NYSE

XDP INTEGRATED FEED CLIENT SPECIFICATION

NYSE AMERICAN INTEGRATED FEED

NYSE ARCA INTEGRATED FEED

NYSE INTEGRATED FEED

NYSE NATIONAL INTEGRATED FEED

Version	Date
2.2b	June 21, 2019

PREFACE

DOCUMENT HISTORY

VERSION NO.	DATE	CHANGE DESCRIPTION
2.1a	5/8/2017	Added 5 fields to the Imbalance message (type 105) supporting LULD amendment 12 (day 1, defaulted to 0) Corrected tables of trading and publication times Updated contact information
2.1b	5/26/2017	Corrected the size of the Low Collar field in the Imbalance message to 4 bytes. Clarified that the Imbalance Side field pertains to the Total Imbalance Qty field. Clarified that Qty fields are truncated to round lots for NYSE Clarified that the 2 clearing price fields will be initially 0
2.1c	8/14/2017	Updated Add Order message description regarding Order IDs
2.1d	9/22/2017	**v2.1d contains no changes in feed behavior, only spec clarifications** Updated Imbalance msg field descriptions and Appendix A to include specialized information for NYSE Tape A symbols
2.1e	9/27/2017	**no changes in feed behavior, only spec clarifications** Added NYSE to message publication times Corrected description of DBExecID field for NYSE Tape A symbols
2.1f	11/20/2017	Updated the Imbalance the Clearing Price fields and 5 trailing fields – no longer set to 0 for Arca and American
2.1g	01/29/2018	**No change to the feed.** Added spec support for NYSE National.
2.2	12/01/2018	▪ Updates to Auctions and the Imbalances msg for NYSE under Pillar. ▪ Renamed Closing Only Clearing Price to Auction Only Clearing Price. The 3 new trailing fields in the Imbalance message contain only default values in non-NYSE markets.
2.2.a	03/08/2019	▪ Updates to NYSE Imbalance start time ▪ Defaulted the Significant imbalance field in Msg Type 105
2.2b	06/21/2019	Added clarification regarding deletion of orders - Section 5

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:

- XDP Common Client Specification
- ICE Global Network
- NYSE Symbology
- IP Addresses

CONTACT INFORMATION

Service Desk

- Telephone: +1 212 896-2830

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FURTHER INFORMATION

For additional information about the product, visit the Integrated Feed Product Page.

For updated capacity figures, visit the Market Data capacity page.

CONTENTS

1. XDP Integrated Feed Information

1.1 OVERVIEW

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

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

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

See Appendixes D and E for differences between the Integrated Feed version 1.0 and 2.0

1.2 CONTROL MESSAGE TYPES USED IN THE FEED

See the XDP 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

1.3   MESSAGE PUBLICATION TIMES

Scheduled trading session times on normal and early-close days for all NYSE markets can be found here.

All times are US Eastern Time. Early Close Days end at 1:00pm ET for all markets.

Integrated Feed Message Types

MSG TYPE	DESCRIPTION	HOURS	
100	Add Order Message	**NYSE Arca** 3:30am – 8:00pm **NYSE American** 6:30am – 8:00pm **NYSE National** 6:30am – 8:00pm **NYSE Tape A** 6:30am – 4:00pm	**NYSE Tapes B&C** 6:30am – 4:00pm
101	Modify Order Message		
104	Replace Order Message		
102	Delete Order Message		
112	Trade Cancel Message		
111	Cross Trade Message		
113	Cross Correction Message		
114	Retail Price Improvement Msg		
106	Add Order Refresh Message		
105	Imbalance Message	**See Section A.1.2**	
103	Order Execution Message	**NYSE Arca** 4:00am – 8:00pm **NYSE American** 7:00am – 8:00pm **NYSE American** 7:00am – 8:00pm	**NYSE Tape A** 9:30am – 4:00pm **NYSE Tapes B&C** 7:00am – 4:00pm
110	Non-Displayed Trade Message		
223	Stock Summary Message		

Control Message Types - See the XDP Common Client Specification for details

MSG TYPE	DESCRIPTION	HOURS	
1	Sequence Number Reset	12:30am – 8:00pm	
2	Time Reference		
3	Symbol Index Mapping		
32	Symbol Clear		
34	Security Status Message	**NYSE Arca** 12:30am – 8:00pm **NYSE American** 12:30am – 8:00pm **NYSE American** 12:30am – 8:00pm	**NYSE Tape A** 12:30am – 4:00pm **NYSE Tapes B&C** 12:30am – 4:00pm

