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## **XDP INTEGRATED FEED CLIENT SPECIFICATION**

### **NYSE INTEGRATED FEED, NYSE MKT INTEGRATED FEED**

Version

2.0d

Date

April 7, 2015

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## PREFACE

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### DOCUMENT HISTORY

VERSION NO.	DATE	CHANGE DESCRIPTION
2.0	9/23/14	Version 2.0 Initial Publicaton
2.0a	10/10/14	Corrected description of Order Execution msg.
2.0b	10/17/14	Corrected description of Cross Trade's Cross ID field.
2.0c	12/19/14	Removed SourceTimeReference message to Common Client Spec
2.0d	04/07/15	Clarified descriptions of Parity Splits and other fields

### 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
- [SFTI US Technical Specification](#)
- [SFTI US Customer Guide](#)
- [NYSE Symbology](#)

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### FURTHER INFORMATION

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

For updated capacity figures, visit our capacity pages at: <http://www.nyxdata.com/capacity>

For details of IP addresses, visit our IP address pages at: <http://www.nyxdata.com/ipaddresses>

For a full glossary, visit: <http://www.nyxdata.com/glossary/>

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# 1. XDP Integrated Feed Information

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## 1.1 OVERVIEW

The XDP Integrated feed provides a raw feed of the Exchange's order book for all traded securities. Traders will see the complete depth of book, all trade events, the stock security status, and stock imbalances. All of the data is sent in the order in which it occurs at the Matching Engine.

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 XDP Integrated Book 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		
33	Trading Session Change	x		x
34	Security Status Message	x		x
35	Refresh Header Message			x

## 2. Add Order Message – Msg Type 100

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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 unique for this symbol for today only.

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
<b>Msg Size</b>	0	2	Binary	Size of the message: 39 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 100 – Add Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to this order
<b>Price</b>	24	4	Binary	The order price. Use with the Price Scale from the symbol-mapping index.
<b>Volume</b>	28	4	Binary	The order quantity in shares
<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.
<b>NumParitySplits</b>	38	1	Binary	Resulting number of splits at this price level <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at this price level</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>

### 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
<b>Msg Size</b>	0	2	Binary	Size of the message: 35 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 101 – Modify Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<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	Binary	The new order price. Use the Price scale from the symbol mapping index.
<b>Volume</b>	28	4	Binary	The new order quantity in shares.
<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>
<b>PrevPriceParitySplits</b>	33	1	Binary	Resulting number of splits at the previous price <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at this price level</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>
<b>NewPriceParitySplits</b>	34	1	Binary	Resulting number of splits at the new price <ul style="list-style-type: none"> <li>▪ (If price does not change, same as PrevPriceParitySplits)</li> <li>▪ Values same as PrevPriceParitySplits</li> </ul>

## 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
<b>Msg Size</b>	0	2	Binary	Size of the message: 42 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 104 – Replace Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<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	Binary	The new order price. Use the Price scale from the symbol mapping index.
<b>Volume</b>	36	4	Binary	The new order quantity in shares.
<b>PrevPriceParitySplits</b>	40	1	Binary	Resulting number of splits at the previous price <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at the previous price level</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>
<b>NewPriceParitySplits</b>	41	1	Binary	Resulting number of splits at the new price <ul style="list-style-type: none"> <li>▪ (If price does not change, same as PrevPriceParitySplits)</li> <li>▪ Values same as PrevPriceParitySplits</li> </ul>

## 5. Delete Order Message – Msg Type 102

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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.

