BOX SM
TECHNOLOGY

Automated Trade Reporting

SOLA® ATR Specifications Guide for BOX

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Document History

VERSION	DATE	CHANGE DESCRIPTION
1.0	2003-04	First draft
1.1	2003-08	Changes in message type 30 & 31 New section on 'BOX Contacts' (sec. 7)
1.2		Add details in section 3. BOX-ATR Definition.
1.3	2005-08	Inserted changes to order origin codes in message type 30, 31, 35, 36, 40, 41, 45, 46 field 'Account Type' (RFC BX05-0029).
1.4	2005-10	Trader ID is added to the Sub Trader ID field in the ATR messages 30, 31, 35 and 36. (BX05-0080).
1.5	2006-01	5.2.9 Add V, W values to Account Type (RFC BX05-0016)
1.6	2006-03	Minor corrections
1.7	2007-02-07	Latest version placed on Intranet
1.8	2008-06-05	Conversion to FrameMaker Symbology Initiative Modifications. A new format will be used for the following message types: • Message Type 30 - Trade • Message Type 31 - Trade Cancel • Message Type 35 - As Of Trade • Message Type 36 - As Of Trade Cancellation • Message Type 40 - Allocation • Message Type 41 - Allocation Cancel • Message Type 45 - As Of Trade Allocation • Message Type 46 - As Of Trade Allocation Cancel
1.9	2009-03-11	• Modifications to add Order Identification by the addition of new fields: Client Order ID, Client Memo with existing field Client Account Number. • Addition of a new field:Liquidity Status
1.10	2010-08-13	• Modifications pertaining to Give-Up functionality include the following (APPW): New field, TradeType added to the end of the following ATR Message Types 30, 31, 35, 36, 40, 41, 45, and 46 • Four new message types: (Message Type 50 – GiveUp, Message Type 51 – GiveUpCancel, Message Type 55 – AsOfGiveUp, Message Type 56 – AsOfGiveUpCancel) • New message types have the same content as message type 30, plus new fields: GiveUpSource, GiveUpDestination, TradeType • Added definitions to TradeType values for messages 30 & 31

VERSION	DATE	CHANGE DESCRIPTION
1.11	2011-10-21	• Removed the field TradeType from the GiveUp Message Type 50 since field already included in the Trade Message Type 30 upon whose structure the GiveUp message type is based: • Added values for Solicitation and Facilitation to Trade Type in the Trade Message Type 30. Allocation and Give-Up messages will also contain these values for Trade Type. o Added 'T: Professional Customer' to Account Type in the Trade Message Type 30 o Modification to increase field length of Message Header from 22 to 24 bytes. • Modification to increase field length from 3 to 4 bytes in the following message types and respective field names: Message Type 09, field Member Number, Message Type 30, fields CMTA Broker, Executing Broker, Message Type 50, fields GiveUpSource, GiveUpDestination
1.12	2011-12-23	• Correction to value 'M' in field TradeType (Should be 'TPR Trade - A trade done by a Third Party Router')
1.13	2013-02-26	Increase the field *TradeNumber* from 6 to 15 characters to accomodate the new *UniqueTradeId* field, in Message Type 30 – Trade, Message Type 31 - Trade Cancel, Message Type 35 - As of Trade, Message Type 36 - As of Trade Cancellation, Message Type 40 – Allocation, Message Type 41 - Allocation Cancel, Message Type 45 - As of Trade Allocation, Message Type 46 - As of Trade Allocation Cancel, Message Type 50 – GiveUp, Message Type 51 - GiveUp Cancel, Message Type 55 - As of GiveUp, Message Type 56 - As of GiveUp Cancel
2.0	2014-09-01	• Updated the definition of the field *Account Type* to the *Trade* Message type structure. • Added the field *Opposite Account Type* to the *Trade* Message type structure. • Updated the length of all messages.
2.1	2017-01-20	• Floor Trade: Added a value to AtrTradeType (Section 3.5.9) • Minor editing
3.0	2021-05-21	• New Section 2.2 for ATR Protocol versions • Drop-Copy give-up and allocation for Designated Firm (Section 2.1) • Added new TradeType C - Cross and Qualified Contingent Cross Orders (Section 3.5.9) • Added new Account Types (Y: Floor Broker Dealer, Z: Floor Market Maker) to fields Account Type and Opposite Account Types (Section 3.5.9) • Added Participant Session Name to Trade message (Section 3.5.9) • Defined new message structure for Give-up with addition of Participant Session name (Section 3.5.17) • Adjusted size of trade, allocation, and give-up messages • New Error code for "Invalid Signon" (Section 3.5.22) • Added Protocol version in message sequence diagrams (Section 4)

4.0	2022-09-20	New ATR protocol version **A2** • Section 2.2. – ATR protocol A2 The following Message Types were decommissioned in the A2 protocol (relative to A0 and A1) • Message Type 35 – As of Trade • Message Type 36 – As of Trade Cancellation • Message Type 45 – As of Trade Allocation • Message Type 46 – As of Trade Allocation Cancel • Message Type 55 – As of Give-Up • Message Type 56 – As of Give-Up Cancel "AsOf Trade" is available in the Trade, Allocation, Give-Up messages (and their corresponding Cancel messages) with TradeType 'A' (AsOf) In A2 protocol, sequence number is increased to 8 (from 6 in previous protocol versions) • Section 3.4 – ATR sequence number increase to 8 in the ATR Header. **Impacts all messages since they all use the ATR Header** • Section 3.5.5 - Message Type 04 – Restart Request – field "Sequence Number" increased to 8 • Section 3.5.8 - Message Type 09 – Client Signon – field "Initial Sequence Number" increased to 8 Updaded Client Signon (Login) in A2 protocol: • Section 3.5.8 – Message Type 09 – Client Signon – new fields added for user authentication • Section 3.5.10 – Message Type 10 – Client Signon Acknowledgment (new message added) • Section 7 – Password Encoding (new section added) Added new fields "UniqueTransactionId" "ParentTransactionId" and "Opposite Executing Broker" for all outbound business messages: • Section 3.5.10 - Message Type 30 - Trade • Section 3.5.11 - Message Type 31 – Trade Cancel • Section 3.5.12 - Message Type 40 – Allocation • Section 3.5.13 - Message Type 41 – Allocation Cancel • Section 3.5.17 - Message Type 50 – Give-Up • Section 3.5.18 - Message Type 51 – Give-Up Cancel Added new Inbound business messages: • Section 3.5.14 - Message Type 42 – New Allocation • Section 3.5.15 - Message Type 43 – Modify Allocation • Section 3.5.16 - Message Type 44 – Delete Allocation • Section 3.5.19 - Message Type 52 – New Give-Up • Section 3.5.20 - Message Type 53 – Modify Give-Up • Section 3.5.21 - Message Type 54 – Delete Give-Up Error Message • Section 3.5.23 – Updated Error Message and new Error Codes

VERSION	DATE	CHANGE DESCRIPTION
		New Section 4 – Connection and Recovery Management • Client Signon • Recovery Management New Section 5 (ATR Business Message Keys) • Trade, Allocation / Allocation Cancel, Give-Up / Give-Up Cancel • New, Modify, Cancel Allocation • New, Modify, Cancel Give-Up New Section 6 (ATR Message Sequence) added: • Trade Processing • Allocation Processing • Give-Up Processing New Section 7 (Password Encoding) • Password Encoding
4.1	2022-12-20	Section 3.5.10 – Message Type 30 – Trade • Updated definition of field “Opposite Executing Broker” • Also applies to Message Type 31 - Trade Cancel, Message Type 40 - Allocation, and Message Type 41 - Allocation Cancel Section 3.5.17 – Message Type 50 – Give-Up • Updated definition of field “Opposite Executing Broker” • Also applies to Message Type 51 - Give-Up Cancel
4.2	2023-10-17	Added FLEX Symbology in sections: • 3.5.10 – Message Type 30 – Trade • 3.5.17 – Message Type 50 – Give-Up
4.3	2024-04-23	**New ATR protocol version A3** to support “Additional Client Memo” • Section 2.2. – ATR protocol A3 New field “Additional Client Memo” in the following message types: • Trade, Trade Cancel • Allocation, Allocation Cancel, New Allocation, Modify Allocation • Give-Up, Give-Up Cancel, New Give-Up, Modify Give-Up Sections updated to add new field “AdditionalClientMemo” • 3.5.10 - Message Type 30 – Trade • 3.5.14 - Message Type 42 – New Allocation • 3.5.17 - Message Type 50 – Give-Up

VERSION	DATE	CHANGE DESCRIPTION
4.4	2024-08-10	Updated definition of “CMTA Broker” field in sections: • 3.5.10 – Message Type 30 – Trade • 3.5.14 – Message Type 42 – New Allocation • 3.5.17 – Message Type 50 – Give-Up Updated Error Text on invalid CMTA in section: • 3.5.23 – Message Type 99 – Error Message
4.5	2024-09-18	Updated FLEX Symbology to support Cash-Settled FLEX in sections: • 3.5.10 – Message Type 30 – Trade • 3.5.17 – Message Type 50 – Give-Up

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Section 1 Introduction

The purpose of this document is to detail the specifications of the BOX Options Market LLC (“BOX”) Automated Trade Reporting (“ATR”) data feed.