2. Add Order Message – Msg Type 100

An 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 good for today only. It is unique across all markets, except that for NYSE Tape A symbols, it is only unique per matching engine instance.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 39 bytes
Msg Type	2	2	Binary	The type of message: 100 – Add Order Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	16	8	Binary	The unique ID assigned by the matching engine to this order . Can be used to match this message to the gateway Order Report.
Price	24	4	Binary	The order price. Use with the Price Scale from the symbol-mapping index.
Volume	28	4	Binary	The order quantity in shares
Side	32	1	ASCII	The side of the order (Buy/Sell). Valid values: ▪ 'B' – Buy ▪ 'S' – Sell
FirmID	33	5	ASCII	The market participant's firm ID. Blank-filled if a firm ID was not specified.
NumParitySplits	38	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at this price level ▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive ▪ 5-254 = The number of parity splits at this price level ▪ 255 = 255 or more splits at this price level

3. Modify Order Message – Msg Type 101

A 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 XDP Common Client Specification for details on Time Reference and Symbol Index Mapping messages, and Order ID and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 35 bytes
Msg Type	2	2	Binary	The type of message: 101 – Modify Order Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	16	8	Binary	The unique ID assigned by the matching engine to the order to be modified
Price	24	4	Binary	The new order price. Use the Price scale from the symbol mapping index.
Volume	28	4	Binary	The new order quantity in shares.
PositionChange	32	1	Binary	Currently defaulted to 0. ▪ 0 – Kept position in book ▪ 1 – Lost position in book (to be implemented at a future time).
PrevPriceParitySplits	33	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the previous price ▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive ▪ 5-254 = The number of parity splits at this price level ▪ 255 = 255 or more splits at this price level
NewPriceParitySplits	34	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the new price ▪ (If price does not change, same as PrevPriceParitySplits)

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				Values same as PrevPriceParitySplits

4.   Replace Order Message – Msg Type 104

A Replace Order message is published when a cancel/replace order is received and executed. The sitting order is replaced with a new one containing the same symbol, side and attribution, a new Order ID, and the price and size specified. The sitting order must be removed from the book and replaced with the new order.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 42 bytes
Msg Type	2	2	Binary	The type of message: 104 – Replace Order Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	16	8	Binary	The unique ID assigned by the matching engine to the existing order to be replaced
NewOrderID	24	8	Binary	The new Order ID of the replacement order
Price	32	4	Binary	The new order price. Use the Price scale from the symbol mapping index.
Volume	36	4	Binary	The new order quantity in shares.
PrevPriceParitySplits	40	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the previous price ▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive ▪ 5-254 = The number of parity splits at this price level ▪ 255 = 255 or more splits at this price level
NewPriceParitySplits	41	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the new price ▪ (If price does not change, same as PrevPriceParitySplits) Values same as PrevPriceParitySplits

5. Delete Order Message – Msg Type 102

A 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 Order Execution message is sent.

Immediately before a trading session changes (eg: Early session to Core session), all orders that were submitted for the current or current+previous sessions are explicitly deleted with a Delete Order message. When a security is closed, orders that were entered for previous sessions are not explicitly deleted with a delete order message.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 25 bytes
Msg Type	2	2	Binary	The type of message: 102 – Delete Order Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	16	8	Binary	The unique ID assigned by the matching engine to the existing order to be deleted
NumParitySplits	24	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the price level of the deleted order 0 = The number of parity splits at this price level is between 1 and 4 inclusive 5-254 = The number of parity splits at this price level 255 = 255 or more splits at this price level

6. Order Execution Message – Msg Type 103

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

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 42 bytes
Msg Type	2	2	Binary	The type of message: 103 – Order Execution Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	16	8	Binary	The unique ID assigned by the matching engine to the partially or fully executed order .
TradeID	24	4	Binary	Unique ID assigned by the matching engine to this execution. Used by any subsequent Trade Cancel message to identify this execution. Can be matched to the Deal ID field in the gateway Execution Report (see Common Client Spec, section 3.6).
Price	28	4	Binary	The execution price of this trade. Use the Price Scale from the symbol mapping index.
Volume	32	4	Binary	The executed quantity in shares
PrintableFlag	36	1	Binary	▪ 0 = Not Printed to the SIP ▪ 1 = Printed to the SIP
NumParitySplits	37	1	Binary	Defaulted to 0. Future use by NYSE only. Resulting number of splits at the price level at which the executed order was resting ▪ 0 = 1 to 4 parity splits at this price level ▪ 5-254 = The number of splits at this price level ▪ 255 = 255 or more splits at this price level ▪

