelled and Order Cancel Rejects for each order that could not be cancelled. The Client Order ID of all such messages will be that of the Order Mass Cancel Request.

If the mass cancel request is rejected by a partition, the reason will be specified in the Reject Code field of the Order Mass Cancel Report.

A mass cancel request sent in by the Native Trading Gateway or the FIX Gateway, may cancel orders submitted through both gateways. In such a case, the execution reports for the order cancellation will be sent to the gateway through which, each order was submitted.

d) **The successful Submission of an Order Mass Cancel Request to cancel all orders for a firm for a given underlying will result in 2 Order Mass Cancel Reports. One Rejection and One accept. The Order Mass Cancel Request will be sent out to all matching partitions in the system. Since derivatives instruments do not exist in partition 1, this will result in an Order Mass Cancel Report with status 'rejected' from partition 1. If the request is successful for partition 2, the Comp ID that submitted the Order Mass Cancel Request will receive an Order Mass Cancel Report with status 'accepted' for partition 2.Amending an Order**

The following attributes of an Open or Parked order may be amended via the Order Cancel/ Replace Request message of both the Basic and Enhanced Native Trading Gateways:

(i) Order quantity

(ii) Minimum Execution Size

(iii) Limit Price

(iv) Stop price

(v) Expiration time (GTT orders)

(vi) Expiration date (GTD orders)

(vii) Client Account

An Order Cancel/Replace Request must include values for the fields that are being updated as well as the current values for those that are not being amended. The server will generally respond with an Execution Report or an Order Cancel Reject message to confirm or reject the cancel/replace request respectively. The Client Order ID specified in the message will be that of the Order Cancel/Replace Request.

The client should identify the order being amended by either the Original Client Order ID or Order ID. If an Order Cancel/Replace Request contains values for both Original Client OrderID and Order ID, the server will only process the Order ID.

An order will lose time priority if its order quantity is increased or if its limit price is modified. A reduction in order quantity of an order or the modification of its expiration time, expiration date or Client Account will not cause it to lose time priority.

Clients may not modify orders that are fully filled.

~~3.2.9~~3.2.8 Unsolicited Order Updates

The Execution Report message is used to notify the client if an order is executed or expired. The Client Order ID of the message will be that of the last New Order or Order Cancel/Replace Request that successfully updated the order. The functionality is common for both Basic and Enhanced Native Trading Gateways.

~~3.2.10~~3.2.9 Trade Cancellations

The JSE may cancel trades. The server will transmit Execution Reports to the relevant clients to notify them of a trade cancellation.

If an execution received by an order is cancelled, the executed quantity will be cancelled. When the quantity is cancelled, the order will be cancelled to reduce its order quantity by the cancelled quantity. The client will receive two notifications in such a scenario; one for the trade cancel and another for the order cancellation.

3.3 Quote Handling

The server supports the submission of tradable quotes for derivatives/bonds instruments. Equity instruments will not allow submission of quotes. A client may only have one active quote per instrument. If the server receives a quote for a client that already has an active quote for the instrument, it will treat it as an update to the quote.

The Native Trading Gateway does not support submission of TIFs of GTT or OPG for quotes. All quotes are considered as principal interest. A quote may be anonymous or named. The identity of the member that submitted a named quote is disclosed in the market data feed.

Quotes must be two-sided (i.e. bid and offer). If one side of a quote fails the validations (e.g. price tick, spread, etc.) of the server, both sides will be rejected. However, if a quote is accepted it is treated as two separate and independent limit orders. One side of a quote will not be automatically cancelled if the other side is fully filled. All active quotes will expire at the end of the trading day.

Quotes may be submitted via the Quote message. The server will explicitly acknowledge each Quote message via two Execution Report messages (i.e. one for each side). Each message will include the Client Order ID specified in the Quote message.

A single Execution Report will generally be sent if the quote is rejected. The reason for the rejection will be specified in the Reject Code field. Please refer to Section 3.5 for instances where a Quote will be rejected via another message.

3.3.1 Quote Management

a) **Updating a Quote**

A client may update a live quote entry by submitting another quote, via the Quote message, for the same instrument. The client must provide updated prices and quantities for both the bid and offer sides.

The bid or offer side of a quote will lose time priority in the order book if the quantity is increased or the price is updated. A reduction in quantity will not cause a side to lose priority.

b) **Cancelling a Single Quote**

A client may use the Cancel Request message to cancel a single quote entry. The value in the Side field of the message will, in the case of a quote cancellation, be ignored by the server. In an instance where one side of the quote has been executed, the client will only receive one Execution Report for the remaining side of the quote.

The server will generally respond with two Execution Reports (i.e. one for each side) or a single Cancel Reject to confirm or reject the cancellation request respectively. If a cancel

request is rejected, the reason will be specified in the Reject Code field. The Client Order ID specified in each such message will be that of the Cancel Request.

c) **Mass Cancelling Quotes**

The client may also mass cancel quotes via a single Mass Cancel Request message with an Interest Type of Quote (3). Clients may use the message to mass cancel all quotes or only those for a particular instrument, underlying or segment. A mass cancel request may apply to all the quotes of the trading firm or only to those of the logged in client Comp ID (Interface User).The mass cancelation may be limited to an order book if the request is applicable to a particular instrument, underlying or segment. In absence of Order Book, the mass cancellation will apply only to the Normal order book.

The server will generally respond with a Mass Cancel Report to indicate, via the Status field, whether the request is successful or not.If the mass cancel is processed by multiple partitions, a Mass Cancel Report will be transmitted for each partition.

If the mass cancel request is accepted by a partition, it will then transmit Execution Reports for each quote side that is cancelled and Cancel Rejects for each quote side that could not be cancelled. The Client Order ID of all such messages will be that of the Mass Cancel Request.

If the mass cancel request is rejected by a partition, the reason will be specified in the Reject Code field of the Mass Cancel Report.

3.3.2 Unsolicited Quote Updates

The Execution Report message is used to notify the client if one side of a quote is executed or expired. The Client Order ID of the message will be that of the last Quote message that successfully updated the executed quote.

3.4 Requests for Quotes

3.4.1 Private Requests for Quotes

Clients can privately negotiate RFQs with a selected set of market makers for a specific derivatives or bond instrument. The privately negotiated RFQs functionality is not enabled for the equity markets. A requestor can submit a private RFQ via the Quote Request message. The Quote Request can be for both sides or for a single side.

An accepted RFQ will be acknowledged by the server via a Quote Status Report message with a Quote Status of Accepted (0). If an RFQ is rejected, the server will transmit a Quote Request Reject message with an appropriate Reject Code. Private RFQs will be communicated only to the intended set of market makers via Quote Request message. The market maker then may accept the Quote Request by submitting a RFQ Quote or reject the RFQ via a Quote Request Reject message. The market maker should specify the Quote Msg ID, Quote Req ID, Symbol and Contra Trader and Market Maker when submitting an RFQ Quote in response to an RFQ. Once a RFQ Quote is submitted by the market maker to accept the RFQ, the server responds with an acceptance or rejection via a Quote Response message. An accepted RFQ Quote will be directed to the requestor to inform that the market maker has responded to the RFQ submitted by him. The RFQ Quote message directed to the requestor will include the firm and the Trader Group_Trader ID concatenation of the market maker only if RFQ Anonymity is set to Named

The market maker can reject the RFQ by submitting a Quote Request Reject message corresponding to the private RFQ which in turn will be transmitted to the requestor. The Reject Code field will indicate the code of the rejection. The server will respond to the market maker via a Quote Response message with a Quote Resp Type of End Trade (7). The rejection of the RFQ by the market maker is sent to the requestor via the Quote Request Reject message.

Once the requestor receives the quotes in response to the submitted RFQ, he can send a Quote Response to accept the RFQ Quote. The Quote Response message sent by the requestor should include the identification of the RFQ Quote which he is responding to in the

Quote Req ID and a Quote Resp Type of Hit/Lift(1). If the Quote Response is accepted the RFQ Quote will be executed and RFQ Execution Reports will be transmitted to both the market maker and the requestor. The market makers who have open quotes in response to the executed RFQ will be notified of the execution via Quote Response message with a Quote Resp Type of Cover (4)[1], Tied (9)[2], Tied Cover (10)[3] or Done Away (5)[4] to indicate the quality of their quote. If the Quote Response is rejected by the system a Quote Status Report is sent to the requestor with a Quote Status of Rejected (0) and a Reject Code.

A private RFQ can be valid for the current trading day or up until the time specified by the requestor. The requestor may specify the time the RFQ is valid until in the Expire Time field.. When a private RFQ is expired it is communicated to the market makers who received the RFQ and who have not yet submitted a response. If none of the market makers have responded the expiration is also communicated to the requestor. Expiration of a private RFQ will be communicated with a Quote Response message with a Quote Resp Type of Timed Out (8).

Any message submitted in response to a RFQ should include the identifier of the RFQ in the field Quote Req ID. Please refer to section 8.2.1 for the process flow diagram for private RFQs.

The market maker can cancel their quotes by sending a Cancel Request message. The cancellation will be acknowledged via a Quote Ack if the request is successful and a.Cancel Reject message for an unsuccessful cancellation. The requestor will be notified about the quote cancellation via a Quote Response message upon successful cancellation. The Quote Response message received by the requestor will have Quote Resp Type set to Cancelled (11).

The requestor can cancel his RFQ via the Quote Response message with a Quote Resp Type of End Trade (7). If the message is accepted, the system will respond via the Quote Response message with Quote Resp Type of Cancelled (11) to notify the requestor that his RFQ has been cancelled. If the RFQ is successfully cancelled, all market makers who initially received the RFQ will be notified via a Quote Response message with a Quote RespType of Withdrawn (14). All open quotes sent in response to the cancelled RFQ will be expired and the owners and the requestor will be notified via the Quote Response message with Quote Resp Type of Expired (3).

Market makers may mass cancel RFQ quotes they have submitted via a single Mass Cancel Request message. Clients may use the message to mass cancel all RFQ quotes or particular quotes based on the instrument, underlying or segment. A mass cancel request may apply to all the quotes of the trading firm or only to those of the logged in client. To mass cancel RFQ quotes, the Mass Cancel Request message should specify Order Book as Negotiated Trades (11).

A mass cancelation request will be acknowledged by the system via a Mass Cancel Report. Thereafter the system will transmit RFQ Execution Reports to market makers for each quote side that is cancelled and Cancel Rejects for each quote side that could not be cancelled. The Execution Type field of these RFQ Execution Reports sent to market makers will be set to Cancelled (4). The requestor will be notified of the quotes that were cancelled via the Quote Response message with Quote Resp Type set to Cancelled (17).

3.5 Gateway Validations

This section discusses the standard gateway level validations that are present in both the Basic and Enhanced Native Trading Gateways.

[1] Trade occured with another quote provider and this market maker's price was the best price received, but this market maker's price was not traded.
[2] Trade occurred with another quote provider and this market maker's price was the same as the traded price.
[3] Trade occurred with another quote provider and this market maker's price was the best price received, but this market maker's quote was not traded. There were other quote provider(s) with the same price (i.e. this is similar to the qualifier 'Cover' but there were other quotes that 'Tied' the price).
[4] Trade occured with another quote provider and this market maker's price was not the best price or equal to the executed price.

The server will generally reject a business message via an Execution Report, Cancel Reject or Mass Cancel Report message.

All client initiated actions are subjected to two levels of gateway validations before the server receives the message.

Level one pertains to validations on the message header, data type and range defined for each field (valid values for a given field). A Reject message will be used to reject a malformed message (e.g. invalid data type, invalid value, required field missing, etc.).

If the message successfully passes the first layer of validations, the system generates an internal message to check for conditional requirements of each field and any message specific validations. This forms the second layer of the gateway validation process.

If a message fails to comply with any of the gateway level validations, a Reject message would be generated which contains a reject code, along with the reason specified. (Please refer to Section for a list of reject codes)

The Business Reject message will be used to reject a New Order or Quote message for an unknown instrument. It will also be used to reject messages if a partition or the entire System is suspended in the unlikely event of a process outage. The Partition ID of a Business Reject message.will be zero (0) if the system is suspended. A Cancel Reject will be used to reject a Cancel Request or Order Modification Request for an unknown instrument. The Partition ID of the Cancel Reject message will be zero (0) in these instances.

Any client initiated message after passing gateway level validations will be subjected to internal process validations upon reaching the server. Failure to pass server level validations will be notified to clients through an Execution Report, which will indicate a reject code, to which the reason is specified in the reject code specification.

The system will validate the requests coming to the Basic Native Gateway instance of the, to ensure that they are only for the Equity instruments. If requests are for non-Equity instruments (i.e. derivatives and bonds instruments), the Basic Native Gateway will reject such requests with a 'Reject' message. Similarly, the system will validate the requests coming to the Enhanced Native Gateway instance, to ensure that they are only for the non-Equity instruments (i.e. derivatives and bonds instruments). If they are for the Equity instruments, the Gateway will reject such message requests with a 'Reject' message.

When an Order Mass Cancel Request message is sent with the Mass Cancel Request Type set to '14' or '22' to the Basic Native Gateway, such requests will be rejected by the gateway with a Reject message.

An exception to the server level rejection process is when the Instrument or Order book specified could not be found, in which case a Business Reject is generated by the system. (Please refer to Section 7 for a list of Business Reject codes)

3.6 Strategies

The Enhanced Native Gateway supports the trading of derivatives strategies (e.g. spreads, splits, forward forwards, delta options etc.) each of which is implemented as a separate multi-legged instrument.

The execution of an order or quote side for a multi-legged instrument will result in the generation of individual trades for the associated leg instruments (e.g. the execution of a trade for the Jan11-Feb11 spread will result in the generation of trades for the Jan11 future and the Feb11 future). Details of the individual leg trades will be forwarded to the clients that submitted the orders/quotes for the multi-legged instrument and to clearing.

The Limit Price and Stop Price of orders and the Bid Price and Offer Price of quotes submitted for multi-legged instruments may contain negative prices.

If a client's order or quote for a strategy receives an execution, it will receive an Execution Report for the multi-legged instrument as well as separate Execution Reports for each of the associated leg instruments. The Client Order ID of an Execution Report for a leg trade will be the same as that of the order or quote for the multi-legged instrument.

3.6.1 Implied Orders

Implied orders that are generated for a particular client are communicated to the client via Execution Reports.[5]

Implied orders will always be created as Limit Orders with a Time In Force of Day(0). Implied orders will also be anonymous and will always be fully visible.

Certain types of implied orders generated by the system which are automatically assigned with the same trader details as the client's order that initiated it will have the same client order ID as the explicit order. This will enable clients to track implied orders and implied order related executions that resulted from their explicit orders. (i.e. The Client Order ID of an Execution Report for a leg implied execution will be the same as that of the order or quote for the multi-legged instrument).

3.7 Tailor-Made Instruments

3.7.1 User-Defined Strategies

The system supports creation of the following list of strategy instruments required by a client, by using the Security Definition Request message if the corresponding strategy instrument is not available in the Exchange.

a) Any day futures

b) Forward Forwards

c) Naked Options

d) Put Delta Options

e) Call Delta Options

Clients are only permitted to create new instances of above strategy types and may not create a new strategy type.

The Security Type field of the Security Definition Request should be used to specify the strategy type (e.g. Future, Forward Forward, etc.). When creating multi-legged instruments, Leg 1 and Leg 2 instruments should be specified.

The creation of the requested multi-legged instrument or the rejection of the request will be communicated via the Security Definition message. Once the creation of the user-defined strategy is confirmed, the client may submit an order, quote or RFQ for it.

3.7.2 User-Created Instrument Requests

Clients will only be permitted to create new instrument requests during pre-defined time periods for each Market. Any instrument creation requests outside of the configured time period will be rejected by the system.

3.8 Quotation Conventions

The limit price, stop price, bid price and offer price specified with an order or quote will be interpreted by the server in terms of the applicable quotation convention for the instrument.

In the case of equity instruments the values specified in these fields will be interpreted as the price per share. They will be interpreted as price per contract for futures, options and strategy instruments. For a fixed income instrument, the values in these fields will, depending on the

[5] Not all implied orders generated by an order entered by a client will be communicated back to the client. Implied orders where the ownership of the order is shared between another user(s) will not be communicated to any of the clients.

applicable convention for the instrument, be interpreted as percentage of par, discount rate or yield.

3.9 Market Operations

3.9.1 Order Management

JSE Market Operations is able to submit an order, cancel request or order cancel/replace request on behalf of a client.

The client will be notified, via an Execution Report, of the order, order cancel request or order cancel/replace request submitted on its behalf if and when it is accepted. The client will not be notified if the action is rejected or queued.

This feature is intended to help a client manage an emergency situation and will not be relied upon as a normal business practice.

If an order is submitted by Market Operations the Execution Report will include an IsMarketOpsRequest(27000) of Yes(1).

3.9.2 Trade Cancellations and Corrections

JSE Market Operations may cancel or correct any trade on behalf of a Client. Additionally participants may cancel their own trades. The server will transmit Execution Reports to the relevant clients to notify them of a trade cancellation or correction. The trade being cancelled or corrected will be identified via the Execution ID field.

If an execution received by an order is cancelled or corrected to reduce the executed quantity, the cancelled/reduced quantity will either be cancelled or reinstated in the order book. If an execution received by an order is cancelled, the cancelled quantity will be cancelled. If the quantity is cancelled, the order will be restated to reduce its order quantity by the cancelled quantity. The client will receive two notifications in such a scenario; one for the trade cancel and another for the order restatement.

