



# **Chi-X Japan CHIXOE Interface Specification**

**Chi-X Japan Trading System**

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**Version 1.6**

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## 1 Introduction

This document is the Chi-X Order and Execution (“CHIXOE”) protocol specification for the order and trade interface between the Chi-X Trading System (“CTS”) and its participants. The trading interface allows participants to submit, replace, and cancel orders as well as receive executions from CTS. CHIXOE is similar to popular OUCH protocol.

Chi-X provides CHIXOE as an alternative option to its FIX interface for participants. CHIXOE is a fixed length interface, providing participants with a fast and highly efficient way to connect to CTS.

### 1.1 Relevant documents

ITEM	TITLE	VERSION	DATE
1			

Figure 1: Relevant Document(s)

### 1.2 Revision History

ITEM	REVISION HIGHLIGHT	DOCUMENT REFERENCE	CHANGE BY
1	Create document	All	Chi-Tech
2	Timestamp in millisecond level Add 3 Prevented Trade Fields in Replace Order Ack. Message	6, 6.3	Eric (version 1.1)
3	Update the description for Add/Replace/Cancel Order Message and add more examples	5.1,5.2,5.3, 7.6 to 7.19	Eric (version 1.2)
4	The ID field is 32 bit signed integer and Max value is 2,147,483,647	2.5, 5.1, 5.2, 5.3	Eric (version 1.3)
5	The ID field is 32 bit unsigned integer and Max value is 4,294,967,295	2.5, 5.1, 5.2, 5.3	Eric (version 1.4)
6	Add “Group” field in Add Order Message, Add Order Ack and Replace Order Ack to support Chi-Select	5.1, 6.2, 6.3, 7	Eric (version 1.5)
7	Timestamp in nanosecond level	6, 7	Marco (version 1.6)

Figure 2: Revision History

## 2 Data Types

This chapter described the data types that are used in the CHIXOE protocol.

### 2.1 Integer

Integer fields are unsigned big-endian (network byte order) binary encoded numbers.

### 2.2 Alpha

Alpha fields consist of alphabetical letters. They are presented in left-justified and padded on the right with spaces. For example, if the user name is "ABCD", it should be sent as "ABCD\_ \_" ("\_" represents a space).

### 2.3 Numeric

Numeric fields consist of digits which are ASCII coded. They are presented in right justification and are space-filled from the left. For example, if the Sequence Number is 1, it should be sent as " \_ \_ \_ \_ \_ \_ \_ \_ 1" ("\_" represents a space).

### 2.4 Alphanumeric

Alphanumeric text fields consist of alphabetical letters, digits and spaces. They are presented in left justification and are padded with spaces to the right. For example, if a password is "AB23CD", it should be sent as "AB23CD\_ \_" ("\_" represents a space).

### 2.5 ID

ID is a 32bit unsigned integer field (network byte order). It is sequential, increasing and must be unique per CHIXOE account within a trading day. Minimum value is 1 and maximum value is 4,294,967,295

### 2.6 Price

Price is an integer field. When converted to a decimal format, prices are in fixed point format with 9 whole number digits followed by 1 decimal place. The maximum representable price is 214,748,364.7 (decimal, 7FFFFFFF hex).

## 3 Session

This section describes the session characteristics of the CHIXOE protocol. Session level messages are specified in Section 4. The CHIXOE session protocol is compatible with NASDAQ OMX SoupBin TCP protocol.

### 3.1 Session Protocol

1. The CHIXOE protocol is built on a session layer on top of TCP/IP sockets. Sessions include both sequenced and non-sequenced messages. The sequenced messages are application messages transferred from server to client, and the non-sequenced messages are the session level messages and carrying application messages transferred from client to server.
2. Sequenced messages include acknowledgement, reject, order and execution messages.
3. Login, logout and heartbeat messages are the examples of non-sequenced messages.
4. Sequenced messages can be retrieved and recovered.
5. CTS will terminate a connection if the Message Type in the Session message is undefined.

### 3.2 Session Initialisation

1. A CHIXOE session is initialised when the client establishes a TCP session and sends a login packet.
2. When CTS receives the login packet, it will either respond with a login accept acknowledgement packet and starts transferring sequenced data, or it will reject the login and terminates the session (if appropriate).
3. If CTS does not receive a login packet within 30 seconds, it will terminate the session.

### 3.3 Sequential Messaging

1. The first session level sequenced message of the day will have the sequence number of "1".
2. Subsequent sequenced messages will have the next incremental value implicitly assigned as the sequence number.
3. Session recovery is done by providing the appropriate sequence number.

### 3.4 Session Recovery

1. Recovering a session is done by counting the number of sequenced messages which have already been received and providing the next expected sequence number of the message to be received when reconnecting to the server.
2. The new session will start from the next expected sequenced message.

## 4 Session Messages

This section describes the session level messages delivered between CTS and the clients.

### 4.1 Debug Message

Debug messages are bidirectional and are used for application development and troubleshooting. They should only be used during development phases. This message is ignored by CTS.