1.1 Objective

The main objective of this Guide is to provide Participants with the functionality required to interact with the BOX ATR data feed.

1.2 Scope

This document includes:

- ATR service description
- Message format and definitions
- Connection management and recovery management flow

1.3 BOX Contact

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1.4 Acronyms and Terms

Below is the definition of the acronyms and terms used throughout this document

ACRONYM AND TERM	DEFINITION
Clearing Participant	Clearing Participant means an Options Participant that is self-clearing or an Options Participant that clears BOX Transactions for other Options Participants of BOX
Give-Up Source Participant	Represents the executing Participant that Gives-Up the trade to another Participant.
Give-Up Receiving Participant	Represents the Participant that receives a trade (Give-Up) from another executing Participant.
ATR Server	The logical application that accepts connections from Participants to access the ATR feed.
Drop Copy Participant	A Participant that has been designated to receive a copy of specific non trade messages.

Section 2 Overview

2.1 ATR Description

The ATR consists of a private, real time feed containing Trades, Give-Ups, and Allocations executed on BOX. The private feature allows firms to receive only the following:

- Trades, Give-Ups, and Allocations in which they are the Participant who executed the trade ("Executing Participant").
- Trades, Give-Ups, and Allocations in which they are the Clearing Participant.
- Give-Ups and Allocations in which they are the receiving Participant of a Give-Up.
- Give-Ups and Allocations in which they are designated as Drop-Copy Participants. Only one Drop-Copy Participant can be assigned per Allocation or Give-Up.

Note, the Trades, Give-Ups, and Allocations displayed in the ATR are only for activity on BOX. This can include the Trades done on BOX to offset Trades at an away exchange.

2.2 ATR Protocol

This document details the ATR Protocol Version A3.

For previous versions, please contact the MOC (refer to Section 1.3).

2.3 Communication

The ATR service is provided through a standard TCP/IP communication link. Once access is requested, a specific IP Port will be designated by BOX for the ATR. Each BOX Participant must maintain a configuration that identifies the ATR Server IP Address, IP Port Number, and the Participant

Username and Password for Login.

Note: ATR service set-up, IP addresses, and IP Port Number must be obtained from BOX.

Each Participant must ensure that it has a configuration file to control the time and destination of the connection and is responsible for initiating the connection to the ATR Server in a timely manner.

The ATR Server does not initiate any TCP/IP communications sessions with the ATR Participant. After the ATR Participant has made the connection to the ATR Server, it must transmit a login message to identify and authenticate itself.

Section 3 Messages

This section includes:

- Message List
- Message Format and Definitions

3.1 Message List

The following messages are supported in this version of the ATR:

Message Name	Message Type	Source	
		Client (Particpant)	Server (BOX)
Start Of Day	00		X
Start Of Day Acknowledgement (Optional)	01	X	
Circuit Assurance	02		X
Circuit Response (Optional)	03	X	
Restart Request	04	X	
Restart Accepted	05		X
End Of Trading	08		X
Client Signon	09	X	
Client Signon Acknowledgment	10		X
Trade	30		X
Trade Cancel	31		X
Allocation	40		X
Allocation Cancel	41		X
New Allocation	42	X	
Modify Allocation	43	X	
Delete Allocation	44	X	
Give-Up	50		X

MESSAGE NAME	MESSAGE TYPE	SOURCE	
		CLIENT (PARTICPANT)	SERVER (BOX)
Give-Up Cancel	51		X
New Give-Up	52	X	
Modify Give-Up	53	X	
Delete Give-Up	54	X	
Acknowledgement Message	98	X	X
Error Message	99		X

3.2 Conventions

The notation convention for elements of the ATR specifications in the Data Type column are:

- “N” character means numeric values from 0 to 9
- “A” character means any US-ASCII alpha or numeric character
- Elements separated by a vertical line ‘|’ are alternatives
- [blank] means one space (ASCII 32)

3.3 Message Format

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28	A	Refer to Section – Message Header
Body of message	Up to 192 bytes	N	**Message Body** — **Nbr. of Bytes** 00 Start Of Day — 0 01 Start Of Day Acknowledgement — 0 02 Circuit Assurance — 0 03 Circuit Response — 0 04 Restart Request — 8 05 Restart Accepted — 0 08 End Of Trading — 0 09 Client Signon — 36 10 Client Signon Acknowledgement — 8 30 Trade — 184 31 Trade Cancel — 184 40 Allocation — 184 41 Allocation Cancel — 184 42 New Allocation — 78 43 Modify Allocation — 78 44 Delete Allocation — 25 50 Give-Up — 192 51 Give-Up Cancel — 192 52 New Give-Up — 78 53 Modify Give-Up — 78 54 Delete Give-Up — 25 98 Acknowledgement Message — 0 99 Error Message — 84
ETX	1	A	ASCII character 0x03

3.4 Message Header (28 bytes)

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Source	4	A	Contains the mnemonic of the message source. BOX – For BOX or the firm's clearing number.
Destination	4	A	Contains the mnemonic of the message destination. BOX – For BOX or the firm's clearing number.
Message Type	2	N	00: Start of Day 01: Start of Day Acknowledgement 02: Circuit Assurance 03: Circuit Response 04: Restart Request 05: Restart Accepted 08: End of Trading 09: Client Signon 10: Client Signon Acknowledgment 30: Trade 31: Trade Cancel 40: Allocation 41: Allocation Cancel 42: New Allocation 43: Modify Allocation 44: Delete Allocation 50: Give-Up 51: Give-Up Cancel 52: New Give-Up 53: Modify Give-Up 54: Delete Give-Up 98: Acknowledgement Message 99: Error Message
Message Flag	1	A	R: Re-transmitted message D: Duplicated message blank: Normal message
Control Byte	1	A	Unused Always [blank]
Sequence Number	8	N	Official message number formatted by the sender. This number must be reset every morning to 1 and is normally incremented by one with each message sent. In the [1,99999999] range, right justified, zero padded.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Acknowledgement Sequence Number	8	N	Original outbound number of the message for which this response or Acknowledgement is issued. In the [1,99999999] range, right justified, zero padded.

3.5 Message Body

The message body contains the message type.

3.5.1 Message Type 00 – Start Of Day (28 bytes)

Outbound Message : ATR Server to Participant

This message is used to advise the Participant about the initiation of application-to-application communication.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header

3.5.2 Message Type 01 – Start Of Day Acknowledgement (28 bytes)

Inbound Message : Participant to ATR Server

This message is **optional** and can be sent by the Participant as acknowledgement to the Start of Day (00) message to advise the ATR Server that it is ready to exchange messages.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header Acknowledgement sequence number must be the number of the Start of Day (Message Type 00) message.

3.5.3 Message Type 02 – Circuit Assurance (28 bytes)

Outbound Message : ATR Server to Participant

This message is sent by the ATR Server to verify that the Participant's application is running correctly. It is sent during the day at a fixed time interval (5 minutes). Note that the Circuit Assurance message may appear at any time during the session, even as part of the connection establishment handshake.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header The sequence number and Acknowledgement sequence number fields may contain zero to reduce the need for the client program to track these messages for retransmit or restart situations.