Market Operations may also correct the price of an execution. A trade will not be corrected to increase the executed quantity.

The notification of the trade cancellation notifies the reduction of the quantity that was executed. The notification of the order restatement adjusts the order quantity of the order and the remaining quantity of the order to indicate the quantity cancelled from the trade is not added back to the order.

3.10 Conditionally required fields

All fields that are conditionally required will be ignored by the server. (E.g. Stop Price Field will be ignored for Limit and Market orders).

3.11 Time Stamps and Dates

Expire Time will be in YYYYMMDD-HH:MM:SS format and specified in UTC.

TransactTime is the time the Execution Report is generated by the system, will be in Unix (Posix) time which will be the number of seconds elapsed since midnight proleptic Coordinated Universal Time (UTC) of January 1, 1970, not counting leap seconds.

The first 4 bytes of the TransactTime timestamp will represent the Unix (Posix) time while the next 4 bytes will specify the micro seconds. The TransactTime will be in UTC.

3.12 Market Operations Announcements

Clients will receive market operations announcements via the News message on the Basic and the Enhanced Trading Gateways. It will contain the market operations announcement headline, text, urgency, the time that it was generated and the list of instruments if any, to which the market operations announcement relates to. Additionally, the Enhanced Native Gateway will provide the underlying instruments for which an announcement refers to, if specified by the market operations.

JSE Market Operations has the ability to send:

- Private Announcements to a specific Interface User (CompID) which can be disseminated to all traders who connect to the Trading Gateway via the specific Interface User (CompID).
- Private Announcements to a specific Firm, which will be disseminated to all Interface Users (CompIDs) within that Firm who have logged into the Trading Gateway. Therefore, all traders who connect via the Firm's Interface Users (CompIDs) can receive the market operations announcement.

Recovery of any missed messages through the recovery channel using the current mechanism of requesting missed messages via the Missed Message Request.

Clients who request the missed messages will receive all the messages including market operations announcements relevant to the Interface User or Firm, with a sequence number equal to or larger than the requested sequence number published from the particular partition.

3.13 Mapping Native Order ID to MITCH Order ID

To convert Native Order ID to MITCH Order ID:

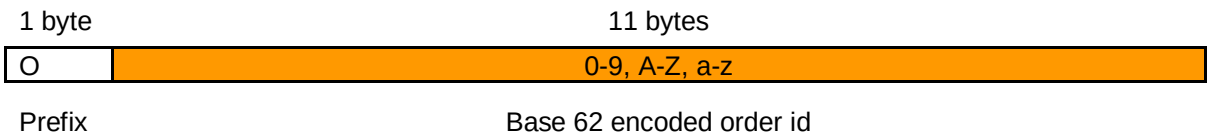
Step 1 – Remove leading O (prefix)

Step 2 - Convert using base 62 using the base 62 conversion table below.

Step 3 – Convert to binary

E.g.

Order ID format (ASCII)



E.g.

OrderID in FIX (ASCII base 62 characters)	O04Xj7Wu76ta
OrderID in MITCH gateway (Binary ID converted to decimal)	61512470073704470

Steps to follow:

- Remove the prefix from the ASCII order ID - "O" →04Xj7Wu76ta

- Convert using base 62 conversion in to decimal as depicted below
- Note: Please refer to the base 62 conversion table attached below
- Convert the decimal value to binary.

FIX Order ID (ASCII Character)	Corresponding decimal value	Base 62^x	value	Multiplied decimal value
a	36	62^0	1	36
t	55	62^1	62	3,410
6	6	62^2	3,844	23,064
7	7	62^3	238,328	1,668,296
u	56	62^4	14,776,336	827,474,816
W	32	62^5	916,132,832	29,316,250,624
7	7	62^6	56,800,235,584	397,601,649,088
j	45	62^7	3,521,614,606,208	158,472,657,279,360
X	33	62^8	218,340,105,584,896	7,205,223,484,301,568
4	4	62^9	13,537,086,546,263,552	54,148,346,185,054,208
0	0	62^10	839,299,365,868,340,224	-
OrderID in MITCH gateway in Decimal				**61,512,470,073,704,470**

Note

- Please use 64 bit integer data types for the calculation else integers will overflow
- Excel also rounds the value since its using a 64 bit float data type for the calculation

The base 62 mapping table

0	0	20	K	40	e	60	y
1	1	21	L	41	f	61	z
2	2	22	M	42	g		
3	3	23	N	43	h		
4	4	24	O	44	i		
5	5	25	P	45	j		
6	6	26	Q	46	k		
7	7	27	R	47	l		
8	8	28	S	48	m		
9	9	29	T	49	n		
10	A	30	U	50	o		
11	B	31	V	51	p		
12	C	32	W	52	q		
13	D	33	X	53	r		
14	E	34	Y	54	s		
15	F	35	Z	55	t		
16	G	36	a	56	u		
17	H	37	b	57	v		
18	I	38	c	58	w		
19	J	39	d	59	x		

3.14 Execution Report

The Execution Report message is used to communicate many different events to clients. The events are differentiated by the value in the Exec Type field as outlined below.

Exec Type	Usage	Order Status	Container
0	**New** Indicates that a new order side has been accepted. This message will also be sent unsolicited if an order was submitted by JSE Market Operations/Surveillance on behalf of the client. This message will be sent when a stop or stop limit order enters and remains unelected or a GFA/GFX/ATC/CPX order is entered and is parked. This message will also be sent when an unelected stop or stop limit order is elected and added to the order book without receiving an execution. This message will also be sent when an unfilled parked order with a time in force of GFX/GFA/ATC is injected and added to the order book without receiving an execution.	0	1,3,5, 6, 20, 21
8	**Rejected** Indicates that an order has been rejected. The reason for the rejection is specified in the field Reject Code.	8	0
F	**Trade** Indicates that an order has been partially or fully filled. The execution details (e.g. side, price and quantity) are specified. This message will also be sent when an unelected order is elected and receives executions on aggression. This message will also be sent when a parked order with time in force of GFX/GFA/ATC/CPX is injected and receives executions on aggression.	1, 2	0,1,3, 20, 21
C	**Expired** May indicates one of the following: a) An order or quote side has expired in terms of its time qualifier b) An order or quote side has expired due to an execution limit. c) If any remaining orders (except GTC and GTD) are expired at market close. d) When orders are expired based on the cancel on disconnect/log out feature. e) Orders expired due to triggering circuit breakers	6	0,1,3, 5,6, 20, 21
4	**Cancelled** Indicates that an order cancel request has been accepted and successfully processed. This message will also be sent unsolicited if the order was cancelled by JSE Market Operations/Surveillance.	4	0,1,3, 5,6, 20, 21
5	**Amended/Modified** Indicates that an order cancel/replace request has been accepted and successfully processed.	0, 1	1,3,5, 6,20, 21
L	**Triggered** Indicates that a parked ATC, GFX, GFA, CPX or contingent order (i.e. stop, stop limit, trailing stop or MIT) has been activated and moved to the main container. The order is available for execution.	0, 1	1,3

9	**Suspended** Indicates that a GFA, GFX order that was in the main container has been parked and is no longer available for execution.	9	5
D	**Restated (Order Cancel/Replace by Market Operations)** Indicates that an order has been amended by JSE Market Operations/Surveillance or due to TIF CPX orders being re-priced during the CPX session. If an order is amended via Service Desk, it will not be assigned a new Order ID or Client Order ID.	0, 1	1,3,5, 6
H	**Trade Cancel** Indicates that an execution has been cancelled by JSE Market Operations/Surveillance. The Execution ID of the execution being cancelled will be included.	0, 1, 4, 6	0,1,20
G	**Trade Correct** Indicates that an execution has been corrected. The Execution ID of the execution being corrected will be included along with the updated execution details (e.g. price and quantity).	1, 2, 4, 6	0,1, 20

It should be noted that the Exchange will generally not amend orders or trades. These events are included in the above table for completeness.

3.15 Order Status

The Order Status field of the Execution Report is used to convey the current state of an order. If an order simultaneously exists in more than one order state, the value with highest precedence is reported as the Order Status. The relevant order statuses are given below from the highest to lowest precedence.

Value	Meaning
2	Filled
9	Suspended
4	Cancelled
6	Expired
1	Partially Filled
0	New
8	Rejected

Please refer to Section 9 for process flow diagrams on the various statuses that may apply to an order.

3.16 Orders and Execution Identifiers

3.16.1 Client Order IDs

Clients must specify a Client Order ID when submitting an application message (i.e. New Order, Order Cancel Request, Order Mass Cancel Request or Order Cancel/Replace Request).

The server does not validate each Client Order ID for uniqueness. Clients must ensure unique Client Order IDs across all application messages sent under a particular User Interface ID

(CompID) (e.g. New Order, Order Cancel Request etc). Given that the server supports GTD and GTC orders, clients must also ensure that Client Order IDs are unique across trading days (e.g. embed the date within the Client Order ID).

3.16.2 Execution IDs

The server will use the Execution ID field to affix a unique identifier for each Execution Report. Execution IDs will be unique across trading days in perpetuity, irrespective of the market in which the execution occurs. If an Execution Report message is used to notify a client of a trade cancellation or correction, the Execution ID will refer to the Execution ID generated for the original execution.

3.16.3 Order IDs

The server will use the Order ID field of the Execution Report to affix the order identification numbers of the trading engine. Order IDs will be unique across trading days in perpetuity, irrespective of the market in which the execution occurs.

Unlike the Client Order ID, which is updated on each successful Order Cancel/Replace or Order Cancel Request, the Order ID of an order will remain constant throughout its life. As the Order ID does not change, all execution reports can be linked through the Order ID.

3.16.4 Public Order IDs

The server uses Public Order ID field of the Execution Report to affix the Public Order ID of an order. This is an order identification number that will be stamped for each order that has an Order ID. For all orders that are not iceberg orders, the Public Order ID will be the same as the Order ID. For iceberg orders, the Public Order ID will renew with each replenishment to the visible order size. Participants will be able to identify their orders on the market data feeds using Public Order ID which is the identification number that will be disseminated for order book updates on market data feeds.

~~3.16.4~~3.16.5 Instrument Identification

All instruments – equity, bonds and derivatives – may be identified by the Instrument ID assigned by the Exchange to each security. The application messages transmitted by the server will always contain the Instrument ID.

~~3.16.5~~3.16.6 Additional Clearing Member Instruction

Clients will be able to specify additional clearing member instructions on the Secondary Trade Report ID field when submitting an application message (i.e. New Order, Order Cancel/Replace Request) via the Enhanced Native Gateway. This will be a non-mandatory field.

The server does not validate each Secondary Trade Report ID for uniqueness

3.17 Party Identification

The same party identification method is used for equity and derivative/bonds traders.

ID	Description	Relevant Fields
Trader Group + JSE Trader ID	Concatenated identifier of the Trader Group and JSE Trader ID separated by an underscore.	Trader Mnemonic

3.18 Field Value Validations

The following field value validations will be done. If a message is rejected, it will be rejected with the *Reject* message, *Cancel Reject* message or *Execution Report*.

a) The problematic field name will be specified in the *Reject Reason* field in the *Reject* message.

b) The problematic message type will be specified in the Rejected Message Type field in the Reject message.

c) The Reject code will be specified in the field Reject Code in the Reject message, Cancel Reject message or Execution Report.

d) **The Reject codes for the relevant fields will be as follows** (Please refer to section 8 for the Reject Codes).

Unless specifically mentioned the below reject codes are applicable for both Basic and Enhanced Native Gateways:

Message	Field	Validation	Reject Code
Message Header (Basic and Enhanced)	Length	The value has to be the actual length of the message. Otherwise reject the message.	9901
	Message Type	If the value is out of range from the defined set of values, reject the message.	9901
Logon (Basic and Enhanced)	User Name	If a value is not specified, reject the message. If the value contains invalid ASCII characters (please refer section 3.10.2), reject the message.	9900 9901
	Password	If a value is not specified, reject the message. If the value contains invalid ASCII characters, reject the message.	9900 9901
	New Password	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
Logout (Basic and Ehanced)	Reason	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
Missed Message	AppID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901

Request (Basic and Enhanced)	LastMsgSeqNum	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
New Order (Basic and Enhanced)	Client Order ID	If a value is not specified, reject the message. If the value contains invalid ASCII characters, reject the message.	9900 9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Account	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	SecurityID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Minimum Quantity	Minimum Execution Size that needs to be specified for a Pegged or Pegged Limit Order which must be greater than or equal to Minimum Reserve Size. This is applicable only for the Basic Native Gateway.	134010
	Order Type	If the value is out of range from the defined set of values, reject the message.	9901
	TIF	If the value is out of range from the defined set of values, reject the message.	9901
	Expire Time	The value has to be in the format of YYYYMMDD-HH:MM:SS or YYYYMMDD. Otherwise reject the message.	9901
	Side	If the value is out of range from the defined set of values, reject the message.	9901
	Order Qty	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Display Qty	The value has to be 0 or equal to the Order Quantity for Equity instruments. Otherwise reject the message via the Basic Native Gateway. The value has to be equal to the Order Quantity for Derivatives/Bonds instruments. Otherwise reject the message via the Enhanced Native Gateway.	1105
	Limit Price	The value has to be greater than 0 (>0) if Order Type is Limit or Stop Limit for Equity instruments. Otherwise reject the message via the Basic Native Gateway.	1204

	Capacity	If the value is out of range from the defined set of values, reject the message.	9901
	Auto Cancel	If the value is out of range from the defined set of values, reject the message.	9901
	Stop Price	The value has to be greater than 0 (>0) if Order Type is Stop or Stop Limit for Equity instruments. Otherwise reject the message via the Basic Native Gateway.	1301
	Execution Instruction	If the value is not 0, 1 or 2 on a new order message, reject the message.	9901
	Anonymity	If the value is out of range from the defined set of values, reject the message. Only applicable for the Enhanced Gateway.	9901
Order Cancel Request (Basic and Enhanced)	Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Original Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Side	If the value is out of range from the defined set of values, reject the message.	9901
Order Mass Cancel Request (Basic and Enhanced)	Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	MassCancelRequestType	If the value is out of range from the defined set of values, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0) if the Mass Cancel Request Type is 3 or 9 when submitted via the Basic Native Gateway. The value has to be greater than 0 (>0) if the Mass Cancel Request Type is 3, 9, 14 or 22 when submitted via the Enhanced Native Gateway. Otherwise reject the message.	9900
	Segment	If the value is not specified for Mass Cancel Request Types 4 and 15, reject the message.	2600

		If the value contains invalid ASCII characters, reject the message.	9901
	Order Sub Type	If the value is out of range from the defined set of values, reject the message.	9901
Order Cancel/ Replace Request (Basic and Enhanced)	Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Original Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Expire Time	The value has to be in the format of YYYYMMDD-HH:MM:SS or YYYYMMDD. Otherwise reject the message.	9901
	Order Quantity	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Display Quantity	The value has to be 0 or equal to the Order Quantity for Equity instruments. Otherwise reject the message via the Basic Native Gateway. The value has to be equal to the Order Quantity for Derivatives/Bonds instruments. Otherwise reject the message via the Enhanced Native Gateway.	1105
	Minimum Quantity	Minimum Execution Size that needs to be specified for a Pegged or Pegged Limit Order which must be greater than or equal to Minimum Reserve Size for Equity instruments. Otherwise the message is rejected by the Basic Native Gateway. This is applicable only for the Basic Native Gateway.	134010
	Account	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Order Type	If the value is out of range from the defined set of values, reject the message.	9901

	TIF	If the value is out of range from the defined set of values, reject the message.	9901
	Side	If the value is out of range from the defined set of values, reject the message.	9901
	Limit Price	The value has to be greater than 0 (>0) if Order Type is Limit or Stop Limit for Equity instruments. Otherwise reject the message via the Basic Native Gateway.	1204
	Stop Price	The value has to be greater than 0 (>0) if Order Type is Stop or Stop Limit for Equity instruments. Otherwise reject the message via the Basic Native Gateway.	1301
Quote (Enhanced)	Client Order ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Account	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Cancel on Disconnect	If the value is out of range from the defined set of values, reject the message.	9901
	Anonymity	If the value is out of range from the defined set of values, reject the message. Only applicable for the Enhanced Gateway.	9901
Quote Request (Enhanced only)	Quote Req ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Private Quote	If the value is out of range from the defined set of values, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Side	If the value is out of range from the defined set of values, reject the message.	9901
	Expire Time	The value has to be in the format of YYYYMMDD-HH:MM:SS or YYYYMMDD. Otherwise reject the message.	9901

	Start Date	The value has to be in the format of YYYYMMDD. Otherwise reject the message.	9901
	End Date	The value has to be in the format of YYYYMMDD. Otherwise reject the message.	9901
Quote Request Reject (Enhanced only)	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Side	If the value is out of range from the defined set of values, reject the message.	9901
	RFQ ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
RFQ Quote (Enhanced only)	Quote Msg ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	RFQ ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	Trader Mnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Valid Until Time	The value has to be in the format of YYYYMMDD-HH:MM:SS or YYYYMMDD. Otherwise reject the message.	9901
	Cancel on Disconnect	If the value is out of range from the defined set of values, reject the message.	9901
	Start Date	The value has to be in the format of YYYYMMDD. Otherwise reject the message.	9901
	End Date	The value has to be in the format of YYYYMMDD. Otherwise reject the message.	9901
	Leg 1 Reference Price	If the value is out of range from the defined set of values, reject the message.	9901
Quote Response (Enhanced only)	Quote Msg ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	RFQ ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security ID	The value has to be greater than 0 (>0). Otherwise reject the message.	9901
	TraderMnemonic	If a value is specified and it contains invalid ASCII characters, reject the message.	9100
	Account	If a value is specified and it contains invalid ASCII characters, reject the message.	9901

	Side	If the value is out of range from the defined set of values, reject the message.	9901
Security Definition Request (Enhanced only)	Security Request ID	If a value is specified and it contains invalid ASCII characters, reject the message.	9901
	Security Type	If the value is out of range from the defined set of values, reject the message.	9901
	Maturity Date	The value has to be in the format of YYYYMMDD. Otherwise reject the message.	9901
	Exercise Style	If the value is out of range from the defined set of values, reject the message.	9901
	Reference Instrument	The value has to be greater than 0 (>0). Otherwise reject the message.	9901

3.19 Validation of ASCII characters

The values which correspond to Decimal 32 to 126 will be accepted. Any other ASCII character will be rejected.