DEBUG MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"+" – Debug Message
Text	3	Variable	Alphanumeric	Free form text

Figure 3: Debug Message

### 4.2 Inbound Session Messages

This section describes the session messages sent from clients to CTS.

#### 4.2.1 Login

The Login message is sent to the server when a client tries to establish a session connection to CTS. It also allows session recovery by providing the sequence number when sending the login request message.

LOGIN REQUEST MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"L" – Login Message
Username	3	6	Alphanumeric	Username
Password	9	10	Alphanumeric	Password
Requested Session	19	10	Alphanumeric	Login requested session ID. Leave this field blank for initial login; and provide Session ID for subsequent logins.
Sequence Number	29	20	Numeric	The next expected sequence number of the feed from which to start. "1" indicates starting from the beginning of the day. "0" indicates the last message generated by the system bypassing recovery.

Figure 4: Login Request Message

#### 4.2.2 Logout

The Logout message is used for sending a session termination request to CTS. CTS will close the session immediately after receiving a logout request message.

LOGOUT REQUEST MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"O" – Logout Message

Figure 5: Logout Request Message

### 4.2.3 Client Heartbeat Message

The Client Heartbeat message is used for sending heartbeat messages to CTS from the client side on a regular interval. If CTS does not receive any message including heartbeat from the client for more than 15 seconds, the session will be terminated.

CLIENT HEARTBEAT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"R" – Client Heartbeat Message

Figure 6: Client Heartbeat Message

### 4.2.4 Unsequenced Data Message

An Unsequenced Data message is a message sent by a client which contains order requests. These messages are not sequenced and may be lost in the event of a socket failure. All unsequenced messages can be sent repeatedly. This gives the client the ability, in the case of a connection loss or an application error, to re-send any unsequenced message if it is uncertain whether the CHIXOE server received it.

UNSEQUENCED DATA MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"U" – Unsequenced Data Message
Data	3	Variable	See section "Inbound Application Message"	Inbound application message

Figure 7: Unsequenced Data Message

## 4.3 Outbound Session Messages

This section describes session messages sent from CTS to the clients.

### 4.3.1 Login Accept Acknowledgement

The Login Accept Acknowledgement message is used for acknowledging a login request message sent by the client upon successful login.

LOGIN ACCEPT ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"A" – Login Accepted Message
Session	3	10	Alphanumeric	The session ID currently logged into.
Sequence Number	13	20	Numeric	The next expected sequence number.

Figure 8: Login Accept Acknowledgement Message



### 4.3.2 Login Reject Acknowledgement

The Login Reject Acknowledgement message is used for acknowledging the failure of a login request message sent by the client.

LOGIN REJECT ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"J" – Login Rejected Message
Reject Reason	3	1	Alpha	Reject reason: "A" – Invalid username/password "S" – Invalid session ID

Figure 9: Login Reject Acknowledgement Message

### 4.3.3 Server Heartbeat Message

If a session is idle for more than one second, CTS will send a heartbeat message.

SERVER HEARTBEAT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"H" – Server Heartbeat Message

Figure 10: Server Heartbeat Message

### 4.3.4 Sequenced Data Message

The Sequenced Data message is a message sent by CTS which contains outbound application messages. Since messages are delivered in sequence, the first sequenced data message of the current day has the sequence number '1', and the succeeding sequenced messages are each assigned implicitly with the next sequence number.

SEQUENCED DATA MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"S" – Sequenced Data Message
Data	3	Variable	See section "Outbound Application Message"	Outbound application message

Figure 11: Sequenced Data Message

### 4.3.5 End of Session Message

The server will send an End of Session message to denote that the current session is finished. The connection will be closed shortly after this packet, and the user will no longer be able to reconnect to the current session.

END OF SESSION MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Length	0	2	Integer	Length of message excluding this field
Message Type	2	1	Alpha	"Z" – End of Session Message

Figure 12: End of Session Message

## 5 Inbound Application Messages

Application messages from client to server are carried by Unsequenced Data messages.

### 5.1 Add Order Message

An Add Order message is used to enter a new order into CTS. Every valid order that is sent is acknowledged by an Add Order Acknowledgement message. An Add Order message with an out of sequence Client Order ID, i.e. less or same as last accepted Client Order ID, will be ignored without acknowledgement.

A valid immediate order which fails to execute is acknowledged with an Order State of "D" (Dead).

If any field in an Add Order message contains unsupported values, the order will be rejected.

ADD ORDER MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"O" – Add Order Message
Client Order ID	1	4	ID	Must be unique per CHIXOE account within a trading day and is always increasing.  The minimum value is 1 and maximum value is 4,294,967,295.
Account	5	10	Alphanumeric	Blank or free-text. Used to provide any internal account information.
Side	15	1	Alpha	Side of order. Supported values: "B" = Buy "S" = Sell "T" = Short sell "E" = Short sell exempt
Quantity	16	4	Integer	Total number of shares. The maximum value is 2,147,483,647.
Symbol ID	20	6	Alphanumeric	Unique security identifier.
Group	26	1	Alphanumeric	Security group identifier Supported value: space = CXJ "B" = Chi-Select
Reserved	27	1	Alpha	Reserved. Spaces should be filled in these positions.
Price	28	4	Price	Price of the order. Only positive values are valid. The maximum value is 214,748,364.7.
Time in Force	32	4	Integer	Specifies how long the order remains in effect. Supported values: 0 = IOC 99999 = Day 100000 = FOK
Company ID	36	4	Alpha	Identifier for the order entry firm.  This field is not validated, but will be returned via the Add Order Acknowledgement Message or Replace Order Acknowledgement Message.
Display	40	1	Alpha	Display type of the order "A" = Limit "P" = Post-Only  For Post-only order, the Time in Force cannot be IOC(0) and FOK(100000)
Order Capacity	41	1	Alpha	Designates the capacity of the firm placing the order.

