DROP

Version 2.20

November 7th, 2011

1. Overview

NASDAQ OMX PSX accepts limit orders from subscribers and executes matching orders when possible. Non-matching orders may be added to the NASDAQ OMX PSX Book, a database of available limit orders, where they wait to be matched in price-time priority.

DROP is a protocol that delivers real-time information about activity that takes place on the NASDAQ OMX PSX.

Each DROP account is configured to transmit information concerning orders entered by one or more NASDAQ OMX PSX subscriber firms. DROP is typically used by clearing firms to track the activity of their correspondents, or by larger firms to monitor the activity of multiple NASDAQ OMX PSX access points for risk management purposes.

Each DROP host can be configured to send a message anytime an order is entered, canceled, executed, or broken – or any combination of these events.

DROP does not provide the ability to enter orders into NASDAQ OMX PSX.

1.1 Architecture

The DROP protocol is composed of logical messages passed between the DROP host and the client application. Each message type has a fixed message length.

All messages sent from the DROP host to the client are assumed to be sequenced, and their delivery must be managed by some lower level protocol. The SoupTCP or SoupBinTCP (available separately) are the typical lower level protocols used to guarantee the delivery and sequencing of DROP messages sent from the host to the client.

1.2 Recovering From Broken Connections

In the case where a client looses the connection to the DROP host and wishes to reconnect without having to re-read though all the messages it has already received, there is an optional line number parameter that can be added to the end of the password line when logging in. The format of this login line is…

password[,line number]

where “password” is the assigned client password and line number is the optional line number the client would like the host to begin transmission with. The login line is always terminated with a CR/LF pair or just an LF. If the optional line number is not

specified, the DROP host always begins transmission with the first message for the current day (line #1).

By counting incoming lines, the client can re-connect and request the precise next expected line number and prevent any redundant messages.

1.3 Data Types

Numeric fields are a string of ASCII coded digits, right justified and space filled on the left.

Alpha fields are left justified and padded on the right with spaces.

Prices are given in decimal format with 6 whole number places followed by a decimal point and 4 decimal digits. The whole number portion is padded on the left with spaces; the decimal portion is padded on the right with zeros.

Timestamps are numeric given in seconds past midnight Eastern Time.

1.4 Fault Redundancy

Multiple DROP hosts can be configured to send information on an identical set of events and matching firms and ports, making it possible to create mirrored DROP hosts for purposes of fault redundancy.

For maximum redundancy, the mirrored machines should be located at geographically diverse data centers with communications carrier access diversity. The two lines could also terminate at different subscriber locations on distinct computing platforms.

1.5 Service Bureau Configuration

A single DROP host can deliver information for one or more firms, allowing a service bureau configuration. In this case, the DROP account must be authorized by each desired firm using a DROP Port Authorization Form.

1.6 Trade Message Line Format

Once logged in, the client will receive a series of message lines from the host in real time. Each message line is fixed format, comma delimited, and CR/LF terminated ASCII text.

Name	Offset	Len	Type	Sample	Notes
Time Stamp	0	9	Timestamp	34293.1	The time the event occured on INET to the nearest millisecond.
Type	10	1	Type	'E'	"A"=New order accepted "E"=Existing order executed "X"=Existing order canceled "B"=Previous execution

					broken "U"=Existing order replaced
Source	12	6	Alphanum	ABCD01	The source of the order. Typically the account of the OUCH port used to enter the order, but can also have the special values of “$PHON ” for orders received via NASDAQ’s phone desk.
User	19	4	Alphanum	(arbitrary)	The free form User field as specified by the order entry firm when the order was entered into INET.
Token	24	10	Alphanum	(arbitrary)	The free form Token field as specified by the order entry firm when the order was entered into NASDAQ.
Replaced Token	35	10	Alphanum	(arbitrary)	The free form Token field as specified by the order entry firm when the order was entered into NASDAQ. Only used when we send a replace message.\
Buy/Sell	46	1	Alpha	B	The side of the trade executed. B=Bought, S=Sold, T=Sold Short, E=Sold Short Exempt
Shares	48	6	Numeric	10000	For a new order accept, the total number of shares entered. For an existing order cancel, the incremental number of shares canceled. Note that an order can be partially canceled and still have open shares. For an existing order execute, the incremental

					number of shares executed in this trade. Note that a single order can result in multiple executions. For an existing order execute, the incremental number of shares executed in this trade. Note that a single order can result in multiple executions. For a broken execution, the number of shares in the previously transmitted execution.
Stock	55	8	Alpha	INTC	The stock symbol
Price	64	11	Numeric with 4 decimal places	12.875	For a new order accepted, the limit price of the order. For an execution, the execution price. For a cancel, the limit price of the open order.
Firm	76	4	Alpha	BIGJ	The order entry firm.
Reference	81	12	Numeric	836455	The order unique reference number assigned by NASDAQ to this order.
Match	94	12	Numeric	122853	The match number assigned by NASDAQ to this trade. Each match consists of an execution between a buy order and a sell order. This field will only be present on executions and breaks. It will be blank filled on all other events.

Capacity	107	1	Alpha	A	The capacity as specified by the order entry firm. A=Agency P=Principal R=Riskless
Liquidity Code	109	1	Alpha	R	A=Added R=Removed V= Displayed added liquidity with original order size of greater than or equal to 2,000 shares X=Routed D=DOT F = Added or Opening Trade (on NYSE) G = Odd Lot or On-Close order (on NYSE) O=Opening Cross (billable) M=Opening Cross (non-billable) C=Closing Cross (billable) L=Closing Cross(non-billable) H=Halt/IPO Cross (billable) K=Halt/IPO Cross (billable) I=Intraday and post-market crosses J = Non-displayed and added liquidity Y = Re-Routed by NYSE S = Odd Lot Execution (on NYSE) U = Added Liquidity (On NYSE) B = Routed to BX E = NYSE Other P = Routed to PSX T = Opening Trade (on ARCA) Z = On-Close order (on ARCA) 9 = Added (displayed) using Minimum Life Order Type
Clearing Code	111	1	Alpha	A	The clearing path this trade will take. Q=QSR

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2. Support

If you have any questions or comment about this specification, just E-mail Tradingservices@nasdaqomx.com. We also welcome any suggestions for new features or improvements.

3. Revision History

Revision #	Date	Change
4.0	02/22/2010	Initial document
4.0	08/12/2010	Re-introduced sell short exempt in the buy sell field.
4.0	11/11/2010	Added liquidity code value “V”
4.0	08/31/2011	the language in architecture section
4.0	11/07/2011	Added routing liquidity flag values Added numeric liquidity flag values