The above valid ASCII character range is used for appropriate validations in the section 3.18.

3.20 Rejection Logic

All client initiated messages are subjected to two levels of gateway validations before the server receives the message.

Level one pertains to validations on the message header, data type and range defined for each field (valid values for a given field).

If the message successfully passes the first level of gateway validations, the system generates an internal message to check for conditional requirements of each field and any message specific validations. This forms the second level of gateway validations.

If a message fails to comply with any of gateway level validations, a Reject message will be generated which contains a reject code, along with the reason specified. The only exception to the gateway level rejection logic is when the server is unavailable in the unlikely event of an outage; a Business Reject message is generated instead of a Reject in this scenario.

Any client initiated message after passing gateway level validations will be subjected to internal validations upon reaching the server. Failure to pass server level validations will be notified to clients via an Execution Report with a reject code and the reason which is specified in the Reject Code Specification.

An exception to the server level rejection logic is when the instrument or the order book could not be found, in which case a Business Reject is generated by the server.

3.21 Functional and Implementation Limitations

(a) At present, if an order mass cancel request is sent for instruments which are in multiple matching partitions, an Order Mass Cancel Report will be sent per matching partition with the confirmation/rejection of the cancellations of orders in that respective partition. This is because the system handles mass cancel requests per partition internally. The relevant

partition will be stamped in the AppID field in the Order Mass Cancel Report. Due to this behaviour, when a Mass Cancel Request is submitted via the Enhanced Native Trading Gateway with a request type as '14' or '22', with a underlying specified as a 'Future' instrument, the system will send a Mass Cancel Request reject message from Partition 1, as the Futures instrument is not available in that partition.

(b) The gateway will not validate the Order ID against the type of the instrument, when an Order Cancel Request message is sent to the Basic or Enhanced Native Gateway without the Security ID.

(c) When specifying the expiry time for a GTT order, a date component will also be specified along with the expiry time. The server takes the date component into consideration when validating the expiry time. I.e. if a GTT order is sent with an already elapsed expiry time but with a future date in the date component, the order will be accepted and will be expired at Market End of the current trading day. I.e. the order is treated as a DAY order.

(d) An order mass cancel request should not be sent during Start of Trading session. If a request is sent, it will be rejected. But thereafter in a subsequent session the client will not be able to mass cancel the same orders again. But the client can individually cancel orders.

(e) If an order cancel/replace request is of a cancel/replace nature (a limit price change or a stop price change), the system removes the order from the relevant container (e.g. order book etc-:) (Cancel) and then apply the change (replace). Hence at the time of generating the Execution Report to confirm the amendment, there is no container for the order. Therefore 0 (None) will be stamped in the "Container" field of the Execution Report.

(f) If an order is successfully amended as above and an execution is resulted during the aggression, there will be no container for the order at that time. Hence 0 (None) will be stamped in the "Container" field of the Execution Report which is generated to communicate the execution. Once the order is added to the relevant container, the appropriate value will be tagged for the "Container" field in the Execution Reports which are generated for subsequent executions.

(g) The server does not validate each Client Order ID for uniqueness (as mentioned in section 3.10). If a client mistakenly submitted more than one order with the same Client Order ID (within a trading day or over a couple of days if GTD is used), they will only be able to cancel/amend the most recent order (using the Client Order ID) but not the previous entries as the system maintains only one order for a Client Order ID in a map and updates/removes it once a cancel or amend is received.

(h) It is not possible to populate the Client Order ID in the Reject message in the below scenarios:

- If the Client Order ID itself is invalid.
- If the Client Order ID is not the first field of the message and if any field above the Client Order ID is invalid.
- If the message header is incorrect (e.g. message type, message length).

(i) If the original TIF was 1, 3, 4, 5, 6, 8, 9, 10 or 12 and if an Order Modification Request was sent with the TIF specified as '0' (DAY), then the amend request is accepted and not rejected; the TIF amendment will be ignored in this scenario and in the Execution Report to acknowledge the amend request, the original TIF of the order will be stamped. However if the original TIF was GTD/GTT, the Order Modification Request will be rejected unless the Order Modification Request contain the original TIF(I.e. GTD/GTT). the system cannot differentiate whether a TIF was specified in the amend request or not (as DAY is represented by 0 and when a TIF is not specified, it will also come as 0). Hence it will stamp the original TIF of the order to the amend request. Hence if a GTT order is amended to have TIF DAY, system still consider the TIF to be GTT and to have a valid expiry time; if an expiry time is not specified or an invalid expiry time is specified, the amend request will be rejected.

(j) Cancel on disconnect is applicable only if the user is disconnected before the end of day (EOD). At EOD, Native users who are still logged in will be logged off by the system. Hence Cancel on disconnect is not applicable at EOD.. A disconnect delay parameter (set in milliseconds) is available to specify the delay applicable to a disconnect/logout before expiring the open orders/quotes. A New Order (Enhanced Gateway New Order) must still be submitted with the Cancel On Disconnect field set to 'Yes' for this functionality to take effect. Should the Interface User (Comp ID) be set with Mass Cancel on Logout/Disconnect and a submitted message has the Cancel On Disconnect field set to 'No', the order will not be removed from the order book on a disconnect or logout. This parameter can be set to cancel all open orders, no open orders or orders excluding ones with TIF of GTD/GTC.

(k) It's not possible to perform negative number validations for fields with Unsigned Integer data types. For instance "Order Quantity" is of UInt64 data type. Since this field is unsigned, it is not possible to represent a negative number as "Order Quantity". This scenario could be described as below.
Field A has data type UInt8 and Field B has data type Int8

Client submits -100 on Fields A and B

Representation of -100 on Field B (Int8):

Sign Bit	26	25	24	23	22	21	20
-	64	32	0	0	4	0	0

In signed integer types to represent negative values the sign bit or the leftmost bit is used. When it's set to 1 the value is negative, otherwise positive.

Representation of -100 on field A (UInt8)

In unsigned integers the sign bit is not considered as a negative value validation bit and is used as a digit to represent the number as other 7 bits do.

1	1	1	0	0	1	0	0
27	26	25	24	23	22	21	20
128	64	32	0	0	4	0	0

Even though we expected to represent -100, the final outcome is number 228. If we used UInt64 to represent -100, the actual value will be 9.2233720368548E+18 which most probably would fire validations such as Maximum Size.

For instance, an order submitted with -100 as the Order Quantity, would get rejected with OrderRejectCode=1003 (Invalid order size (> maximum size)) if it breaches the maximum size validation.

(l) In the 'Named' model for Trade Negotiation via RFQs, when a Quote Request is submitted for an RFQ Trade Sub Type of EP or SR if there is at least one Firm specified in the 'Market Makers' field the Quote Request will be accepted by the system. In this scenario all Market Maker firms specified in the initial Quote Request message will be stamped in the Quote Status Report message 'Market Makers' field. This would mean that even if there were Market Maker firms which are not eligible to receive the RFQ among the initial list these firms will also be listed in the Quote Status Report.

4 Connectivity

4.1 Interface User ID (CompIDs)

The Interface User ID (CompID) of each client must be registered with the JSE before communications can begin through the gateway. A single client may have multiple connections to the server (i.e. an Interface User can maintain multiple sessions, each with its own Interface User ID (CompID) if it has multiple valid Interface User IDs (CompIDs).

4.2 Passwords

If the JSE enables password policies, each new Interface User ID (CompID) will be assigned a password on registration. Clients must change the password to one of their choosing via the Logon message when connecting to the Real-Time channel. The acceptance of a login request that includes a password change request indicates that the new password has been accepted. The new password will, if accepted, be effective for subsequent logins. If a new password is rejected, the Reject Code of the Logon Response will indicate why the password is rejected.

Depending on the password policy implemented by the JSE, the password of each Interface User ID (CompID) may need to be changed after a certain amount of days. If not, the password will automatically expire and the client will be unable to login to the server. In such a case, the client will contact the JSE to have its password reset. The Password Expiry field of the Login Response message will indicate the number of days after which the current password will expire.

4.3 Production IP Addresses and Ports

The IP address of each client must be registered with the JSE. The IP addresses and ports of the production servers will be detailed in a consolidated JSE Production Market Facing Client document.

The JSE will assign each registered client to one of the primary IP addresses and ports and one of the secondary IP addresses and ports. Clients who subscribe to the un-throttled service will be assigned the above mentioned IP addresses and ports for the un-throttled gateway, whereas Clients who subscribe to the throttled Gateway will be assigned to the IP addresses and ports for the throttled Gateway.

4.4 Failover and Recovery

The System has been designed with fault tolerance and disaster recovery technology that ensures that trading will continue in the unlikely event of a process or site outage. If the client is unexpectedly disconnected from the server, it should attempt to re-connect to primary site within a few seconds. The client should only attempt to connect to the secondary IP address and ports if so requested by the JSE. Please refer to the separate Client Failure and Recovery Document.

4.5 Establishing a Connection

Each client will use the assigned IP address and port to establish a TCP/IP session with the server. The client will then initiate a session at the start of each trading day by sending the Logon message. If the client does not transmit a Logon message within SESSION_HB_INTERVAL * 3<*15*>seconds of establishing the TCP/IP connection, the server will break the TCP/IP connection with the client.

The client will identify itself using the Interface User ID (CompID) field. The server will validate the Interface User ID (CompID), password and IP address of the client. Once the client is authenticated, the server will respond with a Logon Response message with the Reject Code "0" for Successful. If the client's Logon message included a New Password, the acceptance of the login indicates that the new password has been accepted.

The client must wait for the server's Logon Response before sending additional messages. Messages received from the client before the acceptance of the login request, are rejected via the Reject message.

If a logon attempt fails because of an invalid CompID (where the specified CompID is not available in the system), the server will break the TCP/IP connection with the client without sending a Logon Response.

If a logon attempt fails (e.g. invalid username, invalid or expired password, locked user etc.), the server will send a Logon Response message, which will include the appropriate Reject Code, and then break the TCP/IP connection with the client.

The server will terminate the TCP/IP connection (a Logout will not be sent) if the number of messages that are buffered for a client exceeds MAX_CLIENT_BUFFER_LIMIT<*500*>.

4.5.1 Maintaining a Connection

4.5.2 Application Sequence Numbers

The trading system consists of a series of parallel partitions each of which services an exclusive set of instruments.

Each application message transmitted by the server will include the identity of the partition that generated the message and the partition's message sequence number in the fields Partition ID and Sequence Number respectively. As the partitions operate in parallel, a sequence number is only unique per Partition ID. The sequence number of each partition is initialized to "0" at the start of each trading day.

A client will only receive a subset of the messages generated by each partition. While the sequence number of each message will be higher than that of the last message from the partition, it will not be sequential. Therefore, a client should not connect to the recovery channel and request for missed messages if the difference in Sequence No between two consecutive messages is more than one. Recovery should be requested only upon a reconnection after a session disconnection.

Sequence numbers are not maintained for client-initiated messages. Uniqueness of Client-initiated messages will be achieved through the provision of unique Client Order IDs per Interface User. It is the responsibility of the customer to ensure that a Client Order ID is unique over the life of an order.

4.5.3 Heartbeats

The client and server will use the Heartbeat message to exercise the communication line and to verify that the interfaces at each end are available. The heartbeat interval is SESSION_HB_INTERVAL<*3*> seconds.

If the server detects inactivity for a period longer than SESSION_HB_EXPIRY_COUNT<*3*> heartbeat intervals, it will break the TCP/IP connection with the client. The client is expected to employ similar logic if inactivity is detected on the part of the server.

4.6 Terminating a Connection

The client is expected to terminate each connection at the end of each trading day before the server shuts down. The client will terminate a connection by sending the Logout message.

The server will respond with a Logout message and will immediately break the TCP/IP connection with the user.

All open TCP/IP connections will be terminated by the server when it shuts down and a Logout will be sent. Under exceptional circumstances the server may initiate the termination of a connection during the trading day by sending the Logout message, waiting for the heartbeat interval and then breaking the TCP/IP connection with the client. In such a case, the reason for the logout will be included in the Reason field.

Either party that wishes to terminate the connection should wait for the heartbeat interval duration before breaking the TCP/IP connection, in order to ensure that the other party received the Logout message.

The server will terminate the TCP/IP connection (a Logout will not be sent) if the number of messages that are buffered for a client exceeds MAX_CLIENT_BUFFER_LIMIT<*500*>.

4.7 Message Rate Throttling

The JSE has implemented a scheme for throttling message traffic where each Interface User ID (CompID) is only permitted to submit up to a specified number of messages per second. The maximum rate is currently defaulted to 100 messages per second per Interface User ID (CompID) and will be reviewed as and when required.

Every message that exceeds the maximum rate of an Interface User ID (CompID) will be rejected via a Reject message. The Reject Reason of such a message will be “9990”.

An Interface User ID (CompID) will be disconnected by the server if its message rate exceeds its maximum rate more than MAX_THROTTLINGS_PER_PERIOD <5> times in any MSG_SAMPLING_PERIOD <*30*> second duration. In such a case, the server will transmit a Logout message and immediately terminate the TCP/IP connection.

4.8 Mass Cancellation On Disconnect

At the request of the client, the server can be configured to automatically cancel all Open and Parked orders submitted under an Interface User ID (CompID) whenever it disconnects from the server.

In addition to the above configuration, each New Order or Quote message will include an indication, via the Cancel on Disconnect field, of whether or not it will be automatically cancelled if the Interface User ID (CompID) that submitted it disconnects from the server.

If the Interface User level configuration is set to automatically cancel all orders on a disconnect, the Interface User can mark each order through its Cancel on Disconnect field; whether it should be automatically cancelled according to its preferences, should a disconnection or logout happen. For each order an Execution Report with the ‘Exec Type’ and ‘Order Status’ fields stamped with the value ‘Expired’ is generated, as opposed to ‘Cancelled’ for all ‘Firm Initiated Cancellations’.

This feature does not guarantee that all outstanding marked orders will be successfully cancelled as executions that occur very near the time of disconnect may not be reported to the client.

The configuration of the mass cancellation on disconnect feature cannot be updated during a session.

4.9 Unavailability of Real-Time Channel

A System Status message with a Status of Partition Suspended (3) will be transmitted to all clients connected to the Real-Time channel in the unlikely event the real-time service for a particular partition is unavailable.

5 RECOVERY

If a client gets disconnected from the server, the recovery channel should be used to recover missed messages. The application messages (e.g. Execution Report, Cancel Reject, News etc.) generated during a period when a client is disconnected from the Real-Time channel will not be sent when it next reconnects.

5.1 Establishing a Connection

The client will be logged in to the Real-Time channel before it attempts to login to the Recovery channel.

Once a connection with the Real-Time channel is established, the client will use the relevant IP address and port (as outlined in Section 4.2 to establish a TCP/IP session with the Recovery channel. The client will then initiate a session with the Recovery channel by sending the Logon message. The client will identify itself using the Interface User ID (CompID) field.

The server will validate the Interface User ID (CompID), password (depending on if the password policy is enabled) and IP address (depending on if the IP address verification policy is enabled) of the client. Once the client is authenticated, the server will respond with a Logon Response message with the Reject Code Successful “0”. The value, if any, in the New Password field of the Logon will be ignored.

The client must wait for the server’s Logon Response before sending additional messages on the Recovery channel. Messages received from the client before the acceptance of the login request are rejected via the Reject message.

If a logon attempt fails because of an invalid CompID, the server will break the TCP/IP connection with the client without sending a Logon Response.

If a logon attempt fails because of an invalid or expired password, locked CompID or if the logins are not currently permitted, the server will send a Logon Response message, which will include the appropriate Reject Code, and then break the TCP/IP connection with the client.

The Recovery channel supports a certain number of maximum concurrent logins MAX_SESSIONS_PER_SERVICE<*200*>. Once the number of logged in clients has reached this limit, the server will reject login requests from additional clients with a Logon Response and then break the TCP/IP connection. The Reject Code of such a message will be “9903”.

5.2 Heartbeats

The client and server will use the Heartbeat message to exercise the communication line and to verify that the interfaces at each end are available. The heartbeat interval is SESSION_HB_INTERVAL<*5*> seconds.

If the server detects inactivity for a period longer than SESSION_HB_EXPIRY_COUNT<5>heartbeat intervals, it will break the TCP/IP connection with the client. The client is expected to employ similar logic if inactivity is detected on the part of the server.

