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## PILLAR OPTIONS DEEP CLIENT SPECIFICATION

**NYSE ARCA OPTIONS DEEP FEED**  
**NYSE AMERICAN OPTIONS DEEP FEED**

Version

1.1

Date

March 5, 2021

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## PREFACE

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### DOCUMENT HISTORY

The following table provides a description of all changes to this document.

VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	Nov 10, 2020	Added outright series support for NYSE Arca and American Options
1.1	March 5, 2021	Added complex series support for NYSE Arca Options

### REFERENCE MATERIAL

The following lists the associated documents, which either should be read in conjunction with this document or which provide other relevant information for the user:

- [IGN Information](#)
- [NYSE Symbology](#)
- [IP Addresses](#)

### CONTACT INFORMATION

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### FURTHER INFORMATION

- For additional information about the product, visit the [PILLAR DEEP Feed Product Page](#)
- For updated capacity statistics, visit the [Capacity](#) page.

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## 1. INTRODUCTION

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The Deep Feed provides real-time market data in a unified view of events, in sequence, as they appear on the matching engines. The Deep Feed includes depth of book order data, last sale data, opening imbalance data and RFQ data. The Deep Feed also includes status updates (e.g., trade corrections and trading halts) and outright series summary messages.

All message types defined in this document appear only in the main publication channels, except:

- The Options Imbalance and Options Add Order Refresh message types also appear in the Refresh channels.
- The Outright Series Summary message appears only in a dedicated Options Summary channel.

### 1.1 PUBLICATION TIMES

Please refer to the market open pre-opening, early trading, core trading and late trading session times on:

<https://www.nyse.com/markets/hours-calendars>

## 2. CONTROL MESSAGE TYPES USED IN THE DATA FEEDS

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See the Pillar Common Client Specification for details on all control messages.

MSG TYPE	DESCRIPTION	PUBLISHER CHANNELS	REQUEST CHANNEL	REFRESH CHANNELS
1	Sequence Number Reset	x		x
2	Time Reference	x		x
3	Symbol Index Mapping	x		x
10	Retransmission Request		client	
11	Request Response		server	
12	Heartbeat Response		client	
13	Symbol Index Mapping Request		client	
15	Refresh Request		client	
31	Message Unavailable		server	
32	Symbol Clear	x		
34	Security Status Message	x		x
35	Refresh Header Message			x
50	Outright Series Index Mapping	x		x
51	Options Status Message	x		x

### 3. DEEP MESSAGES

#### 3.1 Options Add Order Message – Msg Type 300

An Options Add Order message is published when a new visible order has been received and added to the book. The Order ID is assigned by the matching engine and is valid for the current day.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 40 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 300 – Options Add Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to this order . Can be used to match this order to the gateway Order Report.
<b>Price</b>	24	4	Signed Binary	The order price. Use with the Price Scale from the series index mapping.  Note: for cabinet order, use with the Price Scale Code Cabinet from outright series index mapping message.
<b>Volume</b>	28	4	Binary	The order quantity in contracts
<b>Side</b>	32	1	ASCII	The side of the order (Buy/Sell). Valid values: <ul style="list-style-type: none"> <li>▪ 'B' – Buy</li> <li>▪ 'S' – Sell</li> </ul>
<b>FirmID</b>	33	5	ASCII	The market participant's firm ID.  Blank-filled if a firm ID was not specified and/or if the order is not marked as Attributed.
<b>Special Order Indicator</b>	38	1	ASCII	Special order indicator: <ul style="list-style-type: none"> <li>• 0 - Not Applicable</li> </ul>

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				<ul style="list-style-type: none"> <li>1 - Cabinet Order</li> </ul>
<b>CustIndicator</b>	39	1	ASCII	Capacity of the order: <ul style="list-style-type: none"> <li>C - Customer</li> <li>N - Non-customer</li> <li>D - Derived</li> </ul> For Arca Options, Customer order includes both customer and professional customer orders. For American Options, Customer order does not include professional customer orders

### 3.2 Options Modify Order Message – Msg Type 301

An Options Modify Order message is sent when the price or volume of an order is changed due to an event other than a cancel-replace, or full or partial execution. The content of the price and volume fields represent the new values after modification.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 35 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 301 – Options Modify Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to the order to be modified
<b>Price</b>	24	4	Signed Binary	The new order price. Use the Price scale from the series index mapping.
<b>Volume</b>	28	4	Binary	The new order quantity in contracts.
<b>PositionChange</b>	32	1	Binary	<ul style="list-style-type: none"> <li>0 – Kept position in book</li> <li>1 – Lost position in book</li> </ul>