3.5.4 Message Type 03 – Circuit Response (28 bytes)

Inbound Message : Participant to ATR Server

This message is a response to a Circuit Assurance message. It is **optional** and may be returned by the Participant in response to a Circuit Assurance message.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header

3.5.5 Message Type 04 – Restart Request (36 bytes)

Inbound Message : Participant to ATR Server

The Participant can use this message to restart their communications session. When the Participant sends a Restart Request, the body sequence number is used to request that the ATR Server begin its restart at this sequence number. Once the Restart Request is sent, the ATR Server will begin transmitting messages in the normal sequence.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header
Sequence Number	8	N	If the sequence number is higher than any message number known to the ATR Server, the Participant will receive the next message from the last sequence number which was sent by the ATR Server. In the [1,99999999] range, right justified, zero padded

3.5.6 Message Type 05 – Restart Accepted (28 bytes)

Outbound Message : ATR Server to Participant

This message is the acknowledgement response to a Restart Request message.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header

3.5.7 Message Type 08 – End Of Trading (28 bytes)

Outbound Message : ATR Server to Participant

This message is sent by the ATR Server to advise Participants about the end of the trading day. After the end of trading message has been received, the Participant may request retransmission of any messages it needs prior to the eventual shutdown of the ATR service for the trading day.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header

3.5.8 Message Type 09 – Client Signon (64 bytes)

Inbound Message : Participant to ATR Server

This message must be the first message sent by the Participant after establishing (or re-establishing) its TCP/IP session with the server. If the initial sequence number is higher than any message number known to the ATR Server, it will send the next message from the last sequence number known by the ATR Server.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header
Member Number	4	N	In the [0001,9999] range Right justified, zero padded
Initial Sequence Number	8	N	The ATR Server will begin at this specific sequence number In the [1,99999999] range Right justified, zero padded
Protocol Version	2	A	Protocol versions supported: • A2, A3
Time	6	N	Time at which the Client Signon is sent (HHMMSS)
Username	8	X	Identifies the User for a connection. The Username must be configured by BOX MOC (Please contact BOX MOC for details)
Password (MD5 Encryption)	8	X	Used when establishing an ATR Logical connection See Section 7 for details on how to encode password. (Please contact BOX MOC for details about new password procedure or password reset)

3.5.9 Message Type 10 – Client Signon Acknowledgment (36 bytes)

Outbound Message : ATR Server to Participant

On successful authentication, a Client Signon Acknowledgment message will be returned to the Participant.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header
Last User Sequence Number	8	N	This will be the last user sequence number which was sent by the Participant to the ATR Server.

3.5.10 Message Type 30 – Trade (212 bytes)

Outbound Message : ATR Server to Participant

This message contains trade information.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header
Trade Number	15	A	Standard TradeId consisting of: Side field: only the first letter of the verb, i.e., "B" for Buy and "S" for Sell InstrumentId and GroupId field TradeId field
Transaction Type	1	A	Side of the trader in the present trade B: Buy S: Sell
Timestamp	6	A	Time at which the trade occurred (Eastern Time) HHMMSS
Symbol	30	A	Instrument symbol Left justified, Blank padded

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
			FLEX Symbology: Symbol is prefixed by one of the following: • '1' (American FLEX Option, Physical-Settled) • '2' (European FLEX Option, Physical-Settled) • '3' (American FLEX Option, Cash-Settled) • '4' (European FLEX Option, Cash-Settled)
Expiration Date	6	A	Expiration date of the instrument YYMMDD
Strike Price	8	N	Option Strike Price The format is defined by the new field 'Strike Price Fraction Indicator'. Filled with zero when the instrument is not an option Right justified, Zero padded
Strike Price Fraction Indicator	1	A	Define the number of decimal places or fraction positions
Option Type	1	A	C: Call P: Put Blank: If not an option
Volume	8	N	Volume of the trade Right justified, Zero padded
Price (x 10000)	8	N	Transaction price Right justified, Zero padded
CMTA Broker	4	N	Contains the numeric portion of the Firm ID who will receive the trade in a CMTA
Account Type	1	A	Account type of the Executing Broker of the trade 6: Public Customer 7: Broker Dealer 8: Market Maker T: Professional Customer V: Floor Broker Customer W: Broker Dealer cleared as Customer X: Away Market Maker Y: Floor Broker Dealer Z: Floor Market Maker

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Sub-trader ID	3	A	For Allocation (40) and Allocation Cancel (41) messages, the 'Sub-trader ID' field contains the Market Maker OCC sub-account. For Trade (30) and Trade Cancel (31) messages, the 'Sub-trader ID' field contains the last 2 digits of the Trader ID.
Open Close	1	A	Position of the trade O: Open C: Close
Executing Broker	4	N	Contains the numeric portion of the BOX Participant ID executing the trade In the [0001,9999] range Right justified, zero padded
Client Account Number	12	A	Left justified, right blank filled Used with Client Order ID and Client Memo for Order Identification
Client Order ID	20	A	Left justified, right blank filled Used with Client Account Number and Client Memo for Order Identification
Client Memo	16	A	Left justified, right blank filled Used with Client Account Number and Client Order ID for Order Identification
Liquidity Status	1	A	Possible values: ? : Unknown ' ': None M: Maker T: Taker

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
TradeType	1	A	Possible values: N: Normal – A regular trade O: CrossedOrders – A trade with the same Firm ID on both sides T: TraderCrossedOrders – A trade with the same Trader ID on both sides M: TPR Trade – A trade done by a Third Party Router P: PIP – A trade done at the end of a PIP auction F: FirmDo – A trade resulting from a Directed Order A: AsOf – A trade entered by the BOX MOC to correct a trade executed on a previous day E: Late – A trade entered by the BOX MOC to correct a trade executed on the same day S: Solicitation – A trade done as part of a Solicitation auction I: Facilitation – A trade done as part of a Facilitation auction R: FloorTrade C: Customer Cross Orders or Qualified Contingent Cross Orders
Opposite Account Type	1	A	Account type of the opposite Executing Broker of the trade 6: Public Customer 7: Broker Dealer 8: Market Maker T: Professional Customer V: Floor Broker Customer W: Broker Dealer cleared as Customer X: Away Market Maker Y: Floor Broker Dealer Z: Floor Market Maker
Participant Session Name	12	A	Session Name of the Participant who executed the trade • Filled for Regular (Trade, Trade Cancel, Allocation and Allocation Cancel) • Empty for AsOf (Trade, Trade Cancel, Allocation and Allocation Cancel) when TradeType is 'A' (AsOf)

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Unique Transaction Id	10	N	Unique Identification for this message. Applies to: • Trade (30) • Trade Cancel (31) • Allocation (40) • Allocation Cancel (41)
Parent Transaction Id	10	N	This field will be empty for Trade(30) and TradeCancel (31) Otherwise, it identifies the Parent Transaction Id of of the Trade For example: For an Allocation, the Unique Transaction Id is for the Allocation message, and the Parent Transaction Id refers to its parent Trade under which the Allocation was created
Opposite Executing Broker	4	N	Populated with the Counterpart Executing Firm ID when the message is sent to the Executing Broker Otherwise will be filled with '0000'.
Additional Client Memo	16	A	Left justified, right blank filled Free text field

3.5.11 Message Type 31 – Trade Cancel (212 bytes)

Outbound Message : ATR Server to Participant

This message contains trade cancellation information. Uses the same structure as the Message Type 30 – Trade.

3.5.12 Message Type 40 – Allocation (212 bytes)

Outbound Message : ATR Server to Participant

This message contains Allocation information. Uses the same structure as the Message Type 30 – Trade.

3.5.13 Message Type 41 – Allocation Cancel (212 bytes)

Outbound Message : ATR Server to Participant

This message contains Allocation cancellation information. Uses the same structure as the Message Type 30 – Trade.

