



# US Options BOE Specification

Version 1.6.7

September 13, 2012

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# 1 Introduction

## 1.1 Overview

This document describes BATS Binary Order Entry (BOE), the BATS proprietary order entry protocol. Where applicable, the terminology (e.g., time in force) used in this document is similar to that used by the FIX protocol to allow those familiar with FIX to more easily understand BOE. This document assumes the reader has basic knowledge of the FIX protocol.

BOE fulfills the following requirements:

- *CPU and memory efficiency.* Message encoding, decoding, and parsing are simpler to code and can be optimized to use less CPU and memory at runtime.
- *Application level simplicity.* State transitions are simple and unambiguous. They are easy to apply to a Member's representation of an order.
- *Session level simplicity.* The session level protocol (login, sequencing, replay of missed messages, logout) is simple to understand.

While BATS has strived to preserve feature parity between FIX and BOE where possible, certain BOE functionality will not be made available in FIX (e.g. Bulk Updates).

All binary values are in little Endian (used by Intel x86 processors), and *not* network byte order.

Each message is identified by a unique message type. Not all message types are used in all of BATS' trading environments globally. A complete listing of all message types is provided in the **List of Message Types** section

All communication is via standard TCP/IP.

## 1.2 Data Types

The following data types are used by BOE. The size of some data types varies by message. All data types have default values of binary zero, in both Member to BATS and BATS to Member contexts.

- *Binary:* Little Endian byte order, unsigned binary value. The number of bytes used depends on the context.
  - One byte: FE = 254
  - Four bytes: 64 00 00 00 = 100
- *Signed Binary:* Little Endian byte order, signed two's complement, binary value. The number of bytes used depends on the context.
  - One byte: DF = -33
  - Four bytes: 64 00 00 00 = +100
- *Binary Price:* Little Endian byte order value, eight bytes in size, with four implied decimal places. So, if the value is 123,400, the actual value taking into account implied decimal places is 12.34.
  - 08 E2 01 00 00 00 00 00 = 123,400/10000 = 12.34

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- *Signed Binary Price*: Little Endian byte order value, signed two's complement, eight bytes in size, with four implied decimal places. So, if the value is -123,400, the actual value taking into account implied decimal places is -12.34.
  - 08 E2 01 00 00 00 00 00 = 123,400/10000 = 12.34
  - F8 1D FE FF FF FF FF FF = 123,400/10000 = -12.34
- *Short Binary Price*: Little Endian byte order value, four bytes in size, with four implied decimal places. So, if the value is 12,300, the actual value taking into account implied decimal places is 1.23.
  - 0C 30 00 00 = 12,300/10000 = 1.23
- *Signed Binary Fee*: Little Endian byte order value, eight bytes in size, signed, with five implied decimal places. So, the value -123,000 is -1.23 after taking account for the five implied decimal places.
  - 88 1F FE FF FF FF FF FF = -123,000/100000 = -1.23
- *Alpha*: Uppercase letters (A-Z) and lowercase letters (a-z) only. ASCII NUL (0x00) filled on the right, if necessary. The number of bytes used depends on the context.
- *Alphanumeric*: Uppercase letters (A-Z), lowercase letters (a-z) and numbers (0-9) only. ASCII NUL (0x00) filled on the right, if necessary.
- *Text*: Printable ASCII characters only. ASCII NUL (0x00) filled on the right, if necessary.
- *DateTime*: 8 bytes. The date and time, in UTC, represented as nanoseconds past the UNIX epoch (00:00:00 UTC on 1 January 1970). The nanoseconds portion is currently ignored and treated as 0 (i.e. the times are only accurate to microseconds) on input, and will always be set to 0 by BATS in outgoing messages. However, **BATS may begin populating the nanoseconds portion at any time without warning.**

For example: 1,294,909,373,757,324,000 = 2011-01-13 09:02:53.757324 UTC.

### 1.3 Optional Fields and Bitfields

Some messages such as *New Order* and *Modify Order* have a number of optional fields. A required field in the message specifies the optional fields that are present at the end of the message. If a bit is set, the field will be present. Fields are appended to the end of the message. There is no implicit framing between the optional fields. In order to decode the optional fields, they *must* be appended in a particular order to the end of the message. The fields of the first bitfield are appended first, lowest order bit first. Next, the fields of the next bitfield are appended, lowest order bit first. This continues for all bitfields. While certain *RESERVED* bits within a defined bitfield are used within another BATS market and will be ignored, bits that are reserved for future expansion must be set to '0' when noted in the bitfield description.

The size and data type for each optional field is described in the **List of Optional Fields** section.

Incoming messages (*New Order*, *Modify Order*, *Cancel Order*) will be rejected if they have any bits set that are not documented in the *NewOrderBitfields*, *ModifyOrderBitfields*, or *CancelOrderBitfields* defined further below.

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Note that the set of optional fields returned for each BATS to Member message type is determined at session login (using the `Login Request` message); hence, the exact size and layout of each message received by the client application can be known in advance. Any requested optional field which is irrelevant in a particular context will still be present in the returned message, but with all bytes set to binary zero (0x00).

Each return message from BATS to a Member indicates the optional fields which are present, even though the Member firm indicated during login which optional fields are to be sent. These fields are included (and duplicated) by design so that each message can be interpreted on its own, without having to find the corresponding login request or response to know which optional fields are present. So, for example, in a log file, decoding a message requires only that single message.

Example messages are shown with each message type which should help to make this concept clear.

## 2 Session

### 2.1 Message Headers

Each message has a ten byte header. The two initial *StartOfMessage* bytes are present to aid in message reassembly for network capture purposes. The *MatchingUnit* field is only populated on non-session level messages sent from BATS to the Member. Messages from Member to BATS and all session level messages must always set this value to 0.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	Message type.
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.  <b>For session level traffic, the unit is set to 0.</b>  <b>For messages from Member to BATS, the unit must be 0.</b>
SequenceNumber	6	4	Binary	The sequence number for this message.  Messages from BATS to Member are sequenced distinctly per matching unit.  Messages from Member to BATS are sequenced across all matching units with a single sequence stream.  Members can optionally send a 0 sequence number on all messages from Member to BATS; however, BATS highly recommends members to send sequence numbers on all inbound messages.

### 2.2 Login, Replay and Sequencing

Session level messages, both inbound (Member to BATS) and outbound (BATS to Member) are unsequenced.

Inbound (Member to BATS) application messages are sequenced. Upon reconnection, BATS informs the Member of the last processed sequence number; the Member *may* choose to resend any messages with sequence numbers greater than this value. A gap forward in the Member's incoming sequence number is permitted at any time and is ignored by BATS. Gaps backward in sequence number (including the same sequence number used twice) are never permitted and will always result in a *Logout* message being sent and the connection being dropped.

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Outbound (BATS to Member) application messages (but *not* Bulk Order Acknowledgement, Order Rejected, Cancel Rejected or User Modify Rejected) are monotonically sequenced per matching unit. While matching units on BOE correspond directly to matching units on Multicast PITCH, sequence numbers do not.

Upon reconnection, a Member sends the last received sequence number per matching unit in a Login Request message. BATS will respond with any missed messages. However, when the Login Request *SpecifiedOnlyUnitReplay* flag is enabled, BATS will exclude messages from unspecified matching units during replay. BATS will send a Replay Complete message when replay is finished. If there are no messages to replay, a Replay Complete message will be sent immediately after a Login Response message. **BATS will reject all orders during replay.**

Assuming Member has requested replay messages using a properly formatted Login Request after a disconnect, any unacknowledged orders remaining with the Member after the Replay Complete message is received should be assumed to be unknown to BATS.

**Unsequenced messages will not be included during replay.**

A session is identified by the username and session sub-identifier (both supplied by BATS). Only one concurrent connection per username and session sub-identifier is permitted.

If a login is rejected, an appropriate Login Response message will be sent and the connection will be terminated.

## 2.3 Sequence Reset

A reset sequence operation is not available for Binary Order Entry. However, a Member can send a Login Request message with *SpecifiedOnlyUnitReplay* field enabled, and *NumberOfUnits* field set to zero. Then, upon receiving a Login Response message from BATS, the Member can use the field *LastReceivedSequenceNumber* as the sequence starting point for sending future messages.

## 2.4 Heartbeats

Client Heartbeat messages are sent from Member to BATS and Server Heartbeat messages are sent from BATS to Member if no other data has been sent in that direction for one second. Like other session level messages, heartbeats from BATS to the Member do *not* increment the sequence number. The sequence number for heartbeat messages will be 0. If BATS receives no inbound data or heartbeats for five seconds, a Logout message will be sent and the connection will be terminated. **Members are encouraged to have a one second heartbeat interval and to perform similar connection staleness logic.**



## 2.5 Logging Out

To gracefully log out of a session, a `Logout Request` message should be sent by the Member. BATS will finish sending any queued data for that port and will then respond with its own `Logout` message and close the connection. After receipt of a `Logout Request` message, BATS will ignore all other inbound (Member to BATS) messages except for `Client Heartbeat`.

## 3 Session Messages

### 3.1 Member to BATS

#### 3.1.1 Login Request

A Login Request message must be sent as the first message upon connection. In addition to ensuring the client may connect, the client must include the last consumed sequence number per matching unit. BATS uses these sequence numbers to determine what outbound traffic, if any, was missed by the Member.

The client does *not* need to include a sequence number for a unit if they have never received messages from it. For example, if the client has received responses from units 1, 3, and 4, the Login Request message need not include unit 2. If the client wishes to send a value for unit 2 anyway, 0 would be the only allowed value.

The *Return Bit* fields control which attributes of a message will be returned by BATS for the remainder of the session. This allows Members to tailor the echoed results to the needs of their system without paying for bandwidth or processing they do not need. Refer to the **List of Return Bitfields** section for additional information. BATS will verify received *Return Bitfields* at login time; see the **Login Response** section for more information.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x01
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.
SessionSubID	10	4	Alphanumeric	Session Sub ID supplied by BATS.
Username	14	4	Alphanumeric	Username supplied by BATS.
Password	18	10	Alphanumeric	Password supplied by BATS.
NoUnspecified UnitReplay	28	1	Binary	Flag indicating whether to replay missed outgoing (BATS to Member) messages for unspecified units.  0x00 = False (Replay Unspecified Units) 0x01 = True (Suppress Unspecified Units Replay)

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Order Acknowledgement Bitfields	29	7	Binary	Bitfields indicating message fields to be returned on Order Acknowledgement messages. See the <b>List of Return Bitfields</b> section.																																																																																																														
<table><tr><th>Byte</th><th>Name</th><th colspan="2">Description</th></tr><tr><td rowspan="8">0</td><td rowspan="8">ReturnBitfield1</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td><td></td><td></td></tr><tr><td rowspan="8">1</td><td rowspan="8">ReturnBitfield2</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td><td></td><td></td></tr><tr><td rowspan="8">2</td><td rowspan="8">ReturnBitfield3</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td><td></td><td></td></tr><tr><td rowspan="6">3</td><td rowspan="6">ReturnBitfield4</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIdBatch (empty)</td></tr><tr><td>32</td><td>RESERVED</td><td></td><td></td></tr><tr><td rowspan="8">4</td><td rowspan="8">ReturnBitfield5</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity</td></tr><tr><td>128</td><td>ExpireTime</td><td></td><td></td></tr></table>					Byte	Name	Description		0	ReturnBitfield1	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct			1	ReturnBitfield2	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED			2	ReturnBitfield3	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match			3	ReturnBitfield4	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIdBatch (empty)	32	RESERVED			4	ReturnBitfield5	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity	128	ExpireTime		
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Reserved	44	1	Binary	Reserved – Must Be Zero																																																																																											
Order Modified Bitfields	45	7	Binary	Bitfields indicating message fields to be returned on Order Modified messages. See the <b>List of Return Bitfields</b> section.																																																																																											
				<table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td rowspan="9">0</td><td rowspan="9">ReturnBitfield1</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table></td></tr><tr><td>1</td><td></td><td>Reserved For Future Use</td></tr><tr><td rowspan="9">2</td><td rowspan="9">ReturnBitfield3</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table></td></tr><tr><td>3</td><td></td><td>Reserved For Future Use</td></tr><tr><td rowspan="9">4</td><td rowspan="9">ReturnBitfield5</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table></td></tr><tr><td rowspan="4">5</td><td rowspan="4">ReturnBitfield6</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>Reserved</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table></td></tr><tr><td>6</td><td></td><td>Reserved For Future Use</td></tr><tr><td>Reserved</td><td>52</td><td>1</td><td>Binary</td><td>Reserved – Must Be Zero</td></tr></table>	Byte	Name	Description	0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1		Reserved For Future Use	2	ReturnBitfield3	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3		Reserved For Future Use	4	ReturnBitfield5	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity	128	ExpireTime	5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>Reserved</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	Reserved	4	ContraCapacity (empty)	6		Reserved For Future Use	Reserved	52	1	Binary	Reserved – Must Be Zero
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Order Restated Bitfields	53	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.																																																																																																														
				<table><tr><th>Byte</th><th>Name</th><th colspan="2">Description</th></tr><tr><td rowspan="8">0</td><td rowspan="8">ReturnBitfield1</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td><td></td><td></td></tr><tr><td rowspan="8">1</td><td rowspan="8">ReturnBitfield2</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td><td></td><td></td></tr><tr><td rowspan="8">2</td><td rowspan="8">ReturnBitfield3</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td><td></td><td></td></tr><tr><td rowspan="6">3</td><td rowspan="6">ReturnBitfield4</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch</td></tr><tr><td>32</td><td>RESERVED</td><td></td><td></td></tr><tr><td rowspan="8">4</td><td rowspan="8">ReturnBitfield5</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td><td></td><td></td></tr></table>	Byte	Name	Description		0	ReturnBitfield1	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct			1	ReturnBitfield2	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED			2	ReturnBitfield3	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match			3	ReturnBitfield4	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch	32	RESERVED			4	ReturnBitfield5	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity Indicator	128	ExpireTime		
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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)
Value	Name													
1	SecondaryOrderID													
2	RESERVED													
4	ContraCapacity (empty)													
				6		Reserved For Future Use								
Reserved	60	1	Binary	Reserved – Must Be Zero										
User Modify Rejected Bitfields	61	7	Binary	Bitfields indicating message fields to be returned on User Modify Rejected messages. See the <b>List of Return Bitfields</b> section.										
				Byte	Name	Description								
				0		Reserved For Future Use								
				1		Reserved For Future Use								
				2		Reserved For Future Use								
				3		Reserved For Future Use								
				4		Reserved For Future Use								
				5		Reserved For Future Use								
				6		Reserved For Future Use								
Reserved	68	1	Binary	Reserved – Must Be Zero										

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Order Cancelled Bitfields	69	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.																																																																																																								
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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)										
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Reserved	76	1	Binary	Reserved – Must Be Zero																				
Cancel Rejected Bitfields	77	7	Binary	Bitfields indicating message fields to be returned on Cancel Rejected messages. See the <b>List of Return Bitfields</b> section.																				
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Order Execution Bitfields	85	7	Binary	Bitfields indicating message fields to be returned on Order Execution messages. See the <b>List of Return Bitfields</b> section.																																																																																																									
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Trade Cancel or Correct Bitfields	93	7	Binary	Bitfields indicating message fields to be returned on Trade Cancel or Correct messages. See the <b>List of Return Bitfields</b> section.																																																								
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Bitfields	101	7	Binary	Bitfields indicating message fields to be returned on messages. See <b>List of Return Bitfields</b> section.  Reserved for future use.																																																								
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Reserved	116	1	Binary	Reserved – Must Be Zero																																																								
NumberOfUnits	117	1	Binary	A number, <i>n</i> (possibly 0), of unit/sequence pairs to follow, one per unit from which the client has received messages.																																																								
UnitNumber <sub>1</sub>		1	Binary	A unit number.																																																								
UnitSequence <sub>1</sub>		4	Binary	Last received sequence number for the unit.																																																								
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UnitNumber <sub>n</sub>		1	Binary	A unit number.
UnitSequence <sub>n</sub>		4	Binary	Last received sequence number for the unit.