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				If the price of the Modify Order didn't change, order always keeps the position in the book.  If the price of the Modify Order message changed, the order always loses position.
<b>Reserved</b>	33	1	Binary	Reserved for future use
<b>Reserved</b>	34	1	Binary	Reserved for future use

### 3.3 Options Replace Order Message – Msg Type 304

An Options Replace Order message is published when a cancel/replace order is received. The resting order is replaced with a new order containing the same outright or complex series, side and attribution, a new Order ID, and the price and size specified.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 43 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 304 – Options Replace Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to the existing order to be replaced
<b>NewOrderID</b>	24	8	Binary	The new Order ID of the replacement order
<b>Price</b>	32	4	Signed Binary	The new order price. Use the Price scale from the series mapping index.  Note: for cabinet order, use with the Price Scale Code Cabinet from outright series index mapping message.
<b>Volume</b>	36	4	Binary	The new order quantity in contracts.



FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Special Order Indicator</b>	40	1	Binary	Special order indicator: <ul style="list-style-type: none"> <li>• 0 - Not Applicable</li> <li>• 1 - Cabinet Order</li> </ul>
<b>PositionChange</b>	41	1	Binary	The new order position change: <ul style="list-style-type: none"> <li>• 0 – Kept position in book</li> <li>• 1 – Lost position in book</li> </ul>
<b>CustIndicator</b>	42	1	ASCII	Capacity of the new order: <ul style="list-style-type: none"> <li>• C - Customer</li> <li>• N - Non-customer</li> <li>• D - Derived</li> </ul> For Arca Options, Customer order includes both customer and professional customer orders. For American Options, Customer order does not include professional customer orders

### 3.4 Options Delete Order Message – Msg Type 302

An Options Delete Order message is published when an order is taken off of the book for any reason except for full execution, in which case an Options Order Execution message is sent. If the order is replaced, a delete order message will not be published, rather an Options Replace Order message.

Pillar will publish an Options Delete Order message for each displayable resting order that is expired due to the start of a new trading session.

Please note that when trading in an option is closed for the day, a Series Status 'X' is sent and unexecuted orders are cancelled, but explicit Options Delete Order Messages are not sent.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID field format.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 25 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 302 – Options Delete Order Message

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to the existing order to be deleted
<b>Reserved</b>	24	1	Binary	Reserved for future use

### 3.5 Options Order Execution Message – Msg Type 303

An Options Order Execution message is sent when an order is partially or fully executed. If the Price field is different from the price of the order, any remaining contracts keep their original price. If the Volume field equals the number of contracts previously remaining in the order, then the order has been fully executed. If the order has been partially executed, further Options Order Execution messages for this Order ID may be published.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID, Trade ID and Price field formats.

Field Name	Offset	Size (Bytes)	Format	Description
<b>Msg Size</b>	0	2	Binary	Size of the message: 42 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 303 – Options Order Execution Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to the partially or fully executed order .
<b>TradeID</b>	24	4	Binary	Unique ID assigned by the matching engine to this execution. Used by any subsequent Trade Cancel

Field Name	Offset	Size (Bytes)	Format	Description
				message to identify this execution. Can be matched to the Deal ID field in the gateway Execution Report.
<b>Price</b>	28	4	Signed Binary	The execution price of this trade. Use the Price Scale from the series index mapping.  Note: for cabinet order, use with the Price Scale Code Cabinet from outright series index mapping message.
<b>Volume</b>	32	4	Binary	The executed quantity in contracts.
<b>PrintableFlag</b>	36	1	Binary	<ul style="list-style-type: none"> <li>0 = Trade not included in total volume</li> <li>1 = Trade included in total volume</li> </ul> <p>When resting displayable live order participates in any of the auction trades, the flag shall be set to 0. The total auction volume is included in Cross Trade message, Order Execution messages for orders executed in the auction, will have this flag set to 0. Cabinet Order are set to "0"</p>
<b>Reserved</b>	37	1	Binary	Reserved for future use
<b>Reserved</b>	38	4	Binary	Reserved for future use

### 3.6 Options Non-Displayed Trade Message – Msg Type 310

An Options Non Displayed Trade message is published as a result of a match between two non-displayed orders.

Customers who are only interested in building a book of displayed orders may safely ignore Options Non-Displayed Trade messages. Customers who are creating statistics or displays requiring the full record of trades in this market will need to process Options Non-Displayed Trade messages.