ADD ORDER MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
				Supported values: "A" = Agency "P" = Principal
Reserved	42	4	Alpha	Reserved for future use. Spaces should be filled in these positions
No Self Trade	46	4	Integer	Identified as a Self-Trade Prevention (STP) order.  Orders from the same participant with the same No Self Trade value will not be allowed to match with each other. The action that will be taken to avoid self-trade is controlled by the No Trade Feat.  Only positive values are valid. The maximum value is 2147483647.  A value of zero means that self-trade prevention checking is disabled.
No Trade Feat	50	1	Alpha	Defines the behavior of self-trade prevention.  Supported values: "N" = Cancel Newest Order (the incoming order is cancelled), this is also the default option if tag is not specified. "O" = Cancel Oldest Order (the resting order is cancelled and the new order will continue to be processed) "D" = Decrement and Cancel (the quantity of the larger order will be reduced, and the smaller order(s) are cancelled) "_" (space) = Self-trade prevention is not enabled.  If two self-trade prevention orders have different No Trade Feat, the system will use the behavior specified in the incoming order.  Both No Self Trade and No Trade Feat must be defined or disabled together; otherwise the request will be rejected.

Figure 13: Add Order Message

## 5.2 Replace Order Message

In the Replace Order message the client must provide 2 client order ID's. The first one must point to a live order (Client Order ID) in CTS and the other one (New Client Order ID) must be a new ID and comply as for the Add Order Message.

If the Client Order ID does not exist in CTS or the New Client Order ID is not valid, the Replace Order message will be ignored and no acknowledgement will be sent to the client.

If the order exists but other details are not valid, the replace action fails and the original order will be canceled and removed from the order book. In this case the New Client Order ID may be reused in next Add or Replace Order message.

The Quantity field in the Replace Order message indicates the total number of shares of the whole order chain. If a client wants to modify the Quantity field, the new Quantity must include all executed shares of the order.

An order cannot be replaced with a new total number of shares less than the total number of executed shares. In this situation, the Replace order will be canceled.

For an order replaced with a new total number of shares equal to the total number of executed shares, the Replace Order message is accepted and acknowledged with Order State = "D" (Dead).

If order exists and other details are valid, however, the order cannot be amended due to other reasons, such as market/security suspended, the request will be rejected by Reject Acknowledgement Message and the order is still resting in book

Chi-Select is restricted for certain order types (please refer to Appendix B) which order replace is not applicable. Therefore, Replace Order Message for Chi-Select will be rejected by Reject Acknowledgement Message and the order is still resting in book.

REPLACE ORDER MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"U" – Replace Order Message
Client Order ID	1	4	ID	Client Order ID for the order which is being replaced. Must match exactly with the Client Order ID of the current live order.  The minimum value is 1 and maximum value is 4,294,967,295.
New Client Order ID	5	4	ID	Must be unique per CHIXOE account within a trading day and increasing.  The minimum value is 1 and maximum value is 4,294,967,295.
Quantity	9	4	Integer	Total number of shares including previous executions on this order chain. Set it to 0 (zero) to leave the order quantity unchanged.  The maximum value is 2,147,483,647.
Price	13	4	Price	Price of the order. Only positive values are allowed. The maximum value is 214,748,364.7.
Time in Force	17	4	Integer	Specifies how long the order remains in effect. Supported values: 0 = IOC 99999 = Day 100000 = FOK
Display	21	1	Alpha	Field will be ignored. Recommended to set same value as "Add Order Message"
Reserved	22	4	Alpha	Reserved for future use. Spaces should be filled in these positions
No Self Trade	26	4	Integer	Identified as a Self-Trade Prevention (STP) order.  Orders from the same participant with the same No Self Trade value will not be allowed to match with each other. The action that will be taken to avoid self-trade is controlled by the No Trade Feat.  Only positive values are valid. The maximum value is 2147483647.  A value of zero means that self-trade prevention checking is disabled.  Valid for Day orders only.
No Trade Feat	30	1	Alpha	Defines the behavior of self-trade prevention.  Supported values: "N" = Cancel Newest Order (the incoming

REPLACE ORDER MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
				<p>order is cancelled). This is also the default option if tag is not specified.</p> <p>“O” = Cancel Oldest Order (the resting order is cancelled and the new order will continue to be processed)</p> <p>“D” = Decrement and Cancel (the quantity of the larger order will be reduced, and the smaller order(s) are cancelled)</p> <p>“ ” (space) = Self-trade prevention is not enabled.</p> <p>If two self-trade prevention orders have different No Trade Feat, the system will use the behavior specified in the incoming order.</p> <p>Both No Self Trade and No Trade Feat must be defined or disabled together; otherwise the request will be rejected.</p>

Figure 14: Replace Order Message

### 5.3 Cancel Order Message

A Cancel Order message is used to cancel an order.

