

OTTO / NOMAD DROP

Version 1.02-OSI

Options Symbology Initiative (OSI) Compliant

Applicability

This specification covers drop for both OTTO and NOMAD. Differences between the formats are minor and clearly noted below.

Overview

NASDAQ accepts limit orders from subscribers and executes matching orders when possible. Non-matching orders may be added to the NASDAQ 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.

Each DROP account is configured to transmit information concerning orders entered by one or more NASDAQ 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 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.

Architecture

DROP is a very simple protocol that is based on CR/LF terminated lines.

To begin a session, the client connects to the specified host and port using a standard TCP/IP socket.

Once the socket connection has been established, the client sends the assigned password followed by a CR/LF or just a CR.

The host authenticates the password and begins sending the activity messages to the client as a series of fixed length lines. Each line represents a single event and is terminated with an ASCII CR/LF pair.

Upon receiving a valid login, the DROP host will send any previously generated messages as quickly as possible. Once it has sent all pending events the connection will remain open but idle until the next matching event occurs. As soon as a new event occurs, the corresponding message is sent as quickly as possible. If the client is not able to read messages as quickly as they occur, they are automatically queued and delivered in sequence as quickly as possible.

The end of the trading day is marked by the transmission of an empty line consisting of just a CR/LF pair.

If the client wishes to log out at any time, it sends an empty line consisting of a CR/LF pair or just an LF. The host will then close the TCP/IP socket and begin waiting for a new connection.

The protocol was designed to be simple enough that it could easily be used manually with a standard Telnet client. Using a Telnet client, a user can log into a DROP port, download messages, log out, and then directly import the downloaded messages into a spreadsheet or database application.

Recovering From Broken Connections

In the case where a client loses 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.

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 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.

The explicit strike price field (part of the OSI-compliant symbol identification) will be given as a 6 digit field with the decimal point placement determined by the Strike Price Denominator field (values are A through E).

Denominator Code	Whole Digits	Decimal Digits
A	5	1
B	4	2
C	3	3
D	2	4
E	1	5

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.

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.

Trade Event 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 and CR/LF terminated ASCII text.

Version for Options Symbolology Initiative

Appendix A – Trade Event Message Line Format

Name	Offset	Length	Type	Sample	Notes
Time Stamp	0	8	Timestamp	34293104	The time the event occurred on Single Book to the nearest millisecond. Format is total milliseconds from Midnight.
Type	8	1	ALPHA	E	A=New order accepted, E=Existing order executed, X=Existing order canceled, C=Previous execution broken, U=Order Replaced
Firm	9	4	ALPHA	BIGJ	Participant.
Capacity	13	1	ALPHA	F	The Capacity of the participant. C=Customer, F=Firm, M=Market maker, N=N/A
Open / Close	14	1	ALPHA	O	Option position type O=Open, C=Close
Liquidity	15	1	ALPHA	A	A=Add, R=Remove, X=Routed, E=AMEX, P=Arca, B=BOX, W=CBOE, S=ISE, U=PHLX
Clearing Account	16	4	ANUM	BSI	Clearing Account
Clearing Member	20	5	NUM	00009	OCC Clearing Member number
Clearing Firm	25	5	NUM	00003	OCC Clearing Member number of the firm that will clear the trade according to CMTA (Clearing Member Trade Assignment)
Source	30	6	ANUM	ABCD01	The source of the order. Typically the account of the OTTO port used to enter the order.
Token	36	20	ANUM	(arbitrary)	The free form Token field as specified by the participant when the order or order replace was entered into NASDAQ.
Replaced Token	56	20	ANUM	(arbitrary)	The Token of the order that is being replaced.
Reference Number	76	9	NUM	836455	The order unique reference number assigned by NASDAQ to the submitted order.
Buy / Sell	85	1	ALPHA	B	The side of the trade executed. B=Bought, S=Sold
Contracts	86	6	NUM	1000000	For a new order accept, the total number of contracts entered. For an existing order execute, the incremental number of contracts executed in this trade. Note that a single order can result in multiple executions. For a broken execution, the number of contracts in the previously transmitted execution.
Option Symbol	92	6	ANUM	MSFT	Denotes the options symbol used for a particular instrument. In most cases, this is also the symbol of the underlying security

Expiration Month and Put/Call	98	1	ALPHA	G	Expiration Month and Put / Call indicator A-L are calls: Jan through Dec M-X are puts: Jan through Dec
Expiration Date	99	2	NUM	27	Day of the Month of expiration (01-31)
Expiration Year	101	2	NUM	09	Last two digits of the year of the option expiration
Strike price denominator	103	1	ALPHA	B	Code to determine decimal location within the strike price (A - E) A= 5.1, B=4.2, C=3.3, D=2.4, E=1.5
Explicit strike price	104	6	NUM	002532	Explicit strike price
Price	110	10	NUM	12875000	The execution price. A decimal point after the 6th character is implied, making this field 6x4
Match	120	9	NUM	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 messages.

For NOMAD Drop only, Remote Match is also provided:

Remote Match	129	32	ANUM	122853	The match number assigned by remote executing destination. This field will only be present on executions and breaks. It will be blank filled on all other messages.
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Support:

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

Revision History:

§ Version 1.0.0 – 12/02/2007
Initial dissemination.

§ Version 1.0.1 – 12/03/2007
Adding Order Replace type. Introducing new field Replaced Token.

§ Version 1.0.2 – 06/02/2008
Addition of new liquidity codes to identify each options exchange

§ Version 1.0.2-OSI – 03/31/2009
Draft Update to provide new message formats to support OSI compliant messaging