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
DBExecID	38	4	Binary	For Pillar-powered markets, unused, defaulted to 0. For NYSE Tape A symbols, DB ExecID is assigned by the matching engine to all orders that participated in this trade event. Correllates with the DBExecID field in the gateway Execution Ack msg.

7. Non-Displayed Trade Message – Msg Type 110

An Non Displayed Trade message is sent 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 Non-Displayed Trade messages. Customers who are creating statistics or displays requiring the full record of trades in this market will need to process Non-Displayed Trade messages.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 33 bytes
Msg Type	2	2	Binary	The type of message: 110 – Non-Displayed Trade Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
TradeID	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 (see Common Client Spec, section 3.6).
Price	20	4	Binary	The execution price of the trade. Use the Price scale from the symbol mapping index.
Volume	24	4	Binary	Volume of the trade in shares
PrintableFlag	28	1	Binary	▪ 0 = Not Printed to the SIP ▪ 1 = Printed to the SIP
DBExecID	29	4	Binary	For Pillar-powered markets, unused, defaulted to 0. For NYSE Tape A symbols, DB ExecID is assigned by the matching engine to all orders that participated in this trade event. Correllates with the DBExecID field in the gateway Execution Ack msg.

8. Trade Cancel Message – Msg Type 112

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

Note that since 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 XDP Common Client Specification for details on Time Reference and Symbol Index Mapping messages.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 20 bytes
Msg Type	2	2	Binary	The type of message: 112 – Trade Cancel Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
TradeID	16	4	Binary	The TradeID of the original Trade or Execution message to be cancelled.

9. Retail Price Improvement Message – Msg Type 114

Published when RPI interest (hidden retail price improvement interest) is added or removed between the best bid and best offer price. When all RPI interest for this security is removed from the book, An RPI message with RPIIndicator = ' ' (space character) is published.

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

Note: This message type will not be published for NYSE Tape A symbols until they transition to trading on Pillar in 2019.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 17 bytes
Msg Type	2	2	Binary	The type of message: 114 – Retail Price Improvement Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
RPIIndicator	16	1	ASCII	The side(s) where Retail Price Improvement orders (RPI orders) exist. Valid values correspond to CQS values: ▪ ' ' – Space means no retail interest (default) ▪ A – Retail interest on the bid side ▪ B – Retail interest on the offer side ▪ C – Retail interest on the bid and offer sides

10. Cross Trade Message – Msg Type 111

A Cross Trade message is published on completion of a crossing auction, and shows the bulk volume that traded in the auction. The Reason Code field indicates the auction type. Additionally, a non-printable Order Execution or Trade message will be published for each order that traded.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 29 bytes
Msg Type	2	2	Binary	The type of message: 111 – Cross Trade Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
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	Binary	The execution price. Use the Price scale from the symbol mapping index.
Volume	24	4	Binary	Volume executed in shares
CrossType	28	1	ASCII	Reason for the crossing auction. Valid values: ▪ E – Market Center Early Opening Auction ▪ O – Market Center Opening Auction ▪ 5 – Market Center Reopening Auction ▪ 6 – Market Center Closing Auction

11. Cross Correction Message – Msg Type 113

In the event that an earlier Cross Trade has been reported in error, a Cross Correction message is sent.

Note that since 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 Cross Correction to them.

See the XDP Common Client Specification for details on Time Reference and Symbol 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: 113 – Cross Correction Message
SourceTimeNS	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
SymbolIndex	8	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
CrossID	16	4	Binary	The CrossID of the original Cross Trade message to be corrected.
Volume	20	4	Binary	The corrected volume of Cross Trade message.

12. Imbalance Message – Msg Type 105

Imbalance messages are published once a second during auctions to update price and volume information. If there is no change to the calculated fields, no message will be generated. See Information on Auctions for details on the auction process in the NYSE, Arca and American markets.