5.3 Requesting Missed Messages

When a client needs to recover missed messages they must first connect to the Real Time Channel and establish a session by exchanging Logon and Logon Response messages. The client may then connect to the Recovery channel and exchange Logon and Logon Response to establish a recovery session. Any attempt to connect to the Recovery Channel without first connecting to the Real Time Channel will be rejected and the server will send a Logon Response message which will include the appropriate Reject Code. The client must ensure proper authentication (i.e. same Interface User CompID and password) when logging into both channels. Any values sent for the NewPassword field in the Logon message sent to the Recovery Channel will be ignored.

The client is expected to transmit a Missed Message Request within SESSION_HB_INTERVAL * 3 seconds of establishing the connection.

If the client requires all messages generated by the partition for the day, it will include one (1) in the Sequence Number field. A separate Missed Message Request will be sent for each partition.

The server does not support multiple concurrent requests from the same client. Missed Message Requests submitted prior to the completion of an active request will be ignored.

When a client needs to recover missed messages he must first connect to the Real Time Channel and establish a session by exchanging Logon and Logon Reply messages. The client may then connect to the Recovery Channel and exchange Logon and Logon Reply messages to establish a recovery session. Any attempt to connect to the Recovery Channel without first connecting to the Real Time Channel shall be rejected and the server will send a Logon Reply message, which will include the appropriate Reject Code, The client must ensure proper authentication (i.e. same username and password) when logging in to both channels. Any values sent for the NewPassword field in the Logon message sent to the Recovery Channel will be ignored.

After establishing a connection with the Recovery Channel, the client may send a Missed Message Request. The message should include the identifier of the partition to which the request applies along with the sequence number immediately after that of the last message received from the partition (i.e. last sequence number plus one). The user will have to send separate Missed Message Request messages to retrieve messages from each partition.

If a service interruption occurs in the Native Recovery Channel, the Native Gateway will send a System Status message to all logged in clients of that gateway's recovery channel with AppID stamped to indicate the service/partition is unavailable. When this message is received, clients can identify that the recovery service is not available for the partition indicated by AppID. They would be able to continue recovery activities on other partitions without interruptions. If the gateway was in the middle of serving a Missed Message Request, it will send a Missed Message Report message with 'Response Type' = 3 (service unavailable) to the client. If a new Missed Message Request is sent by a user, the gateway will reject the message with a 'Missed Message Request Ack' with 'ResponseType' = 3 (service unavailable) to the client. Once the service is available again, the Native Gateway will send another System Status message with AppID to indicate the service availability of the partition to the clients who are still connected on to the recovery channel with 'AppStatus' = 1. When this message is received, the clients are expected to resend the request for missed messages (preferably from the point of interruption) to the gateway to resume the missed message recovery.

The message will include the identifier of the partition to which the request applies along with the sequence number immediately after that of the last message received from the partition (i.e. last sequence number plus one).

If the matching system becomes unavailable, clients will receive a Business Reject message with a value of "9998" indicating "Matching Partition Suspended." upon order entry.

5.4 Response to a Missed Message Request

The server will respond to a Missed Message Request with a Missed Message Request Ack to indicate whether the request is successful or not. A Status other than Request Accepted (0) will indicate that the request has been rejected and the reason will be specified in the field Status.

In the case of a successful recovery request, the server will retransmit the requested messages immediately after the Missed Message Request Ack. Each such message will include the relevant Partition ID and Sequence Number. Once the last of these messages is sent, the server will send a Transmission Complete message. It should be noted that due to

race conditions duplicate messages may be transmitted via the recovery channel. Clients are advised to use the AppID and SeqNum to carry out duplicate discard.

A client should not send subsequent Missed Message Requests prior to receiving the Transmission Complete message, since these will be ignored by the server. Upon receiving the Transmission Complete message, the client can send a Logout message and terminate the connection or submit a new Missed Message Request for any more messages that need to be transmitted.

The total number of messages that will be transmitted in response to each Missed Message Request is limited to MSG_LIMIT*<2000>*. If the number of messages a client has missed for a particular partition exceeds this limit, the server will only send the first MSG_LIMIT<2000> messages from the AppID and Sequence No provided. The Transmission Complete message sent in such a case will include a Status of Message Limit Reached (1).

The total number of Missed Message Requests that a client may send on the Recovery channel is limited to MAX_RECOVERY_REQUEST_COUNT*<1000>* each day. Once this limit is reached, the server will reject any additional request via a Missed Message Request Ack with a Status of Request Limit Reached (1).

Upon receiving the Transmission Complete message, the client can send a Logout message and terminate the connection or submit a new Missed Message Request for any more messages that needs to be transmitted.

5.5 Termination of the Recovery Connection

If the client does not terminate the connection within SESSION_HB_INTERVAL * 3 seconds of the transmission of the last Transmission Complete message, the server will break the TCP/IP connection with the client.

If the client has received only part of the message set that was requested, the client may send in a new Missed Message Request message for the messages that were not recovered in the first attempt. However, if such a request is not sent within SESSION_HB_INTERVAL * 3 seconds of the transmission of the last Transmission Complete message, the Server will terminate the connection. If the client is unable to send a new request within this time, the client can re-login to the Recovery Channel and send in the Missed Message Request.

If the recovery service becomes unavailable while servicing a Missed Message Request from the client, the client will be disconnected from the recovery channel. Any further Missed Message Requests sent by the client after a re-login while the recovery service is unavailable will be rejected via a Missed Message Request Ack with a Status of 3 Service Unavailable. The client can send a new Missed Message Request when the recovery service is available again to recover messages.

5.6 Unavailability of Recovery Channel

If a service interruption occurs in the Native Recovery channel (due to Order Cache outage) the Native Gateway will send a System Status message with a Status of Recovery Service Unavailable (2) to all logged in clients of that gateway's recovery channel with Partition ID stamped to indicate the service non-availability of the partition. When this message is received, the clients are expected identify that the recovery service is not available for the partition indicated by AppID. They would be able to continue recovery activities on other partitions without interruptions. If the gateway was in the middle of serving a Missed Message Request, it will send a Missed Message Report message with 'ResponseType' = 3 (service unavailable) to the client.

If a new Missed Message Request is sent by a user, the gateway will reject the message with a 'Missed Message Request Ack' with 'ResponseType' = 3 (service unavailable) to the client. Once the service is available again, Native Gateway will send another System Status message with AppID to indicate the service availability of the partition to the clients who are

still connected on to the recovery channel with ‘AppStatus’ = 1. When this message is received, the clients are expected to resend the request for missed messages (preferably from the point of interruption) to the gateway to resume the missed message recovery.

Clients already connected to the recovery channel will get the system status message. If they connect after the message was sent and the partition is available the recovery request will be processed as normal.

NOTE: The above mentioned logic will be applicable for both Real Time and Recovery services.

6 MESSAGE FORMATS

This section provides details on the data types, header, eight administrative messages and all the application messages utilised by the server for both Basic and Enhanced Native Trading Gateways. For each message, a description of each field is provided along with the applicable data type, offset and length (in bytes). Any message not included in this section will be rejected by the server for this service.

6.1 Data Types

The fields of the messages utilised by the server will support the data types outlined below.

Data Type	Length	Description
Alpha	Variable	These fields use standard ASCII character bytes. A field will be null terminated if the full fixed length is unused. The first byte will contain a null if the field is unused.
Byte	1	A single byte used to hold one ASCII character.
Price	8	Signed Little-Endian encoded eight byte signed integer field with eight implied decimal places. The maximum value supported through this would be 2^63 /10000 with eight decimal places
UInt8	1	Little-Endian encoded 8 bit unsigned integer.
UInt16	2	Little-Endian encoded 16 bit unsigned integer.
Int32	4	Little-Endian encoded 32 bit signed integer.

6.2 Message Overview

6.2.1 Administrative Messages

Administrative messages may be initiated by either the client or the server. These messages are common across the Basic and the Enhanced Native Trading Gateways.

Message	MsgType	Usage
Logon	A	Used by the client to login to the server.
Logon Response	B	Used by the server to accept or reject a login request.
Logout	5	Used by the client or server to terminate a session.
Heartbeat	0	Used by the client and server to exercise the communication line during periods of inactivity and verify that the interfaces at each end are available.
Reject	3	Used by the server to reject a message that does not comply with the Native Trading Gateway specifications.
Missed Message Request	M	Used by the client to recover missed messages through the Recovery Channel.
Missed Message Request Ack	N	Used by the server to accept or reject a request for missed messages.
Transmission Complete	P	Used by the server to indicate that the transmission of missed messages is complete.
System Status	n	This message will be disseminated in the recovery channel to indicate Service Non Availability of a partition (due to order cache outage)

6.2.2 Application Messages of Basic Gateway: Order Handling

a) **Client-Initiated**

Message	MsgType	Usage
New Order	D	Allows the client to submit a new order.
Order Cancel Request	F	Allows the client to cancel an Open or Parked order.
Order Mass Cancel Request	q	Allows the client to mass cancel orders of equity instruments: (i) All Open or Parked orders (ii) All Open or Parked orders for a particular instrument. (iii) All Open or Parked orders for a particular segment. The mass cancel may apply to the orders of the logged in interface user or to all orders of the firm.
Order Cancel/Replace Request	G	Allows the client to modify an Open or Parked order.
New Order Cross	C	Allows the client to submit internal Cross Orders

b) **Server-Initiated**

Message	MsgType	Usage
Execution Report	8	Indicates one of the following on an order submitted for an equity instrument:: (i) Order accepted. (ii) Order rejected. (iii) Order executed. (iv) Order expired. (v) Order cancelled. (vi) Order cancel/replaced. (vii) Trade cancelled. (viii) Trade corrected. (ix) Order Suspended (x) Order Restated (xi) Order Triggered
Order Cancel Reject	9	Indicates that an order cancel request or order cancel/ replace request has been rejected.
Order Mass Cancel Report	r	Indicates one of the following: (i) Order Mass cancel request accepted. (ii) Order Mass cancel request rejected.

6.2.3 Other Application Messages of the Basic Gateway

Message	MsgType	Usage
Business Reject	j	Indicates that an application message could not be processed and provides a description of the error.
News	Z	Disseminates market announcements

6.2.4 Application Messages of the Enhanced Gateway: Order Handling

a) **Client-Initiated**

Message	MsgType	Usage
New Order	D	Allows the client to submit a new order.
Quote	S	Allows the client to submit or update a quote.
Order Cancel Request	F	Allows the client to cancel an Open or Parked order.
Order Mass Cancel Request	q	Allows the client to mass cancel orders of derivative instruments: (i) All Open or Parked orders (ii) All Open or Parked orders for a particular instrument. (iii) All Open or Parked orders for a particular segment. The mass cancel may apply to the orders of the logged in interface user or to all orders of the firm.
Order Cancel/Replace Request	G	Allows the client to modify an Open or Parked order.
Quote Request	a	Allows the client to submit a private RFQ.
Quote Request Reject	b	Allows client to reject a private RFQ request.
RFQ Quote	d	Allows client to submit a quote in response to a private RFQ.
Quote Response	f	Allows a client to submit an indication of whether the terms in RFQ Quote from a market maker is accepted or not.
Security Definition Request	O	Allows the clients to request for instrument creations intra-day.

b) **Server-Initiated**

Message	MsgType	Usage
Execution Report	8	Indicates one of the following on an order submitted for a derivatives instrument: (i) Order accepted. (ii) Order rejected. (iii) Order executed. (iv) Order expired. (v) Order cancelled. (vi) Order cancel/replaced. (vii) Trade cancelled. (viii) Trade corrected. (ix) Order Suspended (x) Order Restated (xi) Order Triggered
Order Cancel Reject	9	Indicates that an order cancel request or order cancel/ replace request has been rejected.
Order Mass Cancel Report	r	Indicates one of the following: (iii) Order Mass cancel request accepted. (iv) Order Mass cancel request rejected.
Quote Request	a	Indicates that a Quote Request has been placed for private negotiation.
Quote Request Reject	b	Indicates that a Quote Request has been rejected.
Quote Status Report	c	Indicates that a Quote Request has been accepted or a Quote Response has been rejected.
RFQ Quote	d	Indicate that a RFQ Quote has been placed by a market maker in response to a private RFQ.
Quote Ack	e	Indicate that a RFQ Quote has been accepted or rejected.
Quote Response	f	Indicates that a Quote Request Reject has been accepted or rejected.
RFQ Execution Report	g	Indicates that a RFQ Quote placed in response to a private RFQ has been executed with a quote from the private RFQ requestor.
Security Definition	R	Indicates that a Security Definition Request has been accepted or rejected.

6.2.5 Other Application Messages of the Enhanced Gateway

Message	MsgType	Usage
Business Reject	j	Indicates that an application message could not be processed and provides a description of the error.
News	Z	Disseminates market announcements

6.3 Message Header

Field	Offset	Length	Type	Description
Start of Message	0	1	UInt8	Indicates the start of the message. Clients will have to send the binary value of '2' at the start of each message. Server will also follow the same protocol
Message Length	1	2	UInt16	Length of the message from the Message Type field onwards.
Message Type	3	1	Byte	**ASCII** / **Meaning** 0 Heartbeat 3 Reject 5 Logout 8 Execution Report 9 Cancel Reject A Logon B Logon Response D New Order F Order Cancel Request G Order Cancel/Replace Request M Missed Message Request N Missed Message Request Ack O Security Definition Request P Transmission Complete R Security Definition S Quote a Quote Request b Quote Request Reject c Quote Status Report d RFQ Quote e Quote Ack f Quote Response g RFQ Execution Report j Business Reject n System Status q Order Mass Cancel Request r Order Mass Cancel Report Z News C New Order Cross

6.4 Administrative Messages

6.4.1 Logon

Field	Offset	Length	Type	Description
Header				
CompID	4	6	Alpha	Interface User ID (CompID) assigned to the client.
Password	10	10	Alpha	Password assigned to the Interface User ID (CompID).
New Password	20	10	Alpha	New password for Interface User ID (CompID).

6.4.2 Logon Response

Field	Offset	Length	Type	Description
Header				
Reject Code	4	4	Int32	Will be "0" if login is accepted/ successful. The field will contain a code specifying the reason if login is rejected. Please refer to Section 7 for a list of reject codes.
Password Expiry	8	4	Int32	Number of days for password expiry. This field will be ignored if it contains a negative value.

6.4.3 Logout

Field	Offset	Length	Type	Description
Header				
Reason	4	20	Alpha	Reason for the logout. (For a normal client logout the reason will be "User logout received".

6.4.4 Heartbeat

Field	Offset	Length	Type	Description
Header				

6.4.5 Reject

Field	Offset	Length	Type	Description
Header				
Reject Code	4	4	Int32	Code specifying the reason for the reject. Please refer to Section Section 7 for a list of reject codes as well as the full list of reject codes in Volume 10 – JSE Reject Codes Specification.
Reject Reason	8	30	Alpha	Reason for the reject. If the rejection is due to an issue with a particular field its name will be specified.
Message Type	38	1	Byte	Type of message rejected.
Client Order ID	39	20	Alpha	Client specified identifier of the rejected message if it is available.

6.4.6 Missed Message Request

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition the request relates to.
Sequence Number	5	4	Int32	Sequence number immediately after that of the last message received from the partition.

6.4.7 Missed Message Request Ack

Field	Offset	Length	Type	Description
Header				
Status	4	1	UInt8	**Value** / **Meaning** 0 – Request Accepted/Successful 1 – Request Limit Reached 2 – Invalid Partition ID 3 – Service Unavailable

6.4.8 Transmission Complete

Field	Offset	Length	Type	Description
Header				
Status	4	1	UInt8	**Value** / **Meaning** 0 – All Messages Transmitted 1 – Message Limit Reached 3 – Service Unavailable

6.4.9 System Status

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition the message relates to.
Status	5	1	UInt8	**Value** / **Meaning** 1 – Recovery Service Resumed 2 – Recovery Service Unavailable 3 – Partition Suspended

6.5 Application Messages of the Basic Gateway: Client-Initiated

6.5.1 New Order

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the order.
Security ID	24	4	Int32	Numeric Identifier of the instrument for which the order is submitted.(Instrument ID)
Trader Mnemonic	28	17	Alpha	This will be the concatenated identifier of the Trader Group and the JSE Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Account	45	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Only Numeric values will be allowed.
Order Type	55	1	UInt8	**Value** / **Meaning** 1 – Market Order 2 – Limit Order 3 – Stop Order 4 – Stop Limit Order 50 – Pegged 51 – Pegged Limit Order

Field	Offset	Length	Type	Description
Time In Force	56	1	UInt8	**Value** / **Meaning** 0 – Day 1 – Good Till Cancel (GTC) 3 – Immediate or Cancel (IOC) 4 – Fill or Kill (FOK) 5 – At the Open (OPG) 6 – Good Till Date (GTD) 8 – Good Till Time (GTT) 9 – Good for Auction (GFA) 50 – Good for EOD Volume Auction Uncross (GDX) 51 – Good for Intraday Auction (GFX) 10 – At the Close (ATC) 12 – Closing Price Cross (CPX)
Expire Time	57	17	Alpha	Expire time will be in the YYYYMMDD-HH:MM:SS format and specified in UTC. Only the YYYYMMDD is allowed if the Time in Force Type is GTD (6) This field will be ignored if the Time in Force Type is not GTD (6), or GTT (8).
Side	74	1	UInt8	**Value** / **Meaning** 1 – Buy 2 – Sell
Order Quantity	75	4	Int32	Total order quantity.

Field	Offset	Length	Type	Description
Display Quantity	79	4	Int32	Maximum quantity that may be displayed. The intended display quantity has to be inserted as this is a mandatory field. This will be zero for a Pegged, Pegged Limit or GDX Order.
Minimum Quantity	83	4	Int32	Minimum Execution Size that needs to be specified for a Pegged or Pegged Limit Order which must be greater than or equal to Minimum Reserve Size.