A Cancel Order message is acknowledged by an Order Cancel Acknowledgement message. If the order doesn't exist in CTS, such as order is cancelled or fully filled, the Cancel Order message will be ignored without acknowledgement.

CANCEL ORDER MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"X" – Cancel Order Message
Client Order ID	1	4	ID	Client Order ID for the order which is being CANCELLED. Must match exactly with the Client Order ID of the current live order.  The minimum value is 1 and maximum value is 4,294,967,295.
Quantity	5	4	Integer	Reserved for future use.  Field will be ignored. Recommended to set to zero.

**Figure 15: Cancel Order Message**

## 6 Outbound Application Messages

Application messages from the server to client are carried by a Sequenced Data message.

### 6.1 System Message

A System message delivers system events to all clients.

SYSTEM MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"S" – System Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight Japan time. Precision is in nanosecond level.
Event Code	9	1	Alpha	Supported Values: "S" = Start of Day. Always the first message. Indicates the market is open and ready to start accepting orders. "E" = End of Day. Indicates the market is closed and will not accept any new orders today. There will be no further trade executions.

Figure 16: System Message

### 6.2 Add Order Acknowledgement Message

An Add Order Acknowledgement message acknowledges the acceptance of a valid Add Order message. All data fields from the Add Order message are carried in the Add Order Acknowledgement message.

If the Order State in the Add Order Acknowledgement message equals "D" (Dead), it means that the order has been accepted but has failed to execute, i.e., the order was accepted and canceled. No additional messages will be sent for that order.

ADD ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"A" – Add Order Acknowledgement Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight. Precision is in nanosecond level.
Client Order ID	9	4	ID	Client Order ID as entered.
Account	13	10	Alphanumeric	Account as entered.
Side	23	1	Alpha	Side as entered. Values: "B" = Buy "S" = Sell "T" = Short sell "E" = Short sell exempt
Quantity	24	4	Integer	Total number of shares accepted.
Symbol ID	28	6	Alphanumeric	Unique security identifier as entered.
Group	34	1	Alphanumeric	Security group identifier as entered
Reserved	35	1	Alpha	Reserved for future use. Always blank.
Price	36	4	Price	Accepted price of the order.
Time in Force	40	4	Integer	Time in Force as accepted. Values: 0 = IOC 99999 = Day 100000 = FOK
Company ID	44	4	Alpha	Firm identifier as accepted.
Display	48	1	Alpha	Display value as accepted

ADD ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Order Capacity	49	1	Alpha	Capacity of the firm placing the order as entered. Values: "A" = Agency "P" = Principal
Order ID	50	8	Integer	CTS order reference number.
Reserved	58	4	Alpha	Reserved for future use. Always blank.
Order State	62	1	Alpha	Order state upon acceptance. Values: "L" = Live "D" = Dead
No Self Trade	63	4	Integer	No Self Trade value as accepted.
No Trade Feat	67	1	Alpha	No Trade Feat value as accepted.

Figure 17: Add Order Acknowledgement Message

### 6.3 Replace Order Acknowledgement Message

A Replace Order Acknowledgement message acknowledges the acceptance of a valid Replace Order Message. All data fields from the Replace Order message are carried in this message.

If the Order State in this acknowledgement message equals "D" (Dead), it means that the Replace Order Message was accepted and quantity in the Replace Order Message equals the total executed quantity in the original order. In this case, the corresponding order will be canceled automatically.

REPLACE ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"U" – Replace Order Acknowledgement Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight. Precision is in nanosecond level.
New Client Order ID	9	4	ID	New Client Order ID as entered.
Side	13	1	Alpha	Side as entered on the original order in the chain. Values: "B" = Buy "S" = Sell "T" = Short sell "E" = Short sell exempt
Quantity	14	4	Integer	Total number of shares outstanding.
Symbol ID	18	6	Alphanumeric	Unique security identifier as entered on the original order in the chain.
Group	24	1	Alphanumeric	Security group identifier as entered on the original order in the chain.  Note: Only CXJ order supports replace (not Chi-Select), it is always blank in Replace Order Ack. Message.
Reserved	25	1	Alpha	Reserved for future use. Always blank.
Price	26	4	Price	Accepted price of the replacement.
Time in Force	30	4	Integer	Time in Force as accepted. Values: 0 = IOC 99999 = Day 100000 = FOK
Display	34	1	Alpha	Display value as accepted
Order ID	35	8	Integer	CTS order reference number.
Reserved	43	4	Alpha	Reserved for future user. Always blank.