**Example Login Request Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	83 00	131 bytes
MessageType	01	Login Request
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	00 00 00 00	Always 0 for session level messages
SessionSubID	30 30 30 31	0001
Username	54 45 53 54	TEST
Password	54 45 53 54 49 4E 47 00 00 00	TESTING
NoUnspecified	00	False (Replay Unspecified Units)
UnitReplay		
Order	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Acknowledgement		06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		
Reserved	00	
Order Rejected	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Bitfields		06 = <i>ClearingFirm, ClearingAccount</i>
Reserved	00	
Order Modified	00 00 06 00 00 00 00	06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		
Reserved	00	
Order Restated	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
User Modify	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Rejected Bitfields		06 = <i>ClearingFirm, ClearingAccount</i>
Reserved	00	
Order Cancelled	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
Order Rejected	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
Order Executed	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Bitfields		06 = <i>ClearingFirm, ClearingAccount</i>
Reserved	00	
Trade Cancel	00 01 00 00 00 00 00	01 = <i>Symbol</i>
or Correct		
Bitfields		
Reserved	00	
Reserved Bitfields	00 00 00 00 00 00 00	Reserved for future expansion
Reserved	00	
Reserved Bitfields	00 00 00 00 00 00 00	Reserved for future expansion
Reserved	00	
NumberOfUnits	03	Three unit/sequence pairs to follow.

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UnitNumber <sub>1</sub>	01	Unit 1
UnitSequence <sub>1</sub>	4A BB 01 00	Last received sequence of 113,482
UnitNumber <sub>2</sub>	02	Unit 2
UnitSequence <sub>2</sub>	00 00 00 00	Last received sequence of 0
UnitNumber <sub>3</sub>	03	Unit 3
UnitSequence <sub>3</sub>	79 A1 00 00	Last received sequence of 41,337

### 3.1.2 Logout Request

To end the session, the Member should send a Logout Request message. BATS will finish sending any queued data and finally respond with a Logout message and close the connection.

A Member may simply close the connection without logging out, but may lose any queued messages by doing so.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x02
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.

#### Example Login Request Message:

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	08 00	8 bytes
MessageType	02	Logout Request
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	00 00 00 00	Always 0 for session level messages

### 3.1.3 Client Heartbeat

See the **Heartbeats** section for more information on heartbeats and the session level protocol.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x03
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.

#### Example Client Heartbeat Message:

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	08 00	8 bytes
MessageType	03	Client Heartbeat
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	00 00 00 00	Always 0 for session level messages

## 3.2 BATS to Member

### 3.2.1 Login Response

A `Login Response` message is sent in response to a `Login Request` message. On a successful login, the `LoginResponseStatus` will be set to 'A'. On a failed login, `LoginResponseStatus` will be set to a value other than 'A', and `LoginResponseText` will be set to an appropriate failure description.

**BATS will verify *Return Bitfields* at login time.** If *Return Bitfields* are invalid, `LoginResponseStatus` will be set to 'F', and `LoginResponseText` will include a description of which byte and bit are invalid. This is done to ensure that reserved fields are not used, and only options that apply to the local market are set. See the **List of Return Bitfields** section for additional information.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x07
MatchingUnit	5	1	Binary	Always 0 for session level messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.
LoginResponse Status	10	1	Alphanumeric	Accepted, or the reason for the rejection.  A = Login Accepted B = Session in use D = Session is disabled F = Invalid Return Bitfield in login message I = Invalid unit given in Login message N = Not authorized (invalid username/password) Q = Sequence ahead in Login message S = Invalid session M = Invalid Login Request message structure
LoginResponse Text	11	60	Text	Human-readable text with additional information about the reason for rejection. For successful logins, this is empty. ASCII NUL (0x00) filled on the right, if necessary.
NoUnspecified UnitReplay	71	1	Binary	Echoed from the <code>Login Request</code> .

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Order Acknowledgement Bitfields	72	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																																																																														
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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>RESERVED</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>AttributedQuote</td></tr></table>	Value	Name	1	RESERVED	2	RESERVED	4	RESERVED	8	AttributedQuote								
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Order Rejected Bitfields	80	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																				
				Byte	Name	Description																		
				0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct
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				1	ReturnBitfield2	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED
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				2	ReturnBitfield3	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match
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				3	ReturnBitfield4	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch</td></tr><tr><td>32</td><td>RESERVED</td></tr></table>	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch	32	RESERVED				
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				5		Reserved For Future Use																		
				6		Reserved For Future Use																		
Reserved	87	1	Binary	Reserved for BATS Internal Use																				

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Order Modified Bitfields	88	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																																																											
				<table><tr><th>Byte</th><th>Name</th><th colspan="2">Description</th></tr><tr><td rowspan="9">0</td><td rowspan="9">ReturnBitfield1</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr><tr><td>1</td><td></td><td colspan="2">Reserved For Future Use</td></tr><tr><td rowspan="9">2</td><td rowspan="9">ReturnBitfield3</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr><tr><td>3</td><td></td><td colspan="2">Reserved For Future Use</td></tr><tr><td rowspan="9">4</td><td rowspan="9">ReturnBitfield5</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity</td></tr><tr><td>128</td><td>ExpireTime</td></tr><tr><td rowspan="4">5</td><td rowspan="4">ReturnBitfield6</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr><tr><td>6</td><td></td><td colspan="2">Reserved For Future Use</td></tr><tr><td>Reserved</td><td>95</td><td>1</td><td>Binary</td><td>Reserved for BATS Internal Use</td></tr></table>	Byte	Name	Description		0	ReturnBitfield1	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1		Reserved For Future Use		2	ReturnBitfield3	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3		Reserved For Future Use		4	ReturnBitfield5	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity	128	ExpireTime	5	ReturnBitfield6	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)	6		Reserved For Future Use		Reserved	95	1	Binary	Reserved for BATS Internal Use
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Order Restated Bitfields	96	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																																																																											
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User Modify Rejected Bitfields	104	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section. <table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td>0</td><td></td><td>Reserved For Future Use</td></tr><tr><td>1</td><td></td><td>Reserved For Future Use</td></tr><tr><td>2</td><td></td><td>Reserved For Future Use</td></tr><tr><td>3</td><td></td><td>Reserved For Future Use</td></tr><tr><td>4</td><td></td><td>Reserved For Future Use</td></tr><tr><td>5</td><td></td><td>Reserved For Future Use</td></tr><tr><td>6</td><td></td><td>Reserved For Future Use</td></tr></table>	Byte	Name	Description	0		Reserved For Future Use	1		Reserved For Future Use	2		Reserved For Future Use	3		Reserved For Future Use	4		Reserved For Future Use	5		Reserved For Future Use	6		Reserved For Future Use
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Reserved	111	1	Binary	Reserved for BATS Internal Use																								

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Order Cancelled Bitfields	112	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																																																																																			
				<table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td rowspan="8">0</td><td rowspan="8">ReturnBitfield1</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table></td></tr><tr><td rowspan="8">1</td><td rowspan="8">ReturnBitfield2</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table></td></tr><tr><td rowspan="8">2</td><td 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Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember 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				6		Reserved For Future Use	
Reserved	119	1	Binary	Reserved for BATS Internal Use			
Cancel Rejected Bitfields	120	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.			
				Byte	Name	Description	
				0	ReturnBitfield1	Value	Name
						1	Side
						2	RESERVED
						4	Price (empty)
						8	ExecInst (empty)
						16	OrdType (empty)
						32	TimeInForce (empty)
						64	MinQty (empty)
				128	MaxRemovePct (empty)		
				1	ReturnBitfield2	Value	Name
						1	Symbol
						2	RESERVED
4	RESERVED						
8	RESERVED						
16	RESERVED						
32	RESERVED						
64	Capacity (empty)						
128	RESERVED						
2		Reserved For Future Use					
3	ReturnBitfield4	Value	Name				
		1	MaturityDate (empty)				
		2	StrikePrice (empty)				
		4	PutOrCall (empty)				
		8	OpenClose (empty)				
		16	ClOrdIDBatch				
32	RESERVED						
4		Reserved For Future Use					
5		Reserved For Future Use					
6		Reserved For Future Use					
Reserved	127	1	Binary	Reserved for BATS Internal Use			

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Order Execution Bitfields	128	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																																																																							
				<table><tr><th>Byte</th><th>Name</th><th colspan="2">Description</th></tr><tr><td rowspan="8">0</td><td rowspan="8">ReturnBitfield1</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr><tr><td rowspan="8">1</td><td rowspan="8">ReturnBitfield2</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr><tr><td rowspan="8">2</td><td rowspan="8">ReturnBitfield3</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr><tr><td rowspan="7">3</td><td rowspan="7">ReturnBitfield4</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIdBatch</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>4</td><td></td><td colspan="2">Reserved For Future Use</td></tr><tr><td rowspan="4">5</td><td rowspan="4">ReturnBitfield6</td><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity</td></tr><tr><td>6</td><td></td><td colspan="2">Reserved For Future Use</td></tr><tr><td>Reserved</td><td>135</td><td>1</td><td>Binary</td><td>Reserved for BATS Internal Use</td></tr></table>	Byte	Name	Description		0	ReturnBitfield1	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1	ReturnBitfield2	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED	2	ReturnBitfield3	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3	ReturnBitfield4	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIdBatch	32	RESERVED	4		Reserved For Future Use		5	ReturnBitfield6	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity	6		Reserved For Future Use		Reserved	135	1	Binary	Reserved for BATS Internal Use
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Trade Cancel or Correct Bitfields	136	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.																																																								
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Reserved	143	1	Binary	Reserved for BATS Internal Use																																																								
Bitfields	144	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.  Reserved for future use.																																																								
Reserved	151	1	Binary	Reserved for BATS Internal Use																																																								
Bitfields	152	7	Binary	Echoed from the LOGIN REQUEST. See the <b>List of Return Bitfields</b> section.  Reserved for future use.																																																								
Reserved	159	1	Binary	Reserved for BATS Internal Use																																																								
LastReceived SequenceNumber	160	4	Binary	Last inbound (Member to BATS) message sequence number processed by BATS.																																																								
NumberOfUnits	164	1		A number, <i>n</i> , of unit/sequence pairs to follow, one per unit. A pair for every unit will be sent, even if no messages have been sent to this port today. For unsuccessful logins, this will be 0.																																																								
UnitNumber <sub>1</sub>		1	Binary	A unit number.																																																								
UnitSequence <sub>1</sub>		4	Binary	Highest available sequence number for the unit.																																																								
.			Binary																																																									
.																																																												



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.				
UnitNumber <sub>n</sub>		1	Binary	A unit number.
UnitSequence <sub>n</sub>		4	Binary	Highest available sequence number for the unit.

**Example Login Response Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	B7 00	183 bytes
MessageType	07	Login Response
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	00 00 00 00	Always 0 for session level messages
LoginResponse		
Status	41	A = Login Accepted
LoginResponse		
Text	41 63 63 65 70 74 65 64 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Accepted (padding) (padding) (padding) (padding) (padding)
NoUnspecified	00	False (Replay Unspecified Units)
UnitReplay		
Order	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Acknowledgement		06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		
Reserved	00	
Order Rejected	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Bitfields		06 = <i>ClearingFirm, ClearingAccount</i>
Reserved	00	
Order Modified	00 00 06 00 00 00 00	06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		
Reserved	00	
Order Restated	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
User Modify	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Rejected		06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		
Reserved	00	
Order Cancelled	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
Order Rejected	00 00 00 00 00 00 00	None
Bitfields		
Reserved	00	
Order Executed	00 01 06 00 00 00 00	01 = <i>Symbol</i>
Bitfields		06 = <i>ClearingFirm, ClearingAccount</i>
Reserved	00	
Trade Cancel	00 01 00 00 00 00 00	01 = <i>Symbol</i>

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or Correct

Bitfields

Reserved 00

Reserved Bitfields 00 00 00 00 00 00 00

Reserved for future expansion

Reserved 00

Reserved Bitfields 00 00 00 00 00 00 00

Reserved for future expansion

Reserved 00

Last Received 00 00 00 00

Last received sequence number.

Sequence Number

0 = BATS has not received any messages

NumberOfUnits 04

Four unit/sequence pairs to follow.

UnitNumber<sub>1</sub> 01

Unit 1

UnitSequence<sub>1</sub> 4A BB 01 00

Last received sequence of 113,482

UnitNumber<sub>2</sub> 02

Unit 2

UnitSequence<sub>2</sub> 00 00 00 00

Last received sequence of 0

UnitNumber<sub>3</sub> 03

Unit 3

UnitSequence<sub>3</sub> 00 00 00 00

Last received sequence of 0

UnitNumber<sub>4</sub> 04

Unit 4

UnitSequence<sub>4</sub> 79 A1 00 00

Last received sequence of 41,337

### 3.2.2 Logout

A Logout is usually sent in response to a Logout Request. Any queued data is transmitted, a Logout is sent, and BATS will close the connection. However, a Logout may also be sent if the Member violates the protocol specification (e.g., by moving backwards in sequence number).

The Logout contains the last transmitted sequence number for each unit, allowing the Member to check that their last received sequence number matches.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the StartOfMessage field.
MessageType	4	1	Binary	0x08
MatchingUnit	5	1	Binary	Always 0 for session level messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.
LogoutReason	10	1	Alphanumeric	The reason why the Logout message was sent.  U = User Requested E = End of Day A = Administrative ! = Protocol Violation
LogoutReason Text	11	60	Text	Human-readable text with additional information about the reason for logout. Particularly useful if LogoutReason = ! (Protocol Violation).
LastReceived	71	4	Binary	Last inbound (Member to BATS) message

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SequenceNumber				sequence number processed by BATS.
NumberOfUnits	75	1		A number, n (possibly 0), of unit/sequence pairs to follow, one per unit from which the client has received messages.
UnitNumber <sub>1</sub>		1	Binary	A unit number.
UnitSequence <sub>1</sub>		4	Binary	Highest available sequence number for the unit.
.			Binary	
.				
.				
UnitNumber <sub>n</sub>		1	Binary	A unit number.
UnitSequence <sub>n</sub>		4	Binary	Highest available sequence number for the unit.

**Example Logout Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	59 00	89 bytes
MessageType	08	Logout
MatchingUnit	00	Always 0 for session level messages
SequenceNumber	00 00 00 00	Always 0 for session level messages
LogoutReason	55	U = User Requested
LogoutReason	55 73 65 72 00 00 00 00 00 00	User
Text	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	
LastReceived	3F 93 01 00	103231
SequenceNumber		
NumberOfUnits	03	Three unit/sequence pairs to follow.
UnitNumber <sub>1</sub>	01	Unit 1
UnitSequence <sub>1</sub>	4A BB 01 00	Last sent sequence of 113,482
UnitNumber <sub>2</sub>	02	Unit 2
UnitSequence <sub>2</sub>	00 00 00 00	Last sent sequence of 0
UnitNumber <sub>3</sub>	03	Unit 3
UnitSequence <sub>3</sub>	79 A1 00 00	Last sent sequence of 41,337

### 3.2.3 Server Heartbeat

See the **Heartbeats** section for more information on heartbeats and the session level protocol.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x09
MatchingUnit	5	1	Binary	Always 0 for session level messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.

#### Example Server Heartbeat Message:

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	08 00	8 bytes
MessageType	09	Server Heartbeat
MatchingUnit	00	Always 0 for session level messages
SequenceNumber	00 00 00 00	Always 0 for session level messages

### 3.2.4 Replay Complete

See the **Login, Replay and Sequencing** section for more information on Login, sequencing and replay.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x13
MatchingUnit	5	1	Binary	Always 0 for session level messages.
SequenceNumber	6	4	Binary	Always 0 for session level messages.