3.5.14 Message Type 42 – New Allocation (106 bytes)

Inbound Message : Participant to ATR Server

This message is sent by the Executing Broker to **create** an Allocation under an existing trade.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header
Reference Transaction Id	10	N	For Message Type **42** – New Allocation Identifies the Unique Transaction ID of the parent Trade under which the Allocation is to be created. For Message Type **43** – Modify Allocation Identifies the Unique Transaction ID of the original Allocation which is to be modified. For Message Type **52** – New Give-Up Identifies the Unique Transaction ID of the parent Trade under which the Give-Up is to be created. For Message Type **53** – Modify Give-Up Identifies the Unique Transaction ID of the original Give-Up which is to be modified.
Reference Trade Number	15	A	Identification of the Trade received from the Message Type **30** - Trade This refers to the Trade Number under which a New Allocation (or Give-Up) is to be created or under which an existing Allocation (or Give-Up) is to be modified.
Give-Up Firm	4		Contains the Give-Up Firm Applies only for Message Type **52** (New Give-Up) or Message Type **53** (Modify Give-Up), otherwise leave blank.
Volume	8	N	Volume of the Allocation (or Give-Up)

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
			Must be equal to or less than the original parent Trade. Right justified, Zero padded
Account Type	1	A	Account type of the Executing Broker of the Trade 6: Public Customer 7: Broker Dealer 8: Market Maker T: Professional Customer V: Floor Broker Customer W: Broker Dealer cleared as Customer X: Away Market Maker Y: Floor Broker Dealer Z: Floor Market Maker
Open Close	1	A	Open/Close position O: Open C: Close
Client Account Number	12	A	Left justified, right blank filled Used with Client Order ID and Client Memo for Order Identification
Sub-trader ID	3	A	Market Maker OCC sub-account.
CMTA Broker	4	N	Contains the numeric portion of the Firm ID who will receive the trade in a CMTA
Client Memo	16	A	Left justified, right blank filled Used with Client Account Number and Client Order ID for Order Identification
Additional Firm	4	N	Contains the numeric portion of the BOX Participant ID (FirmID) to which this message is to be drop-copied In the [0001,9999] range Right justified, zero padded
Additional Client Memo	16	A	Left justified, right blank filled Free text field Format Rules: None of the following ASCII characters are permitted : “#” (pound) “%” (percent sign)

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
			“,” (comma) “;” (semicolon) ‘ “ ‘ (double quote) “|” (pipe) ASCII characters in the decimal code ranges between 0 and 31 and 127 and up are **not** permitted.

3.5.15 Message Type 43 – Modify Allocation (106 bytes)

Inbound Message : Participant to ATR Server

This message is sent by the Executing Broker to **modify** a previously created Allocation under an existing trade.

- Only the Executing Broker may modify an Allocation of his Firm.
- The ReferenceTransactionId must refer to the Allocation which is to be modified.
- The ReferenceTradeNumber is the TradeNumber of the Allocation to be modified.

This message has the same structure as the Message Type 41 – New Allocation.

3.5.16 Message Type 44 – Delete Allocation (53 bytes)

Inbound Message : Participant to ATR Server

Message sent by the Executing Broker to **delete** (or cancel) a previously created Allocation.

- Only the Executing Broker may delete an Allocation from his Firm.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section – Message Header
Reference Transaction Id	10	N	Delete Allocation (or Give-Up): Identifies the Unique Transaction Identification of the Allocation (or Give-Up) which is to be deleted.
Reference Trade Number	15	A	This refers to the Trade Number of the Allocation (or Give-Up) which is to be deleted.

3.5.17 Message Type 50 – Give-Up (220 bytes)

Outbound Message : ATR Server to Participant

Message sent by the ATR Server that contains Give-Up information.

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Message Header	28		Refer to Section 3.4
Trade Number	15	A	Standard TradeId consisting of: Side field: only the first letter of the verb, i.e., “B” for Buy and “S” for Sell InstrumentId and GroupId field TradeId field
Transaction Type	1	A	Side of the trader in the present trade B: Buy S: Sell
Timestamp	6	A	Time at which the trade occurred (Eastern Time) HHMMSS
Symbol	30	A	Instrument symbol Left justified, Blank padded <u>FLEX Symbology:</u> Symbol is prefixed by one of the following: • ‘1’ (American FLEX Option, Physical-Settled) • ‘2’ (European FLEX Option, Physical-Settled) • ‘3’ (American FLEX Option, Cash-Settled) • ‘4’ (European FLEX Option, Cash-Settled)
Expiration Date	6	A	Expiration date of the instrument YYMMDD
Strike Price	8	N	Option Strike Price The format is defined by the new field ‘Strike Price Fraction Indicator.’ Filled with zero when the instrument is not an option Right justified, Zero padded
Strike Price Fraction Indicator	1	A	Define the number of decimal places or fraction positions

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Option Type	1	A	C: Call P: Put Blank: If not an option
Volume	8	N	Volume of the trade Right justified, Zero padded
Price (x 10000)	8	N	Transaction price Right justified, Zero padded
CMTA Broker	4	N	Contains the numeric portion of the Firm ID who will receive the trade in a CMTA deal.
Account Type	1	A	Account type of the Executing Broker of the trade 6: Public Customer 7: Broker Dealer 8: Market Maker T: Professional Customer V: Floor Broker Customer W: Broker Dealer cleared as Customer X: Away Market Maker Y: Floor Broker Dealer Z: Floor Market Maker
Sub-trader ID	3	A	For Give-Up (50), Give-Up Cancel (51) messages, the 'Sub-trader ID' field contains the Market Maker OCC sub-account.
Open Close	1	A	Position of the trade O: Open C: Close
Executing Broker	4	N	Contains the numeric portion of the BOX Participant ID executing the trade In the [0001,9999] range Right justified, zero padded
Client Account Number	12	A	Left justified, right blank filled Used with Client Order ID and Client Memo for Order Identification

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Client Order ID.	20	A	Left justified, right blank filled Used with Client Account Number and Client Memo for Order Identification
Client Memo	16	A	Left justified, right blank filled Used with Client Account Number and Client Order ID for Order Identification
Liquidity Status	1	A	Possible values: ? : Unknown ' ': None M: Maker T: Taker
TradeType	1	A	Possible values: N: Normal – A regular trade O: CrossedOrders – A trade with the same Firm ID on both sides T: TraderCrossedOrders – A trade with the same Trader ID on both sides M: TPR Trade – A trade done by a Third Party Router P: PIP – A trade done at the end of a PIP auction F: FirmDo – A trade resulting from a Directed Order A: AsOf – A trade entered by the BOX MOC to correct a trade executed on a previous day E: Late – A trade entered by the BOX MOC to correct a trade executed on the same day S: Solicitation – A trade done as part of a Solicitation auction I: Facilitation – A trade done as part of a Facilitation auction R: FloorTrade C: Customer Cross Orders or Qualified Contingent Cross Orders

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
Opposite Account Type	1	A	Account type of the opposite Executing Broker of the trade 6: Public Customer 7: Broker Dealer 8: Market Maker T: Professional Customer V: Floor Broker Customer W: Broker Dealer cleared as Customer X: Away Market Maker Y: Floor Broker Dealer Z: Floor Market Maker
GiveUpSource	4	A	Firm ID that is giving up the trade, as per the same field defined in the Give-Up Agreement.
GiveUpDestination	4	A	Firm ID to which the trade is given up, as per the same field defined in the Give-Up Agreement.
Participant Session Name	12	A	Session Name of the Participant who executed the trade. • Filled for Source Participant executing the Give-Up and Give-Up Cancel • Empty for Destination Participant receiving the Give-Up and Give-Up Cancel • Empty for AsOf (Give-Up and Give-Up Cancel)
Unique Transaction Id	10	N	Unique Identification for this message. Applies to • Give-Up (50) • Give-Up Cancel (51)
Parent Transaction Id	10	N	Unique Identification of the parent Unique Transaction Id Parent can be • Trade (30) For a Give-Up, the Unique Transaction Id is for the Give-Up message, and the Parent Transaction Id refers to its parent Trade under which the Give-Up was created
Opposite Executing Broker	4	N	Populated with the Counterpart Executing Firm ID when the message is sent to the Executing Broker

FIELD NAME	LENGTH (BYTES)	DATA TYPE	DEFINITION / VALIDATION RULES
			Otherwise will be filled with '0000'.
Additional Client Memo	16	A	Left justified, right blank filled Free text field Format Rules: None of the following ASCII characters are permitted : "#" (pound) "%" (percent sign) "," (comma) ";" (semicolon) ' " ' (double quote) "|" (pipe) No ASCII characters in the decimal code ranges between 0 to 31, 127 and up are permitted.

3.5.18 Message Type 51 – Give-Up Cancel (216 bytes)

Outbound Message : ATR Server to Participant

This message is sent by the ATR Server that contains Give-Up Cancel information. Uses the same structure as the Message Type 50 - Give-Up.

3.5.19 Message Type 52 – New Give-Up (106 bytes)

Inbound Message : Participant to ATR Server

This message is sent by the Executing Broker to **create** a Give-Up under an existing trade.

Only the Executing Broker may Give-Up a trade of his Firm to another firm (the Give-Up Receiving Firm), provided there is a Give-Up Agreement with the Receiving Firm.