REPLACE ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Order State	47	1	Alpha	Order state upon replacement. Values: "L" = Live "D" = Dead
Previous Client Order ID	48	4	ID	Client Order ID of the order replaced.
No Self Trade	52	4	Integer	No Self Trade value as accepted.
No Trade Feat	56	1	Alpha	No Trade Feat value as accepted.
Replace Reason	57	1	Alphanumeric	Reason for the order replace Supported values: "5" = Partial Decline Of Order Quantity, if the quantity of order is reduced due to the No Trade Feat instruction. "O" = Other
No Self Trade Order Number	58	8	Integer	If the order is amended due to the STP, this tag will be filled with the Chi-X Order ID of the participant's contra order that would have matched.  A value of zero means not applicable.
Prevented Trade Price	66	4	Price	Price of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule)  A value of zero means not applicable.
Prevented Trade Quantity	70	4	Integer	Quantity of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule)  A value of zero means not applicable.
Prevented Liquidity Indicator	74	1	Alpha	Liquidity Indicator of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule). Possible Value: "A" = Order added liquidity "R" = Order removed liquidity " " (space) = not applicable.

Figure 18: Replace Order Acknowledgement Message

#### 6.4 Cancel Order Acknowledgement Message

A Cancel Order Acknowledgement message informs the client that an order has been canceled. This can be acknowledging a Cancel Order message or it can be an automatic order cancellation.

CANCEL ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"C" – Cancel Order Acknowledgement Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight. Precision is in nanosecond level.
Client Order ID	9	4	ID	Client Order ID of the canceled order.
Canceled Quantity	13	4	Integer	Number of shares canceled. This is the number of untraded shares of the order.
Reason	17	1	Alpha	Reason for the order cancellation Supported values: "U" = User requested the order to be canceled. Sent in response to a Cancel Order Message or a Replace Order Message. "I" = Immediate order executed and no further matches available on the book. Hence the remaining shares were immediately canceled.

CANCEL ORDER ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
				"S" = This order was manually canceled by a supervisory terminal. "L" = User logged off or disconnected. "M" = Invalid Time in Force. "Z" = Invalid quantity. "X" = Invalid price. "P" = Post only cancel. "T" = Invalid self-trade prevention order. "W" = Self-trade prevention restriction. "O" = Other.
No Self Trade Order Number	18	8	Integer	If the order is cancelled due to the STP, this tag will be filled with the Chi-X Order ID of the participant's contra order that would have matched.  A value of zero means not applicable.
Prevented Trade Price	26	4	Price	Price of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule)  A value of zero means not applicable
Prevented Trade Quantity	30	4	Integer	Quantity of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule)  A value of zero means not applicable
Prevented Liquidity Indicator	34	1	Alpha	Liquidity Indicator of the trade which was prevented by Self Trade Prevention ("Decrement and Cancel" rule). Possible Value: "A" = Order added liquidity "R" = Order removed liquidity " " (space) = not applicable

Figure 19: Cancel Order Acknowledgement Message

## 6.5 Execution Message

An Execution message is sent when an order has been fully or partially traded.

EXECUTION MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"E" – Execution Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight. Precision is in nanosecond level.
Client Order ID	9	4	ID	Client Order ID of the executed order.
Last Quantity	13	4	Integer	Shares bought/sold on this execution.
Last Price	17	4	Price	Price of this fill.
Liquidity Flag	21	1	Alpha	Supported values: "A" = Added (for the passive firm). "R" = Removed (for the aggressor).
Execution ID	22	8	Integer	Unique execution reference number. The matching buy and sell executions share the same Execution ID.

Figure 20: Execution Message

## 6.6 Reject Acknowledgement Message

A Reject Acknowledgement message is sent to reject an Add Order message or a Replace Order message.

REJECT ACKNOWLEDGEMENT MESSAGE				
NAME	OFFSET	LENGTH	TYPE	REMARKS
Message Type	0	1	Alpha	"J" – Reject Acknowledgement Message
Timestamp	1	8	Integer	Number of nanoseconds past midnight. Precision is in nanosecond level.
Client Order ID	9	4	ID	Client Order ID of the rejected order.
Reject Reason	13	1	Alpha	Reason for the order rejection. Supported values: "M" = Invalid Time in Force. "Z" = Invalid quantity. "S" = Invalid security identifier. "C" = Invalid capacity. "D" = Invalid display type. "R" = Order not allowed at this time. "X" = Invalid price. "T" = Invalid self-trade prevention order. "Y" = Invalid order type. "c" = User does not have permission to enter an order on the given board. "d" = Sponsored access restriction. "O" = Other.

Figure 21: Reject Acknowledgement Message

## 7 Appendix A – CHIXOE Examples

### 7.1 Login

Client is able to login to CHIXOE Gateway successfully.

Login – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"L"
Username	6	Alphanumeric	"user "
Password	10	Alphanumeric	"password "
Requested Session	10	Alphanumeric	" " (spaces for initial login)
Sequence Number	20	Numeric	1

Login Accept Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"A"
Session	10	Alphanumeric	"20130723 " (default session will be today's date in YYYYMMDD format)
Sequence Number	20	Numeric	1

Client fails to login with invalid user name.