Events Generating a series non-display trade message:

- An incoming order, displayable or non-displayable, trades with the resting non-displayed order
- Two resting non-displayed orders trade with each other when market condition changes (upon re-pricing)
- Two resting live non-displayed orders trade against each other (MKT order vs. MKT order, MKT order vs. reserve portion of live reserve order)
- Resting live non-displayed order (MKT order, reserve portion of live reserve order) trades with any non-live order (regardless of whether non-live order is displayable or not).
- Any non-live order trades with any non-live order (regardless of whether these non-live orders are displayable or not).

- For American Options, two orders trade against each other in CUBE auction
- For American Options, an incoming order, displayed or non-displayed, trades with BOLD orders.
- **NOTE:** Opening Auction trade(s) results in a CROSS Trade message (Msg 311).

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID, Trade ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 33 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 310 – Options Non-Displayed Trade Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series for all products within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>TradeID</b>	16	4	Binary	Unique ID assigned by the matching engine to this trade event. Used by any subsequent Trade Cancel message to identify this execution. Can be matched to the Deal ID field in the gateway Execution Report.
<b>Price</b>	20	4	Signed Binary	The execution price of the trade. Use the Price scale from the series index mapping.
<b>Volume</b>	24	4	Binary	Volume of the trade in contracts
<b>PrintableFlag</b>	28	1	Binary	<ul style="list-style-type: none"> <li>• 0 = Trade not included in total volume</li> <li>• 1 = Trade included in total volume</li> </ul> When resting displayable live order participates in any of the auction trades, the flag shall be set to 0.
<b>PriceType</b>	29	1	Binary	<ul style="list-style-type: none"> <li>• 0 = Strike price is \$ amount</li> <li>• 1 = Strike price is % amount</li> </ul>
<b>Reserved</b>	30	3	Binary	Reserved for future use

### 3.7 Options Trade Cancel Message – Msg Type 312

In the event that an earlier trade has been reported in error, an Options Trade Cancel message is published. This occurs whether the initial report was an Options Order Execution or an Options Non-Displayed Trade message.

Options Trade Cancel messages only affect trades that occurred in the past. Customers who are only interested in building a book may safely ignore them.

Customers who are building a complete record of today's trades should remove the cancelled trade from their records and subtract its volume from any statistics.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 20 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 312 – Options Trade Cancel Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	8	4	Binary	The unique ID of this series for all products within this market.
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>TradeID</b>	16	4	Binary	The TradeID of the original Trade or Execution message to be cancelled.

### 3.8 Options Cross Trade Message – Msg Type 311

An Options Cross Trade message is published on completion of a crossing from the opening and re-opening auction, and shows the bulk volume that traded in the auction. The Cross Type field indicates the auction type. Additionally, a non-printable Order Execution or Non-Displayed Trade message will be published for each order that traded.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 29 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 311 – Options Cross Trade Message

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTimeNS	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
SeriesIndex	8	4	Binary	The unique ID of this series within this market.
SeriesSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this series
CrossID	16	4	Binary	Unique identifier for this Cross Trade. Used in Cross Correction message to identify the Cross Trade to correct.
Price	20	4	Signed Binary	The execution price. Use the Price scale from the series index mapping.
Volume	24	4	Binary	Volume executed in contracts
CrossType	28	1	ASCII	Reason for the crossing from the opening and re-opening auction. Valid values: <ul style="list-style-type: none"> <li>• 0 – Market Center Opening Auction</li> <li>• 5 – Market Center Reopening Auction</li> </ul>

### 3.9 Options Cross Correction Message – Msg Type 313

If an earlier Options Cross Trade has been reported in error, an Options Cross Correction message is sent.

Options Cross Correction messages only affect cross auctions that occurred in the past - customers who are only interested in building a book may safely ignore them.

Customers who are building a complete record of today's volume should remove the previously reported volume from their statistics and add the volume of the Options Cross Correction to them.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 24 bytes
Msg Type	2	2	Binary	The type of message: 313 – Options Cross Trade Message
SourceTimeNS	4	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
SeriesIndex	8	4	Binary	The unique ID of this series within this market.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>SeriesSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this series
<b>CrossID</b>	16	4	Binary	The CrossID of the original Cross Trade message to be corrected.
<b>Volume</b>	20	4	Binary	The corrected volume of Options Cross Trade message.

### 3.10 Options Imbalance Message – Msg Type 305

Options Imbalance messages are published once a second during opening and re-opening auctions to update price and volume information. If there is no change to the calculated fields, no message will be generated.

