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## **XDP IMBALANCES FEED CLIENT SPECIFICATION NYSE ARCA IMBALANCES**

Version  
1.0a

Date  
July 13, 2016

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## PREFACE

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### DOCUMENT HISTORY

VERSION	DATE	CHANGE DESCRIPTION
1.0	Dec 17, 2015	Initial version
1.0a	July 13, 2016	Corrected Product ID, Table 1.4, and value R in Auction Type field

### 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](#)

### CONTACT INFORMATION

#### Service Desk

- Telephone: +1 212 383 3640 (International)
- Telephone: 866 873 7422 (Toll free, US only)
- Email: [service.desk@nyx.com](mailto:service.desk@nyx.com)

### FURTHER INFORMATION

For additional information about the product, visit the XDP Imbalances 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>

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# 1 XDP Imbalances Feed Information

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This real-time low latency product provides imbalance data published during auctions of all traded securities on the respective NYSE Arca exchange. This data is intended for clients who require a direct standalone feed with timestamps provided directly from the Exchange matching engines.

## 1.1 PRODUCT ID

EXCHANGE	PRODUCT ID	DESCRIPTION
NYSE Arca	157	NYSE Arca Imbalance Feed

## 1.2 TRADING SESSION TIMES

All times are US Eastern Time

SESSION VALUE	DESCRIPTION	NORMAL TRADING DAY	EARLY CLOSING DAY
0x01	Morning Hours	4:00am – 9:30am ET	4:00am – 9:30am ET
0x02	National Hours	9:30am – 4:00pm ET	9:30am – 1:00pm ET
0x04	Late Hours	4:00pm – 8:00pm ET	-

## 1.3 PUBLICATION TIMES

All times are US Eastern Time

MSG TYPE	DESCRIPTION	NORMAL TRADING DAY	EARLY CLOSING DAY
100	Symbol Index Mapping Message	Shortly after 12:00am	Shortly after 12:00am
107	Security Status Message	4:00am – 8:00pm ET	4:00am – 1:00pm ET
105	Opening Imbalance Messages	3:30am - 4:00am ET	3:30am - 4:00am ET
105	Market Imbalance Messages	4:00am - 9:30am ET	4:00am - 9:30am ET
105	Closing Imbalance Messages	3:00pm - 4:00pm ET	12:45pm - 1pm ET

## 1.4 CONTROL MESSAGE TYPES

MSGTYPE	DESCRIPTION
1	Sequence Number Reset
3	Symbol Index Mapping
10	Retransmission Request Message
11	Request Response Message
12	Heartbeat Response Message
13	Symbol Index Mapping Request Message
15	Refresh Request Message
31	Message Unavailable
32	Symbol Clear
33	Trading Session Change
34	Security Status Message
35	Refresh Header Message

## 1.5 REFRESH MESSAGE TYPES

MSGTYPE	DESCRIPTION
35	Refresh Header Message
3	Symbol Index Mapping
105	Imbalance Message
34	Security Status Message
33	Trading Session Change

## 2 Imbalance Message– Msg Type ‘105’

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

See Imbalance Calculation below for more information.

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	This field identifies 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>Indicative MatchPrice</b>	20	4	Binary	The best price at which the maximum volume of shares is executable in the applicable auction, subject to Auction Collars. It includes the non-displayed quantity of Reserve Orders. See section 2.1 for further details.
<b>PairedQty</b>	24	4	Binary	The number of shares 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>AuctionTime</b>	36	2	Binary	Projected Auction Time (hhmm)
<b>AuctionType</b>	38	1	ASCII	<ul style="list-style-type: none"> <li>■ ‘O’ – Open (4am) Arca only</li> <li>■ ‘M’ – Market (9:30am)</li> <li>■ ‘H’ - Halt</li> <li>■ ‘C’ – Closing</li> <li>■ ‘R’ – Regulatory Imbalance (NYSE/MKT only)</li> </ul>
<b>ImbalanceSide</b>	39	1	ASCII	This field indicates the side of the imbalance. Valid Values: <ul style="list-style-type: none"> <li>■ ‘B’ – Buy side</li> <li>■ ‘S’ – Sell side</li> <li>■ Space – No imbalance</li> </ul>

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
<b>ContinuousBook ClearingPrice</b>	40	4	Binary	No supported, defaulted to 0.
<b>ClosingOnly ClearingPrice</b>	44	4	Binary	No supported, defaulted to 0.
<b>SSRFilingPrice</b>	48	4	Binary	No supported, defaulted to 0.

## 2.1 IMBALANCE CALCULATION

NYSE Arca conducts three single-price auctions during the day: the Early Opening Auction, the Core Opening Auction and the Closing Auction. As a part of the auction process, the indicative match price, matched volume, total imbalance, and market imbalance are disseminated every second if there is any change from the previous second.

### NYSE Arca Auction-Eligible Securities

AUCTION TYPES	ELIGIBLE SECURITIES
Early Opening Auction	<ul style="list-style-type: none"> <li>■ NYSE Arca-listed securities</li> <li>■ UTP securities designated as eligible by the NYSE Group</li> </ul>
Core Opening Auction	
Closing Auction	
Trading Halt Auctions	<ul style="list-style-type: none"> <li>■ NYSE Arca-listed securities</li> </ul>

### Imbalance Calculation

AUCTION TYPE	DESCRIPTION
Early Opening Auction	<p><b>Interest Included</b></p> <ol style="list-style-type: none"> <li>1. Limit Orders designated for the Early Trading Session.</li> <li>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.</li> </ol> <p><b>Order Cancellation</b></p> <p>Orders can be cancelled at any time up to the conclusion of the auction.</p> <p><b>Calculation</b></p> <ul style="list-style-type: none"> <li>■ The Early Opening Auction occurs at the Indicative Match Price.</li> <li>■ If two or more prices can maximize executable volume, the Early Opening Auction occurs at whichever price is closest to the previous Official Closing Price in an effort to maintain continuity.</li> </ul> <p>Unexecuted orders become eligible for the Opening Session immediately upon conclusion of the Early Opening Auction.</p>



AUCTION TYPE	DESCRIPTION
<b>Core Opening Auction</b>	<p><b>Interest Included</b></p> <ol style="list-style-type: none"> <li>1. Limit, Market, MOO, LOO and Primary Peg orders</li> <li>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. .</li> </ol> <p><b>Order Cancellation</b></p> <p>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.</p> <p><b>Calculation</b></p> <ul style="list-style-type: none"> <li>■ The match price is the price that maximizes the volume that can be executed.</li> </ul> <p>If two or more prices can maximize executable volume, in an effort to maintain continuity the Core Opening Auction occurs at whichever price is closest to the the midpoint of the Auction NBBO. See Rule 7.35P for more detail.</p>
<b>Closing Auction</b>	<p><b>Interest Included</b></p> <ol style="list-style-type: none"> <li>1. Limit, Market, MOC, LOC and Primary Peg orders</li> <li>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.</li> </ol> <p><b>Calculation</b></p> <ul style="list-style-type: none"> <li>■ Orders will be executed in the Closing Auction at the Indicative Match Price</li> </ul> <p><b>Further rules for NYSE Arca</b></p> <ul style="list-style-type: none"> <li>■ If there are multiple prices at which the total imbalance can equally execute, the indicative price will be based on the price closest to the Consolidated Tape last sale.</li> </ul> <p>If the price closest to the Consolidated Tape last sale would trade through the NYSE Arca Book, the indicative match price will be the best price available where no trade through occurs.</p>