

NASDAQ OMX PSX Best Bid and Offer

For PSX Trading Venue

NASDAQ OMX Global Data Products
11/1/2013

PSX Best Bid and Offer (PSX BBO)

1 Overview

1.1 Product Description

PSX Best Bid and Offer (PSX BBO) is a direct data feed product offered by NASDAQ OMX to support the PSX Trading Market upon launch. PSX BBO provides the exchange's best bid and offer position for NASDAQ-, New York Stock Exchange (NYSE)-, NYSE Amex-, NYSE Arca- and BATS-listed securities.

Market data distributors may use the PSX BBO data feed to feed dynamically updating stock tickers, portfolio trackers, trade alert programs, time and quote graphs, and other display systems. For market data administration purposes, PSX BBO is part of the PSX Basic entitlement.

For pricing and ordering information:

1. Refer to [Market Data section](#) of the NASDAQ OMX Trader website.
2. Contact the [NASDAQ OMX Global Data Products Account Team](#) at +1 301 978 5307 or +45 33 93 33 66.

2 Network Protocol Options

For direct data feed subscribers, NASDAQ OMX will offer the PSX BBO data feed in the following protocol options:

- [SoupTCP](#)
- [MoldUDP](#)

In order to match the PSX Basic entitlement structure, PSX BBO will initially support three outbound channels for both protocol options. The PSX BBO data set will be channelized based on the listing market of a security.

Data Channel	Securities coverage
1	NASDAQ-listed issues
2	NYSE- and BATS-listed issues
3	NYSE Amex-, NYSE Arca- listed issues

3 Architecture

PSX BBO will be made up of a series of sequenced messages. Each message is variable in length based on the message type and is composed of non-control ASCII bytes. The messages that make up the PSX BBO protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

4 Data Types

All numeric fields are represented in ASCII digits and are right-justified. Padding spaces appear on the left as necessary.

Prices are given in decimal format with 6 whole number places followed by 4 decimal digits. The whole number portion is padded on the left with spaces; the decimal portion is padded on the right with zeros. The decimal point is implied by position; it does not appear inside the price field.

Timestamp reflects the PSX system time at which the outbound message was generated. PSX states time as the number of milliseconds past midnight. The time zone is U.S. Eastern Time. All alpha fields are left-justified. Padding spaces appear on the right as necessary.

5 Message Formats

Note: For consistency, NASDAQ OMX has coded the PSX Best Bid and Offer to use the same data formats as the NASDAQ Best Bid and Offer (QBBO) 1.1 and BX Best Bid and Offer (BX BBO) 1.1 data feed offerings. Functionality that will not be supported for the PSX market upon initial market implementation has been grayed out.

5.1 System Event Message

The System Event message is used to signal key market or data feed control events. PSX BBO will support the System Event messages.

SYSTEM EVENT MESSAGE				
Name	Offset	Length	Value	Notes
Time Stamp	0	8	Numeric	Time stamp
Message Type	8	1	Alphanumeric	S = System Event
Event Code	9	1	Alphanumeric	Denotes the type of event for which the message is being generated. See list below for allowable values.

On a daily basis, PSX BBO will support the following event codes:

SYSTEM EVENT CODES – DAILY	
Code	Explanation
O	<i>Start of Transmissions:</i> Denotes that PSX BBO has started its daily transmission schedule
S	<i>Start of System Hours:</i> This message indicates that PSX is open and ready to start accepting orders.
Q	<i>Start of Market Hours:</i> This message is intended to indicate that Market Hours orders are available for execution.
M	<i>End of Market Hours:</i> This message is intended to indicate that Market Hours orders are no longer available for execution.
E	<i>End of System Hours:</i> It indicates that PSX is now closed and will not accept any new orders today.
C	<i>End of Transmissions:</i> Denotes that PSX BBO has completed its daily transmission schedule.