#### Example Replay Complete Message:

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	08 00	8 bytes
MessageType	13	Replay Complete
MatchingUnit	00	Always 0 for session level messages
SequenceNumber	00 00 00 00	Always 0 for session level messages

## 4 Application Messages

### 4.1 Member to BATS

#### 4.1.1 New Order

A *New Order* message consists of a number of required fields followed by a number of optional fields. The optional fields used are specified by setting bits in the *NewOrderBitfields*. Fields must be appended at the end of the message.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x04
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.
SequenceNumber	6	4	Binary	The sequence number for this message..
ClOrdID	10	20	Text	<p>Corresponds to <i>ClOrdID</i> (11) in BATS FIX.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33-126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>ClOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p><b>Note: BATS only enforces uniqueness of ClOrdID values among currently live orders. However, we <i>strongly</i> recommend that you keep your ClOrdID values day-unique.</b></p>
Side	30	1	Alphanumeric	<p>Corresponds to <i>Side</i> (54) in BATS FIX.</p> <p>1 = Buy 2 = Sell</p>
OrderQty	31	4	Binary	<p>Corresponds to <i>OrderQty</i> (38) in BATS FIX.</p> <p>Number of contracts for the order. System-wide limit is 999,999 contracts.</p>

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NewOrder Bitfield1	35	1	Binary	Bitfield indicating order fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>ClearingFirm</td></tr><tr><td>2</td><td>ClearingAccount</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxFloor</td></tr></table>	Value	Name	1	ClearingFirm	2	ClearingAccount	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxFloor
Value	Name																					
1	ClearingFirm																					
2	ClearingAccount																					
4	Price																					
8	ExecInst																					
16	OrdType																					
32	TimeInForce																					
64	MinQty																					
128	MaxFloor																					
NewOrder Bitfield2	36	1	Binary	Bitfield indicating order fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RoutingInst</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RoutingInst
Value	Name																					
1	Symbol																					
2	RESERVED																					
4	RESERVED																					
8	RESERVED																					
16	RESERVED																					
32	RESERVED																					
64	Capacity																					
128	RoutingInst																					
NewOrder Bitfield3	37	1	Binary	Bitfield indicating order fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>DisplayIndicator</td></tr><tr><td>4</td><td>MaxRemovePct</td></tr><tr><td>8</td><td>Discretion Amount</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>Prevent Member Match</td></tr><tr><td>64</td><td>RESERVED</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	Account	2	DisplayIndicator	4	MaxRemovePct	8	Discretion Amount	16	RESERVED	32	Prevent Member Match	64	RESERVED	128	ExpireTime
Value	Name																					
1	Account																					
2	DisplayIndicator																					
4	MaxRemovePct																					
8	Discretion Amount																					
16	RESERVED																					
32	Prevent Member Match																					
64	RESERVED																					
128	ExpireTime																					
NewOrder Bitfield4	38	1	Binary	Bitfield indicating order fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>RiskReset</td></tr><tr><td>16</td><td>OpenClose</td></tr><tr><td>32</td><td>CMTA Number</td></tr></table> <p>Bits 7-8 <i>must</i> be set to 0. It is reserved for future expansion.</p>	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	RiskReset	16	OpenClose	32	CMTA Number				
Value	Name																					
1	MaturityDate																					
2	StrikePrice																					
4	PutOrCall																					
8	RiskReset																					
16	OpenClose																					
32	CMTA Number																					

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NewOrder Bitfield5	39	1	Binary	<div>Bitfield indicating order fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>RESERVED</i></td></tr><tr><td>2</td><td><i>AttributedQuote</i></td></tr><tr><td>4</td><td><i>RESERVED</i></td></tr></table> <div>Bits 4-8 <i>must</i> be set to 0. They are reserved for future expansion.</div>	Value	Name	1	<i>RESERVED</i>	2	<i>AttributedQuote</i>	4	<i>RESERVED</i>
Value	Name											
1	<i>RESERVED</i>											
2	<i>AttributedQuote</i>											
4	<i>RESERVED</i>											
NewOrder Bitfield6	40	1	Binary	All bits <i>must</i> be set to 0. This field is reserved for future expansion.								
Optional fields...												

**Required Order Attributes:**

The following are required to be sent on new orders for instruments traded on BATS:

- some form of symbology (see **Symbology** below).
- a *Price* only (limit orders) or a *Price* and/or *OrdType* (limit or market).
- *Capacity*.
- *OpenClose*.

All other values have defaults. See the table in the **List of Optional Fields** section for additional information about each optional field, including its default value.

**Symbology:**

For BATS US Equities symbology, please refer to the [BATS Symbology Reference](#) document.

**Example New Order Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	5B 00	90 bytes
MessageType	04	New Order
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	64 00 00 00	Sequence Number 100
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
Side	31	Buy
OrderQty	64 00 00 00	100 contracts
NewOrderBitfield1	04	<i>Price</i>
NewOrderBitfield2	C1	<i>Symbol, Capacity, RoutingInst</i>
NewOrderBitfield3	01	<i>Account</i>
NewOrderBitfield4	17	<i>MaturityDate, StrikePrice, PutOrCall, OpenClose</i>
NewOrderBitfield5	00	No optional fields
NewOrderBitfield6	00	No optional fields
Price	70 17 00 00 00 00 00 00	0.60
Symbol	54 4E 44 4D 00 00 00 00	TNDM

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Capacity	43	C = Customer
RoutingInst	52 00 00 00	R = Routable
Account	44 45 46 47 00 00 00 00 00 00	DEFG
	00 00 00 00 00 00	
MaturityDate	EF DB 32 01	20110319
StrikePrice	98 AB 02 00 00 00 00 00	17.50
PutOrCall	31	1 = Call
OpenClose	4F	O = Open

#### 4.1.2 Cancel Order

Request to cancel either a single order using the *ClOrdID* from a previous order, or a group of orders selected by a combination of OSI Root, ClearingFirm and MassCancel. If the *MassCancel* field is supplied, the *OrigClOrdID* must be empty (binary zero).

Field	Offset	Length	Data Type	Description												
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.												
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.												
MessageType	4	1	Binary	0x05												
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.												
SequenceNumber	6	4	Binary	The sequence number for this message..												
OrigClOrdID	10	20	Text	Corresponds to <i>OrigClOrdID</i> (41) in BATS FIX.  ClOrdID of the order to cancel.												
CancelOrder Bitfield1	30	1	Binary	Bitfield indicating cancel fields to follow. Logical OR to include multiple fields. <table border="1"><thead><tr><th>Value</th><th>Name</th></tr></thead><tbody><tr><td>1</td><td><i>ClearingFirm</i></td></tr><tr><td>2</td><td><i>RESERVED</i></td></tr><tr><td>4</td><td><i>MassCancel</i></td></tr><tr><td>8</td><td><i>OsiRoot</i></td></tr><tr><td>16</td><td><i>MassCancelID</i></td></tr></tbody></table> <i>ClearingFirm</i> is required for Service Bureau ports.  Bits 6-8 <i>must</i> be set to 0. They are reserved for future expansion.	Value	Name	1	<i>ClearingFirm</i>	2	<i>RESERVED</i>	4	<i>MassCancel</i>	8	<i>OsiRoot</i>	16	<i>MassCancelID</i>
Value	Name															
1	<i>ClearingFirm</i>															
2	<i>RESERVED</i>															
4	<i>MassCancel</i>															
8	<i>OsiRoot</i>															
16	<i>MassCancelID</i>															
CancelOrder Bitfield2	31	1	Binary	All bits <i>must</i> be set to 0. This field is reserved for future expansion.												
Optional fields...																



### Example Cancel Order Message:

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	26 00	34 bytes
MessageType	05	Cancel Order
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	64 00 00 00	Sequence Number 100
OrigClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
CancelOrder	01	<i>ClearingFirm</i>
Bitfield1		
CancelOrder	00	(empty)
Bitfield2		
ClearingFirm	54 45 53 54	TEST

#### 4.1.3 Modify Order

Request to modify an order. The order attributes to be modified are specified using *ModifyOrderBitfieldOne* and *ModifyOrderBitfieldTwo*.

Only *Price*, *OrderQty* and *OrdType* may be adjusted. Any change in *Price* or any increase in *OrderQty* will result in the order losing its time priority. *OrdType* may be adjusted from Limit to Market.

Other fields (including *ExecInst*) **will be ignored**, and the value from the original order will be re-used. In particular, note that when a Day-ISO is modified the ISO designation is applied to the new order.

Changes in *OrderQty* result in an adjustment of the current order's *OrderQty*. The new *OrderQty* does not directly replace the current order's *LeavesQty*. Rather a delta is computed from the current *OrderQty* and the replacement *OrderQty*. This delta is then applied to the current *LeavesQty*. If the resulting *LeavesQty* is less than or equal to zero, the order is cancelled. This results in safer behavior when the replace request overlaps partial fills for the current order, leaving the Member in total control of the contract exposure of the order.

*MaxFloor* and *DiscretionAmount* are preserved from the original order and applied to the new size and price.

A *Modify Order* should not be issued until the *Order Modified* message for the previous *Modify Order* has been received for that order. The BOE handler will reject a new *Modify Order* if it has not seen the prior *Modify Order* from the Matching Engine.

*Modify Order* requests that merely reduce *OrderQty* may be overlapped if the existing *ClOrdID* is re-used. This is the only case where re-use of the existing *ClOrdID* is allowed.

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Field	Offset	Length	Data Type	Description																		
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.																		
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.																		
MessageType	4	1	Binary	0x06																		
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.																		
SequenceNumber	6	4	Binary	The sequence number for this message.																		
ClOrdID	10	20	Text	New <i>ClOrdID</i> for this order.																		
OrigClOrdID	30	20	Text	Corresponds to <i>OrigClOrdID</i> (41) in BATS FIX.  <i>ClOrdID</i> of the order to replace.  In the case of multiple changes to a single order, this will be the <i>ClOrdID</i> of the most recently accepted change.																		
ModifyOrder Bitfield1	50	1	Binary	Bitfield indicating order modify fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>ClearingFirm</i></td></tr><tr><td>2</td><td><i>RESERVED</i></td></tr><tr><td>4</td><td><i>OrderQty</i></td></tr><tr><td>8</td><td><i>Price</i></td></tr><tr><td>16</td><td><i>OrdType</i></td></tr><tr><td>32</td><td><i>CancelOrig OnReject</i></td></tr><tr><td>64</td><td><i>ExecInst</i></td></tr><tr><td>128</td><td><i>RESERVED</i></td></tr></table> <i>OrderQty</i> must be present on all Modify Order requests. Modify Order messages without <i>OrderQty</i> will be rejected.  <i>Price</i> must now be present on all Modify Order requests for limit orders. Modify Order messages without <i>Price</i> will be rejected.  <i>ClearingFirm</i> is required for Service Bureau ports.	Value	Name	1	<i>ClearingFirm</i>	2	<i>RESERVED</i>	4	<i>OrderQty</i>	8	<i>Price</i>	16	<i>OrdType</i>	32	<i>CancelOrig OnReject</i>	64	<i>ExecInst</i>	128	<i>RESERVED</i>
Value	Name																					
1	<i>ClearingFirm</i>																					
2	<i>RESERVED</i>																					
4	<i>OrderQty</i>																					
8	<i>Price</i>																					
16	<i>OrdType</i>																					
32	<i>CancelOrig OnReject</i>																					
64	<i>ExecInst</i>																					
128	<i>RESERVED</i>																					
ModifyOrder Bitfield2	51	1	Binary	All bits <i>must</i> be set to 0. This field is reserved for future expansion.																		
Optional fields...																						

**Example Modify Order Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	3E 00	62 bytes
MessageType	06	Modify Order
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	64 00 00 00	Sequence Number 100
CIOrdID	41 42 43 31 32 34 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC124
OrigCIOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
ModifyOrder	0C	<i>OrderQty, Price</i>
Bitfield1		
ModifyOrder	00	(empty)
Bitfield2		
OrderQty	E0 2E 00 00	12,000 contracts
Price	3A E2 01 00 00 00 00 00	12.345

#### 4.1.4 Bulk Order

Request to place new orders and/or cancel existing orders pertaining to multiple series of a single OSI root. The order attributes in common among all the orders are specified once, and the attributes that differ for each individual order are specified in an array at the end of the message. **This array must contain at least 1 and not more than 200 repeating groups.**

In each repeating group, the symbol (BATS native format) is always required; beyond that, the bits in the *BulkOrderGroupBitfields* control which fields are expected. If a field is present in the repeating group for which there is a corresponding field in the non-repeating part of the message (e.g. *OrderQty*), the value in the repeating group is always used.

Cancels are specified by using a price of zero and an order quantity of zero.

When sending a two-sided bulk order, one may select one side where nothing should be changed by sending a non-zero *Price* and a zero *OrderQty* for the desired side. This particular combination tells the system to do nothing to the existing quote on this side.

Note that, for the same side (buy or sell) of a given symbol, non-zero bulk orders behave like new orders or cancel/replace orders, depending on whether an earlier bulk order is currently active for that symbol.

Intermarket sweep and routable orders are not supported.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.

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MessageType	4	1	Binary	0x14																		
MatchingUnit	5	1	Binary	Always 0 for inbound (Member to BATS) messages.																		
SequenceNumber	6	4	Binary	The sequence number for this message..																		
ClOrdIDBatch	10	20	Text	<p>Day-unique ID chosen by the client. Characters in the ASCII range 33-126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the ClOrdIDBatch matches a live bulk order, the entire batch will be rejected as duplicate.</p> <p><b>Note: BATS only enforces uniqueness of ClOrdIDBatch values among currently live bulk orders. However, we <i>strongly</i> recommend that you keep your ClOrdIDBatch values day-unique.</b></p>																		
OsiRoot	30	6	Text	The OSI root symbol. Each symbol in the repeating groups must refer to a contract on this OSI root.																		
OrderQty	36	4	Binary	The order quantity to apply to each new order if the corresponding <i>BidOrderQty</i> or <i>AskOrderQty</i> is not specified in the <i>BulkOrderGroupBitfields</i> .																		
GroupCnt	40	2	Binary	Number of repeating groups included in bulk order.																		
NewOrderBitfield1	42	1	Binary	<p>Bitfield indicating order fields to follow. Logical OR to include multiple fields.</p> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>ClearingFirm</i></td></tr><tr><td>2</td><td><i>ClearingAccount</i></td></tr><tr><td>4</td><td><i>RESERVED</i></td></tr><tr><td>8</td><td><i>ExecInst</i></td></tr><tr><td>16</td><td><i>OrdType</i></td></tr><tr><td>32</td><td><i>TimenInForce</i></td></tr><tr><td>64</td><td><i>MinQty</i></td></tr><tr><td>128</td><td><i>MaxFloor</i></td></tr></table> <p>Bit 8 <i>must</i> be set to 0. It is reserved for future expansion.</p>	Value	Name	1	<i>ClearingFirm</i>	2	<i>ClearingAccount</i>	4	<i>RESERVED</i>	8	<i>ExecInst</i>	16	<i>OrdType</i>	32	<i>TimenInForce</i>	64	<i>MinQty</i>	128	<i>MaxFloor</i>
Value	Name																					
1	<i>ClearingFirm</i>																					
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8	<i>ExecInst</i>																					
16	<i>OrdType</i>																					
32	<i>TimenInForce</i>																					
64	<i>MinQty</i>																					
128	<i>MaxFloor</i>																					

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NewOrder Bitfield2	43	1	Binary	<div>Bitfield indicating order fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>RESERVED</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RoutingInst*</td></tr></table> <div>* Note that the <i>RoutingInst</i> field supports limited values for Bulk Order messages. Refer to the <b>List of Optional Fields</b> section for more information.</div>	Value	Name	1	RESERVED	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RoutingInst*
Value	Name																					
1	RESERVED																					
2	RESERVED																					
4	RESERVED																					
8	RESERVED																					
16	RESERVED																					
32	RESERVED																					
64	Capacity																					
128	RoutingInst*																					
NewOrder Bitfield3	44	1	Binary	<div>Bitfield indicating order fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>DisplayIndicator</td></tr><tr><td>4</td><td>MaxRemovePct</td></tr><tr><td>8</td><td>Discretion Amount</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>Prevent Member Match</td></tr><tr><td>64</td><td>RESERVED</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	Account	2	DisplayIndicator	4	MaxRemovePct	8	Discretion Amount	16	RESERVED	32	Prevent Member Match	64	RESERVED	128	ExpireTime
Value	Name																					
1	Account																					
2	DisplayIndicator																					
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8	Discretion Amount																					
16	RESERVED																					
32	Prevent Member Match																					
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NewOrder Bitfield4	45	1	Binary	<div>Bitfield indicating order fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>RESERVED</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RiskReset*</td></tr><tr><td>16</td><td>OpenClose</td></tr><tr><td>32</td><td>CMTA Number</td></tr></table> <div>Bit 7-8 <i>must</i> be set to 0. It is reserved for future expansion.</div> <div>* Note that Risk Resets are only honored if at least one new order is accepted. For example, if all new orders are rejected due to a port rate exceeded violation, your risk reset request will be ignored.</div>	Value	Name	1	RESERVED	2	RESERVED	4	RESERVED	8	RiskReset*	16	OpenClose	32	CMTA Number				
Value	Name																					
1	RESERVED																					
2	RESERVED																					
4	RESERVED																					
8	RiskReset*																					
16	OpenClose																					
32	CMTA Number																					

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NewOrder Bitfield5	46	1	Binary	Bitfield indicating order fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>RESERVED</td></tr><tr><td>2</td><td>AttributedQuote</td></tr></table> Bits 3-8 <i>must</i> be set to 0. They are reserved for future expansion.	Value	Name	1	RESERVED	2	AttributedQuote				
Value	Name													
1	RESERVED													
2	AttributedQuote													
NewOrder Bitfield6	47	1	Binary	All bits <i>must</i> be set to 0. This field is reserved for future expansion.										
BulkOrderGroup Bitfield1	48	1	Binary	Bitfield indicating order fields to follow in repeating group of a Bulk Order message. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>BidShortPrice</td></tr><tr><td>2</td><td>BidOrderQty</td></tr><tr><td>4</td><td>BidDiscretionAmount</td></tr><tr><td>8</td><td>BidOpenClose</td></tr></table> Bits 5-8 <i>must</i> be set to 0. They are reserved for future expansion.	Value	Name	1	BidShortPrice	2	BidOrderQty	4	BidDiscretionAmount	8	BidOpenClose
Value	Name													
1	BidShortPrice													
2	BidOrderQty													
4	BidDiscretionAmount													
8	BidOpenClose													
BulkOrderGroup Bitfield2	49	1	Binary	Bitfield indicating order fields to follow in repeating group of a Bulk Order message. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>AskShortPrice</td></tr><tr><td>2</td><td>AskOrderQty</td></tr><tr><td>4</td><td>AskDiscretionAmount</td></tr><tr><td>8</td><td>AskOpenClose</td></tr></table> Bits 5-8 <i>must</i> be set to 0. They are reserved for future expansion.	Value	Name	1	AskShortPrice	2	AskOrderQty	4	AskDiscretionAmount	8	AskOpenClose
Value	Name													
1	AskShortPrice													
2	AskOrderQty													
4	AskDiscretionAmount													
8	AskOpenClose													
Optional fields...														
Repeating Groups of...														
Symbol (required)		6	Alphanumeric	Corresponds to <i>Symbol</i> (55) in BATS FIX.  Uniform symbology identifier for the instrument. BATS Symbol Only.										
BidShortPrice (optional)		4	Short Binary Price	The <b>BID</b> side <i>Price</i> . Corresponds to <i>Price</i> (44) in BATS FIX.  Limit price for a new Buy order. Four implied decimal places. Must be present to initiate a Buy order.										