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
<b>Msg Size</b>	0	2	Binary	Size of the message: 25 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 102 – Delete Order Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>OrderID</b>	16	8	Binary	The unique ID assigned by the matching engine to the existing order to be deleted
<b>NumParitySplits</b>	24	1	Binary	Resulting number of splits at the price level of the deleted order <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at this price level</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>



## 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 and Price field formats.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 38 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 103 – Order Execution Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<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 identifier assigned by the matching engine to this trade event. Allows correlation with the proprietary Trades feed.
<b>Price</b>	28	4	Binary	The execution price of this trade. Use the Price Scale from the symbol mapping index.
<b>Volume</b>	32	4	Binary	The executed quantity in shares
<b>PrintableFlag</b>	36	1	Binary	<ul style="list-style-type: none"> <li>▪ 0 = Not Printed to the SIP</li> <li>▪ 1 = Printed to the SIP</li> </ul>
<b>NumParitySplits</b>	37	1	Binary	Resulting number of splits at the price level at which the executed order was resting <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at this price level</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>

## 7. Non-Displayed Trade Message – Msg Type 110

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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 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: 110 – Non-Displayed Trade Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>TradeID</b>	16	4	Binary	Unique identifier assigned by the matching engine to this trade event. Allows correlation with the proprietary Trades feed.
<b>Price</b>	20	4	Binary	The execution price of the trade. Use the Price scale from the symbol mapping index.
<b>Volume</b>	24	4	Binary	Volume of the trade in shares
<b>PrintableFlag</b>	28	1	Binary	<ul style="list-style-type: none"> <li>▪ 0 = Not Printed to the SIP</li> <li>▪ 1 = Printed to the SIP</li> </ul>

## 8. Trade Cancel Message – Msg Type 112

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

## 9. 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
<b>Msg Size</b>	0	2	Binary	Size of the message: 29 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 111 – Cross Trade Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>CrossID</b>	16	4	Binary	Unique identifier for this Cross Trade. Used in Cross Correction message to identify the Cross Trade to correct.
<b>Price</b>	20	4	Binary	The execution price. Use the Price scale from the symbol mapping index.
<b>Volume</b>	24	4	Binary	Volume executed in shares
<b>CrossType</b>	28	1	ASCII	Reason for the crossing auction. Valid values: <ul style="list-style-type: none"> <li>▪ 'O' – Market Center Opening Auction</li> <li>▪ '5' – Market Center Reopening Auction</li> <li>▪ '6' – Market Center Closing Auction</li> </ul>

## 10. Cross Correction Message – Msg Type 113

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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
<b>Msg Size</b>	0	2	Binary	Size of the message: 24 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 113 – Cross Correction Message
<b>SourceTimeNS</b>	4	4	Binary	The nanosecond offset from the Time Reference second (since Jan 1, 1970 00:00:00 UTC)
<b>SymbolIndex</b>	8	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	12	4	Binary	The sequence number of this message in the set of all messages for this symbol
<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 Cross Trade message.

## 11. Imbalance Message– Msg Type 105

Imbalance messages are sent periodically to update price and volume information during auctions.

See APPENDIX A:Information on Auctions for details on the auction process in the NYSE markets.

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

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>Msg Size</b>	0	2	Binary	Size of the message: 52 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 105 – Imbalance Message
<b>SourceTime</b>	4	4	Binary	The time when this msg was generated in the order book, in seconds since Jan 1, 1970 00:00:00 UTC.
<b>SourceTimeNS</b>	8	4	Binary	The nanosecond offset from the Source Time
<b>SymbolIndex</b>	12	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	16	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>ReferencePrice</b>	20	4	Binary	The Reference Price is the Last Sale if the last sale is at or between the current best quote. Otherwise the Reference Price is the Bid Price if last sale is lower than Bid price, or the Offer price if last sale is higher than Offer price.
<b>PairedQty</b>	24	4	Binary	The number of shares paired off at the reference price point
<b>TotalImbalanceQty</b>	28	4	Signed Binary	The total imbalance quantity at the reference price. Total Imbalance Quantity can be negative.
<b>MarketImbalanceQty</b>	32	4	Signed Binary	This field indicates the total market order imbalance at the reference price. Market Imbalance Quantity can be negative.
<b>AuctionTime</b>	36	2	Binary	Projected Auction Time (hhmm)
<b>AuctionType</b>	38	1	ASCII	The reason for the auction. Valid values: <ul style="list-style-type: none"> <li>▪ 'M' – Open</li> <li>▪ 'H' - Halt</li> <li>▪ 'C' – Closing</li> <li>▪ 'R' – Regulatory Imbalance</li> </ul>