The New Give-Up message has the same structure as the Message Type 42 – New Allocation. The Give-Up Firm field is mandatory.

3.5.20 Message Type 53 – Modify Give-Up (106 bytes)

Inbound Message : Participant to ATR Server

This message is sent by the Executing Broker to **modify** a previously created Give-Up.

Only the Executing Broker may modify a previous Give-Up.

This message has the same structure as the Message Type 42 – New Allocation. The ReferenceTransactionId must refer to the Unique TransactionId of the Give-Up which is to be modified. The ReferenceTradeNumber is the TradeNumber of the Give-Up.

3.5.21 Message Type 54 – Delete Give-Up (53 bytes)

Inbound Message : Participant to ATR Server

This message is sent by the Executing Broker to **delete** a previously created Give-Up. This has the same message structure as Message Type 44 – Delete Allocation.

Only the Executing Broker may delete a previous Give-Up.

The ReferenceTransactionId must refer to the Unique TransactionId of the Give-Up which is to be deleted.The ReferenceTradeNumber is the TradeNumber of the Give-Up.

3.5.22 Message Type 98 – Acknowledgement Message (28 bytes)

Outbound Message : ATR Server to Participant

This message is sent as an acknowledgement of another message.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header

3.5.23 Message Type 99 – Error Message (up to 112 bytes)

Outbound Message : ATR Server to Participant

This message is sent by the ATR Server when an error occurs on a message received from Participant.

Field Name	Length (Bytes)	Data Type	Definition / Validation Rules
Message Header	28		Refer to Section – Message Header Acknowledgement sequence number must be the number of the message that is in error.
Reference Message Type	2	N	Message Type of the message which caused the error.
Error Code	4	N	Refer to Error Codes below.
Error Text	80	A	Contains the error description.

Error Codes

The following table displays the Error Text that will appear in an Error Message.

BOX reserves the right to add new Error Codes and their associated Error Text without a change to the current ATR Protocol version. ATR Participants are required to ensure that their application can support new Error Codes and Error Text. This information will be communicated via an Informational Circular.

ERROR CODE	ERROR TEXT
0001	Errors related to user identification. Possible Error Texts can be: • Invalid username or password • Invalid firm • Invalid user profile
0002	Errors related to user account Possible Error Texts can be: • User account is not activated • User account is locked
0003	Errors related to protocol-level: Possible Error Texts can be: • User is not signed on • Invalid message type • Invalid message length • Message is out of sequence • Unauthorized protocol version • Unauthorized message type
0004	Errors related to business messages: Possible Error Texts can be: • Invalid Reference Transaction Id • Invalid Reference Trade number • Operation not authorized on the reference transaction • Invalid Give-Up firm • CMTA must be numeric and a maximum of 4 characters
0005	Errors related to internal application Possible Error Texts can be: • Unable to process request

3.6 End-Of-Text (ETX)

An End-of-Text (ETX) ASCII character must follow each TCP/IP message sent or received by the ATR Server. This delimiter character is hexadecimal 03 (0x03) and must appear only at the end of the message content.

Section 4 Connection and Recovery Management

This section presents several examples of connection management flow.

4.1 Client Signon

After establishing a TCP/IP connection to the ATR Server, the Participant needs to login using a Client Signon (09) message.

If the Participant logins with 3 consecutive unsuccessful attempts, the ATR Server will lock the Participant's account. Unlocking the account will require the MOC to reset the password and unlock the account.

ID#	ATR PARTICIPANT		BOX ATR SERVER
	TCP/IP Connection Request	→	
			TCP/IP Connection Established
1	Client Signon (09) Username, Password (MD5), Time Protocol Version: A2, A3	→	Receives Client Signon Server authenticates user
			Successful Login
2		←	Client Signon Acknowledgement (10)
			Unsuccessful Login
3		←	Error Message (99) AckSequenceNumber = SequenceNumber of Client Signon (09) ReferenceMsgType = 09 (Client Signon) ErrorCode and ErrorText(Incorrect Username and or Password)
			3 consecutive Unsuccessful Logins
4		←	Error Message (99) AckSequenceNumber = SequenceNumber of Client Signon (09) ReferenceMsgType = 09 (Client Signon) ErrorCode and ErrorText (AccountLocked)

4.2 Recovery Management

A Participant can request re-transmission of messages from a specific sequence number using the Restart Request (04) message. When the Restart Request message is accepted, the ATR Server begins its restart at this sequence number until the normal sequence of messages is reached.

If the sequence number is higher than any message number known to the ATR Server, the Participant will receive the next message from the last sequence number which was sent by the ATR Server.

ID#	ATR PARTICIPANT		BOX ATR SERVER
1	Restart Request(04) SequenceNumber = 1000	→	Receives Restart Request
If requested sequence number is less than the last sequence number sent by ATR Server			
2		←	Restart Accepted (05)
3		←	Business Messages (e.g Trade, Allocation, Give-Up, etc). Frorm SequenceNumber = 1000 to normal sequence
If requested Sequence Number is greater than the last Sequence Number sent by ATR Server			
4		←	Restart Accepted (05)
5		←	Business Messages (e.g Trade, Allocation, Give-Up, etc). Next message from the last sequence number which was sent by the ATR Server

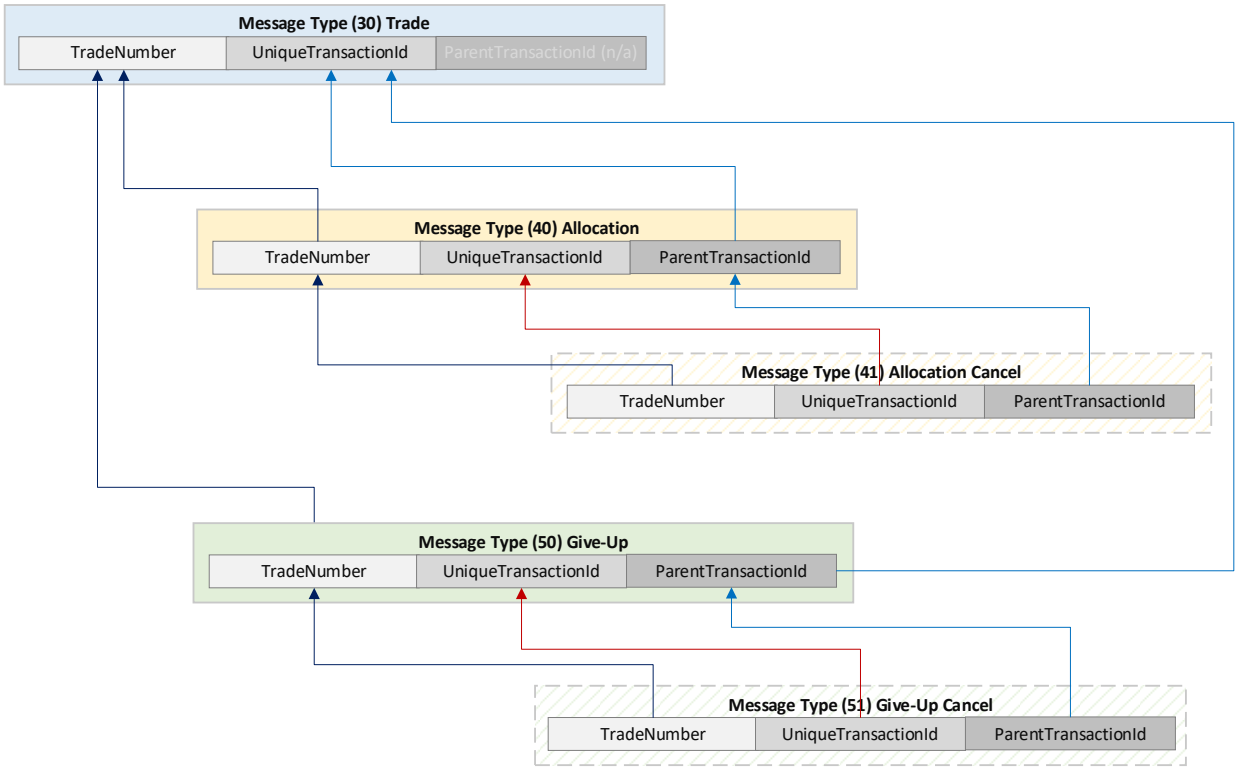
Section 5 ATR Business Message Keys

This section details the relationship keys between business messages.