Login – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"L"
Username	6	Alphanumeric	"user22"
Password	10	Alphanumeric	"password "
Requested Session	10	Alphanumeric	" "
Sequence Number	20	Numeric	1

Login Reject Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"J"
Reject Reason	1	Alpha	"A" (Invalid user name)

Client fails to login with invalid session ID.

Login – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"L"
Username	6	Alphanumeric	"user "
Password	10	Alphanumeric	"password "
Requested Session	10	Alphanumeric	"20120722 "
Sequence Number	20	Numeric	1

Login Reject Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"J"
Reject Reason	1	Alpha	"S" (Invalid session ID)

## 7.2 System Message

Client receives an event message from the system.

System Message – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"S"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Event Code	1	Alpha	"S" (Start of Day)

## 7.3 Add Order

Client adds a limit day order successfully.

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"VOD.L "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	" "

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"VOD.L "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	0

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
No Trade Feat	1	Alpha	“ ”

Client adds an IOC order successfully and the order is indicated as dead in the acknowledgement.

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“O”
Client Order ID	4	ID	36179817
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	“VOD.L ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	0 (IOC order)
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A” (Limit order)
Order Capacity	1	Alpha	“A” (Agency)
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	“ ”

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“A”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179817
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	“VOD.L ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	0
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A”
Order Capacity	1	Alpha	“A”
Order ID	8	Integer	2
Reserved	4	Alpha	“ ”
Order State	1	Alpha	“D” (Order cancelled)
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”

Client fails to add an IOC order because “No Trade Feat” must be defined for STP order.

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“O”
Client Order ID	4	ID	36179818
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	“VOD.L ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	0 (IOC order)
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A” (Limit order)
Order Capacity	1	Alpha	“A” (Agency)
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	“ ”

Reject Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“J”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179818
Reject Reason	1	Alpha	“T” (Invalid STP order, No Trade Feat must be defined)

## 7.4 Replace Order

Client replaces an order successfully

Replace Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"U"
Client Order ID	4	ID	36179815
New Client Order ID	4	ID	36179816
Quantity	4	Integer	2000
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	"A"
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	" "

Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"U"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
New Client Order ID	4	ID	36179816
Side	1	Alpha	"B"
Quantity	4	Integer	2000
Symbol ID	6	Alphanumeric	"VOD.L "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L"
Previous Client Order ID	4	ID	36179815
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	" "
Replace Reason	1	Alphanumeric	"O"
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	" "



Client fails to replace an order because “No Trade Feat” is not defined. The order will be cancelled in this case.

Replace Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“U”
Client Order ID	4	ID	36179822
New Client Order ID	4	ID	36179823
Quantity	4	Integer	1000
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	“A”
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	5
No Trade Feat	1	Alpha	“ ” (must be defined when STP is enabled)

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“C”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179822
Canceled Quantity	4	Integer	1000
Reason	1	Alpha	“T” (invalid STP order)
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	“ ”

## 7.5 Cancel Order

Client cancels an order successfully.

Cancel Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"X"
Client Order ID	4	ID	36179816
Quantity	4	Integer	0

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Canceled Quantity	4	Integer	2000
Reason	1	Alpha	"U"
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	" "

## 7.6 Execution

Client receives an execution after a trade is done.

Execution message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"E"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179834
Last Quantity	4	Integer	1000
Last Price	4	Price	100
Liquidity Flag	1	Alpha	"R"
Execution ID	8	Integer	130000001

## 7.7 Order is entered and fully filled

Client enters a buy order for symbol 2531 with quantity 1,000 at price 10.0 yen.

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "

Add Order – Inbound message			
Name	Length	Type	Example value
Reserved	1	Alpha	“ ”
Price	4	Price	100 (10.0 yen)
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A” (Limit order)
Order Capacity	1	Alpha	“A” (Agency)
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	“ ”

The order is entered and client receives Add Order Acknowledgment message

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“A”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	“2531 ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A”
Order Capacity	1	Alpha	“A”
Order ID	8	Integer	1
Reserved	4	Alpha	“ ”
Order State	1	Alpha	“L” (Order inserted into book)
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”

Client receives an execution after a trade is done.

Execution message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“E”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Last Quantity	4	Integer	1000
Last Price	4	Price	100
Liquidity Flag	1	Alpha	“R”
Execution ID	8	Integer	130000001

## 7.8 Order is entered and rejected due to security suspended

Client enters a buy order for symbol 2531 with quantity 1,000 at price 10.0 yen

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100 (10.0 yen)
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	" "

Client receives a reject acknowledgement due to market not open.

Reject Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"J"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Reject Reason	1	Alpha	"R" (Order not allowed at this time)

## 7.9 IOC Order is entered and partially executed

Clients enters a buy IOC order for symbol 2531 with quantity 10,000 at price 10.0 yen

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	10000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	0 (IOC order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	" "

The order is entered and client receives Add Order Acknowledgment message

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	10000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	0
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	" "

The order is matched for 1,000 shares.

Execution message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"E"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Last Quantity	4	Integer	1000
Last Price	4	Price	100 (10.0 yen)
Liquidity Flag	1	Alpha	"R"
Execution ID	8	Integer	130000001

Client receives a cancel acknowledgement for the remaining 9,000 shares.