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>ImbalanceSide</b>	39	1	ASCII	The side of the imbalance. Valid Values: <ul style="list-style-type: none"> <li>▪ 'B' – Buy</li> <li>▪ 'S' – Sell</li> <li>▪ Space – No imbalance</li> </ul>
<b>ContinuousBook ClearingPrice</b>	40	4	Binary	The price closest to last sale where the imbalance is zero. If a Book Clearing Price is not reached, the Clearing Price, a zero will be published in the Book Clearing Price Field
<b>ClosingOnly ClearingPrice</b>	44	4	Binary	The indicative price against closing only order only
<b>SSRFilingPrice</b>	48	4	Binary	The price at which Sell Short interest will be filed in the matching if a Sell Short Restriction is in effect for the security.  Note: The SSR Filing price is based on the National Best Bid at 9:30am. This price remains static after the SSR Filing price has been determined.

## 12. 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 a primary XDP Publisher fails over to the backup, for every symbol, the backup sends a Symbol Clear message followed by a full refresh, which 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
<b>Msg Size</b>	0	2	Binary	Size of the message: 43 bytes
<b>Msg Type</b>	2	2	Binary	The type of message: 106 – Add Order Refresh Message
<b>SourceTime</b>	4	4	Binary	The time when this msg was generated in the order book, in seconds since Jan 1, 1970 00:00:00 UTC.
<b>SourceTimeNS</b>	8	4	Binary	The nanosecond offset from the SourceTime
<b>SymbolIndex</b>	12	4	Binary	The ID of the symbol in the Symbol Index msg
<b>SymbolSeqNum</b>	16	4	Binary	The sequence number of this message in the set of all messages for this symbol
<b>OrderID</b>	20	8	Binary	The unique ID assigned by the matching engine to this order
<b>Price</b>	28	4	Binary	The order price. Use the Price scale from the symbol-mapping index.
<b>Volume</b>	32	4	Binary	The order quantity in shares
<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
<b>NumParitySplits</b>	42	1	Binary	Resulting number of splits at this price level <ul style="list-style-type: none"> <li>▪ 0 = The number of parity splits at this price level is between 1 and 4 inclusive</li> <li>▪ 5-254 = The number of parity splits at the price level of this order</li> <li>▪ 255 = 255 or more splits at this price level</li> </ul>



### 13. Stock Summary Message – Msg Type 223

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

## APPENDIX A: Information on Auctions

### A.1 NYSE AND MKT AUCTIONS

#### A.1.1 Nyse Imbalance Calculation

MESSAGE TYPE	DESCRIPTION
<b>Opening</b>	<p>Interest Included</p> <p>All electronic interest eligible to trade in the opening including DMM sQuotes at the Reference Price. Odd-lot interest is excluded.</p> <p>Calculation</p> <p>Reference price is equal to the last sale (previous closing price) unless there is a Rule 15 or Mandatory indication published.</p> <p>If an indication is published, the reference price is determined as follows:</p> <ul style="list-style-type: none"> <li>▪ If the Bid Price from the indication (the lower price) is higher than the last sale, the Reference Price will be the Bid.</li> <li>▪ If the Offer Price from the indication (the higher price) is lower than the last sale, the Reference Price will be the Offer.</li> <li>▪ If the Last Sale is within the indication range the Book shall use the Last Sale as the Reference Price.</li> <li>▪ If multiple indications have been published, the Book shall always use the latest.</li> </ul> <p><b>Continuous Book Clearing Price</b> is the price closest to Reference Price where imbalance is zero.</p> <p><b>SSR Filing Price</b> is the price at which Sell Short interest will be filed in the matching in the event a Sell Short Restriction is in effect for the security. The SSR Filing price is based on the National Best Bid at 9:30am. This price remains static after the SSR Filing price has been determined.</p>
<b>Closing</b>	<p>Interest Included</p> <ul style="list-style-type: none"> <li>▪ All MOC/LOC interest eligible for the close will be included as well as the round lot portion of PRLs.</li> <li>▪ D-Quotes interest is included beginning at 3:55pm EST</li> <li>▪ Odd-lot interest, DMM and crowd interest will be excluded.</li> <li>▪ Closing Only order interest Included in calculation only when off-setting.</li> </ul> <p>Calculation</p> <p><b>Reference Price</b> is the Last Sale if the last sale is at or between the current NY best quote. Otherwise the Reference Price is the Bid Price if last sale is lower than Bid price, or the Offer price if last sale is higher than Offer price.</p> <p><b>Continuous Book Clearing Price</b> is the price closest to Reference Price where imbalance is zero.</p>