Limit Price	87	8	Price	Limit price. This field will be ignored if the Order Type is not Limit (2) or Stop Limit (4).
Stop Price	95	8	Price	Stop price or Hard Limit. This field will be ignored if the Order Type is not Stop (3),Stop Limit (4) or Pegged Limit Order (51). Hard Limit Price of a Pegged Limit Order will be specified here.
Capacity	103	1	UInt8	**Value** **Meaning** 2 Principal 3 Agency
Cancel on Disconnect	104	1	UInt8	**Value** **Meaning** 0 Do Not Cancel 1 Cancel
Order Book	105	1	UInt8	***Value*** ***Meaning*** *1* *Regular*
Execution Instruction	106	1	Int8	**Value** **Meaning** 0 None~~Do Not Exclude Hidden Orders~~ 2 Include in EOD Volume Auction Uncross
Order Sub Type	107	1	UInt8	Whether the order is a pegged order. If the client submits a Pegged Order with a limit price (a so called "Hard Limit"), the Order Type has to be Pegged Limit (51) along with Order Sub Type with a value 50, 51 or 52. If the client submits a Pegged without a limit price, the Order Type has to be Pegged (50) along with Order Sub Type with a value 50, 51 or 52." If Side = 1 (Buy) the valid Order Sub Types will be 50 and 51. If Side = 2 (Sell) the valid Order Sub Types will be 50 and 52. **Value** Meaning 50 Pegged to Mid 51 Pegged to Bid 52 Pegged to Offer

6.5.2 Order Cancel Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the request.
Orig Client Order ID	24	20	Alpha	Client specified identifier of the order being cancelled.
Order ID	44	12	Alpha	Unique identifier of the order assigned by the matching system.
Security ID	56	4	Int32	Unique numeric identifier of the instrument (Instrument ID) being cancelled.
Trader Mnemonic	60	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Side	77	1	UInt8	**Value** **Meaning** 1 Buy 2 Sell
Order Book	78	1	UInt8	**Value** **Meaning** 1 Regular

6.5.3 Order Mass Cancel Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the cancel request.
Mass Cancel Request Type	24	1	UInt8	**Value** / **Meaning** 3 – All Firm orders for Instrument 4 – All Firm orders for Segment 7 – All orders for Client (Interface User ID) 8 – All orders for Firm 9 – Client (Interface User ID) orders for Instrument 15 – Client (Interface User ID) orders for Segment
Security ID	25	4	Int32	Numeric identifier of instrument (Instrument ID) of orders being cancelled.Required if Mass Cancel Request Type = 3 or 9. Else this field will be ignored and can be null.
Segment	29	6	Alpha	Identifier of the segment for which orders will be cancelled. Required if MassCancelRequestType = 4 or 15. Else this field will be ignored and can be null.
Order Sub Type	35	1	UInt8	**Value** / **Meaning** 0 – Order
Order Book	36	1	UInt8	**Value** / **Meaning** 1 – Regular

6.5.4 Order Cancel/ Replace Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the request.
Original Client Order ID	24	20	Alpha	Client specified identifier of the order being amended.
Order ID	44	12	String	Unique identifier of the order assigned by the matching system
Security ID	56	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	60	17	Alpha	This will be the concatenated identifier of the Trader Group and the JSE Trader ID. (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Account	77	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order.
Order Type	87	1	UInt8	**Value** / **Meaning** 1 – Market Order 2 – Limit Order 3 – Stop Order 4 – Stop Limit Order 50 – Pegged 51 – Pegged Limit Order

<table>
<tr><td>Time In Force</td><td>88</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>3</td><td>Immediate or Cancel (IOC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr><tr><td>5</td><td>At the Opening</td></tr><tr><td>6</td><td>Good Till Date (GTD)</td></tr><tr><td>8</td><td>Good Till Time (GTT)</td></tr><tr><td>9</td><td>Good for Auction (GFA)</td></tr><tr><td>50</td><td>Good for EOD Volume Auction Uncross (GDX)</td></tr><tr><td>51</td><td>Good for Intraday Auction (GFX)</td></tr><tr><td>10</td><td>At the Close (ATC)</td></tr><tr><td>12</td><td>Closing Price Cross (CPX)</td></tr></table></td></tr>
<tr><td>Expire Time</td><td>89</td><td>17</td><td>Alpha</td><td>This field will indicate the date/time the order expires on.
Expire time will be in the YYYYMMDD-HH:MM:SS date and time format and specified in UTC. Only the YYYYMMDD will be considered if the Time in Force Type is Good Till Date (6). Field will be ignored if the Time in Force Type is not Good Till Date (6) or Good Till Time (8).
It is mandatory to specify a valid value in this field for GTD/GTT orders. If 0 is specified for GTD/GTT orders, the request will be rejected. For non GTD/GTT orders, the value in this field will be ignored.</td></tr>
<tr><td>Side</td><td>106</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>Order Quantity</td><td>107</td><td>4</td><td>Int32</td><td>Total order quantity.</td></tr>
</table>

Display Quantity	111	4	Int32	Maximum quantity to be displayed. The value should be 0 for a Pegged, Pegged Limit, GDX order. The value should equal the order quantity for a visible order.
Minimum Quantity	115	4	Int32	Minimum execution size that needs to be specified for a Pegged or Pegged Limit Order.
Limit Price	119	8	Price	Limit price. Field will be ignored if Order Type is not Limit (2) or Stop Limit (4).
Stop Price	127	8	Price	Stop price. Field will be ignored if Order Type is not Stop (3) ,Stop Limit (4) or Pegged Limit Order (51). Hard Limit Price of a Pegged Limit Order will be specified here. The same stop price should be specified if this field is not being amended
Order Book	135	1	UInt8	**Value** **Meaning** 1 Regular

6.5.5 New Order Cross

Field	Offset	Length	Type	Description
Header				
Cross ID	4	20	Alpha	An identifier of the Cross Order. This will be unique across the trading day. Required for Cross Orders. Only Alpha numeric values will be allowed in this field. No special characters will be allowed.
Cross Type	24	1	Uint8	The type of the Cross Order: **Value** **Meaning** 5 Internal Cross 50 Internal Cross (Price Adjustable) Any other value will be rejected via a Reject message
Buy Side Client Order ID	25	20	Alpha	Client specified identifier of the buy side.
Buy Side Capacity	45	1	UInt8	Capacity of the buy side. **Value** **Meaning** 2 Principal 3 Agency Any other value will be rejected via a Reject message.
Buy Side Trader Mnemonic	46	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Buy Side Account	63	10	Alpha	Client Account information of the buy side This is the Client Account of the firm who is sending the buy side of the Cross Order. Only numeric values will be allowed.
Sell Side Client Order ID	73	20	Alpha	Client specified identifier of the sell side.
Sell Side Capacity	93	1	UInt8	Capacity of the sell side. **Value** **Meaning** 2 Principal 3 Agency Any other value will be rejected via a Reject message.
Sell Side Trader Mnemonic	94	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Sell Side Account	111	10	Alpha	Client Account information of the sell side. This is the Client Account of the firm who is sending the sell side of the Cross Order. Only numeric values will be allowed.
Security ID	121	4	Int32	Numeric Identifier of the instrument for which the Cross Order is submitted.(Instrument ID)
Order Type	125	1	UInt8	Type of the order. **Value** **Meaning** 2 Limit Any other value will be rejected via a Reject message.

Time In Force	126	1	UInt8	Time qualifier of the order. Only DAY TIF is allowed for Cross Orders. **Value Meaning** 0 Day
Limit Price	127	8	Price	Limit price. This field will be ignored if the Order Type is not Limit (2) or Stop Limit (4).
Order Quantity	135	4	Int32	Total order quantity of the Cross Order

6.6 Application Messages of the Basic Gateway: Server-Initiated

6.6.1 Execution Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Execution ID	9	21	Alpha	Unique Identifier of the Execution Report.Unique across all partitions and all trading days. On Order confirmation, amendment or cancellation a unique Execution ID will be generated. Identifier of the Exec ID of the execution report for the trade being cancelled or corrected if Execution Type is Trade Cancel (H) or Trade Correct (G). This will also match to the Side ExecID field in a Trade Capture Report generated for a trade.
Client Order ID	30	20	Alpha	Client specified identifier of the order, order cancel request or order cancel/replace request. If the execution report is generated as a response to an order cancel or order mass cancel request, this will be the client order id specified in the order cancel or order mass cancel request. If a client order id is not specified in the order cancel or order mass cancel request, this will be the original client order id of the order being cancelled.
Order ID	50	12	Alpha	Server specified identifier of the order.
Execution Type	62	1	Alpha	Execution Type of the order. **Value** **Meaning** 0 New 4 Cancelled 5 Amended/Modified 8 Rejected 9 Suspended C Expired F Trade G Trade Correct H Trade Cancel D Restated L Triggered

<table>
<tr><td>Order Status</td><td>63</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>New</td></tr><tr><td>1</td><td>Partially Filled</td></tr><tr><td>2</td><td>Filled</td></tr><tr><td>4</td><td>Cancelled</td></tr><tr><td>6</td><td>Expired</td></tr><tr><td>8</td><td>Rejected</td></tr><tr><td>9</td><td>Suspended</td></tr></table></td></tr>
<tr><td>Reject Code</td><td>64</td><td>4</td><td>Int32</td><td>Code specifying the reason for the reject. Please refer Section 8.2 for a list of reject codes as well as the full list of reject Codes Specification. Field will be ignored if Execution Type is not Rejected (8).</td></tr>
<tr><td>Executed Price</td><td>68</td><td>8</td><td>Price</td><td>Executed price of the trade in ZAC. This field will be ignored if Execution Type is not Trade (F) or Trade Correct (G).</td></tr>
<tr><td>Executed Quantity</td><td>76</td><td>4</td><td>Int32</td><td>Executed quantity. This field will be ignored if Execution Type is not Trade (F) or Trade Correct (G).
This will always be 0 on a Same Day On Book trade cancellation.</td></tr>
<tr><td>Leaves Quantity</td><td>80</td><td>4</td><td>Int32</td><td>Quantity available for further execution. It is the remaining quantity of the order.</td></tr>
<tr><td>Container</td><td>84</td><td>1</td><td>UInt8</td><td>This field indicates which container in the matching engine holds the order. Example: When a Stop or Stop Limit order is elected it will be moved from a Stop order container to the Main container.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>None</td></tr><tr><td>1</td><td>Main</td></tr><tr><td>3</td><td>Market Order</td></tr><tr><td>5</td><td>Parked Order</td></tr><tr><td>6</td><td>Stop Order</td></tr><tr><td>20</td><td>Pegged Container</td></tr><tr><td>21</td><td>EOD Volume Auction Uncross</td></tr></table></td></tr>
<tr><td>Security ID</td><td>85</td><td>4</td><td>Int32</td><td>Identifier of the instrument the Execution Report is sent for.</td></tr>
<tr><td>Side</td><td>89</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
</table>

<table>
<tr><td>TraderMnemonic</td><td>90</td><td>17</td><td>Alpha</td><td>This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.</td></tr>
<tr><td>Account</td><td>107</td><td>10</td><td>Alpha</td><td>Client Account information.
This is the Client Account of the firm who submitted the order.</td></tr>
<tr><td>IsMarketOpsRequest</td><td>117</td><td>1</td><td>UInt8</td><td>This field indicates whether a New Order, Cancel Request or Order Cancel or Replace Request was submitted by Market Operations.
Value Meaning
0 No
1 Yes</td></tr>
<tr><td>Transact Time</td><td>118</td><td>8</td><td>UInt64</td><td>Time the Execution Report was generated.</td></tr>
<tr><td>Order Book</td><td>126</td><td>1</td><td>UInt8</td><td>Value Meaning
1 Regular</td></tr>
<tr><td>Execution Instruction</td><td>127</td><td>1</td><td>Int8</td><td>Value Meaning
0 None ~~Do Not Exclude Hidden Limit Orders~~
2 Include in EOD Volume Auction Uncross
~~Execution Instruction value will be published only for the Execution Report published by the Native Gateway on receiving an order. Any subsequent Execution reports being published for that particular order (order amendments, executions, cancellations, etc..) Will not contain the Execution Instruction value and the value displayed will be -1~~ This will have a default value of 0 if Order Type is not Limit (2) or if the Time in Force type is not GTT (8).</td></tr>
<tr><td>Cross ID</td><td>128</td><td>20</td><td>Alpha</td><td>The unique ID of the Cross Order. Only populated for execution report messages generated for Internal Cross Orders.
The value submitted with the New Order Cross Message will be populated.</td></tr>
</table>

Cross Type	148	1	UInt8	The type of the Cross Order. Only populated for execution report messages generated Internal Cross Orders. The value submitted with the New Order Cross Message will be populated. **Value** **Meaning** 5 Internal Cross 50 Internal Cross (Price Adjustable)

Display Quantity	149	4	Int32	Current visible quantity.
Public Order ID	153	12	Alpha	Server specified public order identifier of the order.

6.6.2 Order Cancel Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Client Order ID	9	20	Alpha	Client specified identifier of the rejected cancel or cancel/replace request.
Order ID	29	12	Alpha	Server specified identifier of the order for which the cancel or cancel/replace was submitted.
Transact Time	41	8	UInt64	Time the Order Cancel Reject occurred.
Reject Code	49	4	Int32	Code specifying the reason for the reject. Please refer to Section 8.2 for a list of reject codes as well as the full list of reject codes in Volume 10 – JSE Reject Codes Specification.
Order Book	53	1	UInt8	Value: Meaning 1: Regular

6.6.3 Order Mass Cancel Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Client Order ID	9	20	Alpha	Client specified identifier of the mass cancel request.
Status	29	1	UInt8	**Value: Meaning** 0: Rejected 7: Accepted
Reject Code	30	4	Int32	Code specifying the reason for the reject. Please refer to the Section 8.2 for a list of reject codes as well as the full list of reject codes in Volume 10 – JSE Reject Codes Specification. This field will be ignored if Status is not Rejected (0).
Transact Time	34	8	UInt64	Time the order mass cancel report was generated.
Order Book	42	1	UInt8	Value: Meaning 1: Regular

6.7 Application Messages of the Enhanced Gateway: Client-Initiated

6.7.1 New Order

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the order.
Security ID	24	4	Int32	Numeric Identifier of the instrument for which the order is submitted.(Instrument ID)
Trader Mnemonic	28	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Account	45	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed.
Order Type	55	1	UInt8	**Value** / **Meaning** 1 – Market Order 2 – Limit Order 3 – Stop Order 4 – Stop Limit Order 5 – Market to Limit Order 6 – Market If Touched

<table>
<tr><th>Field</th><th>Offset</th><th>Length</th><th>Type</th><th>Description</th></tr>
<tr><td>Time In Force</td><td>56</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>3</td><td>Immediate or Cancel (IOC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr><tr><td>5</td><td>At the Open (OPG)</td></tr><tr><td>6</td><td>Good Till Date (GTD)</td></tr><tr><td>8</td><td>Good Till Time (GTT)</td></tr><tr><td>9</td><td>Good for Auction (GFA)</td></tr><tr><td>10</td><td>At the Close (ATC)</td></tr><tr><td>12</td><td>Closing Price Cross (CPX)</td></tr><tr><td>51</td><td>Good for Intraday Auction (GFX)</td></tr></table></td></tr>
<tr><td>Expire Time</td><td>57</td><td>17</td><td>Alpha</td><td>Expire time will be in the YYYYMMDD-HH:MM:SS format and specified in UTC. Only the YYYYMMDD is allowed if the Time in Force Type is GTD (6)
This field will be ignored if the Time in Force Type is not GTD (6), or GTT (8).</td></tr>
<tr><td>Side</td><td>74</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>Order Quantity</td><td>75</td><td>4</td><td>Int32</td><td>Total order quantity.</td></tr>
</table>

Field	Offset	Length	Type	Description
Display Quantity	79	4	Int32	Maximum quantity that may be displayed. The intended display quantity has to be inserted as this is a mandatory field. This will be zero for a Hidden Limit Order.
Minimum Quantity	83	4	Int32	Minimum Execution Size that needs to be specified for a Hidden Limit Order which must be greater than or equal to Minimum Reserve Size.
Limit Price	87	8	Price	Limit price. This field will be ignored if the Order Type is not Limit (2) or Stop Limit (4). If Traded on volatility the price should be specified in absolute terms e.g. 10% of volatility should be reflected as 0.10
Stop Price	95	8	Price	Stop price/Trigger Price. This field will be ignored if the Order Type is not Stop (3), Stop Limit (4) or Market If Touched (6). If Traded on volatility the price should be specified in absolute terms e.g. 10% of volatility should be reflected as 0.10
Capacity	103	1	UInt8	**Value** **Meaning** 2 Principal 3 Agency
Cancel on Disconnect	104	1	UInt8	**Value** **Meaning** 0 Do Not Cancel 1 Cancel
Order Book	105	1	UInt8	***Value*** ***Meaning*** *1* *Regular*
Anonymity	106	1	UInt8	**Value** **Meaning** 0 Anonymous 1 Named
Trailing Offset	107	8	Price	Trailing offset for trailing stop/stop limit orders
Secondary Trade Report ID	115	10	Alpha	Additional order identifier that can be used by the client to submit special instructions to the clearing members to be carried out upon order execution. This is a non-mandatory free text field.