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In the event of an emergency market condition (EMC), PSX BBO will also support the following event codes:

SYSTEM EVENT CODES – AS NEEDED	
Code	Explanation
A	<i>Emergency Market Condition – Halt:</i> This message is sent to inform PSX market participants that the EMC is in effect. No trading is allowed during the EMC.
R	<i>Emergency Market Condition – Quote Only Period:</i> This message is sent to inform PSX market participants that the EMC quotation only period is in effect.
B	<i>Emergency Market Condition – Resumption:</i> This message is sent to inform PSX market participants that EMC is no longer in effect.

5.2 Administrative Messages

5.2.1 Stock Directory

At the start of each trading day, NASDAQ OMX PSX disseminates stock directory messages for all active symbols in its market center system.

Market data vendors should process this message to populate the Financial Status Indicator (required display field) and the Market Category (recommended display field) for NASDAQ-listed issues.

STOCK DIRECTORY MESSAGE				
Name	Offset	Length	Value	Notes
Time Stamp	0	8	Numeric	Time Stamp.
Message Type	8	1	Alphanumeric	R = Stock Directory
Issue Symbol	9	8	Alphanumeric	Denotes the security symbol for the issue for which the directory message is being generated. For details on symbology, please refer to Appendix A.

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Market Category	17	1	Alphanumeric	<p>Denotes the listing market for the issue. The allowable values are:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>New York Stock Exchange (NYSE)</td> </tr> <tr> <td>A</td> <td>NYSE Amex</td> </tr> <tr> <td>P</td> <td>NYSE Arca</td> </tr> <tr> <td>Q</td> <td>NASDAQ Global Select Market</td> </tr> <tr> <td>G</td> <td>NASDAQ Global Market</td> </tr> <tr> <td>S</td> <td>NASDAQ Capital Market</td> </tr> <tr> <td>Z</td> <td>BATS BZX Exchange</td> </tr> <tr> <td><Space></td> <td>Not available</td> </tr> </tbody> </table>	Code	Value	N	New York Stock Exchange (NYSE)	A	NYSE Amex	P	NYSE Arca	Q	NASDAQ Global Select Market	G	NASDAQ Global Market	S	NASDAQ Capital Market	Z	BATS BZX Exchange	<Space>	Not available
Code	Value																					
N	New York Stock Exchange (NYSE)																					
A	NYSE Amex																					
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Q	NASDAQ Global Select Market																					
G	NASDAQ Global Market																					
S	NASDAQ Capital Market																					
Z	BATS BZX Exchange																					
<Space>	Not available																					
Financial Status Indicator	18	1	Alphanumeric	<p>For NASDAQ-listed issues, this field indicates when a firm is not in compliance with NASDAQ continued listing requirements.</p> <p>The allowable values are:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>Deficient</td> </tr> <tr> <td>E</td> <td>Delinquent</td> </tr> <tr> <td>Q</td> <td>Bankrupt</td> </tr> <tr> <td>G</td> <td>Deficient and Bankrupt</td> </tr> <tr> <td>H</td> <td>Deficient and Delinquent</td> </tr> <tr> <td>J</td> <td>Delinquent and Bankrupt</td> </tr> <tr> <td>K</td> <td>Deficient, Delinquent, and Bankrupt</td> </tr> <tr> <td><space></td> <td> <p>Company is in compliance, if NASDAQ-listed issue</p> <p>OR</p> <p>Issue is not listed on NASDAQ</p> </td> </tr> </tbody> </table>	Code	Value	D	Deficient	E	Delinquent	Q	Bankrupt	G	Deficient and Bankrupt	H	Deficient and Delinquent	J	Delinquent and Bankrupt	K	Deficient, Delinquent, and Bankrupt	<space>	<p>Company is in compliance, if NASDAQ-listed issue</p> <p>OR</p> <p>Issue is not listed on NASDAQ</p>
Code	Value																					
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<space>	<p>Company is in compliance, if NASDAQ-listed issue</p> <p>OR</p> <p>Issue is not listed on NASDAQ</p>																					

5.2.2 Stock Trading Action

NASDAQ OMX uses this administrative message to indicate the current trading status of a security to the trading community.