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

FIELD NAME	OFFSET	SIZE	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 73 bytes
Msg Type	2	2	Binary	This field identifies the type of message. 105 – Imbalance Message
SourceTime	4	4	Binary	The time when this msg was generated in the order book, in secs since 1/1/1970 00:00:00 UTC
SourceTimeNS	8	4	Binary	The nanosecond offset from the Source Time
SymbolIndex	12	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	16	4	Binary	The sequence number of this message in the set of all messages for this symbol
ReferencePrice	20	4	Binary	The Reference Price is the notional likely price of the auction trade. See Information on Auctions for details. For non-NYSE markets, the Reference Price is used to calculate the Indicative Match Price.
PairedQty	24	4	Binary	For non-NYSE markets, the number of shares paired off at the Indicative Match Price. For NYSE, the number of shares paired off at the Reference Price.
TotalImbalanceQty	28	4	Binary	For non-NYSE markets, the total imbalance quantity at the Indicative Match Price. For NYSE, the total imbalance quantity at the Reference Price. When Auction Type=P (NYSE only), this field will be set to the Extreme Order Imbalance quantity.
MarketImbalanceQty	32	4	Binary	The total market order imbalance quantity at the Indicative Match Price. For NYSE, unused and defaulted to 0.
AuctionTime	36	2	Binary	Projected Auction Time (hhmm)
AuctionType	38	1	ASCII	▪ O – Early Opening Auction (non-NYSE only) ▪ M – Core Opening Auction ▪ H – Reopening Auction (Halt resume) ▪ C – Closing Auction ▪ P – Extreme Closing Imbalance (NYSE only) ▪ R – Regulatory Closing Imbalance (NYSE only)

ImbalanceSide	39	1	ASCII	The side of the TotalImbalanceQty ▪ B – Buy side ▪ S – Sell side ▪ Space – No imbalance
ContinuousBook ClearingPrice	40	4	Binary	For non-NYSE markets, the price at which all interest on the book can trade, including auction and imbalance offset interest, and disregarding auction collars. For NYSE, the price closest to the reference price where the imbalance is 0. For regulatory imbalances, or if a continuous book clearing price is not reached, this field is defaulted to 0.
AuctionInterest ClearingPrice	44	4	Binary	For non-NYSE markets, the price at which all eligible auction-only interest would trade, subject to auction collars. For the NYSE closing auction only, the price closest to the reference price where the imbalance of closing-only interest is 0. If a closing-only clearing price is not reached, this field is defaulted to 0.
SSRFilingPrice	48	4	Binary	For non-NYSE markets, not supported and defaulted to 0. For NYSE non-Regulatory imbalances, if a Sell Short Restriction is in effect, the price at which Sell Short interest will be filed.
IndicativeMatchPrice	52	4	Binary	For non-NYSE markets, the price at which the highest number of shares would trade, subject to auction collars. It includes the non-displayed quantity of Reserve Orders. See Information on Auctions for details. For NYSE, set to 0.
UpperCollar	56	4	Binary	If the IndicativeMatchPrice is not strictly between the UpperCollar and the LowerCollar, special auction rules apply. See Rule 7.35 for details For NYSE, set to 0

LowerCollar	60	4	Binary	If the IndicativeMatchPrice is not strictly between the UpperCollar and the LowerCollar, special auction rules apply. See Rule 7.35 for details.
				For NYSE, set to 0
AuctionStatus	64	1	Binary	Indicates whether the auction will run
				0 - Will run as always for Open and Close
				1 - Will run, interest exists inside or at the collars or is fully paired off
				2 – Will not run because there is an imbalance through the collars
				3 – Will not run, will transition to the Closing Auction instead
FreezeStatus	65	1	Binary	0 - Imbalance freeze not yet in effect
				1 - Imbalance freeze is in effect
NumExtensions	66	1	Binary	Number of times the halt period has been extended
				For NYSE, set to 0
Unpaired Qty	67	4	Binary	For NYSE only, during the Closing Auction, the number of unpaired shares priced at or better than the Reference Price.
				For non-NYSE markets, 0.
Unpaired Side	71	1	ASCII	The side of the Unpaired Qty
				▪ B - buy side ▪ S - sell side ▪ Space - not applicable
Significant Imbalance	72	1	ASCII	For Auction Types = C or P in NYSE-listed symbols. Using historical closing data for each symbol, NYSE will set this indicator if the Continuous Book Clearing Price is more than a 'significant' range away from the Reference Price.
				▪ Y - the current Imbalance is significant ▪ Space - not significant, or not applicable - (Default till implementation at a future date)

13. Add Order Refresh Message – Msg Type 106

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

1) If a client sends a Refresh Request to the Request Controller, an Add Order Refresh message is sent over the Refresh channels as part of the refresh response for every order currently sitting on the book.