See the Pillar Common Client Specification for details on Symbol/Series Index Mapping messages and Price field format.

FIELD NAME	OFFSET	SIZE	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 65 bytes
<b>Msg Type</b>	2	2	Binary	This field identifies the type of message. 305 – Options Imbalance Message
<b>Reserved</b>	4	4	Binary	Reserved for future use
<b>SourceTimeNS</b>	8	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	12	4	Binary	The unique ID of this series for all products within this market.
<b>SeriesSeqNum</b>	16	4	Binary	The sequence number of this message in the set of all messages for this series
<b>Reserved</b>	20	4	Binary	Reserved for future use
<b>PairedQty</b>	24	4	Binary	The number of contracts paired off at the Indicative Match Price.
<b>TotalImbalanceQty</b>	28	4	Binary	The total imbalance quantity at the Indicative Match Price.
<b>MarketImbalanceQty</b>	32	4	Binary	The total market order imbalance quantity at the Indicative Match Price.
<b>Reserved</b>	36	4	Binary	Reserved for Future use
<b>AuctionType</b>	38	1	ASCII	<ul style="list-style-type: none"> <li>• M – Core Opening Auction</li> <li>• H – Reopening Auction (Halt resume)</li> </ul>
<b>ImbalanceSide</b>	39	1	ASCII	The side of the TotalImbalanceQty <ul style="list-style-type: none"> <li>• B – Buy side</li> <li>• S – Sell side</li> <li>• Space – No imbalance</li> </ul>
<b>ContinuousBook ClearingPrice</b>	40	4	Signed Binary	The price at which all interest on the book can trade, including auction and imbalance offset interest, and disregarding auction collars.
<b>AuctionInterest ClearingPrice</b>	44	4	Signed Binary	The price at which all eligible auction-only interest would trade, subject to auction collars.



<b>Reserved</b>	48	4	Binary	<i>Reserved for Future use.</i>
<b>IndicativeMatchPrice</b>	52	4	Signed Binary	The price at which the highest number of contracts would trade, subject to auction collars. It includes the non-displayed quantity of Reserve Orders. See Information on Auctions for details.
<b>Upper Collar</b>	56	4	Signed Binary	Legal width bid for option
<b>Lower Collar</b>	60	4	Signed Binary	Legal width offer for option
<b>AuctionStatus</b>	64	1	Binary	Indicates whether the auction will run <ul style="list-style-type: none"> <li>• 0 - Will run as usual</li> <li>• 4 - Auction will not run because legal width quote does not exist</li> <li>• 5 - Auction will not run because market maker quote is not received</li> </ul>

### 3.11 Options Add Order Refresh Message – Msg Type 306

The Options Add Order Refresh message can be sent in either of two contexts:

- 1) If a client sends a Refresh Request to the Request Server, an Options Add Order Refresh message is sent over the Refresh channels as part of the refresh response for every order currently resting on the book.
- 2) If NYSE Operations refreshes a series, a Symbol Clear message is published, followed by a full refresh. The refresh includes an Options Add Order Refresh message for every order currently resting on the book of the series.

See the Pillar Common Client Specification for details on Time Reference and Symbol/Series Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 44 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 306 – Series Add Order Refresh Message
<b>Reserved</b>	4	4	Binary	Reserved for future use

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>SourceTimeNS</b>	8	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	12	4	Binary	The unique ID of this series within this market.
<b>SeriesSeqNum</b>	16	4	Binary	The sequence number of this message in the set of all messages for this series
<b>OrderID</b>	20	8	Binary	The unique ID assigned by the matching engine to this order
<b>Price</b>	28	4	Signed Binary	The order price. Use the Price scale from the series index mapping.  Note: for cabinet order, use with the Price Scale Code Cabinet from outright series index mapping message.
<b>Volume</b>	32	4	Binary	The order quantity in contracts.
<b>Side</b>	36	1	ASCII	The side of the order (Buy/sell). Valid values: <ul style="list-style-type: none"> <li>• 'B' – Buy</li> <li>• 'S' – Sell</li> </ul>
<b>FirmID</b>	37	5	ASCII	The participant's firm ID, or blanks if firm ID was not specified OR if the order is not marked as attributed.
<b>Special Order Indicator</b>	42	1	Binary	Special order indicator: <ul style="list-style-type: none"> <li>• 0 - Not Applicable</li> <li>▪ 1 - Cabinet Order</li> </ul>
<b>CustIndicator</b>	43	1	Binary	Capacity of the order: <ul style="list-style-type: none"> <li>• C – Customer</li> <li>• N – Non-customer</li> <li>• D - Derived</li> </ul> For Arca Options, Customer order includes both customer and professional customer orders. For American Options, Customer order does not include professional customer orders

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION

### 3.12 Series RFQ Message - Msg 307

The Request for outright series RFQ data is published for outright series. It is generated by the matching engine to solicit interest in an auction or order.