5.1 Trade, Allocation / Allocation Cancel, Give-Up / Give-Up Cancel

The following diagram explains the relationship between:

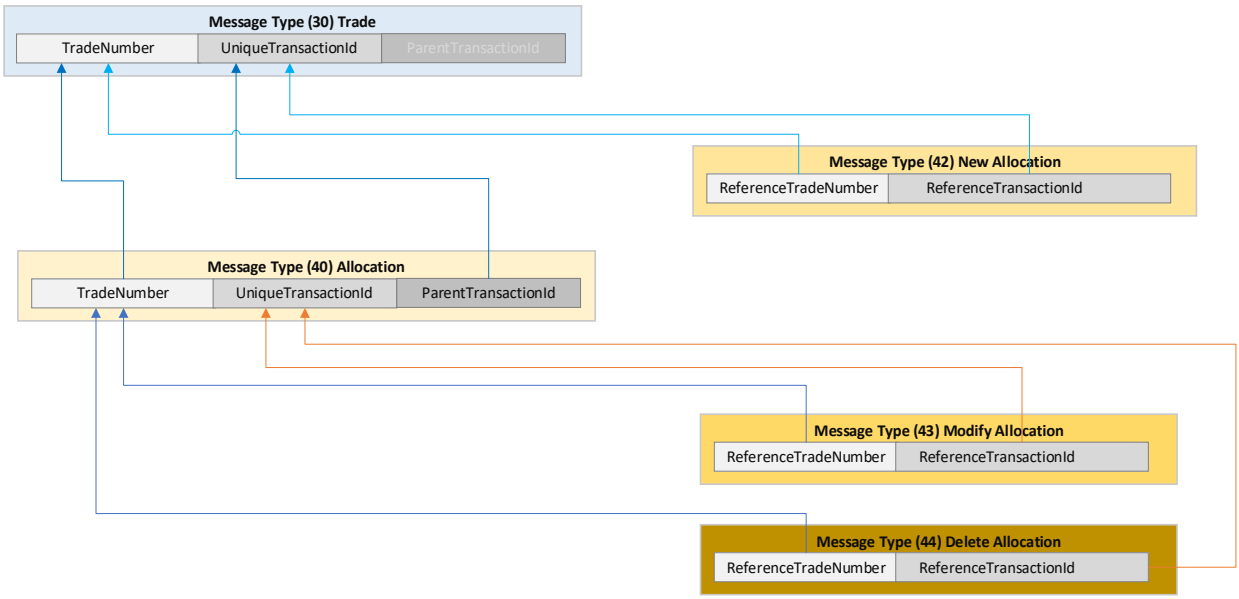
- A Trade and its child Allocation and Give-Up
- Allocation and its Allocation Cancel
- Give-Up and its Give-Up Cancel



5.2 New / Modify / Delete Allocation Operations

The following diagram explains the relationship between:

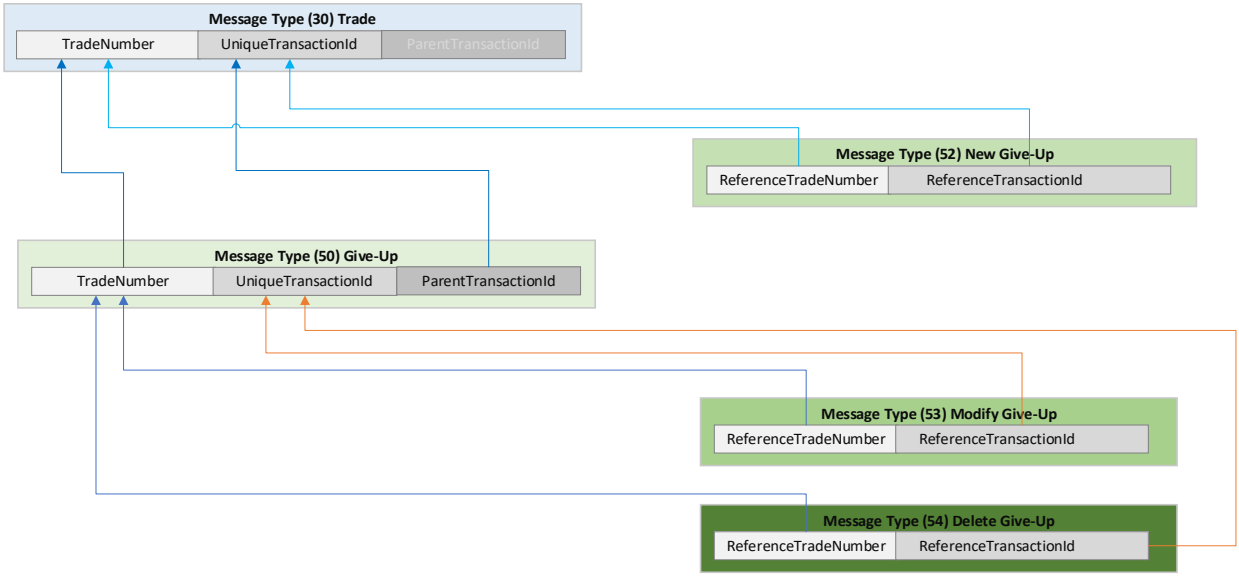
- New Allocation to create an Allocation from a Trade
- Modify Allocation to modify an existing Allocation
- Delete Allocation to cancel an existing Allocation



5.3 New / Modify / Delete Give-Up Operations

The following diagram explains the relationship between:

- New Give-Up to create a Give-Up from a Trade
- Modify Give-Up to modify an existing Give-Up
- Delete Give-Up to cancel an existing Give-Up



Section 6 ATR Business Message Sequence

This section details the message sequencing for the business messages.

6.1 Trade Processing

The following sequence shows the Trade and Trade Cancel processing. The number (NN) in brackets denotes the Message Type (refer to section Message Body).

6.1.1 Trade Message to Participant

A Trade message is generated by the ATR Server and is sent to the Buy and Sell side Executing Brokers of the Trade and their respective Clearing Firms.

BUY-SIDE PARTICIPANT		BOX ATR SERVER		SELL-SIDE PARTICIPANT
Executing Broker	←	Trade (30) UniqueTransactionId. = 123 TradeNumber = **B**1234560000001		
Clearing Firm	←	Trade (30) UniqueTransactionId. = 123 TradeNumber = **B**1234560000001		
		Trade (30) UniqueTransactionId. = 124 TradeNumber = **S**12345600000001	→	Executing Broker
		Trade (30) UniqueTransactionId. = 124 TradeNumber = **S**12345600000001	→	Clearing Firm

6.1.2 Trade Cancel Message to Participant

A Trade can be cancelled by the MOC, and the corresponding Trade Cancel messages will be disseminated to the Buy and Sell side Executing Brokers of the Trade and their respective Clearing Firms.

The Trade Cancel message will have the same UniqueTransactionId and TradeNumber as the original Trade that was cancelled.

BUY-SIDE PARTICIPANT		ATR SERVER		SELL-SIDE PARTICIPANT
Executing Broker	←	Trade Cancel (31) UniqueTransactionId. = 123 TradeNumber = **B**1234560000001		
Clearing Firm	←	Trade Cancel (31) UniqueTransactionId. = 123 TradeNumber = **B**1234560000001		
		Trade Cancel (31) UniqueTransactionId. = 124 TradeNumber = **S**12345600000001	→	Executing Broker
		Trade Cancel (31) UniqueTransactionId. = 124 TradeNumber = **S**12345600000001	→	Clearing Firm

6.2 Allocation Processing

The following describes the Allocation processing sequence:

1. Participant can send a New Allocation (42) message to create an Allocation under an existing trade or Give-Up.
2. Participant can delete an existing Allocation using the Delete Allocation (44) message.
3. Participant can modify an existing Allocation using the Modify Allocation (43) message. The system will cancel the previous Allocation and create the new one.

   The following message sequence diagram shows the Allocation processing from the Buy-side Participant. The Sell-side Allocation sequence diagram is the same as the Buy-side.