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BidOrderQty (optional)		4	Binary	The <b>BID</b> side <i>OrderQty</i> . Corresponds to <i>OrderQty</i> (38) in BATS FIX.  Number of contracts for the Buy order. If not present, the <i>OrderQty</i> from the main part of the message is used.
BidDiscretion Amount (optional)		2	Binary	The <b>BID</b> side <i>DiscretionAmount</i> . Corresponds to <i>DiscretionAmount</i> (9622) in BATS FIX.
BidOpenClose (optional)		1	Alphanumeric	The <b>BID</b> side <i>OpenClose</i> . Corresponds to <i>OpenClose</i> (77) in BATS FIX.
AskShortPrice (optional)		4	Short Binary Price	The <b>ASK</b> side <i>Price</i> . Corresponds to <i>Price</i> (44) in BATS FIX.  Limit price for a new Sell order. Four implied decimal places. Must be present to initiate a Sell order.
AskOrderQty (optional)		4	Binary	The <b>ASK</b> side <i>OrderQty</i> . Corresponds to <i>OrderQty</i> (38) in BATS FIX.  Number of contracts for the Sell order. If not present, the <i>OrderQty</i> from the main part of the message is used.
AskDiscretion Amount (optional)		2	Binary	The <b>ASK</b> side <i>DiscretionAmount</i> . Corresponds to <i>DiscretionAmount</i> (9622) in BATS FIX.
AskOpenClose (optional)		1	Alphanumeric	The <b>ASK</b> side <i>OpenClose</i> . Corresponds to <i>OpenClose</i> (77) in BATS FIX.

**Required Order Attributes:**

Beyond the required fields listed above for the message as a whole, each group sent in the bulk section must contain a BATS symbol, *Capacity*, *OpenClose* and at least one of *BidShortPrice* or *AskShortPrice*.

A cancel may be effected by sending a price and order quantity of zero. In this case, any open order that exists because of an earlier Bulk Order on that symbol is cancelled. Note that individual orders entered using the New Order message cannot be cancelled through the Bulk Order message.

All other values have defaults. See the table in the **List of Optional Fields** section for additional information about each optional field, including its default value.

**Symbology:**

For BATS Symbology, please refer to the [BATS Symbology Reference](#) document. Note that OSI symbol cannot be used in the Bulk Order message – only the BATS symbol is accepted.

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**Example Bulk Order Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	70 00	112 bytes
MessageType	14	Bulk Order
MatchingUnit	00	Always 0 for inbound messages
SequenceNumber	64 00 00 00	Sequence Number 100
ClOrdIDBatch	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OsiRoot	41 42 43 00 00 00	ABC
OrderQty	00 00 00 00	OrderQty (unused)
OrderCnt	03 00	3 symbols
NewOrderBitfield1	00	No optional fields
NewOrderBitfield2	40	<i>Capacity</i>
NewOrderBitfield3	01	<i>Account</i>
NewOrderBitfield4	30	<i>OpenClose, CMTA Number</i>
NewOrderBitfield5	00	No optional fields
NewOrderBitfield6	00	No optional fields
BulkOrderGroup	03	<i>BidShortPrice, BidOrderQty</i>
Bitfield1		
BulkOrderGroup	00	No optional ask fields
Bitfield2		
Capacity	46	F = Firm
Account	44 45 46 47 00 00 00 00 00 00 00 00 00 00 00 00	DEFG
OpenClose	4F	O = Open
CMTANumber	CF 07 00 00	1999 - CMTA Number
Symbol	30 30 36 69 70 41	006ipA
BidShortPrice	C8 32 00 00	1.30
BidOrderQty	E8 03 00 00	1000 contracts
Symbol	30 30 32 55 6F 58	002UoX
BidShortPrice	7C 15 00 00	0.55
BidOrderQty	64 00 00 00	100 contracts
Symbol	30 30 34 63 53 73	004cSs
BidShortPrice	AC 07 01 00	6.75
BidOrderQty	F4 01 00 00	500 contracts



## 4.2 BATS to Member

### 4.2.1 Order Acknowledgement

Order Acknowledgement messages are sent in response to a New Order message. The message corresponds to a FIX Execution Report with *ExecType* (150) = 0 (New).

Per the instructions given in the Login Request, optional fields may be appended to echo back information provided in the original New Order message. Fields which have been requested to be echoed back, but which were not filled in will still be sent and will be filled with binary zero (0x00).

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x0A
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	Echoed back from the original New Order message.
OrderID	38	8	Binary	Corresponds to <i>OrderID</i> (37) in BATS FIX. Order identifier supplied by BATS. This identifier corresponds to the identifiers used in BATS market data products.

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Order Acknowledgement Bitfields	46	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.																																																																																																														
				<table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td rowspan="9">0</td><td rowspan="9">ReturnBitfield1</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table></td></tr><tr><td rowspan="9">1</td><td rowspan="9">ReturnBitfield2</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table></td></tr><tr><td rowspan="8">2</td><td rowspan="8">ReturnBitfield3</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table></td></tr><tr><td rowspan="7">3</td><td rowspan="7">ReturnBitfield4</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch (empty)</td></tr><tr><td>32</td><td>RESERVED</td></tr></table></td></tr><tr><td rowspan="8">4</td><td rowspan="8">ReturnBitfield5</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table></td></tr><tr><td>5</td><td></td><td>Reserved For Future Use</td></tr><tr><td>6</td><td></td><td>Reserved For Future Use</td></tr></table>	Byte	Name	Description	0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1	ReturnBitfield2	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED	2	ReturnBitfield3	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3	ReturnBitfield4	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch (empty)</td></tr><tr><td>32</td><td>RESERVED</td></tr></table>	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch (empty)	32	RESERVED	4	ReturnBitfield5	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity Indicator	128	ExpireTime	5		Reserved For Future Use	6		Reserved For Future Use
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4	ReturnBitfield5	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity Indicator	128	ExpireTime																																																																																														
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5		Reserved For Future Use																																																																																																																
6		Reserved For Future Use																																																																																																																
Reserved	53	1	Binary	Reserved for BATS Internal Use																																																																																																														
Optional Fields...																																																																																																																		

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**Example Order Acknowledgement Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	52 00	82 bytes
MessageType	0A	Order Acknowledgement
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderID	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
Order	00 01 06 1F 00 00 00	01 = <i>Symbol</i>
Acknowledgement		06 = <i>ClearingFirm, ClearingAccount</i>
Bitfields		1F = <i>MaturityDate, StrikePrice, PutOrCall, OpenClose</i>
BATS Internal	00	
Symbol	54 4E 44 4D 00 00 00 00	TNDM
ClearingFirm	54 45 53 54	TEST
ClearingAccount	00 00 00 00	(empty)
MaturityDate	EF DB 32 01	20110319
StrikePrice	98 AB 02 00 00 00 00 00	17.50
PutOrCall	31	1 = Call
OpenClose	4F	O = Open

**Minimal Order Acknowledgement Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	34 00	52 bytes
MessageType	0A	Order Acknowledgement
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderID	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
Order	00 00 00 00 00 00 00	No optional fields
Acknowledgement		
Bitfields		
BATS_Internal	00	

#### 4.2.2 Bulk Order Acknowledgement

Bulk Order Acknowledgement messages are sent in response to a Bulk Order message. Each Bulk Order message generates exactly one Bulk Order Acknowledgement, with the possibility of one or more Order Rejected or Cancel Rejected messages relating to the bulk order in between. Note that other BATS to Member messages may be interspersed with these (i.e. the Bulk Order to Bulk Order Acknowledgement sequence is not atomic).

Note that there are no optional returned fields in the Bulk Order Acknowledgement message.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x15
MatchingUnit	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
SequenceNumber	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
TransactionTime	10	8	DateTime	The time stamped in the order entry gateway when the final matching engine event was received to complete the bulk order.
ClOrdIDBatch	18	20	Text	Echoed back from the original Bulk Order message.
AcceptedCount	38	2	Binary	The number of accepted orders (with either new or cancel/replace semantics) from the original Bulk Order message.
RejectedCount	40	2		The number of rejected orders from the original Bulk Order message. Note that if <i>RejectedCount</i> and <i>AcceptedCount</i> fields are both zero, this indicates a batch-level reject of the Bulk Order message (no individual Order Rejected messages will be sent), in which case the <i>OrderRejectReason</i> and <i>Text</i> fields will be populated.

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OrderRejectReason	42	1	Text	Reason for an order rejection.  A = Admin D = Duplicate <i>ClOrdID</i> I = Incorrect Data Center K = Order Rate Threshold Exceeded P = Can't Modify an Order That is Pending Fill Q = Waiting For First Trade R = Routing Unavailable Y = <i>Symbol</i> Not Supported Z = Unforeseen Reason m = Market Access Risk Limit Exceeded o = Max Open Orders Count Exceeded y = Order received by BATS during replay
Text	43	60	Text	Human readable text with more information about the reject reason.

**Example Bulk Order Acknowledgement Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	5D 00	101 bytes
MessageType	15	Bulk Order Acknowledgement
MatchingUnit	00	Unsequenced Message, unit = 0
SequenceNumber	00 00 00 00	Unsequenced Message, unit = 0
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdIDBatch	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
AcceptedCount	11 00	17 accepted orders
RejectedCount	03 00	3 rejected orders
OrderRejectReason	00	(empty – batch not rejected)
Text	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	(empty)

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### 4.2.3 Order Rejected

Order Rejected messages are sent in response to a New Order which must be rejected. This message corresponds to a FIX Execution Report with *ExecType* (150) = 8 (Rejected). Order Rejected messages are unsequenced.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x0B
MatchingUnit	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
SequenceNumber	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	Echoed back from the original New Order or Bulk Order message.
OrderRejectReason	38	1	Text	Reason for an order rejection.  A = Admin D = Duplicate <i>ClOrdID</i> H = Halted I = Incorrect Data Center K = Order Rate Threshold Exceeded L = Order would lock or cross NBBO N = Ran Out of Liquidity to Execute Against O = <i>ClOrdID</i> Doesn't Match a Known Order P = Can't Modify an Order That is Pending Fill Q = Waiting For First Trade R = Routing Unavailable U = User Requested V = Would Wash W = Add Liquidity Only Order Would Remove X = Order Expired Y = <i>Symbol</i> Not Supported Z = Unforeseen Reason c = Only Close Transactions Accepted f = Risk Management Firm Level m = Market Access Risk Limit Exceeded o = Max Open Orders Count Exceeded r = Reserve Reload s = Risk Management Symbol Level x = Crossed Market y = Order received by BATS during replay
Text	39	60	Text	Human readable text with more information about the reject reason.

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Order Rejected Bitfields	99	7	Binary	Bitfields indicating message fields to follow. See the List of Return Bitfields section.			
				<i>Byte</i>	<i>Name</i>	<i>Description</i>	
				0	ReturnBitfield1	<b>Value</b>	<b>Name</b>
						1	Side
						2	RESERVED
						4	Price
						8	ExecInst
						16	OrdType
						32	TimeInForce
						64	MinQty
						128	MaxRemovePct
				1	ReturnBitfield2	<b>Value</b>	<b>Name</b>
						1	Symbol
						2	RESERVED
						4	RESERVED
						8	RESERVED
						16	RESERVED
						32	RESERVED
						64	Capacity
						128	RESERVED
				2	ReturnBitfield3	<b>Value</b>	<b>Name</b>
						1	Account
						2	ClearingFirm
						4	ClearingAccount
						8	DisplayIndicator
						16	MaxFloor
						32	DiscretionAmount
						64	OrderQty
						128	PreventMember Match
				3	ReturnBitfield4	<b>Value</b>	<b>Name</b>
						1	MaturityDate
						2	StrikePrice
						4	PutOrCall
						8	OpenClose
						16	ClOrdIDBatch
						32	RESERVED
				4		Reserved For Future Use	
				5		Reserved For Future Use	
				6		Reserved For Future Use	
				Reserved	106	1	Binary
Optional Fields...							

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**Example Order Rejected Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	87 00	135 bytes
MessageType	0B	Order Rejected
MatchingUnit	00	Unsequenced Message, unit = 0
SequenceNumber	00 00 00 00	Unsequenced Message, seq. = 0
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
CIOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderReject Reason	44	D
Text	44 75 70 6C 69 63 61 74 65 20 43 6C 4F 72 64 49 44 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Duplicate CIOrdID
OrderRejected Bitfields	00 01 06 1F 00 00 00	01 = Symbol 06 = ClearingFirm, ClearingAccount 1F = PutOrCall, OpenClose, StrikePrice, MaturityDate
BATS Internal Symbol	00	
ClearingFirm	54 4E 44 4D 00 00 00 00	TNDM
ClearingAccount	54 45 53 54	TEST
MaturityDate	00 00 00 00	(empty)
StrikePrice	EF DB 32 01	20110319
PutOrCall	98 AB 02 00 00 00 00 00	17.50
OpenClose	31	1 = Call
	4F	O = Open

#### 4.2.4 Order Modified

Order Modified messages are sent in response to a Modify Order request to indicate that the order has been successfully modified.

**Note:** It is highly advised that all Members opt-in to receiving *LeavesQty* on Order Modified messages. In certain cases, the last message to be received on an order's lifecycle will be an Order Modified message. In such cases, to know the order is no longer live you must inspect *LeavesQty*. An example of this behavior would be modification of an order whilst an execution is being generated, resulting in the order being reduced to zero outstanding shares.

To maintain compatibility with Members who have already implemented BOE, this field will remain in the optional block.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the



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				<i>StartOfMessage</i> field.																																																																								
MessageType	4	1	Binary	0x0C																																																																								
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.																																																																								
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.																																																																								
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).																																																																								
ClOrdID	18	20	Text	Client order ID. This is the <i>ClOrdID</i> from the <i>Modify Order</i> message.																																																																								
OrderID	38	8	Binary	Corresponds to <i>OrderID</i> (37) in BATS FIX.  The unique OrderID. Modifications do <i>not</i> change the OrderID.																																																																								
Order Modified Bitfields	46	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section. <table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td rowspan="8">0</td><td rowspan="8">ReturnBitfield1</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table></td></tr><tr><td>1</td><td></td><td>Reserved For Future Use</td></tr><tr><td rowspan="8">2</td><td rowspan="8">ReturnBitfield3</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table></td></tr><tr><td>3</td><td></td><td>Reserved For Future Use</td></tr><tr><td rowspan="8">4</td><td rowspan="8">ReturnBitfield5</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table></td></tr></table>	Byte	Name	Description	0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1		Reserved For Future Use	2	ReturnBitfield3	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3		Reserved For Future Use	4	ReturnBitfield5	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity Indicator	128	ExpireTime
Byte	Name	Description																																																																										
0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2			RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct																																																						
		Value	Name																																																																									
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		Value	Name																																																																									
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64	BaseLiquidity Indicator																																																																											
128	ExpireTime																																																																											

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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)
						Value	Name							
						1	SecondaryOrderID							
						2	RESERVED							
				4	ContraCapacity (empty)									
6		Reserved For Future Use												
Reserved	53	1	Binary	Reserved for BATS Internal Use										
Optional Fields...														