2) If NYSE Operations refreshes a symbol, a Symbol Clear message is published, followed by a full refresh. The refresh includes an Add Order Refresh message for every order currently sitting on the book of the symbol.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 43 bytes
Msg Type	2	2	Binary	The type of message: 106 – Add Order Refresh Message
SourceTime	4	4	Binary	The time when this msg was generated in the order book, in seconds since Jan 1, 1970 00:00:00 UTC.
SourceTimeNS	8	4	Binary	The nanosecond offset from the SourceTime
SymbolIndex	12	4	Binary	The ID of the symbol in the Symbol Index msg
SymbolSeqNum	16	4	Binary	The sequence number of this message in the set of all messages for this symbol
OrderID	20	8	Binary	The unique ID assigned by the matching engine to this order
Price	28	4	Binary	The order price. Use the Price scale from the symbol-mapping index.
Volume	32	4	Binary	The order quantity in shares
Side	36	1	ASCII	The side of the order (Buy/sell). Valid values: ▪ 'B' – Buy ▪ 'S' – Sell
FirmID	37	5	ASCII	The participant's firm ID, or blanks if firm ID was not specified
NumParitySplits	42	1	Binary	Future use. Defaulted to 0.

14. Stock Summary Message – Msg Type 223

On a separate channel from the main feed, the Stock Summary channel, a Stock Summary message per symbol is sent every 60 seconds. The message is sent regardless of whether there has been a change to the symbol in the last 60 seconds or not.

See the XDP Common Client Specification for details on the Price field format.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Msg Size	0	2	Binary	Size of the message: 36 bytes
Msg Type	2	2	Binary	The type of message: 223 – Stock Summary Message
SourceTime	4	4	Binary	The time when this msg was generated in the order book, in seconds since Jan 1, 1970 00:00:00 UTC.
SourceTimeNS	8	4	Binary	The nanosecond offset from the SourceTime
SymbolIndex	12	4	Binary	The ID of the symbol in the Symbol Index msg
HighPrice	16	4	Binary	The exchange high price of this stock for the day. Use the Price Scale in the symbol index msg.
LowPrice	20	4	Binary	The exchange Low price of this stock for the day. Use the Price Scale in the symbol index msg.
Open	24	4	Binary	The exchange Opening price of this stock for the day. Use the Price Scale in the symbol index msg.
Close	28	4	Binary	The exchange Closing price of this stock for the day. Use the Price Scale in the symbol index msg.
TotalVolume	32	4	Binary	The exchange cumulative volume for the stock throughout the day.

APPENDIX A: Information on Auctions

14.1 NYSE AUCTIONS

The NYSE market conducts auctions for NYSE-listed (Tape A) symbols only. The NYSE market does not publish imbalances for IPO or Direct Listing symbols.

As a part of the auction process, Imbalance messages are published every second if there is any change from the previous second.

Note: During an auction, in calculating the imbalance at a price point on the book, NYSE considers the following to be an imbalance:

- market orders
- interest whose price is better than the book price point

AUCTION TYPE	DESCRIPTION
Opening Auction (M) **and** **Re-Opening Auction (H)**	**Interest Included** - All electronic interest eligible to trade in the opening auction - DMM interest as needed to offset the imbalance **Order Cancellation** - Orders can be cancelled at any time up to the conclusion of the auction **Reference Price Calculation** The Reference Price is - The consolidated last sale* if no Mandatory Indication has been published - The consolidated last sale* if it is within the indication range - The indication low price if it is higher than the consolidated last sale* - The indication high price it is lower than the consolidated last sale* * If there's no consolidated last sale price, the previous close price is used

Closing Auction (C)	**Interest Included**
	
	- For Paired Quantity, Unpaired Quantity, and Total Imbalance Quantity:
	  o MOC and LOC orders
	  o Imbalance offset orders
	  o Closing D orders
	
	- For Continuous Book Clearing Price:
	
	  o All electronic interest eligible to trade in the closing auction
	  o DMM interest as needed to offset the imbalance
	
	- For Auction Interest Clearing Price:
	
	  o MOC and LOC orders
	  o Imbalance offset orders

AUCTION TYPE	DESCRIPTION

	Order Cancellation
	
	   ▪ Orders can be cancelled any time during the auction period, except for MOC, LOC and Imbalance offset orders, which can be cancelled only up to 2 minutes before the scheduled closing time.
	