6.2.1 New Allocation

Particpants can create a New Allocation under an existing Trade for the whole or partial trade volume using the Message Type 42 – New Allocation with the following mandatory fields:

- ReferenceTransactionId must be set to the UniqueTransactionId of the Trade
- ReferenceTradeNumber must be set to the TradeNumber of the Trade

ID#	BUY-SIDE PARTICIPANT		ATR SERVER
1	New Allocation (42) ReferenceTransactionId. = 123 (Trade) ReferenceTradeNumber = B1234560000001 (refers to the Trade)	→	Receives New Allocation request
2	Executing Broker	←	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of New Allocation (42)
	The New Allocation is successfully created		
3	Executing Broker	←	Allocation (40) UniqueTransactionId = 456 (New Allocation Unique TransactionId.) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
4	Clearing Firm of Executing Broker	←	Allocation (40) UniqueTransactionId = 456 (New Allocation Unique TransactionId.) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
5	Drop-Copied to Additional Firm (If configured)	←	Allocation (40) UniqueTransactionId = 456 (New Allocation Unique TransactionId.) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
	Error - Allocation cannot be created		
6	Executing Broker	←	Error Message (99) AckSequenceNumber = SequenceNumber of New Allocation (42) ReferenceMsgType = 42 (New Allocation) ErrorCode and ErrorText

Besides using the New Allocation (42) message, an Allocation can also be created as follows:

- Allocation is automatically created upon trade if Executing Broker referenced an Allocation Key (QuickId) with Allocation instructions on order/auction entry.

- Participant with access to BOX TMS (TradeManagement) GUI creates an Allocation using the Interface.
- Participant sends an Allocation file with Allocation instructions.
- Participant requests MOC to create an Allocation on their behalf.

In the above cases, the ATR Participants will receive Allocation (40) messages (Lines 3, 4, 5)

If the Allocation cannot be created, the submitting Participant (Executing Broker) will receive an Error Message with the appropriate Error Code and Text (reason of rejection)(Line 6).

6.2.2 Delete Allocation

An existing Allocation can be cancelled using the Delete Allocation (44) message. When deleting an Allocation using this method:

- ReferenceTransactionId must be set to the UniqueTransactionId of the previous Allocation which is to be deleted.
- ReferenceTradeNumber must be set to the TradeNumber of the Trade of the previous Allocation which is being deleted.

As a result of the successful deletion of an Allocation, an Allocation Cancel (41) message will be returned to the Participant which will have the same UniqueTransactionId and TradeNumber as the Allocation that is being deleted.

ID	BUY-SIDE PARTICIPANT		ATR SERVER
	Executing Broker deletes an existing Allocation		
1	Delete Allocation (44) ReferenceTransactionId. = 456 (refers to Allocation which is to be cancelled) ReferenceTradeNumber = B1234560000001	→	Receives Delete Allocation request
2	Executing Broker	←	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of Delete Allocation (44)
			System successfully deletes existing Allocation
3	Executing Broker	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
4	Clearing Firm of Executing Broker	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
5	Drop-Copied to Additional Firm (If configured)	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
			System cannot cancel Allocation
6	Executing Broker	←	Error Message (99) AckSequenceNumber = SequenceNumber of Msg Delete Allocation (44) ReferenceMsgType = 44 (Delete Allocation) ErrorCode and ErrorText

An Allocation can be deleted by other means than sending a Delete Allocation Message (44):

- Participant with access to BOX TMS (TradeManagement) GUI deletes an Allocation using the Interface.
- Participant sends an Allocation File with new Allocation Instructions, which replaces a previously created Allocation(s) which will be deleted.
- Participant requests MOC to delete an Allocation on their behalf.

In the above cases, the Participant will receive Allocation Cancel (41) messages (Lines 3, 4, 5).

If the Allocation cannot be deleted, then the submitting Participant will receive an Error Message with the appropriate Error Code and Text (reason of rejection)(Line 6).

6.2.3 Modify Allocation

An existing Allocation can be modified with new terms using the Modify Allocation (43) message with the following fields:

- ReferenceTransactionId must be set to the UniqueTransactionId of the previous Allocation which is being modified
- ReferenceTradeNumber must be set to the TradeNumber of the Trade of the previous Allocation which is being modified

The modification will be processed as follows:

- Cancel the original Allocation
- Create a new Allocation as replacement

	BUY-SIDE PARTICIPANT		ATR SERVER
	Executing Broker modifies an existing Allocation		
1	Modify Allocation (43) ReferenceTransactionId = 456 (refers to the Allocation) RefrenceTradeNumber = B1234560000001	→	Receives Modify Allocation request
2	Executing Broker	←	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of Modify Allocation (43)
	System successfully modifies Allocation		
	Original Allocation is cancelled		
3	Executing Broker	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
4	Clearing Firm of Executing Broker	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
5	Drop-Copied to Additional Firm (If configured)	←	Allocation Cancel (41) UniqueTransactionId = 456 (same as Allocation) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
	New Allocation is created		
6	Executing Broker	←	Allocation (40) UniqueTransactionId = 457 (new Id) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
7	Clearing Firm of Executing Broker	←	Allocation (40) UniqueTransactionId = 457 (new Id) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001

8	Drop-Copied to Additional Firm (If configured)	←	Allocation (40) UniqueTransactionId = 457 (new Id) ParentTransactionId = 123 (refers to Trade) TradeNumber = B1234560000001
	Error - System cannot modify Allocation		
9	Executing Broker	←	Error Message (99) AckSequenceNumber = SequenceNumber of Modify Allocation (43) ReferenceMsgType = 43 (Modify Allocation) ErrorCode and ErrorText

An Allocation can be modified by other means than sending a Modify Allocation Message (43):

- Participant sends an Allocation File with existing Allocation but with modified terms (e.g quantity, sub-account, client account). The system will cancel the original Allocation and replace it with the new one.

Participants using the TMS GUI cannot modify an existing Allocation directly but must first cancel the original Allocation and create a new one.

In the above cases, the Participant will receive Allocation Cancel (41) messages (Line 3, 4, 5) followed by the new Allocation (40) messages (Lines 6, 7, 8)

If the Allocation cannot be modified, then the submitting Participant will receive an Error Message with the appropriate Error Code and Text (reason of rejection)(Line 9).

6.3 Give-Up Processing

The following sequences shows the Give-Up processing.

1. Participant can give-up a trade (for the full or partial quantity) using the New Give-Up (52) message.
2. Participant can cancel an existing Give-Up using the Delete Give-Up (54) message.
3. Participant can modify an existing Give-Up using the Modify Give-Up (53) message. The system will cancel the previous Give-Up and create the new one.

6.3.1 New Give-Up

Particpants can create a new Give-Up under an existing Trade for the whole or partial quantity of the Trade using the Message Type 52 – New Give-Up with the following mandatory fields:

- ReferenceTransactionId must be set to the UniqueTransactionId of the Trade.
- ReferenceTradeNumber must be set to the TradeNumber of the Trade.
- Give-Up Firm refers to the receiving Firm of the Give-Up. A Give-Up Agreement **must** be in place with the receiving Firm, otherwise the New Give-Up message will be rejected.

ID #	GIVE-UP SOURCE PARTICIPANT		BOX ATR SERVER		GIVE-UP RECEIVING PARTICIPANT
1	New Give-Up (52) ReferenceTransactionId. = 123 (refers to Id. of Trade) ReferenceTradeNumber = B1234560000001	——→	Request to create Give-Up		
2	Executing Broker (Give-Up Source Firm)	←——	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of New Give-Up (52)		
					Give-Up successfully created
					Give-Up confirmation to Source Firm
3	Executing Broker (Give-Up Source Firm)	←——	Give-Up (50) UniqueTransactionId = 789 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001		
4	Clearing Firm of Give-Up Source Firm	←——	Give-Up (50) UniqueTransactionId = 789 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001		

5	Drop-copied to (Additional Firm) of Give-Up Source Firm (If configured)	←	Give-Up (50) UniqueTransactionId = 789 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001		
	Give-Up to Receiving Firm				
6			Give-Up (50) UniqueTransactionId = 790 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001	→	Give-Up Receiving Firm
7			Give-Up (50) UniqueTransactionId = 790 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001	→	Clearing Firm of Give-Up Receiving Firm
8			Give-Up (50) UniqueTransactionId = 790 (of Give-Up) ParentTransactionId = 123 (Trade Id). TradeNumber = B1234560000001	→	Drop-copied to Firm of Give-Up Receiving Firm (If configured)
	Error – Give-Up cannot be created				
9	Executing Broker (Give-Up Source Firm)	←	Error Message (99) AckSequenceNumber = SequenceNumber New Give-Up(52) ReferenceMsgType = 52 (New Give-Up) ErrorCode and ErrorText		

A Give-Up can be created by other means than sending a New Give-Up (52) message:

- Give-Up is automatically created upon trade since Executing Broker referenced an Allocation Key (QuickId) with Give-Up instructions on order/auction entry.
- Participant with access to BOX TMS (TradeManagement) GUI gives up their trade using the Interface.
- Participant sends an Allocation File with Give-Up Instructions.
- Participant requests MOC to create an Give-Up on their behalf.