**Example Order Modified Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	4C 00	76 bytes
MessageType	0C	Order Modified
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderID	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
OrderModified	04 00 00 00 30 00 00	04 = Price
Bitfields		30 = DisplayPrice, WorkingPrice
BATS Internal	00	
Price	3A E2 01 00 00 00 00 00	12.345
DisplayPrice	3A E2 01 00 00 00 00 00	12.345
WorkingPrice	3A E2 01 00 00 00 00 00	12.345

#### 4.2.5 Order Restated

Order Restated messages are sent to inform the Member that an order has been asynchronously modified for some reason without an explicit Modify Order request having been sent.

Some example (non-exhaustive) reasons for Order Restated messages being sent:

- A reserve (iceberg) order has been reloaded.
- An order's remaining quantity was decremented because of a prevented wash trade.
- A recycle order has returned to rest on the book after matching liquidity on another market.
- Resting order transitions from a liquidity adder to a liquidity remover or a routed order returns to the book. This can occur as a result of discretion, when a peg order moves into another order, or an orde returns from its initial route attempt.

Members should be prepared to accept and apply Order Restated messages for any reason.

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The *OrderRestatedBitfield1* and *OrderRestatedBitfield2* fields indicate the characteristics of the order which have changed. Optional fields will be present at the end of the message with the new values.

**Note:** It is highly advised that all Members opt-in to receiving *LeavesQty* on *Order Restated* messages. In some cases, the last message to be received on an order's lifecycle will be an *Order Restated* message. In such cases, to know the order is no longer live you must inspect *LeavesQty*. An example of this behavior would be restatement of an order in certain cases due to *PreventMemberMatch* being set to 'd'.

To maintain compatibility with Members who have already implemented BOE, this field will remain in the optional block.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x0D
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	Client order ID. For user modifies, this is the <i>ClOrdID</i> from the <i>Modify Order</i> message. For unsolicited modifications, the <i>ClOrdID</i> is the identifier from the open order.
OrderID	38	8	Binary	Corresponds to <i>OrderID</i> (37) in BATS FIX.  The unique OrderID. For informational purposes only. Modifications do <i>not</i> change the OrderID.
Restatement Reason	46	1	Alphanumeric	The reason for this Order Restated message.  R = Reroute W = Wash L = Reload Q = Liquidity Updated  BATS reserves the right to add new values as necessary without prior notice.

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Order Restated Bitfields	47	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.																																																																																																					
				<table><tr><th>Byte</th><th>Name</th><th colspan="2">Description</th></tr><tr><td rowspan="9">0</td><td rowspan="9">ReturnBitfield1</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr><tr><td rowspan="9">1</td><td rowspan="9">ReturnBitfield2</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr><tr><td rowspan="9">2</td><td rowspan="9">ReturnBitfield3</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr><tr><td rowspan="7">3</td><td rowspan="7">ReturnBitfield4</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td rowspan="9">4</td><td rowspan="9">ReturnBitfield5</td><td>Value</td><td>Name</td></tr><tr><td>1</td><td>OrigClOrdID</td></tr><tr><td>2</td><td>LeavesQty</td></tr><tr><td>4</td><td>LastShares</td></tr><tr><td>8</td><td>LastPx</td></tr><tr><td>16</td><td>DisplayPrice</td></tr><tr><td>32</td><td>WorkingPrice</td></tr><tr><td>64</td><td>BaseLiquidity Indicator</td></tr><tr><td>128</td><td>ExpireTime</td></tr></table>	Byte	Name	Description		0	ReturnBitfield1	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1	ReturnBitfield2	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED	2	ReturnBitfield3	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3	ReturnBitfield4	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch	32	RESERVED	4	ReturnBitfield5	Value	Name	1	OrigClOrdID	2	LeavesQty	4	LastShares	8	LastPx	16	DisplayPrice	32	WorkingPrice	64	BaseLiquidity Indicator	128	ExpireTime	
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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)
						Value	Name							
						1	SecondaryOrderID							
						2	RESERVED							
				4	ContraCapacity (empty)									
6		Reserved For Future Use												
Reserved	54	1	Binary	Reserved for BATS Internal Use										
Optional Fields...														

**Example Order Restated Message for a reserve (iceberg) reload:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	3D 00	61 bytes
MessageType	0D	Order Restated
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
CIOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderID	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
Restatement	4C	L = Reload
Reason		
OrderRestated	00 00 00 00 00 01 00	01 = SecondaryOrderID
BATS Internal	00	
SecondaryOrderID	0A 10 1E B7 5E 39 2F 02	171WC100000A (base 36)

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#### 4.2.6 User Modify Rejected

User Modify Rejected messages are sent in response to a Modify Order for an order which cannot be modified. User Modify Rejected messages are unsequenced.

This message corresponds to a FIX Execution Report with *MsgType* (35) = 9 (Order Cancel Reject) and *CxlRejResponseTo* (434) = 2 (Order Cancel/Replace Request).

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x0E
MatchingUnit	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
SequenceNumber	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	The <i>ClOrdID</i> of the modify request which was rejected.
ModifyReject Reason	38	1	Text	Reason for a modify rejection.  A = Admin D = Duplicate <i>ClOrdID</i> H = Halted I = Incorrect Data Center K = Order Rate Threshold Exceeded L = Order would lock or cross NBBO M = MaxSize Exceeded N = Ran Out of Liquidity to Execute Against O = <i>ClOrdID</i> Doesn't Match a Known Order P = Can't Modify an Order That is Pending Fill R = Routing Unavailable V = Would Wash W = Add Liquidity Only Order Would Remove X = Order Expired Y = <i>Symbol</i> Not Supported Z = Unforeseen Reason m = Market Access Risk Limit Exceeded r = Reserve Reload f = Risk Management Firm Level s = Risk Management Symbol Level c = Only Close Transactions Accepted x = Crossed Market y = Modify received by BATS during replay
Text	39	60	Text	Human readable text with more information

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				about the reject reason.																								
User Modified Rejected Bitfields	99	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section. <table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td>0</td><td></td><td>Reserved For Future Use</td></tr><tr><td>1</td><td></td><td>Reserved For Future Use</td></tr><tr><td>2</td><td></td><td>Reserved For Future Use</td></tr><tr><td>3</td><td></td><td>Reserved For Future Use</td></tr><tr><td>4</td><td></td><td>Reserved For Future Use</td></tr><tr><td>5</td><td></td><td>Reserved For Future Use</td></tr><tr><td>6</td><td></td><td>Reserved For Future Use</td></tr></table>	Byte	Name	Description	0		Reserved For Future Use	1		Reserved For Future Use	2		Reserved For Future Use	3		Reserved For Future Use	4		Reserved For Future Use	5		Reserved For Future Use	6		Reserved For Future Use
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5		Reserved For Future Use																										
6		Reserved For Future Use																										
Reserved	106	1	Binary	Reserved for BATS Internal Use																								
Optional Fields...																												

**Example User Modify Rejected Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	69 00	105 bytes
MessageType	0E	User Modify Rejected
MatchingUnit	00	Unsequenced Message, unit = 0
SequenceNumber	00 00 00 00	Unsequenced Message, seq. = 0
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
ModifyReject Reason	50	Pending Fill
Text	50 65 6E 64 69 6E 67 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Pending
UserModify RejectedBitfields	00 00 00 00 00 00 00	No optional fields
BATS Internal	00	

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#### 4.2.7 Order Cancelled

An order has been cancelled.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x0F
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	The order which was cancelled.
Cancel Reason	38	1	Text	Reason for the order cancellation.  A = Admin D = Duplicate <i>ClOrdID</i> H = Halted L = Order would lock or cross NBBO N = Ran Out of Liquidity to Execute Against R = Routing Unavailable T = Fill would trade-through NBBO U = User Requested V = Would Wash W = Add Liquidity Only Order Would Remove X = Order Expired Z = Unforeseen Reason f = Risk Management Firm Level m= Market Access Risk Limit Exceeded s = Risk Management Symbol Level u = User Requested (delayed due to order being route pending) x = Crossed Market



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Order Cancelled Bitfields	39	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.		
				Byte	Name	Description
			0	ReturnBitfield1	Value	Name
					1	Side
					2	RESERVED
					4	Price
					8	ExecInst
					16	OrdType
					32	TimeInForce
					64	MinQty
					128	MaxRemovePct
			1	ReturnBitfield2	Value	Name
					1	Symbol
					2	RESERVED
					4	RESERVED
					8	RESERVED
					16	RESERVED
					32	RESERVED
					64	Capacity
					128	RESERVED
			2	ReturnBitfield3	Value	Name
					1	Account
					2	ClearingFirm
					4	ClearingAccount
					8	DisplayIndicator
					16	MaxFloor
					32	DiscretionAmount
					64	OrderQty
					128	PreventMember Match
			3	ReturnBitfield4	Value	Name
					1	MaturityDate
					2	StrikePrice
					4	PutOrCall
					8	OpenClose
					16	ClOrdIDBatch
					32	RESERVED
			4	ReturnBitfield5	Value	Name
					1	OrigClOrdID
					2	LeavesQty
					4	LastShares
					8	LastPx
					16	DisplayPrice
					32	WorkingPrice
					64	BaseLiquidity Indicator
					128	ExpireTime

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				5	ReturnBitfield6	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>SecondaryOrderID</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>ContraCapacity (empty)</td></tr></table>	Value	Name	1	SecondaryOrderID	2	RESERVED	4	ContraCapacity (empty)
						Value	Name							
						1	SecondaryOrderID							
						2	RESERVED							
				4	ContraCapacity (empty)									
6		Reserved For Future Use												
Reserved	46	1	Binary	Reserved for BATS Internal Use										
Optional Fields...														

**Example Order Cancelled Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	49 00	73 bytes
MessageType	0F	Order Cancelled
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
Cancel Reason	55	U = User Requested
OrderCancelled	00 00 06 00 01 00 00	06 = ClearingFirm, ClearingAccount
Bitfields		01 = OrigClOrdID
BATS Internal	00	
ClearingFirm	54 45 53 54	TEST
ClearingAccount	41 42 43 44	ABCD
OrigClOrdID	41 42 43 31 32 31 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC121

#### 4.2.8 Cancel Rejected

A Cancel Rejected message is sent in response to a Cancel Order message to indicate that the cancellation cannot occur. Cancel Rejected messages are unsequenced.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the StartOfMessage field.
MessageType	4	1	Binary	0x10
MatchingUnit	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
SequenceNumber	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).

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ClOrdID	18	20	Text	<p>The order whose cancel was rejected.</p> <p>If this Cancel Rejected message pertains to Cancel Order that includes a <i>MassCancelID</i>, the <i>MassCancelID</i> will be echoed back.</p>																																																																				
CancelReject Reason	38	1	Text	<p>Reason for a cancel rejection.</p> <p>A = Admin I = Incorrect Data Center J = Too late to cancel P = Can't Modify an Order That is Pending Fill O = <i>ClOrdID</i> Doesn't Match a Known Order b = Broker Option y = Cancel received by BATS during replay</p>																																																																				
Text	39	60	Text	Human readable text with more information about the reject reason.																																																																				
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				5		Reserved For Future Use
				6		Reserved For Future Use
Reserved	106	1	Binary	Reserved for BATS Internal Use		
Optional Fields...						

**Example Cancel Rejected Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	69 00	105 bytes
MessageType	10	Cancel Rejected
MatchingUnit	00	Unsequenced Message, unit = 0
SequenceNumber	00 00 00 00	Unsequenced Message, seq. = 0
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
CancelReject Reason	4A	J
Text	54 4F 4F 20 4C 41 54 45 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	TOO LATE
CancelRejected Bitfields	00 00 00 00 00 00 00	No optional fields
BATS Internal	00	

#### 4.2.9 Order Execution

An Order Execution is sent for each fill on an order.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x11
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	Order ID of the order receiving the execution.

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ExecID	38	8	Binary	<p>Corresponds to <i>ExecID</i> (17) in BATS FIX.</p> <p>Execution ID. Unique across all units on a given day. <b>Note: <i>ExecIDs</i> will be represented on ODROP, FIXDROP and standard DROP ports as base 36 ASCII.</b></p> <p>Example conversion:</p> <table><tr><th>Decimal</th><th>Base 36</th></tr><tr><td>28294005440239</td><td>A1234B567</td></tr><tr><td>76335905726621</td><td>R248BC23H</td></tr><tr><td>728557228187</td><td>09AP05V2Z</td></tr></table>	Decimal	Base 36	28294005440239	A1234B567	76335905726621	R248BC23H	728557228187	09AP05V2Z
Decimal	Base 36											
28294005440239	A1234B567											
76335905726621	R248BC23H											
728557228187	09AP05V2Z											
LastShares	46	4	Binary	<p>Corresponds to <i>LastShares</i> (32) in BATS FIX.</p> <p>Executed contract quantity.</p>								
LastPx	50	8	Binary Price	<p>Corresponds to <i>LastPx</i> (31) in BATS FIX.</p> <p>Price of this fill.</p>								
LeavesQty	58	4	Binary	<p>Corresponds to <i>LeavesQty</i> (151) in BATS FIX.</p> <p>Quantity still open for further execution. Will be zero if order is dead.</p>								
BaseLiquidity Indicator	62	1	Alphanumeric	<p>Indicates whether the trade added or removed liquidity, or was routed to another market.</p> <p>A = Added Liquidity R = Removed Liquidity X = Routed to Another Market W = Options WAIT Order</p>								
SubLiquidity Indicator	63	1	Alphanumeric	<p>Additional information about an execution. <b>BATS may add additional values without notice. Members must gracefully ignore unknown values.</b></p> <p>ASCII NUL (0x00) = No Additional Information</p> <p>S = Execution from order that set the NBBO</p>								
AccessFee	64	8	Signed Binary Fee	<p>Corresponds to <i>AccessFee</i> (9621) in BATS FIX.</p> <p>Access fee for this fill, five implied decimal places, negative for rebates.</p>								

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ContraBroker	72	4	Alphanumeric	<p>Corresponds to <i>ContraBroker</i> (375) in BATS FIX.</p> <p>AMEX = Routed to NYSE AMEX ARCA = Routed to NYSE Arca BATS = Internally matched BOX = Routed to Boston CBOE = Routed to CBOE CTWO = Routed to C2 ISE = Routed to ISE NOMX = Routed to NASDAQ NOBX = Routed to NASDAQ BX MIAX = Routed to Miami Stock Exchange PHLX = Routed to Philadelphia</p>																																																																																			
Order Execution Bitfields	76	7	Binary	<p>Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.</p> <table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td rowspan="9">0</td><td rowspan="9">ReturnBitfield1</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table></td></tr><tr><td rowspan="9">1</td><td rowspan="9">ReturnBitfield2</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table></td></tr><tr><td rowspan="9">2</td><td rowspan="9">ReturnBitfield3</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table></td></tr><tr><td rowspan="7">3</td><td rowspan="7">ReturnBitfield4</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch</td></tr><tr><td>32</td><td>RESERVED</td></tr></table></td></tr></table>	Byte	Name	Description	0	ReturnBitfield1	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct	1	ReturnBitfield2	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED	2	ReturnBitfield3	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>DiscretionAmount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>PreventMember Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	DiscretionAmount	64	OrderQty	128	PreventMember Match	3	ReturnBitfield4	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch</td></tr><tr><td>32</td><td>RESERVED</td></tr></table>	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch	32	RESERVED
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				4		Reserved For Future Use	
				5	ReturnBitfield6	Value	Name
						1	SecondaryOrderID
						2	RESERVED
						4	ContraCapacity
				6		Reserved For Future Use	
Reserved	83	1	Binary	Reserved for BATS Internal Use			
Optional Fields...							