Prior to the start of system hours, NASDAQ OMX will send out a Trading Action spin. In the spin, NASDAQ OMX will send out a Stock Trading Action message with the “T” (Trading Resumption) for all NASDAQ- and other exchange-listed securities that are eligible for trading at the start of the PSX system hours. If a security is absent from the pre-opening Trading Action spin, firms should assume that the security is being treated as halted in the PSX platform at the start of the system hours. Please note that securities may be halted in the PSX system for regulatory or operational reasons.

After the start of system hours, NASDAQ OMX will use the Trading Action message to relay changes in trading status for an individual security. Messages will be sent when a stock is:

- Halted
- Released for quotation
- Released for trading

STOCK TRADING ACTION MESSAGE																
Name	Offset	Length	Value	Notes												
Time Stamp	0	8	Numeric	Time Stamp.												
Message Type	8	1	Alphanumeric	H = Trading Action												
Stock	9	8	Alphanumeric	NASDAQ-assigned indicator for issue for which the stock trading action message is being generated. For details on NASDAQ symbology, please refer to Appendix B.												
Security Class	17	1	Alphabetic	Indicates the primary listing market for the issue. Allowable values are: <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE</td> </tr> <tr> <td>A</td> <td>NYSE Amex</td> </tr> <tr> <td>P</td> <td>NYSE Arca</td> </tr> <tr> <td>Z</td> <td>BATS</td> </tr> </tbody> </table>	Code	Value	Q	NASDAQ Listed Issue	N	NYSE	A	NYSE Amex	P	NYSE Arca	Z	BATS
Code	Value															
Q	NASDAQ Listed Issue															
N	NYSE															
A	NYSE Amex															
P	NYSE Arca															
Z	BATS															
Current Trading State	18	1	Alphabetic	Reflects the current trading state for the issue. The allowable values are: <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>H</td> <td>Halted/Paused on NASDAQ and all UTP participants</td> </tr> <tr> <td>Q</td> <td>Quotation only period for</td> </tr> </tbody> </table>	Code	Value	H	Halted/Paused on NASDAQ and all UTP participants	Q	Quotation only period for						
Code	Value															
H	Halted/Paused on NASDAQ and all UTP participants															
Q	Quotation only period for															

					cross-SRO halt or pause
				R	Quotation only period for NASDAQ OMX only halt or pause
				T	Trading on NASDAQ
Reason	19	4	Alphanumeric	Reflects the Market Ops or MarketWatch code for the trading state change. Refer to Appendix C for current code list.	

5.2.3 Reg SHO Short Sale Price Test Restricted Indicator

In November 2010, the Securities and Exchange Commission (SEC) will implement changes to Rule 201 of the Regulation SHO (Reg SHO). For details, please refer to [SEC Release Number 34-61595](#). In association with the Reg SHO rule change, NASDAQ will introduce the following Reg SHO Short Sale Price Test Restricted Indicator message format.

For NASDAQ-listed issues, NASDAQ will support a full pre-opening spin of Reg SHO Short Sale Price Test Restricted Indicator messages indicating the Rule 201 status for all active issues. NASDAQ will also send the Reg SHO Short Sale Price Test Restricted Indicator message in the event of an intraday status change.

For other exchange-listed issues, NASDAQ will relay the Reg SHO Short Sale Price Test Restricted Indicator message when it receives an update from the primary listing exchange.

NASDAQ will process orders based on the most Reg SHO Restriction status value.

REG SHO RESTRICTION				
Name	Offset	Length	Value	Notes
Timestamp	0	8	Numeric	Time at which the market participant position message was generated
Message Type	9	1	"Y"	Reg SHO Short Sale Price Test Restricted Indicator
Stock	10	8	Alpha	Stock symbol right padded with spaces.
Reg SHO Action	18	1	Alpha	Denotes the Reg SHO Short Sale Price Test Restriction status for the issue at the time of the message dissemination. Allowable values are: "0" = No price test in place "1" = Reg SHO Short Sale Price Test Restriction in effect due to an intra-day price drop in security "2" = Reg SHO Short Sale Price Test Restriction remains in effect

5.3 Quotation Message

PSX BBO will broadcast a real-time update every time that the exchange's best bid and offer quote is updated during the trading day.

