



US Options DROP Specification

Version 1.0

October 5, 2009

Overview

BATS uses a variation of the DROP protocol to provide real-time information about executions.

DROP cannot be used to enter orders. For order entry, refer to the BATS Options FIX Specification.

Note that the field layout is slightly different than similar protocols used by other Market Centers.

Configuration

DROP is typically used by clearing firms or members to monitor their trading activity.

With proper authorization, a single DROP session can be used to obtain execution information about multiple BATS members, allowing a service bureau configuration.

For redundancy, multiple DROP hosts can be configured to send the same information about the same set of members.

Protocol

DROP is a CR/LF terminated protocol.

The client connects to an assigned host and port using a TCP/IP socket.

After a successful connection, the client sends an assigned password followed by a CR/LF.

The DROP host authenticates the password and begins sending fixed length, comma delimited execution information to the client. Each line reflects a single execution and is terminated with a CR/LF pair.

Once the DROP host has sent all previous executions the connection remain open but idle until the next new execution is sent by the host. After initial replay, each execution is sent as quickly as possible in real time. If the client is slow in reading executions, the executions are queued and delivered in sequence as fast as the client can read them.

An empty line containing only a CR/LF represents a logout request from the client. The DROP host will close the connection and wait for a new connection when the client logs out.

The protocol can be used manually with a standard Telnet client. Using a Telnet client, a user could log into a DROP port, download execution information, log out, and then directly import the comma separated execution information into a spreadsheet or database application.

Replaying from a Specified Line Number

If a connection is lost between a DROP host and its client, the client can reconnect and request the host begin transmitting with a specific line number using the following login format:

```
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 must be terminated with a CR/LF pair. If the optional line number is unspecified, the DROP host will begin transmission with the first trade for the current day (line #1). The client application can count incoming lines and request the next expected line on reconnect to avoid duplicate transmission of execution data.

Heartbeating

A heartbeat message should be sent from the DROP client to the server every 10 seconds. This will ensure the client is notified of connectivity interruptions and avoid unnecessary network timeouts. The heartbeat sent to the DROP server must have the following format:

```
H\r\n
```

Data Types

- **Numeric** fields are a string of ASCII digits, right justified and zero filled on the left.
- **Alphanumeric** fields are a string of ASCII characters (33-126), left justified and space padded on the right.
- **Base 36 Numeric (Order Id and Execution Id)** fields are base 36 (0-9A-Z) numbers, right justified and zero filled on the left. Note that these fields are longer than on some other Market Centers.
- **Alpha** fields are left justified and space padded on the right.
- **Prices** are decimal with x whole number digits followed by y decimal digits. The whole number portion is zero filled on the left; the decimal portion is zero filled on the right. The decimal point explicitly appears inside the price field. Note that this is slightly different from implementations on some other Market Centers.
- **Timestamp** fields are seconds past midnight Eastern Time of the trade date with millisecond precision.

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Trade Message Format

After login, the client will receive a series of Trade Message Lines from the host in real time. Each Trade Message Line is fixed format, comma delimited, and CR/LF terminated ASCII text.

Field Name	Offset	Length	Type	Sample	Description
Timestamp	0	9	Timestamp	12345.123	The time the trade occurred on BATS accurate to the nearest millisecond.
Sender Comp Id	10	4	Alphanumeric	ABCD	Sending Firm
Sender Sub Id	15	4	Alphanumeric	0001	The firm port identifier where the order originated.
Clearing Account	20	4	Alphanumeric		Clearing Account
Clearing Member	25	5	Numeric		OCC Clearing member number
Clearing Firm	31	5	Numeric		OCC Clearing member number of firm clearing the trade via CMTA
User	37	4	Alphanumeric	A001	User defined pass through value to distinguish trading activity. Matches FIX ClearingAccount (tag 440)
Client Order Id	42	24	Alphanumeric	j4I9000T00	The client order identifier specified on the order entry
Order Id	67	15	(12 char) Base 36 Numeric + '.' + (2 char) Base 36 Numeric	1CW7A0000001.02	Day-unique order identifier assigned by BATS to this order. The first 12 characters match the Order Id seen in FIX & PITCH. The two character base 36 number after the dot indicates the number of times the order was modified.
Execution Id	83	9	Base 36 Numeric	12W7A0001	Day-unique execution identifier assigned by BATS to this execution.
Symbol	93	6	Alpha	MSFT	The options symbol. Typically the underlying security.
Maturity Month	100	6	Numeric	200909	The expiration year and month Format: YYYYMM
Maturity Day	107	2	Numeric	28	The expiration day Format: DD
Put Or Call	110	1	Alpha	P	Put / Call Indicator P=Put C=Call
Strike Price	112	9	Price 5.3	12345.123	Strike price
Open / Close	122	1	Alpha	O	Option position type O=Open C=Close
Side	124	1	Alpha	B	The side of the execution.

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					B=Bought, S=Sold
Price	126	11	Price 6.4	000025.5100	Execution price
Contracts	138	6	Numeric	100000	Number of contracts executed
Capacity	145	1	Alpha	M	FIX 4.2 OrderCapacity (Tag 47) value (E.g. "M"=Market Maker)
Liquidity	147	1	Alpha	A	"A"=Added, "R"=Removed, "X"=Routed
Exchange Access Fee	149	12	+/-Price 5.5	+99999.99999 -99999.99999	(+) Fee or (-) rebate for the entire execution based on BATS access fee policies.
Member Id	162	4	Alphanumeric	ABCD	BATS Assigned Member Id (the MPID which will clear the trade is found in the "Clearing Firm" field above)

Symbology

For more information on BATS Symbology, please refer to the BATS Symbology Reference document at http://www.batstrading.com/subscriber_resources/BATS_Symbology.pdf.

Support

Please e-mail questions or comments regarding this specification to tradedesk@batstrading.com.

Revision History

<u>Date</u>	<u>Modification</u>
Sep 17, 2009	Initial draft version.
Oct 05, 2009	Release 1.0.