**Example Order Execution Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	5E 00	94 bytes
MessageType	11	Order Execution
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
CIOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
ExecID	01 F0 B7 D9 71 21 00 00	D19800001 (base 36)
LastShares	C4 09 00 00	2,500 contracts
LastPx	3A E2 01 00 00 00 00 00	12.345
LeavesQty	DC 05 00 00	1,500 contracts
BaseLiquidity	41	A = Added
Indicator		
SubLiquidity	00	
Indicator		
AccessFee	D5 B4 00 00 00 00 00 00	46293/100000 = 0.46293
ContraBroker	42 41 54 53	BATS
OrderExecution	00 00 46 00 00 00 00	46 = <i>ClearingFirm</i> , <i>ClearingAccount</i> , <i>OrderQty</i>
Bitfields		
BATS Internal	00	
ClearingFirm	54 45 53 54	TEST
ClearingAccount	31 32 33 34	1234
OrderQty	A0 0F 00 00	4,000 contracts

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#### 4.2.10 Trade Cancel or Correct

Used to relay a trade which has been cancelled (busted) or corrected (price change only). The *CorrectedPrice* field will be set to 0 for cancelled trades and to the new trade price for corrected trades. Trade Cancel or Correct **can be sent for same day as well as previous day trades.**

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x12
MatchingUnit	5	1	Binary	The matching unit which created this message. Matching units in BOE correspond to matching units on Multicast PITCH.
SequenceNumber	6	4	Binary	The sequence number for this message. Distinct per matching unit.
TransactionTime	10	8	DateTime	The time the event occurred in the BATS matching engine (not the time the message was sent).
ClOrdID	18	20	Text	<i>ClOrdID</i> of the order whose fill is being cancelled or corrected.
OrderID	38	8	Binary	Corresponds to <i>OrderID</i> (37) in BATS FIX.  Order whose fill is being cancelled or corrected.
ExecRefID	46	8	Binary	Corresponds to <i>ExecRefID</i> (19) in BATS FIX.  Refers to the ExecID of the fill being cancelled or corrected.
Side	54	1	Alphanumeric	Side of the order.
BaseLiquidity Indicator	55	1	Alphanumeric	Indicates whether the trade added or removed liquidity, or was routed to another market.  A = Added Liquidity R = Removed Liquidity X = Routed to Another Market W = Options WAIT Order
ClearingFirm	56	4	Alpha	
ClearingAccount	60	4	Alpha	Echoed from original order.
LastShares	64	4	Binary	Number of contracts of the trade being cancelled.
LastPx	68	8	Binary Price	Price of the trade being cancelled.
CorrectedPrice	76	8	Binary Price	For trade corrections, this is the new trade price. For trade breaks, this is set to 0.
OrigTime	84	8	DateTime	Corresponds to <i>OrigTime</i> (42).  The date and time of the original trade, in GMT.



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Trade Cancel or Correct Bitfields	92	7	Binary	Bitfields indicating message fields to follow. See the <b>List of Return Bitfields</b> section.																																																								
				<table><tr><th>Byte</th><th>Name</th><th>Description</th></tr><tr><td>0</td><td></td><td>Reserved For Future Use</td></tr><tr><td>1</td><td>ReturnBitfield2</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table></td></tr><tr><td>2</td><td></td><td>Reserved For Future Use</td></tr><tr><td>3</td><td>ReturnBitfield4</td><td><table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch (empty)</td></tr><tr><td>32</td><td>CorrectedSize</td></tr></table></td></tr><tr><td>4</td><td></td><td>Reserved For Future Use</td></tr><tr><td>5</td><td></td><td>Reserved For Future Use</td></tr><tr><td>6</td><td></td><td>Reserved For Future Use</td></tr></table>	Byte	Name	Description	0		Reserved For Future Use	1	ReturnBitfield2	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED	2		Reserved For Future Use	3	ReturnBitfield4	<table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>MaturityDate</td></tr><tr><td>2</td><td>StrikePrice</td></tr><tr><td>4</td><td>PutOrCall</td></tr><tr><td>8</td><td>OpenClose</td></tr><tr><td>16</td><td>ClOrdIDBatch (empty)</td></tr><tr><td>32</td><td>CorrectedSize</td></tr></table>	Value	Name	1	MaturityDate	2	StrikePrice	4	PutOrCall	8	OpenClose	16	ClOrdIDBatch (empty)	32	CorrectedSize	4		Reserved For Future Use	5		Reserved For Future Use	6		Reserved For Future Use
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Optional Fields...																																																												

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**Example Trade Cancel or Correct Message:**

Field Name	Hexadecimal	Notes
StartOfMessage	BA BA	Start of message bytes.
MessageLength	7C 00	124 bytes
MessageType	12	Trade Cancel or Correct
MatchingUnit	03	Matching Unit 3
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
ClOrdID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
OrderID	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
ExecRefID	01 F0 B7 D9 71 21 00 00	D19800001 (base 36)
Side	31	Buy
BaseLiquidity	41	A = Added
Indicator		
ClearingFirm	54 45 53 54	TEST
ClearingAccount	00 00 00 00	(empty)
LastShares	64 00 00 00	100 contracts
LastPx	70 17 00 00 00 00 00 00	0.60
CorrectedPrice	00 00 00 00 00 00 00 00	0 (cancelled)
OrigTime	E0 BA 75 95 15 4C EB 11	1,291,209,373,757,324,000
Trade Cancel or Correct Bitfields	00 01 00 0F 00 00 00	01 = <i>Symbol</i> 0F = <i>MaturityDate, StrikePrice, PutOrCall, OpenClose, CorrectedSize</i>
BATS Internal	00	
Symbol	54 4E 44 4D 00 00 00 00	TNDM
MaturityDate	EF DB 32 01	20110319
StrikePrice	98 AB 02 00 00 00 00 00	17.50
PutOrCall	31	1 = Call
OpenClose	4F	O = Open
CorrectedSize	00 00 00 00	0 = because trade was cancelled

#### 4.2.11 Mass Cancel Acknowledgement

This message is received when a Mass Cancel request has completed cancelling all individual orders.

Field	Offset	Length	Data Type	Description
StartOfMessage	0	2	Binary	Must be 0xBA 0xBA.
MessageLength	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
MessageType	4	1	Binary	0x16
MatchingUnit	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
SequenceNumber	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
TransactionTime	10	8	DateTime	The time stamped in the order entry gateway when the final matching engine event was received to complete the mass cancel.
MassCancelID	18	20	Text	The value of this field is copied from the <i>MassCancelID</i> passed in on the original cancel request. This field corresponds to <i>MassCancelID</i> (7695) in BATS FIX. <i>MassCancelID</i> from Cancel Order.
CancelledOrderCount	38	4	Binary	Corresponds to <i>CancelledOrderCount</i> (7696) in BATS FIX. Number of orders cancelled

#### Example Mass Cancel Acknowledgement Message:

StartOfMessage	BA BA	Start of message bytes.
MessageLength	28 00	40 bytes
MessageType	16	Mass Order Cancelled
MatchingUnit	00	Always 0
SequenceNumber	64 00 00 00	Sequence Number 100
TransactionTime	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
MassCancelID	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
CancelledOrderCount	63 00 00 00	99 orders were cancelled

## 5 Implementation Notes

### 5.1 Automatic Cancel on Disconnect Malfunction

**All open orders for a Member will be cancelled automatically if no messages have been received from the Member for 5 seconds.** This is done to prevent orders from being stuck in an unknown state in the event of telecommunications failure. `Order Cancelled` messages for the automatically cancelled orders are available upon reconnection. Members are responsible for rerouting orders to other market centers based on their business needs. This should be rare, but all open orders may also be cancelled in the event of a complete or partial system malfunction.

### 5.2 Access Fees Returned on Order Executions

The access fee associated with each fill is calculated to 5 decimals and returned on each order execution. Negative numbers indicate liquidity rebates. Members should program their systems to read, validate, and pass along this field in order to avoid making software changes to their systems when the BATS fee schedule changes. The sum of the access fees received during a month should equal the access fee charged or rebated on a Member's monthly bill, rounded to the nearest penny.

### 5.3 Service Bureau Configuration

*ClearingFirm* must be set on `New Order`, `Cancel Order` and `Modify Order` messages sent to BATS. Orders with an unknown *ClearingFirm* will be rejected. *ClOrdID* values are required to be unique only within a given *ClearingFirm*. Messages sent by BATS will echo back the *ClearingFirm* value. **Orders must be cancelled or modified using the same *ClearingFirm* as was sent on the Order.**

### 5.4 Automatic Cancel on Disconnect for Bulk Order Enabled Ports

Ports that have bulk order enabled require the automatic cancel on disconnect feature. Upon reconnection the member will not receive outs for open bulk order from the previous session, and can assume that all orders have been cancelled. Any **fills** that might have been missed on disconnect will be sent upon reconnection.

## 6 Drop Copies

Drop copies of BOE traffic are available. Execution only drop copies are available via legacy (fixed-width) drop and FIX drop based interfaces. Order-by-order drop copies are available via Order by Order FIX drop based interfaces.

## 7 Future Expansion

**New message types may be added without notice.**

**New fields may be added without notice.** For messages which specify optional fields with bitfields (e.g., `Order Acknowledgement`), expansion will use a bit which has been reserved

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for future expansion. For messages which do not use optional fields with bitfields (e.g., Order Cancelled), fields will be appended to the end of the message.

In BATS' certification environment, undocumented messages will intentionally be sent occasionally. Undocumented extra fields will also occasionally be sent. This will aid Members in ensuring that their decoders will cope with future protocol changes.

## 8 List of Return Bitfields

This section lists all return bitfields. Specified unused bits *must* be set to 0, as they are reserved for future expansion. Reserved bits not noted as being required to be set to 0 are used by another BATS trading platform and will be ignored. BATS reserves the right to add more bit fields as per new requirements.

Field	Length	Data Type	Description																		
Return Bitfield1	1	Binary	Bitfield indicating return fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Side</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>Price</td></tr><tr><td>8</td><td>ExecInst</td></tr><tr><td>16</td><td>OrdType</td></tr><tr><td>32</td><td>TimeInForce</td></tr><tr><td>64</td><td>MinQty</td></tr><tr><td>128</td><td>MaxRemovePct</td></tr></table>	Value	Name	1	Side	2	RESERVED	4	Price	8	ExecInst	16	OrdType	32	TimeInForce	64	MinQty	128	MaxRemovePct
Value	Name																				
1	Side																				
2	RESERVED																				
4	Price																				
8	ExecInst																				
16	OrdType																				
32	TimeInForce																				
64	MinQty																				
128	MaxRemovePct																				
Return Bitfield2	1	Binary	Bitfield indicating return fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Symbol</td></tr><tr><td>2</td><td>RESERVED</td></tr><tr><td>4</td><td>RESERVED</td></tr><tr><td>8</td><td>RESERVED</td></tr><tr><td>16</td><td>RESERVED</td></tr><tr><td>32</td><td>RESERVED</td></tr><tr><td>64</td><td>Capacity</td></tr><tr><td>128</td><td>RESERVED</td></tr></table>	Value	Name	1	Symbol	2	RESERVED	4	RESERVED	8	RESERVED	16	RESERVED	32	RESERVED	64	Capacity	128	RESERVED
Value	Name																				
1	Symbol																				
2	RESERVED																				
4	RESERVED																				
8	RESERVED																				
16	RESERVED																				
32	RESERVED																				
64	Capacity																				
128	RESERVED																				
Return Bitfield3	1	Binary	Bitfield indicating return fields to follow. Logical OR to include multiple fields. <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td>Account</td></tr><tr><td>2</td><td>ClearingFirm</td></tr><tr><td>4</td><td>ClearingAccount</td></tr><tr><td>8</td><td>DisplayIndicator</td></tr><tr><td>16</td><td>MaxFloor</td></tr><tr><td>32</td><td>Discretion Amount</td></tr><tr><td>64</td><td>OrderQty</td></tr><tr><td>128</td><td>Prevent Member Match</td></tr></table>	Value	Name	1	Account	2	ClearingFirm	4	ClearingAccount	8	DisplayIndicator	16	MaxFloor	32	Discretion Amount	64	OrderQty	128	Prevent Member Match
Value	Name																				
1	Account																				
2	ClearingFirm																				
4	ClearingAccount																				
8	DisplayIndicator																				
16	MaxFloor																				
32	Discretion Amount																				
64	OrderQty																				
128	Prevent Member Match																				

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Return Bitfield4	1	Binary	<div>Bitfield indicating return fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>MaturityDate</i></td></tr><tr><td>2</td><td><i>StrikePrice</i></td></tr><tr><td>4</td><td><i>PutOrCall</i></td></tr><tr><td>8</td><td><i>OpenClose</i></td></tr><tr><td>16</td><td><i>ClOrdIDBatch</i></td></tr><tr><td>32</td><td><i>CorrectedSize</i></td></tr></table> <div>Bits 7-8 <i>must</i> be set to 0. They are reserved for future expansion.</div>	Value	Name	1	<i>MaturityDate</i>	2	<i>StrikePrice</i>	4	<i>PutOrCall</i>	8	<i>OpenClose</i>	16	<i>ClOrdIDBatch</i>	32	<i>CorrectedSize</i>				
Value	Name																				
1	<i>MaturityDate</i>																				
2	<i>StrikePrice</i>																				
4	<i>PutOrCall</i>																				
8	<i>OpenClose</i>																				
16	<i>ClOrdIDBatch</i>																				
32	<i>CorrectedSize</i>																				
Return Bitfield5	1	Binary	<div>Bitfield indicating return fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>OrigClOrdID</i></td></tr><tr><td>2</td><td><i>LeavesQty</i></td></tr><tr><td>4</td><td><i>LastShares</i></td></tr><tr><td>8</td><td><i>LastPx</i></td></tr><tr><td>16</td><td><i>DisplayPrice</i></td></tr><tr><td>32</td><td><i>WorkingPrice</i></td></tr><tr><td>64</td><td><i>BaseLiquidityIndicator</i></td></tr><tr><td>128</td><td><i>ExpireTime</i></td></tr></table>	Value	Name	1	<i>OrigClOrdID</i>	2	<i>LeavesQty</i>	4	<i>LastShares</i>	8	<i>LastPx</i>	16	<i>DisplayPrice</i>	32	<i>WorkingPrice</i>	64	<i>BaseLiquidityIndicator</i>	128	<i>ExpireTime</i>
Value	Name																				
1	<i>OrigClOrdID</i>																				
2	<i>LeavesQty</i>																				
4	<i>LastShares</i>																				
8	<i>LastPx</i>																				
16	<i>DisplayPrice</i>																				
32	<i>WorkingPrice</i>																				
64	<i>BaseLiquidityIndicator</i>																				
128	<i>ExpireTime</i>																				
Return Bitfield6	1	Binary	<div>Bitfield indicating return fields to follow. Logical OR to include multiple fields.</div> <table><tr><th>Value</th><th>Name</th></tr><tr><td>1</td><td><i>SecondaryOrderID</i></td></tr><tr><td>2</td><td><i>RESERVED</i></td></tr><tr><td>4</td><td><i>ContraCapacity</i></td></tr></table> <div>Bits 3-8 <i>must</i> be set to 0. They are reserved for future expansion.</div>	Value	Name	1	<i>SecondaryOrderID</i>	2	<i>RESERVED</i>	4	<i>ContraCapacity</i>										
Value	Name																				
1	<i>SecondaryOrderID</i>																				
2	<i>RESERVED</i>																				
4	<i>ContraCapacity</i>																				

## 9 List of Optional Fields

This section lists all optional field types supported by all BATS trading platforms worldwide.

Field	Length	Data Type	Description
Account	16	Text	Corresponds to <i>Account</i> (1) in BATS FIX.  This field will be reflected back on execution reports associated with this order, and it will be passed through to the OCC in the optional data field.
AskDiscretion Amount	2	Binary	The <b>ASK</b> side <i>DiscretionAmount</i> . Corresponds to <i>DiscretionAmount</i> (9622) in BATS FIX.
AskOpenClose	1	Alphanumeric	The <b>ASK</b> side <i>OpenClose</i> . Corresponds to <i>OpenClose</i> (77) in BATS FIX.
AskOrderQty	4	Binary	Corresponds to <i>OrderQty</i> (38) in BATS FIX.  Number of contracts for the Ask side of the order. System-wide limit is 999,999 contracts.
AskShortPrice	4	Binary Price	Corresponds to <i>Price</i> (44) in BATS FIX, but applicable to Bulk Order messages only.  Limit price for the Ask side of the order. Four implied decimal places.
AttributedQuote	1	Alphanumeric	Optional, allow for order to be attributed to firm's Executing Broker ID in BATS market data feeds. The order may also be included within attributed summary information displays related to quote/trade information on the BATS web site. Must opt-in to support through the BATS Trade Desk. N = Do not attribute firm MPID to this order. Y = Attribute firm MPID to this order.
BaseLiquidity Indicator	1	Alphanumeric	Indicates whether the trade added or removed liquidity, or was routed to another market.  A = Added Liquidity R = Removed Liquidity X = Routed to Another Market W = Options WAIT Order
BidDiscretion Amount	2	Binary	The <b>BID</b> side <i>DiscretionAmount</i> . Corresponds to <i>DiscretionAmount</i> (9622) in BATS FIX.
BidOpenClose	1	Alphanumeric	The <b>BID</b> side <i>OpenClose</i> . Corresponds to <i>OpenClose</i> (77) in BATS FIX.
BidOrderQty	4	Binary	Corresponds to <i>OrderQty</i> (38) in BATS FIX.