See the Pillar Common Client Specification for details on Symbol/Series Index Mapping messages and Price field format.

FIELD NAME	SIZE	FORMAT	DESCRIPTION
<b>Msg Size</b>	2	Binary	Size of the message: 44 bytes
<b>Msg Type</b>	2	Binary	The type of message 307 - Series RFQ Msg
<b>Reserved</b>	4	Binary	Reserved for future use
<b>SourceTimeNS</b>	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	4	Binary	The unique ID of this series for all products within this market.
<b>SeriesSeqNum</b>	4	Binary	The sequence number of this message in the set of all messages for this series
<b>Side</b>	1	ASCII	Side of the RFQ B = Buy S = Sell  For complex series, when a complex instrument is traded, the seller Sells the legs with Side = S and Buys the legs with Side = B  The buyer Buys the legs with Side = S and Sells the legs with Side = B
<b>Type</b>	1	ASCII	Order Type of CUBE/Bold/COA  P = Price Improvement F = Facilitation S = Solicitation B = Bold (Outright only) C = COA (Complex only)

<b>Capacity</b>	1	Binary	<p>Customer or Firm capacity specified with the order. Values include:</p> <ul style="list-style-type: none"> <li>(blank) = information not specified</li> <li>0 = Customer</li> <li>1 = Firm</li> <li>2 = Broker Dealer</li> <li>3 = Market Maker</li> <li>8 = Professional Customer</li> </ul> <p>Note: This field is used for BOLD only</p>
<b>Total quantity</b>	4	Binary	Total quantity
<b>Working Price</b>	4	Signed Binary	RFQ Price
<b>Participant</b>	4	Binary	<p>OCC Number for the Clearing firm specified with the order Blank = No OCC Number was specified</p> <p>Note: This field is only used for BOLD only</p>
<b>AuctionID</b>	8	Binary	Auction ID for CUBE/COA
<b>RFQ Status</b>	1	ASCII	<p>O - Start of RFQ Auction</p> <p>Q - End of RFQ Auction</p> <p>Note: This field is used for CUBE/COA</p>

## 4. OUTRIGHT SERIES SUMMARY MESSAGE – MSG TYPE 323

The outright series summary message is sent every 60 seconds, on a separate multicast channel from the main feed. The message is sent regardless of whether there has been a change to the series in the last 60 seconds or not. If no trades are published for a series during a given day, no Outright Series Summary message is generated.

Only outright series will publish the Outright Series Summary message. Outright Series Summary Message (with the exception of the Opening trade) will not include any cancelled trades and routed trades which were not published.

The Outright Series Summary message must provide the following trade statistics per series: high, low, open, close and total volume

- a) High shall correspond to the highest trade price of the day
- b) Low shall correspond to the lowest trade price of the day
- c) Open shall correspond to the first trade price of the day
- d) Close shall correspond to the last trade price of the day
- e) Total number of contracts traded for the day

If a trade has been corrected, only the corrected value will be taken into account for the Series summary.

The Opening or First trade shall always be considered as the First trade even if it is cancelled later in the session.. Furthermore, the Opening trade price published will be used as the First price in the Series summary message.

### 4.1 Message Structure for Outright Series Summary Message

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 36 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: <ul style="list-style-type: none"><li>▪ 323 – Outright Series Summary Message</li></ul>
<b>Reserved</b>	4	4	Binary	Reserved for future use
<b>SourceTimeNS</b>	8	4	Binary	The nanosecond offset (UTC Time) from the Time Reference message.
<b>SeriesIndex</b>	12	4	Binary	The unique ID of this series within this market.
<b>HighPrice</b>	16	4	Signed Binary	The Highest price of the series for the day. Use the Price scale from the series index mapping.
<b>LowPrice</b>	20	4	Signed Binary	The Lowest price of the series for the day. Use the Price scale from the series index mapping.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Open</b>	24	4	Signed Binary	The First price of the series for the day. Use the Price scale from the series index mapping.
<b>Close</b>	28	4	Signed Binary	The Last price of the series for the day. Use the Price scale from the series index mapping.
<b>TotalVolume</b>	32	4	Binary	The cumulative volume for the series throughout the day.