In the above cases, the Participant will receive Give-Up (50) messages - Lines (3, 4, 5) for the Give-Up Source Firm and Lines (6, 7, 8) for the Give-Up Receiving Firm.

If the Give-Up cannot be created, then submitting Participant (Give-Up Source Firm) will receive an Error Message with the appropriate Error Code and Text (reason of rejection)(Line 9).

6.3.2 Delete Give-Up

A Give-Up can be cancelled using the Delete Give-Up (54) message. Only the Give-Up Source Firm can delete a Give-Up transaction. The receiving Give-Up Firm cannot delete a Give-Up but may give back the trade to the Give-Up Source Firm by a New Give-Up back to the Source Firm (provided a Give-Up Aggreement exists).

To delete a Give-Up the following must be referenced:

- ReferenceTransactionId must be set to the UniqueTransactionId of the previous Give-Up which is being cancelled.
- ReferenceTradeNumber must be set to the TradeNumber of the Trade of the previous Give-Up which is being cancelled.

The Give-Up Cancel (51) message will have the same UniqueTransactionId and TradeNumber as the Give-Up which is being cancelled.

ID#	GIVE-UP SOURCE PARTICIPANT		BOX ATR SERVER		GIVE-UP RECEIVING PARTICIPANT
1	Delete Give-Up (54) ReferenceTransactionId. = 789 (refers to the original Give-Up) ReferenceTradeNumber = B1234560000001	→	Request to delete Give-Up		
2	Executing Broker (Give-Up Source Firm)	←	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of Delete Give-Up (54)		
	Give-Up successfully deleted				
	Give-Up Cancel confirmation to Source Firm				
3	Executing Broker (Give-Up Source Firm)	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001		
4	Clearing Firm of Give-Up Source Firm	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001		
5	Additional Firm of Give-Up Source Firm (If configured)	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001		

	Give-Up Cancel to Receiving Firm				
6			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001	→	Give-Up Receiving Firm
7			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001	→	Clearing Firm of Give-Up Receiving Firm
8			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 TradeNumber = B1234560000001	→	Drop-copied to Firm of Give-Up Receiving Firm (If configured)
	Error – Give-Up cannot be deleted				
9	Executing Broker (Give-Up Source Firm)	←	Error Message (99) AckSequenceNumber = SequenceNumber of Delete Give-Up (54) ReferenceMsgType = 54 ErrorCode and ErrorText		

A Give-Up can be deleted by other means than sending a Delete Give-Up (54) message:

- Participant with access to BOX TMS (TradeManagement) GUI deletes a Give-Up using the Interface.
- Participant sends an Allocation File with new Give-Up instructions, which replaces a previously created Give-Up(s), which will be deleted.
- Participant requests MOC to delete a Give-Up on their behalf.

In the above cases, the Participant will receive Give-Up Cancel (51) messages - Lines (3, 4, 5) for the Give-Up Source Firm and Lines (6, 7, 8) for the Give-Up Receiving Firm.

If the Give-Up cannot be deleted, then the submitting Participant will receive an Error Message with the Error Code and Text (Line 9).

6.3.3 Modify Give-Up

An existing Give-Up (previously created using the New Give-Up (52) message) can be modified using the Modify Give-up (53) message. The original Give-Up is cancelled and replaced by the New Give-Up.

To modify an existing Give-Up, the following are required:

- ReferenceTransactionId must be set to the UniqueTransactionId of the previous Give-Up which is being modified.
- ReferenceTradeNumber must be set to the TradeNumber of the Trade of the previous Give-Up which is being modified.
- Give-Up Firm must be the same as the original Give-Up.

ID#	GIVE-UP SOURCE PARTICIPANT		BOX ATR SERVER		GIVE-UP RECEIVING PARTICIPANT
1	Modify Give-Up (53) ReferenceTransactionId. = 789 (refers to the original Give-Up) ReferenceTradeNumber = B1234560000001	→	Request to modify Give-Up		
2	Executing Broker (Give-Up Source Firm)	←	Acknowledgement Message (98) AckSequenceNumber = SequenceNumber of Modify Give-Up (53)		
	Give-Up successfully modified				
					Original Give-Up is cancelled
2	Executing Broker (Give-Up Source Firm)	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001		
3	Clearing Firm of Give-Up Source Firm	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001		
4	Drop-copied to Firm of Give-Up Source Firm (If configured)	←	Give-Up Cancel (51) UniqueTransactionId = 789 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001		
5			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001	→	Give-Up Receiving Firm

6			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001	→	Clearing Firm of Give-Up Receiving Firm
7			Give-Up Cancel (51) UniqueTransactionId = 790 (same as original Give-Up) ParentTransactionId = 123 (Id. of Trade) TradeNumber = B1234560000001	→	Drop-copied to Firm of Give-Up Receiving Firm (If configured)
	New Give-Up is created				
8	Executing Broker (Give-Up Source Firm)	←	Give-Up (50) UniqueTransactionId = 791 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001		
9	Clearing Firm of Give-Up Source Firm	←	Give-Up (50) UniqueTransactionId = 791 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001		
10	Drop-copied to Firm of Give-Up Source Firm (If configured)	←	Give-Up (50) UniqueTransactionId = 791 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001		
11			Give-Up (50) UniqueTransactionId = 792 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001	→	Give-Up Receiving Firm
12			Give-Up (50) UniqueTransactionId = 792 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001	→	Clearing Firm of Give-Up Receiving Firm
13			Give-Up (50) UniqueTransactionId = 792 (New Give-Up Unique TransactionId.) ParentTransactionId = 123 (Id of Trade) TradeNumber = B1234560000001	→	Drop-copied to Firm of Give-Up Receiving Firm (If configured)
	Error – Give-Up cannot be modified				
14	Executing Broker (Give-Up Source Firm)	←	Error Message (99) AckSequenceNumber = SequenceNumber of Modify Give-Up (53) ReferenceMsgType = 53 (Modify Give-Up) ErrorCode and ErrorText		

A Give-Up can be modified by other means than sending a Modify Give-Up (53) Message:

- Participant sends an Allocation File with existing Give-Up but with modified terms (e.g quantity, sub-account, client account). The system will cancel the original Give-Up and replace it with the new one.

Participants using the TMS GUI cannot modify an existing Give-Up directly but must first cancel the original Give-Up and create a new one.

In the above cases, the Source Give-Up and Receiving Give-Up firms will receive the corresponding Give-Up Cancel (51) messages followed by the New Give-Up (50) messages respectively.

If the Give-Up cannot be modified, then the submitting Participant (Give-Up Source Firm) will receive an Error Message with the Error Code and Text (Line 14).

Section 7 Password Encoding

This algorithm is to be used when encrypting the 'Password' field in the 'MessageType 09 – Client Signon'.

Step 1) Initialize values

Get the 'Password' value as assigned by the MOC at the initial creation of the 'Username'.

Take the value that will be passed in the field 'Time' in the 'MessageType '09' - Client Signon' message type which represents the time the message was sent.

Example:

Password = "PASSWORD"

Time = "160803"

Step 2) Get the MD5 hash result

Concatenate the 'Time' and 'Password' values from step 1 and hash them using the MD5 algorithm.

The result should be a 32 hexadecimal character string.

Example:

HashToMD5("160803PASSWORD")

Result: "9B9FD80B4A3FC5CC**02DA4119B15F0C07**"

Step 3) Encode to Base64 format

Take the last 8 bytes (rightmost) from the result of step 2 and encode it using the Base64 algorithm, with the following character set:

"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/"

Example:

HexToBase64("02DA4119B15F0C07")

Result = "AtpBGbFfDAc="

Step 4) Set the Password and Time in the 'Client Signon' (09) message

Take the first 8 bytes of the result of step 3 to initialize the 'Password' field and the value use in step 1 for the 'Time' field.

Example:

Password = "AtpBGbFf"

Time = "160803"

Section 8 Contact Information

For any additional questions, please contact the Market Operations Center at (866) 768-8845 or by e-mail at BOXMOC@boxoptions.com.