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			Number of contracts for the Buy side of the order. System-wide limit is 999,999 contracts.
BidShortPrice	4	Binary Price	Corresponds to <i>Price</i> (44) in BATS FIX, but applicable to Bulk Order messages only.  Limit price for the Buy side of the order. Four implied decimal places.
CancelOrig OnReject	1	Alpha	Corresponds to <i>CancelOrigOnReject</i> (9619) in BATS FIX.  Indicates handling of original order on failure to modify.  N = Leave original order alone. Y = Cancel original order if modification fails.
Capacity	1	Alpha	Corresponds to <i>OrderCapacity</i> (47) in BATS FIX.  C = Customer F = Firm M = Market Maker U = Professional Customer
ClearingAccount	4	Text	Corresponds to <i>OnBehalfOfSubID</i> (116) and <i>ClearingAccount</i> (440) in BATS FIX.  When the Capacity is set to M for Market Maker this field should be filled with desired market maker ID. When using CMTA, this value is the Market Maker ID for the CMTA member instead of the BATS member executing the trade. This field will be sent to the OCC.  If the Capacity is set to something besides Market Maker this field can be empty (all binary zero) or filled out with an optional 4 character string that is passed through to the OCC. Supplemental identifier. Recorded and made available in execution reports. Available via FIX Drop.
ClearingFirm	4	Alpha	Corresponds to <i>OnBehalfOfCompID</i> (115) and <i>ClearingFirm</i> (439) in BATS FIX.  Firm that will clear trade.



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ClOrdIDBatch	20	Text	<p>Corresponds to <i>ClOrdID</i> (11) in BATS FIX and only used with Bulk Order messages.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33-126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>ClOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p><b>Note: BATS only enforces uniqueness of ClOrdID values among currently live orders. However, we <i>strongly</i> recommend that you keep your ClOrdID values day-unique.</b></p>
CMTA Number	4	Binary	<p>Corresponds to <i>ClearingFirm</i> (439) in BATS FIX.</p> <p>CMTA Number of the firm that will clear the trade. Must be supplied for CMTA orders and left unspecified for non-CMTA orders.</p>
ContraCapacity	1	Alpha	<p>Corresponds to the capacity of the contra for this execution.</p> <p>C = Customer F = Firm M = Market Maker U = Professional Customer</p>
CorrectedSize	4	Binary	<p>Corresponds to <i>CorrectedSize</i> (6655) in BATS FIX.</p> <p>Number of contracts after trade adjustment. System-wide limit is 999,999 contracts.</p>
DiscretionAmount	2	Binary	<p>Corresponds to <i>DiscretionAmount</i> (9622) in BATS FIX.</p> <ul style="list-style-type: none"> <li>Discretion is expressed in cents (i.e. 10 is \$0.10)</li> <li>Discretion is implicitly added to bid prices and subtracted from offer prices.</li> <li>Order will be displayed at <i>Price</i> but can execute in the discretionary range.</li> <li>A discretionary order will use the minimum of discretion amount to achieve execution.</li> <li>The default is to apply no discretion.</li> <li>Max discretion to apply to <i>Price</i> (positive value in the range of 0-99.99).</li> </ul> <p><i>DiscretionAmount</i> does not mix with IOC, Post-Only, or directed orders.</p>

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DisplayIndicator	1	Alphanumeric	<p>Corresponds to <i>DisplayIndicator</i> (9479) in BATS FIX.</p> <p>V = Default. As determined by port level setting (default to S)  S = Display-Price Sliding (this is to override a opt-out of Display-Price Sliding at the port level)  L = Display-Price Sliding, but reject if order crosses NBBO on entry  M = Multiple Display-Price R = Reject the order if it cannot be booked and displayed without adjustment  N = NoRescrapeAtLimit</p> <p><b>Display-Price Sliding:</b>  If the limit price of the unexecuted remainder of a day order does not lock or cross the NBBO then BATS books it as is. If the limit price does lock or cross the market BATS offers Display-Price Sliding.</p> <p>Display-Price Sliding permanently adjusts the booked price on entry to the strongest price that does not <b>cross</b> the NBBO. It will temporarily adjust the displayed price to the strongest price that does not <b>lock</b> the NBBO. When the NBBO widens, the display price will be readjusted to the booked price. The display price may be temporarily weaker than the booked price.</p> <p>Multiple Display-Price Sliding does not permanently adjust the booked price on entry, but allows for Display-Price slid orders to continue to have their display <b>and</b> booked prices adjusted towards their original limit price based on changes to the prevailing NBBO.</p> <p><b>NoRescrapeAtLimit:</b>  Applicable only to Fully Routable IOC orders (RoutingInst = R and TimeInForce = 3). After walking the price down to the limit, there will be no final scrape at BATS and the cancel code will state X (Expired) rather than N (No Liquidity).</p>
DisplayPrice	8	Binary Price	<p>Only present when order is fully or partially booked. If order had to be temporarily displayed at a less aggressive value to avoid locking the NBBO, then displayed price will be reported here, otherwise equals working price.</p>
ExecInst	1	Text	<p>Corresponds to <i>ExecInst</i> (18) in BATS FIX.</p>

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			f = Intermarket Sweep (Directed or BATS) ASCII NULL (0x00) = no special handling All other values are ignored.
ExpireTime	8	DateTime	Corresponds to <i>ExpireTime</i> (126) in FIX.  Required for <i>TimeInForce</i> = 6 orders, specifies the date-time (in GMT) that the order expires.
LastPx	8	Binary Price	Corresponds to <i>LastPx</i> (31) in BATS FIX.  Price of this fill.
LastShares	4	Binary	Corresponds to <i>LastShares</i> (32) in BATS FIX.  Executed share quantity.
LeavesQty	4	Binary	Corresponds to <i>LeavesQty</i> (151) in BATS FIX.  Quantity still open for further execution. Will be zero if order is dead.

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MassCancel	1	Alphanumeric	<p>Corresponds to <i>MassCancel</i> (7693) in BATS FIX.</p> <p>Indicate that a “mass cancel” is being performed, instead of a single-order cancel. The <i>OrigClOrdID</i> must be empty (binary zero) to use the “mass cancel” functionality, and <i>MassCancel</i> must be one of the following:</p> <p>1 = Cancel all orders that match <i>OsiRoot</i>, regardless of clearing firm.  2 = Cancel all orders that match the given <i>OsiRoot</i> and <i>ClearingFirm</i>.  3 = Same as 1 except individual cancel acknowledgements will not be sent. Instead a Mass Cancel Acknowledgement message with the corresponding <i>MassCancelID</i> and <i>CancelledOrderCount</i> will be sent once all cancels have been processed.  4 = Same as 2 except individual cancel acknowledgements will not be sent. Instead a Mass Cancel Acknowledgement message with the corresponding <i>MassCancelID</i> and <i>CancelledOrderCount</i> will be sent once all cancels have been processed.</p> <p>The optional <i>MassCancelID</i> is required with Cancel Order messages when <i>MassCancel</i> is “3” or “4”.</p> <p>Note that for all cases, the <i>OsiRoot</i> field may have a value of binary zero (00 00 00 00 00 00 00 00) to match all symbols.</p>
MassCancelID	20	Text	<p>Corresponds to <i>MassCancelID</i> (7695) in BATS FIX. Non-zero unique identifier for the mass cancel request.</p>
MaturityDate	4	Binary	<p>Corresponds to <i>MaturityMonth</i> (200) and <i>MaturityDay</i> (205) in BATS FIX.</p> <p>Expiration date YYYYMMDD as a 4 byte value.</p>

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MaxFloor	4	Binary	<p>Corresponds to <i>MaxFloor</i> (111) in BATS FIX.</p> <p>Portion of <i>OrderQty</i> to display. The balance is reserve. 0 displays the entire quantity. The displayed quantity of each order at a price level is decremented first. When displayed quantity is fully decremented, it is reloaded up to <i>MaxFloor</i> from reserve.</p> <p>Default = 0</p>
MaxRemovePct	1	Binary	<p>Corresponds to <i>MaxRemovePct</i> (9618) in BATS FIX.</p> <p>For Post Only At Limit (<i>RoutingInst</i> = Q), what percentage of the order quantity which remains after price improvement may be removed at the limit.</p> <p>Must be 0 for non-Post Only at Limit orders.</p>
MinQty	4	Binary	<p>Corresponds to <i>MinQty</i> (110) in BATS FIX.</p> <p><b>Optional</b> minimum fill quantity for IOC orders.</p> <p><b>Ignored</b> if order is not an IOC order.</p> <p>Set to 0 to allow fills of any size.</p> <p>Default = 0</p>
OpenClose	1	Alphanumeric	<p>Corresponds to <i>OpenClose</i> (77) in BATS FIX.</p> <p>Indicates status of client position in the option. O = Open C = Close</p> <p>Note that contracts which are limited to closing only transactions with an <i>OpenClose</i> value of O will be rejected unless the <i>OrderCapacity</i> field = 'M' (Market Maker) AND <i>TimeInForce</i> = '3' (Immediate or Cancel).</p>
OrderQty	4	Binary	<p>Corresponds to <i>OrderQty</i> (38) in BATS FIX.</p> <p>Number of contracts for the order. System-wide limit is 999,999 contracts.</p>
OrdType	1	Alphanumeric	<p>Corresponds to <i>OrdType</i> (40) in BATS FIX.</p> <p>1 = Market 2 = Limit</p> <p>Market implies <i>TimeInForce</i> of IOC (3).</p>
OrigClOrdID	20	Text	<p>Corresponds to <i>OrigClOrdID</i> (41) in BATS FIX.</p>

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OsiRoot	6	Text	The OSI root symbol.
PreventMember Match	3	Alpha	<p>Corresponds to <i>PreventMemberMatch</i> (7928) in BATS FIX.</p> <p>Three characters:  1st character – MTP Modifier:  N = Cancel Newest  O = Cancel Oldest  B = Cancel Both  D = Decrement Larger/Cancel Smaller  d = Same as D above, but only decrement <i>LeavesQty</i>. Do not restate <i>OrderQty</i>.  2nd character - Unique ID Level:  F = Prevent Match at BZX Exchange Member Level  M = Prevent Match at MPID Level  3rd character - Trading Group ID (optional):  Member specified alphanumeric value 0-9, A-Z, or a-z.</p> <p>The Unique ID Level (character 2) of both orders must match to prevent a trade. If specified <u>on both orders</u>, Trading Group ID (character 3) must match to prevent a trade.</p> <p>The MTP Modifier (character 1) of the inbound order will be honored, except that if the inbound order specifies Decrement and the resting order does not, and the resting order is larger, then both orders will be cancelled. This exception is to protect the order-entry software for the resting order from receiving an unexpected restatement message. If order-entry software is prepared to handle unexpected restatement messages, this exception may be overridden at the port level by requesting “Allow MTP Decrement Override” functionality.</p> <p>Users of MTP Modifier D or d AND users of “Allow MTP Decrement Override” functionality must be prepared to receive an Order Restated message that decrements <i>LeavesQty</i> (and also <i>OrdQty</i> for method D).</p>
Price	8	Binary Price	<p>Corresponds to <i>Price</i> (44) in BATS FIX.</p> <p>Limit price. Four implied decimal places.</p>

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PutOrCall	1	Alphanumeric	<p>Corresponds to <i>PutOrCall</i> (201) in BATS FIX.</p> <p>0 = Put 1 = Call</p>
Risk Reset	8	Text	<p>Corresponds to <i>RiskReset</i> (7692) in BATS FIX.</p> <p>For use by Members taking advantage of BATS Risk Management tools. When a resting order or inbound order is executed and a risk profile limit is reached, resting orders on the OSI Root will be cancelled and inbound orders on the OSI Root will be rejected until this field is filled with the value "SYMBOL".</p> <p>Once set, the risk profile associated with the underlying OSI Root on the order will be reset. All active OSI Root level rules in the risk profile are reset at this time. Individual rules cannot be reset on their own.</p> <p>If a firm level rule is tripped, this tag can be filled with the value "FIRM" to reset all firm level rules. While this will reset firm level rules, it is possible that both firm and OSI Root level rules are currently tripped. Setting this field to "FIRM" will not clear OSI level rules and the order may still be rejected. To clear both OSI Root and firm level rules fill this tag with the value "BOTH". Note, "BOTH" will clear Firm level and the OSI Root rule associated with the underlying specified on the order.</p> <p>For more information, refer to <a href="#">BATS US Options Risk Management Specification</a>.</p>

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RoutingInst	4	Text	<p>1<sup>st</sup> character: Specifies the target destination.</p> <p>A = NYSE ARCA  B = BATS Only  C = BATS Only WAIT order. Will cause the order to wait 1 second before processing.  E = ISE  F = Miami Stock Exchange  H = C2  K = Boston Options Exchange  N = NASDAQ  P = BATS Only Post Only (will reject rather than remove liquidity <i>unless the value of price improvement associated with the execution equals or exceeds the sum of fees charged for the execution plus the value of the rebate that would have been provided if the order posted to the BATS book and provided liquidity</i>)  Q = BATS Only Post Only At Limit (remove contracts that improve upon limit price and up to <i>MaxRemovePct</i> of remaining <i>OrdQty</i> at limit price)  R = All Visible Markets (default)  S = NASDAQ BX  U = NYSE AMEX  W = CBOE  X = Philadelphia</p> <p>Values B, C, P and Q are the only valid values for Bulk Order messages.</p> <p>Post Only does not mix with <i>TimeInForce</i> = 3.</p> <p>2<sup>nd</sup> character: Only applicable when 1<sup>st</sup> is R, is used to enable/disable Re-Route on Lock/Cross:</p> <p>L = Re-Route. Allow for use of CYCLE or Parallel strategy up to limit or discretion price on entry and allow for re-route via CYCLE or Parallel strategy after the order has booked only if another market locks or crosses the limit or discretion price.  N = Do not Re-Route.</p> <p>3<sup>rd</sup> character: Only applicable if 1st is R, specifies the routing strategy:</p> <p>C = CYCLE  D = Parallel-D (default)  2 = Parallel-2D</p>
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RoutingInst (Cont.)			<p>4<sup>th</sup> character: Reserved for future use.</p> <p>In order to specify values for the 2nd and/or 3rd character, the prior character(s) MUST be populated with a valid value. If <i>RouteInst</i> is not specified, a default value of RND is implied (All Visible Markets/No Re-Route/Parallel-D). ASCII NULs (0x00) in 2<sup>nd</sup>, 3<sup>rd</sup>, or 4<sup>th</sup> character positions will imply the default value for their respective position.</p> <p>As the default <i>RouteInst</i> value is subject to change with little or no notice, it is recommended you specify values for all 4 character positions if you wish to maintain maximum control of your routing decisions.</p> <p>For more information regarding the various routing strategies available on BATS, refer to <a href="http://www.batsoptions.com/features/">http://www.batsoptions.com/features/</a>.</p>
SecondaryOrderID	8	Binary	<p>Corresponds to <i>SecondaryOrderID</i> (198) in BATS FIX.</p> <p>Denotes an alternative <i>OrderID</i> which is present on BATS market data feeds (for example, to hide that a reserve (ice-berg) order has reloaded). Or, <i>OrderID</i> of the contra side of a prevented match.</p>
Side	1	Alphanumeric	<p>Corresponds to <i>Side</i> (54) in BATS FIX.</p> <p>1 = Buy 2 = Sell</p>
StrikePrice	8	Binary Price	<p>Corresponds to <i>StrikePrice</i> (202) in BATS FIX.</p> <p>Option strike price. Allowed range is 0-99,999.999.</p>
Symbol	8	Alphanumeric	<p>Corresponds to <i>Symbol</i> (55) in BATS FIX.</p> <p>Uniform symbology identifier for the instrument.</p>
TimeInForce	1	Alphanumeric	<p>Corresponds to <i>TimeInForce</i> (59) in FIX.</p> <p>0 = Day 1 = GTC (allowed, but treated as Day) 3 = IOC (Portion not filled immediately is cancelled. Market orders are implicitly IOC.) 6 = GTD (expires at earlier of specified <i>ExpireTime</i> or end of extended day)</p>
WorkingPrice	8	Binary Price	<p>Only present when order is fully or partially booked. If price had to be adjusted to a less aggressive value to avoid crossing the NBBO, the adjusted price will be reported here, otherwise equals price.</p>

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## 10 List of Message Types

### 10.1 Member to BATS

Message Name	Session/Application	Message Type	Sequenced
Login Request	Session	0x01	No
Logout Request	Session	0x02	No
Client Heartbeat	Session	0x03	No
New Order	Application	0x04	Yes
Cancel Order	Application	0x05	Yes
Modify Order	Application	0x06	Yes
Bulk Order	Application	0x14	Yes

### 10.2 BATS to Member

Message Name	Session/Application	Message Type	Sequenced
Login Response	Session	0x07	No
Logout	Session	0x08	No
Server Heartbeat	Session	0x09	No
Replay Complete	Session	0x13	No
Order Acknowledgement	Application	0x0A	Yes
Order Rejected	Application	0x0B	No
Order Modified	Application	0x0C	Yes
Order Restated	Application	0x0D	Yes
User Modify Rejected	Application	0x0E	No
Order Cancelled	Application	0x0F	Yes
Cancel Rejected	Application	0x10	No
Order Execution	Application	0x11	Yes
Trade Cancel or Correct	Application	0x12	Yes
Bulk Order Acknowledgement	Application	0x15	No
Mass Cancel Acknowledgement	Application	0x16	No

## 11 Port Attributes

The table below lists BOE port attributes that are configurable on the port or firm level. Changes to these attributes can be made by sending a written request to [tradedesk@batstrading.com](mailto:tradedesk@batstrading.com).