6.7.2 Quote

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the quote.
Security ID	24	4	Int32	Numeric Identifier of the instrument for which the order is submitted.(Instrument ID)
Trader Mnemonic	28	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Account	45	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the quote. Alpha numeric values will be allowed.
Bid Price	55	8	Price	Bid price.
Bid Quantity	63	4	Int32	Bid quantity.
Offer Price	67	8	Price	Offer price.
Offer Quantity	75	4	Int32	Offer quantity.
Cancel on Disconnect	79	1	UInt8	**Value** / **Meaning** 0 – Do Not Cancel 1 – Cancel
Anonymity	80	1	UInt8	**Value** / **Meaning** 0 – Anonymous 1 – Named
Order Book	81	1	UInt8	**Value** / **Meaning** 1 – Regular 11 – Negotiated Trades

6.7.3 Order Cancel Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the request.
Orig Client Order ID	24	20	Alpha	Client specified identifier of the order being cancelled.
Order ID	44	12	Alpha	Unique identifier of the order assigned by the matching system.
Security ID	56	4	Int32	Unique numeric identifier of the instrument(Instrument ID) being cancelled.
Trader Mnemonic	60	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Side	77	1	UInt8	**Value** **Meaning** 1 Buy 2 Sell
Order Book	78	1	UInt8	**Value** **Meaning** 1 Regular 11 Negotiated Trades
RFQ ID	79	10	Alpha	If sent to cancel a quote placed during private quote negotiation this field should be stamped with the unique system generated identifier assigned to the RFQ. Should be null filled otherwise.

6.7.4 Order Mass Cancel Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the cancel request.
Mass Cancel Request Type	24	1	UInt8	Value 14 and 22 are applicable only for the derivative instruments. **Value** – **Meaning** 3 – All Firm orders for Instrument 4 – All Firm orders for Segment 7 – All orders for Client (Interface User ID) 8 – All orders for Firm 9 – Client (Interface User ID) orders for Instrument 14 – Client Interest for Underlying 15 – Client (Interface User ID) orders for Segment 22 – Firm Interest for Underlying
Security ID	25	4	Int32	Numeric identifier of instrument (Instrument ID) or underlying of orders being cancelled.Required if Mass Cancel Request Type = 3, 9 or 14. Else this field will be ignoredand can be null.
Segment	29	6	Alpha	Identifier of the segment for which orders will be cancelled. Please refer to Section. Required if MassCancelRequestType = 4 or 15. Else this field will be ignored and can be null.
Order Sub Type	35	1	UInt8	**Value** – **Meaning** 0 – Order 3 – Quote
Order Book	36	1	UInt8	**Value** – **Meaning** 1 – Regular 11 – Negotiated Trades

6.7.5 Order Cancel/ Replace Request

Field	Offset	Length	Type	Description
Header				
Client Order ID	4	20	Alpha	Client specified identifier of the request.
Original Client Order ID	24	20	Alpha	Client specified identifier of the order being amended.
Order ID	44	12	Alpha	Unique identifier of the order assigned by the matching system
Security ID	56	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	60	17	Alpha	This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.
Account	77	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed.
Order Type	87	1	UInt8	**Value** – **Meaning** 1 – Market Order 2 – Limit Order 3 – Stop Order 4 – Stop Limit Order 5 – Market to Limit 6 – Market If Touched

<table>
<tr><td>Time In Force</td><td>88</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>3</td><td>Immediate or Cancel (IOC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr><tr><td>5</td><td>At the Opening</td></tr><tr><td>6</td><td>Good Till Date (GTD)</td></tr><tr><td>8</td><td>Good Till Time (GTT)</td></tr><tr><td>9</td><td>Good for Auction (GFA)</td></tr><tr><td>51</td><td>Good for Intraday Auction (GFX)</td></tr><tr><td>10</td><td>At the Close (ATC)</td></tr><tr><td>12</td><td>Closing Price Cross (CPX)</td></tr></table></td></tr>
<tr><td>Expire Time</td><td>89</td><td>17</td><td>Alpha</td><td>This field will indicate the date/time the order expires on.
Expire time will be in the YYYYMMDD-HH:MM:SS date and time format and specified in UTC. Only the YYYYMMDD will be considered if the Time in Force Type is Good Till Date (6). Field will be ignored if the Time in Force Type is not Good Till Date (6) or Good Till Time (8).
It is mandatory to specify a valid value in this field for GTD/GTT orders. If 0 is specified for GTD/GTT orders, the request will be rejected. For non GTD/GTT orders, the value in this field will be ignored.</td></tr>
<tr><td>Side</td><td>106</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>Order Quantity</td><td>107</td><td>4</td><td>Int32</td><td>Total order quantity.</td></tr>
<tr><td>Display Quantity</td><td>111</td><td>4</td><td>Int32</td><td>Maximum quantity to be displayed.
The value should be 0 for a hidden order.
The value should equal the order quantity for a visible order.</td></tr>
</table>

Minimum Quantity	115	4	Int32	Minimum execution size that needs to be specified for a Hidden Limit Order.
Limit Price	119	8	Price	Limit price. Field will be ignored if Order Type is not Limit (2) or Stop Limit (4).
Stop Price	127	8	Price	Stop price. Field will be ignored if Order Type is not Stop (3), Stop Limit (4) or Market If Touched (6). The same stop price should be specified if this field is not being amended
Order Book	135	1	UInt8	**Value** **Meaning** 1 Regular
Secondary Trade Report ID	136	10	Alpha	Additional order identifier that can be used by the client to submit special instructions to the clearing members to be carried out upon order execution. This is a non-mandatory free text field.

6.7.6 Quote Request

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Should be zero filled when client initiates the message.
Sequence Number	5	4	Int32	Should be zero filled when client initiates the message.
Quote Req ID	9	10	Alpha	Client specified identifier of quote request.
Order Book	19	1	UInt8	**Value** **Meaning** 11 Negotiated Trades
Private Quote	20	1	UInt8	**Value** **Meaning** 2 Private Quote
Security ID	21	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	25	17	Alpha	This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.
Account	42	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed.
Side	52	1	UInt8	**Value** **Meaning** 0 None 1 Buy 2 Sell
Order Quantity	53	4	Int32	Quantity that the requestor is expecting to trade. This can be set to zero (0).
Expire Time	57	17	Alpha	Latest time by which market makers should respond to the Quote Request. Should be specified in UTC format. I.e. YYYYMMDD-HH:MM:SS format. Should be set Null filled if the client does not want to fill a value
Market Makers	74	60	Alpha	Pipe separated list of market maker Firm IDs. (Firm IDs in case the RFQ is sent by the Requestor to the system) This field must be null filled if RFQ Anonymity is set to anonymous.
Contra Firm	134	11	Alpha	Should be null filled.

<table>
<tr><td>RFQ ID</td><td>145</td><td>10</td><td>Alpha</td><td>Should be null filled.</td></tr>
<tr><td>Trade Sub Type</td><td>155</td><td>1</td><td>UInt8</td><td>Type of RFQ trade. Applicable only for the derivative instruments.
Value Meaning
1 RG – Regular
2 EP – Exchange For Physical
3 RP - Repo
4 SR - Shariah</td></tr>
<tr><td>Start Date</td><td>156</td><td>8</td><td>Date</td><td>Starting date of repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>End Date</td><td>164</td><td>8</td><td>Date</td><td>Date of settlement for the 2nd leg of the repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>Client Information</td><td>172</td><td>30</td><td>Alpha</td><td>Additional information regarding the Owner of the RFQ.
This is the owner whom the RFQ belongs to, This field will be required if the RFQ is for an instrument in the currency market (JSE_FXM) and RFQ Trade Sub Type is EP or SR</td></tr>
</table>

6.7.7 Quote Request Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Should be zero filled when client initiates the message.
Sequence Number	5	4	Int32	Should be zero filled when client initiates the message.
Quote Req ID	9	10	Alpha	Should be null filled.
Reject Code	19	4	Int32	Should be null filled.
Order Book	23	1	UInt8	Should be null filled.
Security ID	24	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
Trader Mnemonic	28	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Side	45	1	UInt8	Should be null filled.
Order Quantity	46	4	Int32	Should be null filled.
Market Makers	50	60	Alpha	The Firm ID of the client rejecting the quote request.
RFQ ID	110	10	Alpha	Server generated identifier of the RFQ.

6.7.8 RFQ Quote

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Should be zero filled when client initiates the message.
Sequence Number	5	4	Int32	Should be zero filled when client initiates the message.
Quote Msg ID	9	10	Alpha	Client specified identifier of the message.
RFQ ID	19	10	Alpha	Unique identifier assigned to the RFQ
Security ID	29	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	33	17	Alpha	This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.
Account	50	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed.
Bid Price	60	8	Price	Bid price. Required if Bid Quantity is not zero.
Bid Quantity	68	4	Int32	Bid quantity.
Offer Price	72	8	Price	Offer price. Required if Offer Quantity is not zero.
Offer Quantity	80	4	Int32	Offer quantity.
Minimum Quantity	84	4	Int32	Minimum quantity that should be executed.
Valid Until Time	88	17	Alpha	The time until the quote will be live. Should be in YYYYMMDD-HH:MM:SS format and specified in UTC.
Cancel on Disconnect	105	1	UInt8	**Value** **Meaning** 0 Do no cancel 1 Cancel
Market Maker Firm	106	11	Alpha	Should be null filled.
BidID	117	12	Alpha	Should be null filled.
OfferID	129	12	Alpha	Should be null filled.
Rate	141	8	Price	Spot Rate of EFP trade denoted by requestor or repo rate denoted by responding market maker for a repo trade. Applicable only for the derivative instruments.

Start Date	149	8	Date	Starting date of repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.
End Date	157	8	Date	Date of settlement for the 2nd leg of the repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.
All in Price	165	8	Price	All in price of an EFP trade. Applicable only for the derivative instruments.
Leg 1 Reference Price	173	8	Price	Applicable only for strategy instruments. The market maker will submit the Leg 1 reference price that they are willing to trade at. This is mandatory when responding to RFQs for strategies

6.7.9 Quote Response

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Should be zero filled when client initiates the message.
Sequence Number	5	4	Int32	Should be zero filled when client initiates the message.
Quote Msg ID	9	10	Alpha	Client specified identifier of the quote.
RFQ ID	19	10	Alpha	Value submitted with the initial Quote Request message.
Quote Resp Type	29	1	UInt8	**Value** **Meaning** 1 Hit/Lift 3 Expired 4 Cover 5 Done Away 7 End Trade 8 Timed Out 9 Tied 10 Tied Cover 11 Cancelled 12 Contra-side 13 Done
Security ID	30	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	34	17	Alpha	This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.
Side	51	1	UInt8	Side of the initial Quote Request message.
Order Quantity	52	4	Int32	Quantity to be traded.
Cover Price	56	8	Price	The price specified by the market maker.
Order Book	64	1	UInt8	**Value** **Meaning** 11 Negotiated Trades
BidID	65	12	Alpha	Unique identifier assigned to the bid side of the quote. Required if sent by requestor to hit against the bid side of a quote.
OfferID	77	12	Alpha	Unique identifier generated for the bid side of the quote. Required if sent by the requestor to hit against the offer side of a quote.

Rate	89	8	Price	Spot Rate of EFP trade denoted by requestor or repo rate denoted by responding market maker for a repo trade. Applicable only for the derivative instruments.
All in Price	97	8	Price	All in price of an EFP trade. Applicable only for the derivative instruments.

6.7.10 Security Definition Request

Field	Offset	Length	Type	Description
Header				
Security Request ID	4	10	Alpha	Client specified identifier of the request.
Security Type	14	1	UInt8	Indicates the type of security. **Value Meaning** 1 Future 2 Call Option 3 Put Option 99 FwdFwd 100 Delta Option
Strike Price	15	8	Price	Strike price of the option. Required for options and Delta option instruments. This field will be ignored if Security Type is Future(1) or FwdFwd(99).
Maturity Date	23	8	Alpha	Maturity date should be in the YYYYMMDD format. Required for futures and naked options. This field will be ignored if Security Type is not Future(1), Call Option(2) or Put Option(3) and FwdFwd(99). For Fwdfwd this field will reflect the Near Month Maturity Date.
Reserved field	31	1	UInt8	For Future use
Reference Instrument	32	25	Alpha	Identifier of the underlying Symbol. Required as follows : If Security Type = 1, This should be source future instrument Security Type = 2 or 3 Identifier of the underlying future for Naked Options. If Security Type = 100 Should be the Put/Call Option instrument for Delta Options If Security Type = 99 For FwdFwds this will be the MDS Reference Instrument.
Reference Price	57	8	Price	The Reference Price may be the price that the trader is intending to submit the trade at. This price will be used by the system to define the price bands for Normal order book trading of this instrument. Required for Futures instruments and Naked Options.

Near Month Type	65	4	Int32	Should be a number between 1-25. Should be less than the Far month. Required for Security Type FwdFwd(99). Should be ignored for the rest of the security types. This must be the near month type of the reference instrument. System will not validate this.
Far Month Type	69	4	Int32	Should be anumber between 1-25. Should be more than the Near month. Required for Security Type FwdFwd(99). Should be ignored for the rest of the security types. The must be the near month type of the reference instrument. System will not validate this.
Far Maturity Date	73	8	Alpha	Maturity date should be in the YYYYMMDD format. Date specified in the Far Maturity Date field should be greater than the date specified in the Maturity Date field. Required if Security Type is FwdFwd(99). Should be ignored for the rest of the security types.

6.8 Application Messages of the Enhanced Gateway: Server-Initiated

6.8.1 Execution Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Execution ID	9	21	Alpha	Unique Identifier of the Execution Report.Unique across all partitions and all trading days. On Order confirmation, amendment or cancellation a unique Execution ID will be generated. Identifier of the Exec ID of the execution report for the trade being cancelled or corrected if Execution Type is Trade Cancel (H) or Trade Correct (G). This will also match to the Side ExecID field in a Trade Capture Report generated for a trade.
Client Order ID	30	20	Alpha	Client specified identifier of the order, order cancel request or order cancel/replace request. If the execution report is generated as a response to an order cancel or order mass cancel request, this will be the client order id specified in the order cancel or order mass cancel request. If a client order id is not specified in the order cancel or order mass cancel request, this will be the original client order id of the order being cancelled.
Order ID	50	12	Alpha	Server specified identifier of the order.
Execution Type	62	1	Alpha	Execution Type of the order. **Value** – **Meaning** 0 – New 4 – Cancelled 5 – Amended/Modified 8 – Rejected 9 – Suspended C – Expired F – Trade G – Trade Correct H – Trade Cancel D – Restated L – Triggered

<table>
<tr><td>Order Status</td><td>63</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>New</td></tr><tr><td>1</td><td>Partially Filled</td></tr><tr><td>2</td><td>Filled</td></tr><tr><td>4</td><td>Cancelled</td></tr><tr><td>6</td><td>Expired</td></tr><tr><td>8</td><td>Rejected</td></tr><tr><td>9</td><td>Suspended</td></tr></table></td></tr>
<tr><td>Reject Code</td><td>64</td><td>4</td><td>Int32</td><td>Code specifying the reason for the reject. Please refer Section 8.2 for a list of reject codes as well as the full list of reject Codes Specification. Field will be ignored if Execution Type is not Rejected (8).</td></tr>
<tr><td>Executed Price</td><td>68</td><td>8</td><td>Price</td><td>Executed price of the trade in ZAC. This field will be ignored if Execution Type is not Trade (F) or Trade Correct (G).</td></tr>
<tr><td>Executed Quantity</td><td>76</td><td>4</td><td>Int32</td><td>Executed quantity. This field will be ignored if Execution Type is not Trade (F) or Trade Correct (G).
This will always be 0 on a Same Day On Book trade cancellation.</td></tr>
<tr><td>Leaves Quantity</td><td>80</td><td>4</td><td>Int32</td><td>Quantity available for further execution. It is the remaining quantity of the order.</td></tr>
<tr><td>Container</td><td>84</td><td>1</td><td>UInt8</td><td>This field indicates which container in the matching engine holds the order. Example: When a Stop or Stop Limit order is elected it will be moved from a Stop order container to the Main container.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>0</td><td>None</td></tr><tr><td>1</td><td>Main</td></tr><tr><td>3</td><td>Market Order</td></tr><tr><td>5</td><td>Parked Order</td></tr><tr><td>6</td><td>Stop Order</td></tr></table></td></tr>
<tr><td>Security ID</td><td>85</td><td>4</td><td>Int32</td><td>Identifier of the instrumentthe Execution Report is sent for.</td></tr>
<tr><td>Side</td><td>89</td><td>1</td><td>UInt8</td><td><table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
</table>

<table>
<tr><td>TraderMnemonic</td><td>90</td><td>17</td><td>Alpha</td><td>This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier.</td></tr>
<tr><td>Account</td><td>107</td><td>10</td><td>Alpha</td><td>Client Account information.
This is the Client Account of the firm who submitted the order. Alpha numeric values will be allowed.</td></tr>
<tr><td>IsMarketOpsRequest</td><td>117</td><td>1</td><td>UInt8</td><td>This field indicates whether a New Order, Cancel Request or Order Cancel or Replace Request was submitted by Market Operations.
Value Meaning
0 No
1 Yes</td></tr>
<tr><td>Transact Time</td><td>118</td><td>8</td><td>UInt64</td><td>Time the Execution Report was generated.</td></tr>
<tr><td>Order Book</td><td>126</td><td>1</td><td>UInt8</td><td>Value Meaning
1 Regular
9 Bulletin Board</td></tr>
<tr><td>Execution Instruction</td><td>127</td><td>1</td><td>Int8</td><td>Value Meaning
0 Do Not Exclude Hidden Limit Orders
1 Exclude Hidden Limit Orders

Execution Instruction value will be published only for the Execution Report published by the Native Gateway on receiving an order. Any subsequent Execution reports being published for that particular order (order amendments, executions, cancellations, etc..) Will not contain the Execution Instruction value and the value displayed will be -1</td></tr>
<tr><td>Multi Leg Reporting Type</td><td>128</td><td>1</td><td>UInt8</td><td>Type of trade. Values disseminated in this field when Execution Type is not 'Trade' (F) should be ignored. Applicable only for the derivative instruments..
Value Meaning
1 Trade of Single Instrument
2 Leg Trade of a Multi-Leg Instrument Trade
3 Trade of Multi-Leg Instrument</td></tr>
</table>

LastOptPx	129	8	Price	Price/Converted price of the executed volatility of the options instrument. Applicable only for Options or Delta Options instruments.
Volatility	137	8	Price	Volatility/Converted Volatilityof the executed price of the options instrument. Applicable only for Options or Delta Options instruments
Secondary Trade Report ID	145	10	Alpha	Client specified additional order identifier of the new order or order cancel/replace request This is a non-mandatory free text field.