MESSAGE TYPE	DESCRIPTION
	<b>Closing Only Clearing Price</b> is defined as the closing only interest where price closest to last sale where imbalance is zero.

### A.1.2 NYSE AND MKT IMBALANCE DATA EXCEPTIONS

The following are situations in which no imbalance information will be disseminated:

- If the NYSE last sale price, paired quantity and imbalance quantity are the same as the previous calculation, no message will be generated.
- If there is no Last Sale Price (for example, Trading Halted), a single Closing Paired/Imbalance message with zero is published.
- If there is paired quantity, but no imbalance quantity, the Closing Paired/Imbalance message with paired quantity and paired number of orders and zero imbalance quantity will be published.

### A.1.3 NYSE AND MKT PUBLICATION TIMES

MESSAGE	PUBLICATION PERIOD
<b>NYSE Opening Imbalances</b>	<p>Opening Imbalance messages are disseminated every 5 minutes between 8:30am EST and 9:00am EST.</p> <p>Opening Imbalance messages are disseminated every 1 minute between 9:00am EST and 9:20am EST.</p> <p>Opening Imbalance messages are disseminated every 15 second between 9:20am EST and 9:35am EST</p>
<b>NYSE Closing Imbalances</b>	<p>Closing Imbalance messages are disseminated every 5 seconds between 3:45pm EST and 4:00pm EST (or until Market close on early closing days).</p> <p>Please check the NYSE website for any changes to trading hours.</p>

## APPENDIX B: Trading session Hours

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SESSION VALUE	DESCRIPTION	NYSE / NYSE MKT
0x01	Morning Hours	N/A
0x02	National Hours	9:30am – 4:00pm EST
0x04	Late Hours	N/A

## APPENDIX C: Product IDs

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

EXCHANGE	PRODUCT ID	DESCRIPTION
<b>NYSE</b>	11	NYSE Integrated Feed
<b>NYSE MKT</b>	59	NYSE MKT Integrated Feed
<b>NYSE Arca</b>	157	NYSE Arca Integrated Feed (will adopt 2.0 in the future)

## APPENDIX D: 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 <b>Client adds an order</b>	Add	Add
2 <b>Client adds an attributed order</b> <i>Basic Add msg handles attribution</i>	Attributed Add	Add(firmID)
3 <b>Client deletes an order</b>	Del	Del
4 <b>Client reduces the size of an order</b> <i>Position indicator replaces Reason Code</i>	Mod(pri,vol)	Mod(kept position)(pri,vol)
5 <b>Client cancel-replace</b> <i>New Replace msg handles this scenario</i>	Mod(pri,vol)	Replace(pri,vol)
6 <b>Hidden liquidity executes</b> <i>New dedicated message type</i>	Trade(pri,vol)	NonDisplayedTrade(pri,vol)
7 <b>An order partially executes</b> <i>All execution events handled by one msg type</i>	Exe(pri,vol) Trade(pri,vol) Mod(pri,vol)	Exe(pri,vol)
8 <b>An order fully executes</b>	Exe(pri,vol) Trade(pri,vol) Del	Exe(pri,vol)
9 <b>An order executes (new price)</b>	Exe(pri,vol) Trade(pri,vol) Mod(pri,vol) or Del	Exe(pri,vol)
10 <b>Multiple orders exe (same price)</b>	Exe Trd 1 Del 1 Trd 2 Del 2 ... Trd N Mod	Exe(pri,vol)  Exe(pri,vol)  ...
11 <b>a. add reserve to buy 1000, 100 lit</b>	Add 100 to buy	Add 100 to buy
<b>b. aggressor sells 400</b>	Exe 100 Trd 100 Del 100 Trd 300 Add 100 to buy	Exe(pri,100) NonDispTrd 300 Add 100 to buy