	Reference Price Calculation
	
	The Reference Price is
	
	   ▪ The NYSE last sale if it is at or within the NYSE best quote
	   ▪ The NYSE best bid if the NYSE best bid is higher than the NYSE last sale
	   ▪ The NYSE best offer if the NYSE best offer is lower than the NYSE last sale

Regulatory Closing Auction (R)	**Interest Included**
	
	   ▪ MOC and LOC orders
	
	Reference Price Calculation
	
	   ▪ The Reference Price is the NYSE last sale*
	
	* If there's no NYSE last sale price, the NYSE previous close price is used

Extreme Imbalance Closing Auction (P)	**Interest Included**
	
	   ▪ All electronic interest eligible to trade in the closing auction
	
	Reference Price Calculation
	
	   ▪ The Reference Price is the NYSE last sale*
	
	* If there's no NYSE last sale price, the NYSE previous close price is used

14.2 NYSE ARCA AND NYSE AMERICAN AUCTIONS

Three single-price auctions are conducted during the day: the Early Opening Auction, the Core Opening Auction and the Closing Auction. As a part of the auction process, Imbalance messages are published every second if there is any change from the previous second.

This description covers normal cases. For full detail on exception cases, see Rule 7.35.

Indicative Match Price Details

- The Indicative Match Price is the price that maximizes executable volume of auction-eligible shares, subject to Auction Collars.
- It includes the non-displayed quantity of Reserve Orders.
- If two or more prices maximize executable volume equally, in an effort to maintain continuity, the Indicative Match Price is whichever price is closest to the Reference Price.
- The final auction execution price is the Indicative Match Price at auction time.

Note: During an auction, in calculating the imbalance at a price point on the book, NYSE Arca and American consider the following to be an imbalance:

- Market orders
- Any interest whose price is at or better than the book price point

Imbalance Calculation

AUCTION TYPE	DESCRIPTION
Early Opening Auction (O)	**Interest Included** 1. Limit Orders designated for the Early Trading Session. 2. During the last minute before the Early Opening Auction time, the non-displayed quantity of Reserve Orders designated for the Early Open Auction is included in the Matched Volume and Total Imbalance Volume. **Order Cancellation** Orders can be cancelled at any time up to the conclusion of the auction. **Reference Price** ▪ The Reference Price is normally the listing market's previous Official Closing Price. See Rule 7.35 for full detail. Unexecuted session 1 eligible orders become eligible for the Early Session immediately upon conclusion of the Early Opening Auction.
Core Opening Auction (M) **and** **Re-Opening Auction (H)**	**Interest Included** 1. Limit, Market, MOO, LOO and Primary Peg orders 2. During the last 5 seconds before the Core Opening Auction time, the non-displayed quantity of Reserve Orders is included in the Matched Volume and Total Imbalance Volume. **Order Cancellation** Orders can be cancelled any time during the auction, except for MOO and LOO orders which can be cancelled only up to 1 minute before the conclusion of the auction. **Reference Price** The Reference Price is normally the midpoint of the NBBO. See Rule 7.35 for full detail.
Closing Auction (C)	**Interest Included** 1. Limit, Market, MOC, LOC and Primary Peg orders 2. During the last minute before the Closing Auction time, the non-displayed quantity of Reserve Orders is included in the Matched Volume and Total Imbalance Volume. **Reference Price** ▪ The Reference Price is normally the Consolidated Tape last sale. If the price closest to the Reference Price would trade through the exchange book, the indicative match price will be the best price available where no trade through occurs. See Rule 7.35 for full detail.

Imbalance Message Publication Times

For all markets, the initial publication of Symbol Index Mapping messages occurs shortly after system startup at approximately 12:15am ET.

Scheduled trading session hours on normal and early-close days for all NYSE markets can be found here.