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Canceled Quantity	4	Integer	9000
Reason	1	Alpha	"I" (Immediate order executed and no further matches available on the book.)
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	" "

### 7.10 FOK Order is entered and is immediately cancelled due to not enough quantity to fill

Client enters a buy FOK order for symbol 2531 with quantity 1,000 at price 10.0 yen

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100 (10.0 order)
Time in Force	4	Integer	100000 (FOK order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	" "

The order cannot be fully filled and client receives an order acknowledgement with order state = 'D'.

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	100000
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"D" (Order cancelled)
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	" "

### 7.11 Add Order Message ignored due to invalid Client Order ID.

Client enters a buy order with invalid Client Order ID, i.e. less or equal to last Acknowledged Client Order ID.

Add Order – Inbound message			
-----------------------------	--	--	--

Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815 (Last Acknowledged Client Order ID is 36179816)
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100 (10.0 yen)
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0 (Disable STP checking)
No Trade Feat	1	Alpha	" "

The request is ignore and client receives no response from server.

## 7.12 Replace Order with zero quantity

Client amends the order with zero quantity, i.e. no change on the order quantity.

Replace Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"U"
Client Order ID	4	ID	36179815
New Client Order ID	4	ID	36179816
Quantity	4	Integer	0 (zero means no change)
Price	4	Price	110
Time in Force	4	Integer	99999
Display	1	Alpha	"A"
Reserved	4	Alpha	" "
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	" "

Client receives the Replace Order Acknowledgement message.

Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"U"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
New Client Order ID	4	ID	36179816
Side	1	Alpha	"B"
Quantity	4	Integer	1000 (the original quantity)
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	110
Time in Force	4	Integer	99999
Display	1	Alpha	"A"
Order ID	8	Integer	1

Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Reserved	4	Alpha	“ ”
Order State	1	Alpha	“L”
Previous Client Order ID	4	ID	36179815
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”
Replace Reason	1	Alphanumeric	“O”
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	“ ”

### 7.13 Replace Order quantity same as executed quantity

Client amends an order quantity to 1,000 which is same as executed quantity.

Replace Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“U”
Client Order ID	4	ID	36179815
New Client Order ID	4	ID	36179816
Quantity	4	Integer	1000 (same as executed quantity)
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	“A”
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”

Since the new total number of shares same as executed shares, the order is fully fill and dead. Client receives a replace acknowledgement with order state = ‘D’.

Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“U”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
New Client Order ID	4	ID	36179816
Side	1	Alpha	“B”
Quantity	4	Integer	0
Symbol ID	6	Alphanumeric	“2531 ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	“A”
Order ID	8	Integer	1
Reserved	4	Alpha	“ ”
Order State	1	Alpha	“D”
Previous Client Order ID	4	ID	36179815
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”



Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Replace Reason	1	Alphanumeric	“O”
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	“ ”

### 7.14 Replace Order quantity less than executed quantity

Client amends an order quantity to 1,000 which is less than executed quantity.

Replace Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“U”
Client Order ID	4	ID	36179815
New Client Order ID	4	ID	36179816
Quantity	4	Integer	1000
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	“A”
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	0
No Trade Feat	1	Alpha	“ ”

This request is considered as invalid and the order is cancelled. Client receives a cancel acknowledgement with reason code = ‘Z’.

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“C”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Canceled Quantity	4	Integer	2000
Reason	1	Alpha	“Z”
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	“ ”

### 7.15 Cancel fully filled order and silently ignore

Client receives an execution message for 1,000 shares and the order is fully filled.

Execution message			
Name	Length	Type	Example Value
Message Type	1	Alpha	“E”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)

Execution message			
Name	Length	Type	Example Value
Client Order ID	4	ID	36179816
Last Quantity	4	Integer	1000
Last Price	4	Price	100
Liquidity Flag	1	Alpha	"R"
Execution ID	8	Integer	130000001

Client cancels the same order.

Cancel Order – Inbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"X"
Client Order ID	4	ID	36179816
Quantity	4	Integer	0

Since order does not exist in book, the cancel request will be ignored and client receives no response from server.

### 7.16 Unsolicited cancel of a partial filled order

Client receives an execution message for 1,000 shares and outstanding quantity for the order becomes 2,000 shares.

Execution message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"E"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179834
Last Quantity	4	Integer	1000
Last Price	4	Price	100
Liquidity Flag	1	Alpha	"R"
Execution ID	8	Integer	130000001

And then the order unsolicited cancelled by system. Client receives a cancel acknowledgement with reason code = 'O'.

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179834
Canceled Quantity	4	Integer	2000
Reason	1	Alpha	"O" (The order is cancelled by the system.)
No Self Trade Order Number	8	Integer	0
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	" "

### 7.17 Self-Trade Prevention (Cancel Newest)

Client enters a buy order with No trade Feat = "N" (Cancel Newest).

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100 (10.0 yen)
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"N"

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"N"

Client enters sell order with No trade Feat = "N" (Cancel Newest).

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"

Add Order – Inbound message			
Name	Length	Type	Example value
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"N"

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	2
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"N"

To prevent the two STP orders match, 2<sup>nd</sup> order (incoming order) is cancelled. Client receives a cancel acknowledgement with reason code = 'W' (Self-trade prevention restriction).