12	<b>a. add reserve to buy 1000, 500 lit</b>	Add 500 to buy
	<b>b. aggressor sells 400</b>	Exe(pri,400) Add 400 to buy
13	<b>An order is repriced (peg, SS, Tick, etc...)</b> <i>Orders usually lose position on reprice</i>	Mod(pri,vol) Mod(lost position) (pri)
14	<b>An order is repriced due to LULD bands</b> <i>Orders keep position on an LULD reprice</i>	Mod(kept position) (pri)
15	<b>a. Client adds order for 2500</b>	Add 2500 to buy
	<b>b. 1000 routed away</b>	Mod(kept pos) (vol=1500)
	<b>c. 1000 canceled back</b>	Add 1000 to buy
16	<b>a. Client adds order for 2500</b>	Add 2500 to buy
	<b>b. 2500 routed away</b>	Del
	<b>c. 2500 canceled back</b>	Add 2500 to buy
17	<b>a. Client adds reserve ord for 1000, 500 lit</b>	Add 500 to buy
	<b>b. 700 routed away, 300 bal in reserve lit</b>	Del Add 300 to buy
	<b>c. 700 canceled back, 500 put back in reserve</b>	Add 200 to buy
18	<b>open/reopen/close auction</b> <i>Total volume executed and printed to the SIP</i> <i>Visible and hidden executions in the auction</i> <i>Dels of orders not matched in the auction</i> <i>Replenishes after partial executions</i> <i>Official notice of end of auction</i>	CrossTrade Exes,Trades(printable=0) Dels Adds SecurityStatus(open,reopen,close)

## APPENDIX E: Changes in Integrated Feed version 2 vs. version 1

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<b>Msg Types affected</b>		
<b>1</b>	all order msgs	TradeSession field removed, so on session change, explicit deletes of expired messages are sent
<b>2</b>	all order msgs	Order ID field increased to 8 bytes, so no mapping of order ID to the ID in the Gateway Ack is needed
<b>3</b>	all order msgs	GTC Indicator field is removed
<b>4</b>	Time Reference	Time Reference msgs are sent once a second per Matching Engine server, not per symbol, saving thousands of msgs per second
<b>5</b>	all msg types	SourceTimeSecs removed - all IBF messages now use Time Reference messages
<b>6</b>	Exe,Mod,Del,Trd	Reporting of executions is simplified to a single Execution message, simplifying client processing
<b>7</b>	Add & Add Refresh	Attr Add and Attr Add Refresh messages eliminated, Firm ID field added to Add and Add Refresh
<b>8</b>	Replace	Added Replace message to express the cancel/replace scenario
<b>9</b>	Add,Del,Mod,Repl,Exe	NumParitySplits fld added to support NY (0 for Arca) - shows num splits at this price point as a result of this message
<b>10</b>	Mod, Replace	Mod & Replace msgs can change price of an existing order, so need 2 parity flds: at old price & at new price
<b>11</b>	NonDisplayedTrade	New message type replaces Trade msg, shows trades in which both sides are hidden
<b>12</b>	CrossTrade	New msg type shows bulk volume resulting from an auction execution (followed by exes & trades showing each)
<b>13</b>	Exe & NonDispTrade	new Printable fld - 0 if not printed to tape, else 1
<b>14</b>	Mod	New PositionChange field (0=kept position, 1=lost position) - replaces reason code field
<b>15</b>	Mod, Replace, Del	Eliminate side field
<b>16</b>	Security Status	Market Status (open/reopened/closed) moved from Status field to its own field

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