6.8.2 Order Cancel Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Client Order ID	9	20	Alpha	Client specified identifier of the rejected cancel or cancel/replace request.
Order ID	29	12	Alpha	Server specified identifier of the order for which the cancel or cancel/replace was submitted.
Transact Time	41	8	UInt64	Time the Order Cancel Reject occurred.
Reject Code	49	4	Int32	Code specifying the reason for the reject. Please refer to Section 8.2 for a list of reject codes as well as the full list of reject codes in the JSE Reject Codes Specification
Order Book	53	1	UInt8	Value – Meaning 1 – Regular 11 – Negotiated Trades
RFQ ID	54	10	Alpha	If sent for a rejection of an order cancel submitted for a quote placed during private quote negotiation, this field should be stamped with the client specified RFQ ID This field should be ignored otherwise.

6.8.3 Order Mass Cancel Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Client Order ID	9	20	Alpha	Client specified identifier of the mass cancel request.
Status	29	1	UInt8	**Value** **Meaning** 0 Rejected 7 Accepted
Reject Code	30	4	Int32	Code specifying the reason for the reject. Please refer to the Section 8.2 for a list of reject codes as well as the full lit of reject codes in the*<Reject Code Specification>*. This field will be ignored if Status is not Rejected (0).
Transact Time	34	8	UInt64	Time the order mass cancel report was generated.
Order Book	42	1	UInt8	Value Meaning 1 Regular 11 Negotiated Trades

6.8.4 Quote Request

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the Matching Partition.
Quote Req ID	9	10	Alpha	Quote Req ID of the Quote Request message. This will not be sent to the Market Maker.
Order Book	19	1	UInt8	**Value** **Meaning** 11 Negotiated Trades
Private Quote	20	1	UInt8	**Value** **Meaning** 2 Private Quote
Security ID	21	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
TraderMnemonic	25	17	Alpha	This will be the concatenated identifier of the Trader and the Trader Group the trader belongs to.(Mandatory). The concatenation will be done by using an underscore between the Trader and Trader group identifier. This will not be sent to the Market Maker.
Account	42	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed. This will not be sent to the Market Maker by the system.
Side	52	1	UInt8	**Value** **Meaning** 0 None 1 Buy 2 Sell
Order Quantity	53	4	Int32	Quantity that the requestor is expecting to trade. This can be set to zero (0).
Expire Time	57	17	Alpha	Value submitted in the Quote Request.
Market Makers	74	60	Alpha	The Firm ID of the receiving Market Maker.
Contra Firm	134	11	Alpha	The Firm ID of the requestor. This will be null if RFQ negotiation is anonymous.
RFQ ID	145	10	Alpha	Unique identifier assigned to the RFQ by the system.

<table>
<tr><td>Trade Sub Type</td><td>155</td><td>1</td><td>UInt8</td><td>Type of RFQ trade. Applicable only for the derivative instruments.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>RG - Regular</td></tr><tr><td>2</td><td>EP – Exchange for Physical</td></tr><tr><td>3</td><td>RP – Repo</td></tr><tr><td>4</td><td>SR - Shariah</td></tr></table></td></tr>
<tr><td>Start Date</td><td>156</td><td>8</td><td>Date</td><td>Starting date of repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>End Date</td><td>164</td><td>8</td><td>Date</td><td>Date of settlement for the 2nd leg of the repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>Client Information</td><td>172</td><td>30</td><td>Alpha</td><td>Additional information regarding the Owner of the RFQ.
This is the owner whom the RFQ belongs to, This field will be required if the RFQ is for an instrument in the currency market (JSE_FXM) and RFQ Trade Sub Type is EP or SR</td></tr>
</table>

6.8.5 Quote Request Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Quote Req ID	9	10	Alpha	Quote Req ID specified in the Quote Request.
Reject Code	19	4	Int32	Code specifying the rejection.
Order Book	23	1	UInt8	**Value** **Meaning** 11 Negotiated Trades
Security ID	24	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
Trader Mnemonic	28	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Side	45	1	UInt8	Will be null filled.
Order Quantity	46	4	Int32	Will be null filled.
Market Makers	50	60	Alpha	If this message was sent as a response to the system rejecting the Quote Request then Pipe Separated List of Market Maker Firm IDs not eligible to receive private RFQs If this message was sent as a result of Market Maker rejecting the RFQ then User ID of the Market Maker. This will not be stamped if RFQ negotiation is anonymous.
RFQ ID	110	10	Alpha	Unique identifier assigned to the RFQ by the system.

6.8.6 Quote Status Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the Matching Partition.
Sequence Number	5	4	Int32	Message sequence number of the Matching Partition.
Quote Msg ID	9	10	Alpha	Client specified identifier of the quote if available. Will be null filled otherwise.
Quote Req ID	19	10	Alpha	Identifier of quote request message that is being responded to.
Quote Status	29	1	UInt8	**Value** – **Meaning** 1 – Accepted 2 – Rejected
Reject Code	30	4	Int32	Reject code.
Order Book	34	1	UInt8	**Value** – **Meaning** 11 – Negotiated Trades
Market Makers	35	60	Alpha	Pipe separated list of Market Maker Firm IDs eligible to receive private RFQs.
RFQ ID	95	10	Alpha	Server generated identifier of the RFQ.
Expire Time	105	17	Alpha	Reaching this time, the quote negotiation process will be terminated. Specified as UTC. Will be in YYYYMMDD-HH:MM:SS format.
BidID	122	12	Alpha	Unique identifier assigned to the bid side of the quote.
OfferID	134	12	Alpha	Unique identifier assigned to the offer side of the quote.
Trade Sub Type	146	1	UInt8	Type of RFQ trade. Applicable only for the derivative instruments. **Value** – **Meaning** 1 – RG – Regular 2 – EP – Exchange for Physical 3 – RP – Repo 4 – SR – Shariah

6.8.7 RFQ Quote

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the Matching Partition.
Sequence Number	5	4	Int32	Message sequence number of the Matching Partition.
Quote Msg ID	9	10	Alpha	Client specified identifier of the quote if available. Will be space filled otherwise. This will be null (Will not be sent to the requester)
RFQ ID	19	10	Alpha	Unique identifier assigned to the RFQ
Security ID	29	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
Trader Mnemonic	33	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Account	50	10	Alpha	Client Account information. This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed.This will not be sent to the Requester
Bid Price	60	8	Price	Bid price. Can be null if not sent
Bid Quantity	68	4	Int32	Bid quantity. Can be null if not sent
Offer Price	72	8	Price	Offer price. Can be null if not sent
Offer Quantity	80	4	Int32	Offer quantity. Can be null if not sent
Minimum Quantity	84	4	Int32	Minimum quantity that should be executed. Can be null if not sent
Valid Until Time	88	17	Alpha	Time the quote is still active. Will be in YYYYMMDD-HH:MM:SS format. Can be null if not sent
Cancel on Disconnect	105	1	UInt8	**Value** **Meaning** 0 Do no cancel 1 Cancel
Market Maker Firm	106	11	Alpha	The Firm ID of the market maker. It is mandatory to fill the Firm ID of the market maker, when the quote is sent to the requestor. Will be null filled otherwise.
BidID	117	12	Alpha	The system generated order ID of the message
OfferID	129	12	Alpha	The system generated order ID of the message

Rate	141	8	Price	Spot Rate of EFP trade denoted by requestor or repo rate denoted by responding market maker for a repo trade. Applicable only for the derivative instruments.
Start Date	149	8	Date	Starting date of repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.
End Date	157	8	Date	Date of settlement for the 2nd leg of the repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.
All in Price	165	8	Price	All in price of an EFP trade. Applicable only for the derivative instruments.
Leg 1 Reference Price	173	8	Price	Applicable only for strategy instruments. The market maker will submit the Leg 1 reference price that they are willing to trade at. This will be passed on to the Requester This is mandatory when responding to RFQs for strategies.

6.8.8 Quote Ack

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the Matching Partition.
Sequence Number	5	4	Int32	Message sequence number of the Matching Partition.
Quote Msg ID	9	10	Alpha	Client specified identifier of the quote if available. Will be space filled otherwise.
RFQ ID	19	10	Alpha	Unique identifier assigned to the RFQ
Bid ID	29	12	Alpha	Unique identifier assigned to the bid side of the quote. If the Quote Ack Status is “Rejected”, this field will be stamped with Null.
Offer ID	41	12	Alpha	Unique identifier assigned to the offer side of the quote. If the Quote Ack Status is “Rejected”, this field will be stamped with Null.
Quote Ack Status	53	1	UInt8	**Value** – **Meaning** 1 – Accepted 2 – Rejected
Reject Code	54	4	Int32	Reason code if the message corresponds to a reject.
Order Book	58	1	UInt8	**Value** – **Meaning** 11 – Negotiated Trades

6.8.9 Quote Response

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Quote Msg ID	9	10	Alpha	The client specified identifier of the quote message for which the message is generated for. It is only stamped if sent in response to a RFQ Quote Otherwise, it will not be stamped.
RFQ ID	19	10	Alpha	Unique identifier assigned to the RFQ
Quote Resp Type	29	1	UInt8	**Value** **Meaning** 1 Hit/Lift 3 Expired 4 Cover 5 Done Away 7 End Trade 8 Timed Out 9 Tied 10 Tied Cover 11 Cancelled 12 Contra-side 13 Done 14 Withdrawn
Security ID	30	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.
Trader Mnemonic	34	17	Alpha	This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.
Side	51	1	UInt8	Value submitted with the initial Quote Request message.
Order Quantity	52	4	Int32	Quantity to be traded
Cover Price	56	8	Price	Should be null filled.
Order Book	64	1	UInt8	**Value** **Meaning** 11 Negotiated Trades
BidID	65	12	Alpha	Unique identifier assigned to the bid side of the quote. Required if sent by requestor to hit against the bid side of a quote.
OfferID	77	12	Alpha	Unique identifier generated for the bid side of the quote. Required if sent by the requestor to hit against the offer side of a quote.

Rate	89	8	Price	Spot Rate of EFP trade denoted by requestor or repo rate denoted by responding market maker for a repo trade. Applicable only for the derivative instruments.
All in Price	97	8	Price	All in price of an EFP trade. Applicable only for the derivative instruments.

6.8.10 RFQ Execution Report

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the Matching Partition.
Sequence Number	5	4	Int32	Message sequence number of the Matching Partition.
Execution ID	9	21	Alpha	Server specified identifier of the message.
RFQ ID	30	10	Alpha	Unique identifier assigned to the RFQ.
OrderID	40	12	Alpha	Unique identifier assigned to quote response submitted by the requestor
Execution Type	52	1	Alpha	**Value** **Meaning** 4 Cancelled C Expired D Restated F Trade G Trade Correct H Trade Cancel
Trd Match ID	53	10	Alpha	System assigned trade identifier.
Side	63	1	UInt8	**Value** **Meaning** 1 Buy 2 Sell
Executed Quantity	64	4	Int32	Quantity executed.
Executed Price	68	8	Price	Price executed.
Last Par Price	76	8	Price	Price per unit of the trade. Required if the instrument is a fixed income instrument traded on discount rate or yield.
Yield	84	8	Price	Yield of the execution. Required if the instrument is a fixed income instrument traded on price or percentage of par.
Accrued Interest Amt	92	8	Price	Interest accrued per monetary unit of par.
Order Status	100	1	UInt8	**Value** **Meaning** 1 PFill 2 Fill 4 Cancelled 6 Expired
Leaves Quantity	101	4	Int32	Remaining quantity of the quote,
Security ID	105	4	Int32	Identifier of the Instrument (Instrument ID) of the order being amended.

<table>
<tr><td>Trader Mnemonic</td><td>109</td><td>17</td><td>Alpha</td><td>This will be the concatenated identifier of the JSE Trader Group and the Trader ID (Mandatory). The concatenation will be done by using an underscore between the JSE Trader Group and Trader ID.</td></tr>
<tr><td>Account</td><td>126</td><td>10</td><td>Alpha</td><td>Client Account information.
This is the Client Account of the firm who is sending the order. Alpha numeric values will be allowed</td></tr>
<tr><td>Cover Price</td><td>136</td><td>8</td><td>Price</td><td>The price that the best available price in the quote negotiation. Could refer to the price of the execution as well.</td></tr>
<tr><td>Par Price</td><td>144</td><td>8</td><td>Price</td><td>Converted clean price. Required if the instrument is a fixed income instrument traded on discount rate or yield.</td></tr>
<tr><td>Converted Yield</td><td>152</td><td>8</td><td>Price</td><td>Converted yield of the execution. Required if the instrument is a fixed income instrument traded on price or percentage of par.</td></tr>
<tr><td>Contra Firm</td><td>160</td><td>11</td><td>Alpha</td><td>The contra firm of the execution</td></tr>
<tr><td>Trade Sub Type</td><td>171</td><td>1</td><td>UInt8</td><td>Type of RFQ trade. Applicable only for the derivative instruments.
Value Meaning
1 RG – Regular
2 EP – Exchange For Physical
3 RP – Repo
4 SR - Shariah</td></tr>
<tr><td>Spot Price</td><td>172</td><td>8</td><td>Price</td><td>Spot Rate of EFP trade denoted by requestor or repo rate denoted by responding market maker for a repo trade. Applicable only for the derivative instruments.</td></tr>
<tr><td>Start Date</td><td>180</td><td>8</td><td>Date</td><td>Starting date of repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>End Date</td><td>188</td><td>8</td><td>Date</td><td>Date of settlement for the 2nd leg of the repo trade. Applicable only for the derivative instruments. Should be specified in format YYYYMMDD.</td></tr>
<tr><td>All in Price</td><td>196</td><td>8</td><td>Price</td><td>All in price of an EFP trade. Applicable only for the derivative instruments.</td></tr>
<tr><td>End Cash</td><td>204</td><td>8</td><td>Price</td><td>2nd leg dirty price of a repo trade. Applicable only for the derivative instruments.</td></tr>
</table>

Multi Leg Reporting Type	212	1	UInt8	Type of trade. Values disseminated in this field when Execution Type is not 'Trade' (F) should be ignored. Applicable only for the derivative instruments. **Value** **Meaning** 1 Trade of Single Instrument 2 Leg Trade of a Multi-Leg Instrument Trade 3 Trade of Multi-Leg Instrument

6.8.11 Security Definition Response

Field	Offset	Length	Type	Description
Header				
Security Request ID	4	10	Alpha	Security Request ID of the Security Definition Request.
Security Response Type	14	1	UInt8	**Value** **Meaning** 0 Rejected 1 Accepted
Reject Code	15	4	Int32	Code specifying the reason for the reject. This field should be ignored if Security Response Type is not Rejected (0). Please refer Section 8.2 for a list of reject codes as well as the full list of reject Codes Specification.
Security ID	19	4	Int32	Exchange defined Security ID for the instrument when the Security Definition Request is accepted.
Security Type	23	1	UInt8	Value submitted in the Security Definition Request.

6.9 Other Application Messages of the Basic Gateway: Server-Initiated

6.9.1 News

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the partition.
Sequence Number	5	4	Int32	Message sequence number of the partition.
OrigTime	9	8	Alpha	Time the announcement was published which will be specified in UTC and in the HH:MM:SS format.
Urgency	17	1	Byte	**Value** **Meaning** 0 Regular 1 High Priority 2 Low Priority
Headline	18	100	Alpha	Headline or subject of market operations announcement.
Text	118	750	Alpha	Text of the market operations announcement.
Instruments	868	100	Alpha	Pipe separated list of symbols of the instruments market operations announcements relate to.
Underlying Instruments	968	100	Alpha	Pipe separated list of symbols of the underlying instruments.
Firm List	1068	54	Alpha	Pipe separated list of firms that the announcement should be sent to.
User List	1122	54	Alpha	Pipe separated list of users that the announcement should be sent to.

6.9.2 Business Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Reject Code	9	4	Int32	Code specifying the reason for the reject. Please refer to Section 7 for a list of reject codes.
Client Order ID	13	20	Alpha	Client specified identifier of the rejected message if it is available.
OrderID	33	12	Alpha	Server specified identifier of the order for which the cancel or cancel/replace was submitted.
Transact Time	45	8	UInt64	Time the order mass cancel report was generated.