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PSX BBO QUOTATION MESSAGE																
Name	Offset	Length	Value	Notes												
Time Stamp	0	8	Numeric	Time stamp												
Message Type	8	1	Alphanumeric	Q = PSX BBO Quotation Message												
Stock	9	8	Alphanumeric	Denotes the PSX market center system issue identifier for which the PSX BBO quotation message is being generated.												
Security Class	17	1	Alphabetic	Indicates the primary listing market for the stock. The allowable values are as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE</td> </tr> <tr> <td>A</td> <td>NYSE Amex</td> </tr> <tr> <td>P</td> <td>NYSE Arca</td> </tr> <tr> <td>Z</td> <td>BATS</td> </tr> </tbody> </table>	Code	Value	Q	NASDAQ Listed Issue	N	NYSE	A	NYSE Amex	P	NYSE Arca	Z	BATS
Code	Value															
Q	NASDAQ Listed Issue															
N	NYSE															
A	NYSE Amex															
P	NYSE Arca															
Z	BATS															
PSX Best Bid Price	18	10	Numeric	Denotes the PSX best bid price – the highest price for market buy order(s) in the PSX system. Price format is \$\$\$\$\$\$dddd.												
PSX Best Bid Size	28	9	Numeric	Denotes the aggregated number of shares available for display within the PSX market center system at the PSX best bid Price.												
PSX Best Offer Price	37	10	Numeric	Denotes the PSX exchange's best offer price – the lowest price for market sell order(s) in the PSX system. Price format is \$\$\$\$\$\$dddd.												
PSX Best Offer Size	47	9	Numeric	Denotes the aggregated number of shares available for display within the PSX market center system at the PSX Best Offer Price.												

6 Contact Information

Questions about the PSX Basic entitlement and PSX BBO specification document may be directed to [NASDAQ OMX Global Data Products](#) at +1 301 978 5307.

Questions about PSX BBO transmissions may also be directed to [NASDAQ OMX Operations Center](#).

Appendix A

Stock Symbol Convention

For NASDAQ-listed issues, NASDAQ OMX currently restricts its symbol length to a maximum of 8 characters. For common stock issuances, NASDAQ, PSX and BX will only assign root symbols of 1 to 4 characters in length with possible fifth and or sixth character denoting a suffix. In certain instances, a dot "." delimiter may be applied to symbols after the root and between the suffix eg., XXXX.A. For subordinate securities, NASDAQ and BX will assign a 5 character symbol for which the last character relays information about the issue class or issue type. For the current list of fifth and or six character symbol suffixes, please refer to [Ticker Symbol Convention](#) page on the NASDAQ OMX Trader website.

For NYSE-, NYSE MKT- and NYSE Arca-listed securities with subordinate issue types, please refer to [Ticker Symbol Convention](#) page on the NASDAQ OMX Trader website.

Appendix B

Trading Action Reason Codes

For NASDAQ-listed issues, NASDAQ acts as the primary market and has the authority to institute a trading halt or trading pause in an issue due to news dissemination or regulatory reasons.

For CQS issues, NASDAQ, BX and PSX abide by any regulatory trading halts and trading pauses instituted by the primary or listing market as appropriate.

For all issue types, NASDAQ, BX and/or PSX may also halt trading for operational reasons.

NASDAQ, BX and/or PSX will send out a trading action message to inform its market participants when the trading status of an issue changes. For informational purposes, NASDAQ and PSX also attempt to provide the reason for each trading action update. For bandwidth efficiency reasons, NASDAQ, BX and PSX use a 4-byte code for the reason on its outbound data feeds.