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Canceled Quantity	4	Integer	1000
Reason	1	Alpha	"W" (Self-trade prevention restriction)
No Self Trade Order Number	8	Integer	1
Prevented Trade Price	4	Price	0
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity	1	Alpha	" "

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Indicator			

### 7.18 Self-Trade Prevention (Cancel Oldest)

Client enters a buy order with No Trade Feat = "O" (Cancel Oldest).

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"O"

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	" "
Side	1	Alpha	"B"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"O"

Client enters a sell order with No Trade Feat = "O" (Cancel Oldest).

Add Order – Inbound message			
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Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"O"

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	2
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"O"

To prevent the two STP orders match, 1<sup>st</sup> order (resting order) is cancelled. Client receives a cancel acknowledgement with reason code = 'W' (Self-trade prevention restriction).

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Canceled Quantity	4	Integer	1000
Reason	1	Alpha	"W" (Self-trade prevention restriction)
No Self Trade Order Number	8	Integer	2
Prevented Trade Price	4	Price	0

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Prevented Trade Quantity	4	Integer	0
Prevented Liquidity Indicator	1	Alpha	“ ”

## 7.19 Self-Trade Prevention (Decrement and Cancel)

Client enters a buy order.

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“O”
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	2000
Symbol ID	6	Alphanumeric	“2531 ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A” (Limit order)
Order Capacity	1	Alpha	“A” (Agency)
Reserved	4	Alpha	“ ”
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	“D”

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	“A”
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179815
Account	10	Alphanumeric	“ ”
Side	1	Alpha	“B”
Quantity	4	Integer	2000
Symbol ID	6	Alphanumeric	“2531 ”
Group	1	Alphanumeric	“ ”
Reserved	1	Alpha	“ ”
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	“ ”
Display	1	Alpha	“A”
Order Capacity	1	Alpha	“A”
Order ID	8	Integer	1
Reserved	4	Alpha	“ ”
Order State	1	Alpha	“L” (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	“D”

Client enters a sell order with No Trade Feat = 'D' (Decrement and Cancel).

Add Order – Inbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"O"
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999 (Day order)
Company ID	4	Alpha	" "
Display	1	Alpha	"A" (Limit order)
Order Capacity	1	Alpha	"A" (Agency)
Reserved	4	Alpha	" "
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"D"

Add Order Acknowledgement – Outbound message			
Name	Length	Type	Example value
Message Type	1	Alpha	"A"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Account	10	Alphanumeric	" "
Side	1	Alpha	"S"
Quantity	4	Integer	1000
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Company ID	4	Alpha	" "
Display	1	Alpha	"A"
Order Capacity	1	Alpha	"A"
Order ID	8	Integer	2
Reserved	4	Alpha	" "
Order State	1	Alpha	"L" (Order inserted into book)
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"D"

To prevent two STP orders match, the quantity of larger order is decreased. Client receives a replace acknowledgement for 1<sup>st</sup> order with reason code = '5'.

Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"U"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
New Client Order ID	4	ID	36179815
Side	1	Alpha	"B"
Quantity	4	Integer	1000 (Quantity reduced)



Replace Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Symbol ID	6	Alphanumeric	"2531 "
Group	1	Alphanumeric	" "
Reserved	1	Alpha	" "
Price	4	Price	100
Time in Force	4	Integer	99999
Display	1	Alpha	"A"
Order ID	8	Integer	1
Reserved	4	Alpha	" "
Order State	1	Alpha	"L"
Previous Client Order ID	4	ID	36179815
No Self Trade	4	Integer	1
No Trade Feat	1	Alpha	"D"
Replace Reason	1	Alphanumeric	"5" (Partial Decline Of Order Quantity)
No Self Trade Order Number	8	Integer	2
Prevented Trade Price	4	Price	100
Prevented Trade Quantity	4	Integer	1000
Prevented Liquidity Indicator	1	Alpha	"A"

And the smaller order is cancelled. Client receives a cancel acknowledgement with reason code = 'W'.

Cancel Order Acknowledgement – Outbound message			
Name	Length	Type	Example Value
Message Type	1	Alpha	"C"
Timestamp	8	Integer	36086385178134 (10:01:26,385178134)
Client Order ID	4	ID	36179816
Canceled Quantity	4	Integer	1000
Reason	1	Alpha	"W" (Self-trade prevention restriction)
No Self Trade Order Number	8	Integer	1
Prevented Trade Price	4	Price	100
Prevented Trade Quantity	4	Integer	1000
Prevented Liquidity Indicator	1	Alpha	"R"

## 8 Appendix B – Chi-Select Order Types

The CHIXOE trading session for Chi-Select must be configured for either one of following categories:

1. Designed Liquidity Provider (DLP)
  - a. Supports Limit order with Display is “P” (Post Only).
  - b. Order Replace is not applicable and will be rejected.
2. Taker
  - a. Supports Limit order with Time in Force is 0 (IOC) or 100000 (FOK).
  - b. Order Replace is not applicable and will be rejected.

Client should contact CTS administrator for the setup.