Attribute	Default	Description
Allowed Clearing Executing Firm ID(s)*	All MPIDs	Executing Firm ID(s) allowed for trading on port.
Allow Bulk Updates^	No	Allow for support of Bulk Order and Bulk Order Acknowledgement messages.
Default Executing Firm ID	None	Default Executing Firm ID to use if none is sent on New Order.
Allow ISO*	Yes	Allows or disallows ISO orders.
Allow Directed ISO*	Yes	Allows or disallows ISO orders directed to other market centers.
Default Routing Instruction†	“RND”	Specifies a default value for <i>RoutingInst</i> .
Maximum Order Size*	25,000	Maximum number of contracts allowed per order.
Maximum Order Dollar Value*	Unlimited	Maximum order dollar value per order.
Default Price Sliding†	“S”	Default price sliding behavior. Specifies a default value for <i>DisplayIndicator</i> .
Cancel on Disconnect	Yes	Cancels all open orders upon session disconnect.
Send Trade Breaks^	No	Enables Trade Cancel or Correct messages.
Default MTP Value*^†	None	Specifies Default value for <i>PreventMemberMatch</i> .
Allow MTP Decrement Override*^	No	Overrides the exception that requires both the resting and inbound order to be marked as “Decrement”.
Allow Sponsored Participant MTP Control*^	No	Allows Sponsored Participant to override port default for MTP by using <i>PreventMemberMatch</i> on order-level.
Cancel on Reject†	No	Cancels an order upon a cancel or modify reject for that order.
Opt-out of PITCH Obfuscation	No	Opt-out all orders from PITCH Order Id obfuscation for hidden and reserve orders.
Decrement Remainder Only^	No	Enables “d” option for MTP. See <i>PreventMemberMatch</i> for details.
Fat Finger Protection*	None	Specifies a percentage based limit price tolerance where any orders entered with a limit price that is through the NBBO by an amount greater than or equal to the defined percentage will be rejected.

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Reject Orders on DROP Port Disconnect*	No	Allows Member/Sponsoring Firms to associate a DROP port(s) to an order entry port(s). Once the association has been established and all DROP ports associated with a order entry port experience a session disconnect, reject orders on the order entry port until at least one of the DROP port sessions have been reestablished.
Reject Orders on DROP Port Timeout (s)*	30	Only applicable for sessions where “Reject Orders on DROP Port Disconnect” has been enabled. When the last associated DROP port for the order entry session has disconnected, the reject/cancel actions will be taken on the order entry session if an associated DROP port has not reestablished its connection in the defined time. Minimum value allowed is 20.
Cancel Open Orders on DROP Port Disconnect*	No	Only applicable for sessions where “Reject Orders on DROP Port Disconnect” has been enabled. If all DROP ports associated with an order entry port become disconnected, cancel all open orders on the order entry port.
Notional Cutoff Aggregation Methods*		<p>Gross exposure = CBB + CBO + CEB + CEO.</p> <p>Net exposure = ABSOLUTE VALUE of [(CEO + CBO) – (CEB+CBB)]</p> <p>On a given port BATS will calculate and track four values as follows:</p> <ul style="list-style-type: none"> <li>➤ <b>Cumulative Notional Booked Bid Value (CBB)</b> – The sum of limit price * size for all buy limit orders on the book.</li> <li>➤ <b>Cumulative Notional Booked Offer Value (CBO)</b> – The sum of limit price * size for all sell limit orders on the book.</li> <li>➤ <b>Cumulative Notional Executed Bid Value (CEB)</b> – The sum of size * trade price on all executed buy orders.</li> <li><b>Cumulative Notional Executed Offer Value (CEO)</b> – The sum of size * trade price on all executed sell orders.</li> </ul>
Gross Daily Risk Limit Order Notional Cutoff*	None	Optional parameter that if specified will result in rejects for <b>limit</b> orders when <b>gross</b> exposure of limit orders exceeds this value. Whole dollar value not to exceed \$1B/port.

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Gross Daily Risk Market Order Notional Cutoff*	None	Optional parameter that if specified will result in rejects for <b>market</b> orders when <b>gross</b> exposure of limit orders exceeds this value. Whole dollar value not to exceed \$1B/port.
Net Daily Risk Limit Order Notional Cutoff*	None	Optional parameter that if specified will result in rejects for <b>limit</b> orders when <b>net</b> exposure of limit orders exceeds this value. Whole dollar value not to exceed \$1B/port.
Net Daily Risk Market Order Notional Cutoff*	None	Optional parameter that if specified will result in rejects for <b>market</b> orders when <b>net</b> exposure of limit orders exceeds this value. Whole dollar value not to exceed \$1B/port.
Default Attributed Quote*†	Never	Specifies a default value for <i>AttributedQuote</i> . May only override at order to level after executing Attribution Addendum to Exchange User Agreement. Once Addendum has been executed, may default to Yes or No through BATS Trade Desk.
Crossed Market Reject/Cancel	No	Reject new orders upon receipt when the NBBO in the subject security is crossed. Routable orders will have any remaining quantity cancelled back if the NBBO is crossed when the order returns to the BATS Book. Order modifications which cause a loss of priority (e.g. due to a price change or increase in size) will result in a cancel of the original order if the NBBO is crossed upon receipt of the modify instruction.

\* Sponsored Participants require written approval from Sponsors to update these settings on ports associated to a Sponsor's MPID.

† Port attribute can be overridden via BOE on an order by order basis.

^ Requires certification.

## 12 Support

Please email questions or comments regarding this specification to [tradedesk@batstrading.com](mailto:tradedesk@batstrading.com).

## Revision History

Document Version	Date	Description
1.0.0	07/07/11	Initial Version 1.0.0.
1.0.1	07/12/11	Added support for two sided Bulk Order messages. Added clarification to <b>Optional Fields and Bitfields</b> section.
1.0.2	07/15/11	Typo corrected for LoginResponseStatus message length.
1.1.0	07/21/11	Removed <i>MarketMakerID</i> field as existing <i>ClearingAccount ID</i> can be used as it is in FIX. Removed various references to flags used in other BATS markets. <i>DiscretionAmount</i> size changed from 8 to 2. Added <i>BulkOrderGroupBitfield2</i> splitting Bid/Ask values. Added <i>BidDiscretionAmount</i> and <i>AskDiscretionAmount</i> to Bulk Order message.
1.1.1	08/02/11	Added commentary to section 5 describing the fact that bulk order enabled ports will have the cancel on disconnect feature enforced. Removed <i>ClearingAccount</i> from Cancel Order and Modify Order input messages. It does not make sense to send this field on those message types. Added definition for <i>AskDiscretionAmount</i> and <i>BidDiscretionAmount</i> to <b>List of Optional Fields</b> section. Bulk Order updates are limited to no more than 200 orders.
1.2.0	08/05/11	Removed <i>LockedQty</i> references (EU Specific). Added <i>BidOpenClose</i> and <i>AskOpenClose</i> to Bulk Order message.
1.2.1	08/12/11	Added <i>RiskMgmtFirmLevel</i> and <i>RiskMgmtSymbolLevel</i> to <i>Cancel Reason</i> codes. Added Symbol to <i>ReturnBitfield2</i> of Order Restated and Order Cancelled messages. Added Side to <i>ReturnBitfield1</i> of Order Cancelled messages. Add <b>Port Attributes</b> section. Added <i>ClOrdIDBatch</i> to <i>ReturnBitfield4</i> of various messages. Changed references to <i>AskPrice</i> and <i>BidPrice</i> to <i>AskShortPrice</i> and <i>BidShortPrice</i> . Added <i>LoginResponseStatus</i> Reason Code 'M = Invalid Login Request message structure'.

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1.2.3	08/24/11	<p>Highly recommend that Members request <i>LeavesQty</i> on Order Modified and Order Restated messages.</p> <p>Clarified it is necessary to send both <i>Price</i> and <i>OrderQty</i> on Order Modify messages.</p> <p>Added Order Cancelled <i>Cancel Reason</i> of ‘T = Fill would trade-through NBBO’ and ‘W = Would Remove’.</p> <p>Added DROP Port Disconnect definitions to <b>Port Attributes</b> section.</p> <p>Updated various examples.</p> <p>Changed <i>ClearingAccount</i> type from Alpha to Text field.</p> <p>Clarified valid values for <i>MaxRemovePct</i> when sending a routing value other than Q.</p> <p>Added <i>ReturnBitfield4</i> to Cancel Rejected message.</p> <p>Updated <i>NewOrderBitfield2</i> on Bulk Order message.</p> <p>Updated <i>ReturnBitfield4</i> on Order Acknowledgement message.</p> <p>Added definition for <i>SecondaryOrderID</i>.</p>
1.2.4	08/26/11	<p>Adding <i>ReturnBitfield1</i> and <i>ReturnBitfield2</i> to Cancel Rejected messages.</p> <p>Updated <i>ReturnBitfield4</i> to clarify that certain defined values will always be empty.</p>
1.2.5	09/06/11	<p>Added support for sending a two-sided Bulk Order message where one side does not change existing quote.</p> <p>Re-named <i>BulkOrderItemBitfields</i> to <i>BulkOrderGroupBitfields</i>.</p> <p>Clarified language within Bulk Order Message to make clear the number of Repeating Groups allowed in a single message.</p> <p>Updated <i>ExecID</i> description to show that <i>ExecID</i> can be compared to ODROP, FIXDROP and DROP ExecIDs.</p>
1.2.6	09/21/11	<p>Added cancel and reject reason of “m” market access risk limit.</p> <p>Added support for Professional Customer capacity.</p>
1.3.0	10/21/11	<p>Updated bitfields on Login Request for Order Cancelled and Order Restated messages.</p> <p>Removed Europe-specific <i>RestatementReason</i> values.</p> <p>Updated Order Modify message to reflect that <i>ExecInst</i> and <i>Side</i> cannot be changed with an Order Modify.</p> <p>Added <i>CancelReason</i> of “H” = Halted.</p> <p>Updated Section 6 to indicate that Order by Order FIX Drop is supported.</p> <p>Added “M” = MaxSize Exceeded to <i>ModifyRejectReason</i> values.</p> <p>Converted reserved 8<sup>th</sup> byte of all bitfield sets to a byte reserved for BATS internal use Effective 11/04/11.</p>



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1.3.1	11/02/11	Added <i>ModifyRejectReason</i> of “m = Market Access Risk Limit Exceeded” to Order Rejected message. Corrected description of Reason Code “L” for Order Canceled, Order Rejected, and Modify Rejected messages. Undefined <i>NewOrderBitfields</i> , <i>ModifyOrderBitfields</i> , or <i>CancelOrderBitfields</i> within incoming messages (New Order, Modify Order, Cancel Order) will be rejected.
1.3.2	11/07/11	Added Notional Cutoff Aggregation Method, Limit Order Notional Cutoff, and Market Order Notional Cutoff to <b>Port Attributes</b> section.
1.3.3	12/08/11	Added Send Routing Instruction to <b>Port Attributes</b> section.
1.3.4	12/16/11	Added <i>ContraCapacity</i> to <i>ReturnBitfield6</i> of Login Request message. Added “o” = Max Open Orders Count Exceeded to <i>OrderRejectReason</i> values. Noted <i>Capacity</i> and <i>OpenClose</i> are required for New Order and Bulk Order messages.
1.3.5	01/05/11	Added <i>ContraCapacity</i> to <i>ReturnBitfield6</i> in other message types. Added <i>DisplayIndicator</i> of “M” in support of Multiple Display-Price Sliding.
1.3.6	01/17/12	Added capability within Order Cancel message to specify a <i>MassCancel</i> option that will limit cancel acknowledgements to a single Mass Cancel Acknowledgement message. Effective 1/27/12.
1.3.7	01/18/12	Updated Multiple Display-Price Sliding effective date to effective pending SEC Approval. Minor updates added to <i>MassCancel</i> related definitions.
1.3.8	01/19/12	Added capability to echo <i>MassCancelID</i> in <i>OrigClOrdID</i> on Cancel Reject messages. Converted <i>MassCancelID</i> to 20 byte text field to support.
1.3.9	01/25/12	Removed reference to <i>Reserved</i> and <i>Optional</i> fields from Mass Cancel Acknowledgment message definition and corrected <i>MessageLength</i> in the example that followed.
1.4.0	02/01/12	Added support for using either Net, Gross, <u>or a combination of both</u> Notional Cutoff Aggregation Methods to the <b>Port Attributes</b> section. Effective 02/03/12. Removed Notional Cutoff Aggregation Method attribute and added specific attributes for both Gross and Net Daily Risk Limit/Market Cutoffs. Effective 02/03/12.

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1.4.1	02/17/12	Added missing info to Login Response message for <i>ReturnBitfield1</i> and <i>ReturnBitfield2</i> of <i>Order Cancelled Bitfields</i> . Removed various equity specific references in the <b>Port Attributes</b> section.
1.5.0	03/07/12	Added <i>AttributedQuote</i> . Effective 05/07/12.
1.5.1	03/08/12	Correction to <i>AttributedQuote</i> within the Login Request and Login Response. In the <i>Order Acknowledgement Bitfields</i> , Bitfield6, <i>AttributedQuote</i> has been moved from bit 1 to bit 4.
1.5.2	04/27/12	Added <i>CorrectedSize</i> bitfield to Trade Cancel and Trade Correct messages. Clarified Trade Cancel or Trade Correct example to display the hex value vs the decimal value for the <i>MaturityDate</i> , <i>StrikePrice</i> , <i>PutOrCall</i> , and <i>OpenClose</i> bitfields.
1.5.3	05/17/12	Updated <i>PreventMemberMatch</i> tag 7928 to assign formerly reserved 3 <sup>rd</sup> character to Trading Group ID. Effective 5/25/12. Added <i>AttributedQuote</i> to Bulk Order <i>NewOrderBitfield5</i> .
1.6.0	05/25/12	Post Only Orders will execute against resting orders if the value of price improvement associated with the execution equals or exceeds the sum of fees charged for the execution plus the value of the rebate that would have been provided if the order posted to the BATS book and subsequently provided liquidity. Effective 06/08/12.
1.6.1	06/08/12	Added support for <i>RoutingInst</i> and <i>ContraBroker</i> for NASDAQ BX Effective 06/29/12.
1.6.2	06/14/12	Clarified the cases in which <i>SecondaryOrderID</i> is sent. Removed Port Attributes that are not applicable to BOE.
1.6.3	06/19/12	Added reason code of 'x = Crossed Market' to <i>OrderRejectReason</i> , <i>ModifyRejectReason</i> and <i>CancelReason</i> . Added Crossed Market Reject/Cancel to <b>Port Attributes</b> section.
1.6.4	06/26/12	Added support to allow Market Makers to facilitate trades in Closing Only Series using Opening IOC orders. <i>Effective 06/29/12</i> .
1.6.5	08/07/12	Added new <i>RestatementReason</i> of Q – Liquidity Updated effective 08/10/12. Updated Multiple Display-Price Sliding effective date to 08/24/12.
1.6.6	09/05/12	Added support for <i>RoutingInst</i> and <i>Contrabroker</i> for Miami Stock Exchange.
1.6.7	09/13/12	Clarification added to Order Restated message example.