REASON CODES FOR TRADING HALT ACTIONS	
Code	Value
T1	Halt News Pending
T2	Halt News Disseminated
T5	Single Security Trading Pause In Affect
T6	Regulatory Halt — Extraordinary Market Activity
T8	Halt ETF
T12	Trading Halted; For Information Requested by Listing Market
H4	Halt Non-Compliance
H9	Halt Filings Not Current
H10	Halt SEC Trading Suspension
H11	Halt Regulatory Concern
O1	Operations Halt; Contact Market Operations
LUDP	Volatility Trading Pause
LUDS	Volatility Trading Pause – Straddle Condition
MWC1	Market Wide Circuit Breaker Halt – Level 1
MWC2	Market Wide Circuit Breaker Halt – Level 2
MWC3	Market Wide Circuit Breaker Halt – Level 3
MWC0	Market Wide Circuit Breaker Halt – Carry over from previous day
IPO1	IPO Issue Not Yet Trading
M1	Corporate Action
M2	Quotation Not Available
<space>	Reason Not Available

REASON CODES FOR QUOTATION/TRADING RESUMPTION ACTIONS	
Code	Value
T3	News and Resumption Times
T7	Single Security Trading Pause / Quotation Only Period
R4	Qualifications Issues Reviewed/Resolved; Quotations/Trading to Resume
R9	Filing Requirements Satisfied/Resolved; Quotations/Trading To Resume
C3	Issuer News Not Forthcoming; Quotations/Trading To Resume
C4	Qualifications Halt ended; Maintenance Requirements Met; Resume
C9	Qualifications Halt Concluded; Filings Met; Quotes/Trades To Resume
C11	Trade Halt Concluded By Other Regulatory Auth.; Quotes/Trades Resume
MWCQ	Market Wide Circuit Breaker Resumption
R1	New Issue Available

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R2	Issue Available
IPOQ	IPO Security Released for Quotation (NASDAQ OMX Securities Only)
IPOE	IPO Security — Positioning Window Extension (NASDAQ OMX Securities Only)
<space>	Reason Not Available

For the current list of regulatory halts, please refer to the [Trading Halts page](#) on the NASDAQ OMX Trader website.

Appendix C

Documentation Version Control Log

November 1, 2013: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX released a new version of the documentation to support details of expanded symbology (Appendix A).

March 11, 2013: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX added the following Trading Action Reason Code for LULD to reflect when the National Best Bid is below the lower price band and/or the National Best Offer is above than the upper price band and the NMS Stock is not in a Limit State.

- LUDS - Volatility Trading Pause – Straddle Condition

January 9, 2013: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX added the following Trading Action Reason Code:

- MWC0 - Market Wide Circuit Breaker Halt – Carry over from previous day

January 8, 2013: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX removed the Trading Action State, "P", from the Stock Trading Message.

November 6, 2012: PSX Best Bid and Offer (PX BBO) 1.1

Released a new version of the PX BBO documentation to support the following changes:

- Added the "P" value to the Trading State in the Stock Trading Message.
- Modified the values for the Trading Action Reason Codes. Added the following codes:
 - LUDP - Volatility Trading Pause
 - MWC1 - Market Wide Circuit Breaker Halt – Level 1
 - MWC2 - Market Wide Circuit Breaker Halt – Level 2
 - MWC3 - Market Wide Circuit Breaker Halt – Level 3
 - MWCQ - Market Wide Circuit Breaker Resumption
- Removed the Trading Action values related to the Volatility Guard Program. Removed Trading State, "V". Eliminated Trading Action Reason Codes, V1 and V2.

November 1, 2011: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX added a new Market Center code, "Z", for BATS-listed securities to the Market Category and Security Class fields.

July 14, 2010: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX added a new Regulation SHO Short Sale Price Test Restricted Indicator message format to be introduced in the fourth quarter of 2010.

July 2, 2010: PSX Best Bid and Offer (PX BBO) 1.1

NASDAQ OMX added new Action Trading code(s) to the Stock Trading Action message for the NASDAQ Volatility Guard trading pause.

May 25, 2010 : PSX Best Bid and Offer (PX BBO) 1.1

Inclusion of two new Trading Action Reason code values (T5 and T7) for single security trading pause situations

March 26, 2010 : PSX Best Bid and Offer (PX BBO) 1.1

Inclusion of EMC (Emergency Market Conditions) System Event Codes

February 26, 2010 : PSX Best Bid and Offer (PX BBO) 1.1

Initial release of PSX documentation.

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(Note: For cross market consistency, PSX is using the same version numbers as the NASDAQ and BX markets. There will be no PX BBO 1.0.)