Regularly scheduled auctions occur at the following times. Trading halts and re-opens can occur anytime during any session. Trading halts can last from one session into the next.

All times are US Eastern Time

DESCRIPTION	MARKET	NORMAL AUCTION PERIOD
Early Opening Auction	Arca	3:30am - 4:00am ET
	American	7:00am - 9:30am ET
Core Opening Auction	Arca American	8:00am - 9:30am ET
	NYSE	8:30am - ET - the stock opens
Closing Auction	Arca American	3:00pm - 4:00pm ET
	NYSE	3:50pm - ET - the stock closes

During auction periods, Imbalance messages are published every second if there is any change from the last publication.

On early closing days for all ARCA and American, the Closing auction runs from 12:00pm to 1:00pm. For NYSE, the closing auction run from 12:50 until the stock closes.

APPENDIX B: Product IDs

Refresh and Retransmission Request messages must specify a Product ID. The correct product IDs for the Integrated feed follow.

EXCHANGE	PRODUCT ID	DESCRIPTION
NYSE	11	NYSE Integrated Feed
NYSE American	59	NYSE American Integrated Feed
NYSE National	109	NYSE National Integrated Feed
NYSE Arca	157	NYSE Arca Integrated Feed

APPENDIX C: Scenarios For Integrated Feed version 2 vs. version 1

The following is a list of elementary scenarios to illustrate the changes in this major release. For each scenario, the list of expected msgs is shown in order of publication.

	SCENARIO	Existing XDP 1.0	XDP 2.0
1	**Client adds an order**	Add	Add
2	**Client adds an attributed order** *Basic Add msg handles attribution*	Attributed Add	Add(firmID)
3	**Client deletes an order**	Del	Del
4	**Client reduces the size of an order** *Position indicator replaces Reason Code*	Mod(pri,vol)	Mod (pri,vol)
5	**Client cancel-replace** *New Replace msg typically handles this scenario*	Mod(pri,vol)	Replace(pri,vol)
6	**Hidden liquidity executes** *New dedicated message type*	Trade(pri,vol)	NonDisplayedTrade(pri,vol)
7	**An order partially executes** *All execution events* *handled by one msg type*	Exe(pri,vol) Trade(pri,vol) Mod(pri,vol)	Exe(pri,vol)
8	**An order fully executes**	Exe(pri,vol) Trade(pri,vol) Del	Exe(pri,vol)
9	**An order executes (new price)**	Exe(pri,vol) Trade(pri,vol) Mod(pri,vol) or Del	Exe(pri,vol)
10	**Multiple orders exe (same price)**	Exe	
		Trd 1	
		Del 1	Exe(pri,vol)
		Trd 2	
		Del 2	Exe(pri,vol)
		. . .	. . .
		Trd N	
		Mod	Exe(pri,vol)
11	**a. add reserve to buy 1000, 100 lit**	Add 100 to buy	Add 100 to buy
	b. aggressor sells 400	Exe 100	

		Trd 100	
		Del 100	Exe(pri,100)
		Trd 300	NonDispTrd 300
		Add 100 to buy	Add 100 to buy
12	**a. add reserve to buy 1000, 500 lit**		Add 500 to buy
	b. aggressor sells 400		Exe(pri,400)
			Add 400 to buy
13	**An order reprices (peg, SSR, LULD…)**	Mod(pri,vol)	Mod(pri)
	Orders usually lose position on reprice		
15	**a. Client adds order for 2500**		Add 2500 to buy
	b. 1000 routed away		Mod(vol=1500)
	c. 1000 canceled back		Mod (vol=2500)
16	**a. Client adds order for 2500**		Add 2500 to buy
	b. 2500 routed away		Del
	c. 2500 canceled back		Add 2500 to buy
17	**a. Client adds reserve ord for 1000, 500 lit**		Add 500 to buy
	b. 700 routed away, 300 bal in reserve lit		Del
			Add 300 to buy
	c. 700 canceled back, 500 put back in reserve		Add 200 to buy, or Mod(vol=500)
18	**open/reopen/close auction**		
	Total volume executed and printed to the SIP		CrossTrade
	Visible and hidden executions in the auction		Exes,Trades(printable=0)
	Dels of orders not matched in the auction		Dels
	Replenishes after partial executions		Adds
	Official notice of end of auction and new session		SecurityStatus (session=early,open,reopen,late)