6.10 Other Application Messages of the Enhanced Gateway: Server-Initiated

6.10.1 News

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the partition.
Sequence Number	5	4	Int32	Message sequence number of the partition.
OrigTime	9	8	Alpha	Time the announcement was published which will be specified in UTC and in the HH:MM:SS format.
Urgency	17	1	Byte	**Value** **Meaning** 0 Regular 1 High Priority 2 Low Priority
Headline	18	100	Alpha	Headline or subject of market operations announcement.
Text	118	750	Alpha	Text of the market operations announcement.
Instruments	868	100	Alpha	Pipe separated list of symbols of the instruments market operations announcements relate to.
Underlyings	968	100	Alpha	Pipe separated list of symbols of underlyings the instruments relates to.
Firm List	1068	54	Alpha	Pipe separated list of firms that the announcement should be sent to.
User List	1122	54	Alpha	Pipe separated list of users that the announcement should be sent to.

6.10.2 Business Reject

Field	Offset	Length	Type	Description
Header				
Partition ID	4	1	UInt8	Identity of the matching partition.
Sequence Number	5	4	Int32	Message sequence number of the matching partition.
Reject Code	9	4	Int32	Code specifying the reason for the reject. Please refer to Section 7 for a list of reject codes.
Client Order ID	13	20	Alpha	Client specified identifier of the rejected message if it is available.
OrderID	33	12	Alpha	Server specified identifier of the order for which the cancel or cancel/replace was submitted.
Transact Time	45	8	UInt64	Time the order mass cancel report was generated.

7 REJECT CODES

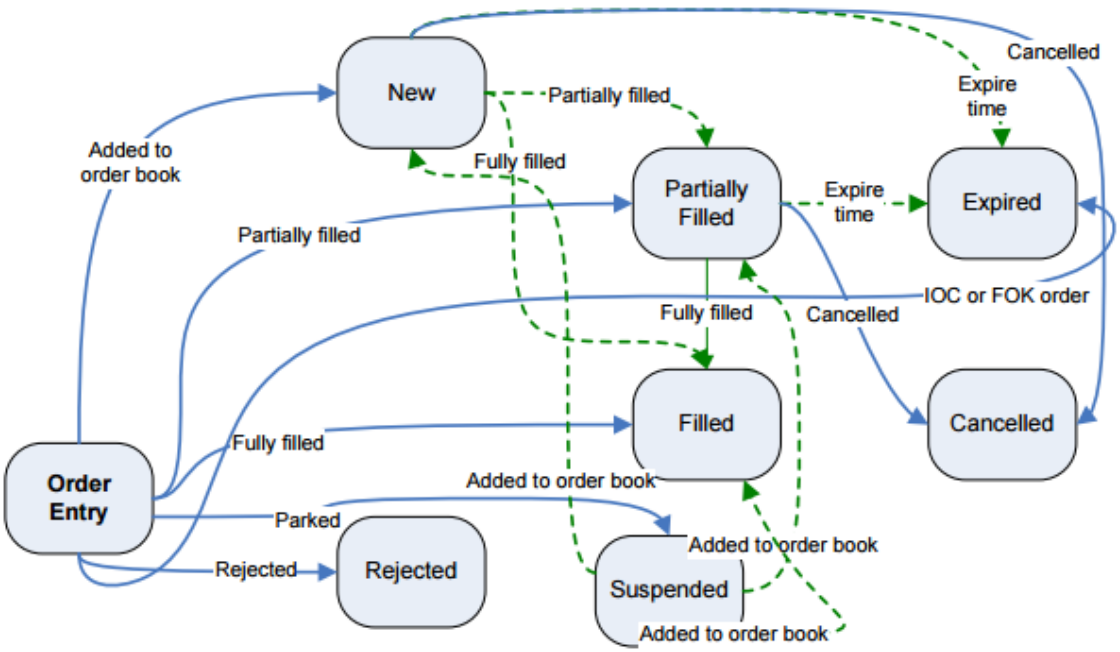
Some of the key reject codes for the Login Response, Reject and Business Reject messages are provided in this section.

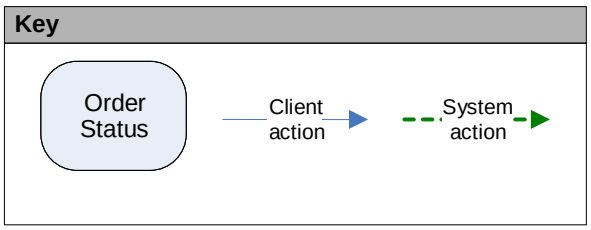
Please refer to Volume 10 - JSE Reject Codes Specification for the full list of reject codes and meanings specific to the System applicable across markets.

8 PROCESS FLOWS

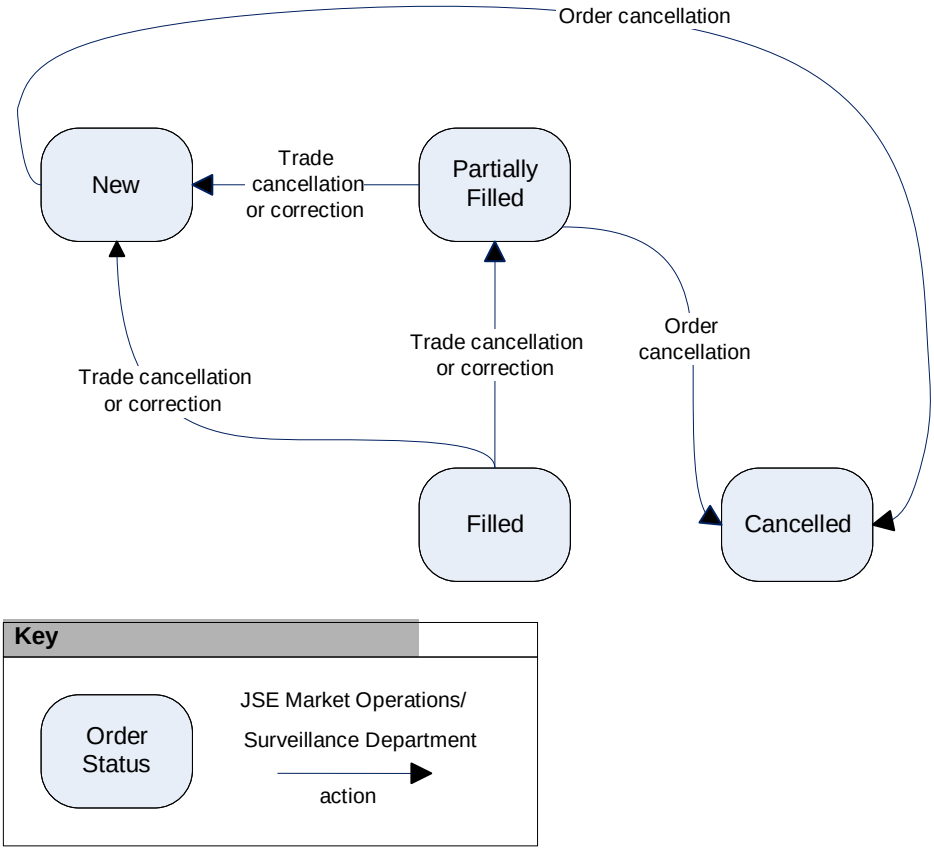
8.1 Order Status Changes

8.1.1 General





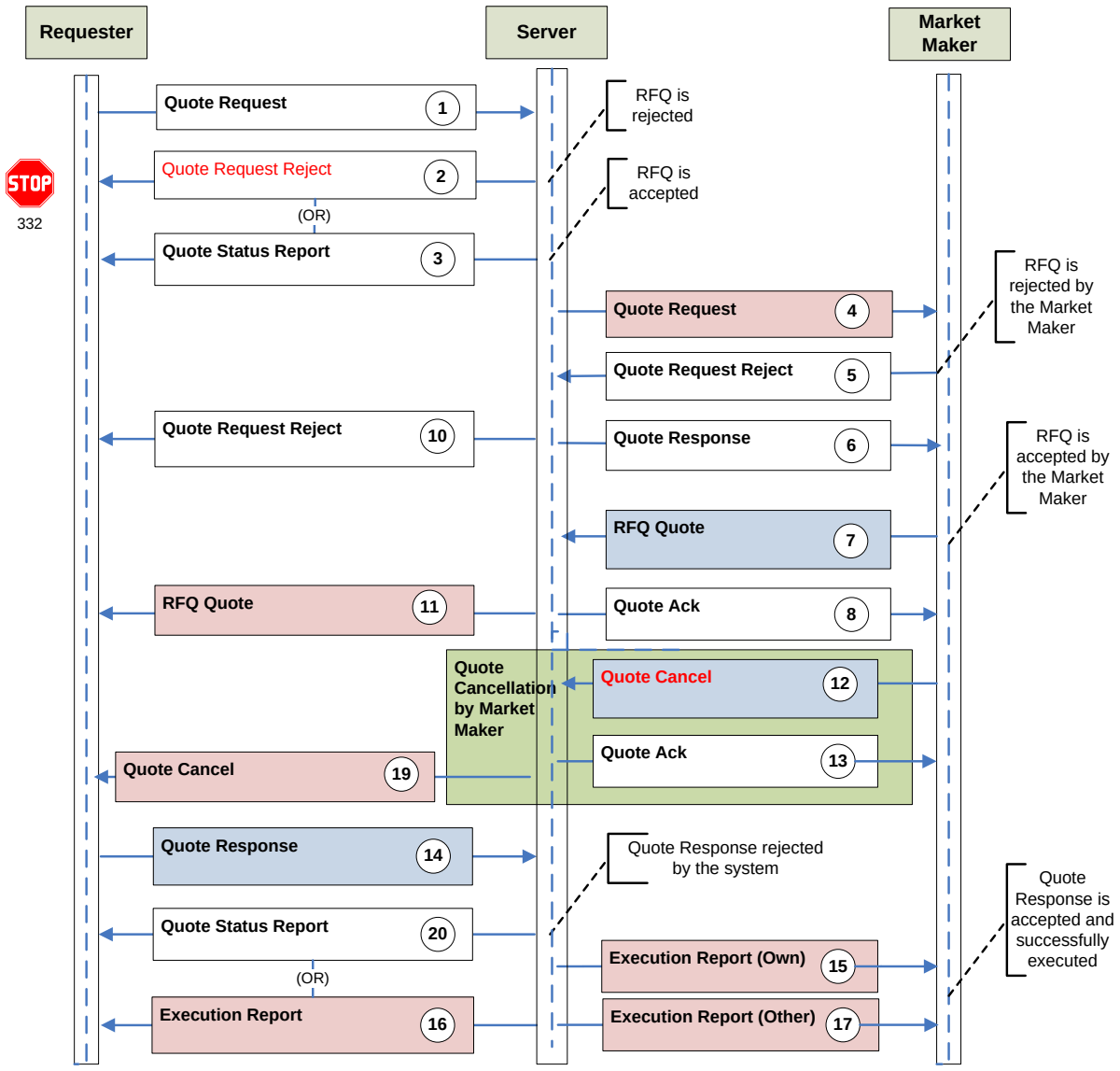
8.1.2 Market Operations Actions



8.2 Request for Quotes

Please note that Negotiated RFQ functionality will only be applicable for the derivatives/bonds markets.

8.2.1 Private RFQ Negotiation



Event #	Event/Message	Description
1	Quote Request sent by the requestor to the system to initiate negotiation process.	• In anonymous model, the client should not specify the identifiers of the market makers. If market maker/s is specified in the Quote Request, system should reject it. • At least one market maker firm specified does not have any market makers configured for the particular instrument , the entire Quote Request message should be rejected. • If RFQ ID is stamped in the message (Input message), the message should be rejected
2	Quote Request Reject sent by the system to the requestor to reject a Quote Request.	• Mandatory field RFQ ID (i.e. system generated unique identifier of the RFQ) should be stamped. • Quote Request ID should continue to be stamped. • **In anonymous model**, invalid/ineligible Market Maker Firm IDs should not be echoed back in the rejection.
3	Quote Status Report sent by the system to requestor to accept a Quote Request.	• Mandatory field RFQ ID should be stamped. • Quote Request ID should continue to be stamped. • **In anonymous model** , the market makers to whom the request has been successfully routed should not be stamped in the party block
4	Quote Request sent by the system to the Market Maker/s to notify the Quote Request by the requestor.	• RFQ ID should be stamped in the Request message. • Quote Request ID should not be stamped in both named and anonymous models. • **In anonymous model** , the requestor should not be exposed to market maker/s. If the negotiation process is named, the party identifiers should be stamped. • **In anonymous model** , the RFQ should be routed to all eligible market makers. • Market Makers field should be stamped with Null
5	Quote Request Reject sent by a Market Maker to the system to indicate the rejection of a RFQ.	• Required field 'RFQ ID' should be introduced to interface level messages. This field will map to System RFQ ID internal field. • If RFQ ID does not refer to a live RFQ, system should reject the Quote Request Reject.

6	Quote Response sent by the system to a market maker to acknowledge the Quote Request Reject sent by the market maker.	• Mandatory field 'RFQ ID' should be stamped. • Quote Request ID should not be stamped.
7	RFQ Quote sent by Market Maker to the system in response to a Quote Request.	• Quote Req ID will be removed from the message. If specified the system should reject the message. • RFQ ID should be added to interface level messages. This field will map to System RFQ ID internal field. • If the specified RFQ ID does not refer to a live RFQ, the RFQ Quote should be rejected.
8	Quote Ack sent by system to acknowledge a RFQ Quote sent by the market maker.	• RFQ ID should be stamped by the system. Mandatory field. • The BidID and the OfferID fields on interfaces should be stamped the Order IDs of bid side and offer side of the quote respectively. These two fields are conditionally required if the ack is sent to indicate acceptance of a quote.
9B	Quote Response sent by system to the requestor to indicate expiry of the RFQ.	• Mandatory field RFQ ID should be stamped. • Quote Request ID should not be stamped.
9A	Quote Response sent by system to the market maker to indicate expiry of the RFQ.	• RFQ ID should be stamped. Mandatory field. • Quote Request ID should not be stamped.
10	Quote Request Reject sent by the system to indicate a RFQ rejection by a Market Maker.	• RFQ ID should be stamped. Mandatory field. • Quote Request ID should not be stamped. • In **anonymous model** User ID and the Firm ID of the Market Maker should not be stamped
11	Routed RFQ Quote sent by the system to requestor indicate acceptance by a Market Maker.	• RFQ ID should be stamped. Mandatory field. • Quote Request ID should not be stamped. • The BidID and the OfferID fields on interfaces should be stamped the Order IDs of bid side and offer side of the quote respectively. • In **anonymous model** User ID and the Firm ID of the Market Maker should not be stamped
12	Quote Cancel (Order Cancel Request message) sent by Market Maker to the system to cancel a Quote placed in response to a Quote Request.	• RFQ ID should be introduced to interface level messages. • Quote Request ID should be removed.
13	Quote Ack sent by the system to acknowledge a Quote Cancel Request by the Market Marker.	• RFQ ID should be stamped. Mandatory field.

14	Quote Response sent by the Requestor to accept the trade terms of a Quote placed by a market maker in response to a RFQ request by the requestor.	• RFQ ID should be introduced to interface level messages. This field will map to System RFQ ID internal field. This is an optional field. • BidID and OfferID field should be introduced. The requestor should identify the side of the quote that it expects to hit by the BidID or OfferID field. • Quote Request ID should not be stamped. If stamped the message should be rejected.
15	RFQ Execution Report sent by the system to the market maker who received the execution with the quote placed by the requestor.	• Mandatory field RFQ ID should be stamped. • BidID or OfferID should be stamped. Refers to the Order ID of the side of the quote which got executed. • Contra Firm field should be introduced to the message should be stamped with the relevant values
16	RFQ Execution Report sent by the system to the Requestor to indicate a successful quote execution with a Market Maker.	• Mandatory field RFQ ID should be stamped. • BIDID or OfferID should be stamped. Refers to the Order ID of the side of the quote which got executed. • Contra Firm field should be introduced to the message should be stamped with the relevant values <Native Gateway>
17	Quote Response sent by the system to market makers to indicate the successful execution of a Quote placed by the requestor of RFQ with *another* quote. (i.e. a quote placed by another market maker)	• Mandatory field RFQ ID should be stamped. • QuoteReqID should not be stamped
18A	Quote Response sent by the system to market maker/s to indicate, a. expiry of quote *or* b. Termination of the quote negotiation process due to RFQ being rejected by all recipient market makers.	• Mandatory field RFQ ID should be stamped. • The BIDID and the OfferID fields on interfaces should be stamped the Order IDs of bid side and offer side of the quote respectively. • Quote Request ID should not be stamped. • Quote Message ID should be stamped. This is the current behaviour. • Contra Trader, Contra Firm should be stamped with Null <Native Gateway>

18B	Quote Response sent by the system to the Requestor to indicate, a. expiry of quote *or* b. Termination of the quote negotiation process due to RFQ being rejected by all recipient market makers.	• Quote Req ID should not be stamped. • Quote Message ID should not be stamped. • RFQ ID should be stamped. Mandatory field.
19	Quote Response sent by the system to the requestor to indicate a cancellation of a quote by a Market Maker.	• Quote Request ID should not be stamped. • Mandatory field RFQ ID should be stamped. • BidID and/or OfferID should be stamped.
20	Quote Status Report sent by the system to the Requestor to reject a Quote Response sent by the Requestor.	• Mandatory field RFQ ID should be stamped. • Quote Request ID should not be stamped. • BidID or the OfferID should be stamped. • Market Maker field should be set to Null