



Purge Port 1.0

Purge Port Specification

Table Of Contents

| | |
|---|---|
| 1. Overview | 3 |
| 1.1. Architecture | 3 |
| 1.2. Data Types | 3 |
| 1.3. Fault Redundancy | 3 |
| 2. Inbound Messages | 4 |
| 2.1. Mass Cancel Request ('M') | 4 |
| 2.2. Disable Order Entry Request ('D') | 5 |
| 2.3. Enable Order Entry Request ('E') | 5 |
| 2.4. Account Query Request ('Q') | 5 |
| 3. Outbound Messages | 6 |
| 3.1. Mass Cancel Response ('A') | 6 |
| 3.2. Disable Order Entry Response ('S') | 6 |
| 3.3. Enable Order Entry ('N') | 7 |
| 3.4. Account Query Response ('Q') | 7 |
| 4. Support | 7 |
| Appendix A – Revision History | 7 |
| Appendix B – Optional Fields | 7 |

1. Overview

A dedicated Purge Port will allow firms the ability to initiate the canceling of orders at the MPID level or MPID/Account level, allowing the firm to cancel orders for one account or across all accounts. The firm will also have the ability to initiate a request to block and unblock submissions of new orders on a particular MPID/Account or across all accounts for the firm.

1.1. Architecture

The Purge Port protocol is composed of logical messages passed between the host and the client application.

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

Messages sent from the Purge Port client to the host are inherently non-guaranteed, even if they are carried by a lower level protocol that guarantees delivery (like TCP/IP sockets). Therefore, all host-bound messages are designed so that they can be benignly resent for robust recovery from connection and application failures.

1.2. Data Types

Alpha fields may contain only printable ASCII characters (0x20 – 0x7E).

All fixed-width alpha fields are left-justified and padded on the right with spaces.

All integer fields are binary formatted, big-endian numbers. Four flavors of integer fields are supported: Longs (8 bytes), Integers (4 bytes), Shorts (2 bytes), and Bytes (1 byte).

Sizes (shares quantities, field lengths) should be treated as unsigned values.

Prices are numeric fields with an implied 4 decimal places. Prices are to be treated as unsigned numeric fields, unless designated otherwise. The maximum price currently supported is \$199,999.9900 (decimal, 7735939C hex). To flag an order as a market order for a cross, use the special price of \$214,748.3647 (decimal, 7FFFFFFF hex).

A UserRefNum is an unsigned 4-byte integer. For a given Purge Port, the UserRefNum is used as a transaction identifier, and must be both unique and strictly increasing throughout the trading day. The system ignores new requests identified with UserRefNums lower than the last one processed, assuming they are retransmissions.

An optional attribute on an order is communicated via a TagValue element, constructed as follows:

TagValue element

| Field | Offset | Length | Type | Notes |
|-------------|--------|----------|----------|--|
| Length | 0 | 1 | Integer | Remaining length of the TagValue element |
| OptionTag | 1 | 1 | Integer | Identifies the option (see Appendix B) |
| OptionValue | 2 | variable | variable | Value of the option |

The set of optional attributes are set on an order via an options appendage. Each of the individual options formatted as a TagValue element, and the options appendage is then constructed by concatenating together the selected set of options. [See Appendix B](#) for more details.

1.3. Fault Redundancy

A single Purge Port can be bound to multiple physical Purge Port machines. These Purge Port machines then act as mirrors of each other for fault redundancy. In this configuration, both machines are able to accept messages, and any outbound messages would be simultaneously generated by both physical Purge Port hosts.

2. Inbound Messages

Inbound messages are sent from the participant's application to the Purge Port host. All Inbound Messages may be repeated benignly. This gives the client the ability to re-send any Inbound message if it is uncertain whether NASDAQ received it in the case of a connection loss or an application error.

The idea of benign inbound message retransmission with end-to-end acknowledgement is fundamental to NASDAQ's fail-over redundancy. If your connection ever fails, there is no way for you to know if pending messages actually made it over the link before the failure. A robust Purge Port client can safely re-send any pending messages over a mirrored link without worrying about generating duplicates. This applies to NASDAQ's disaster fail over capability as well; if NASDAQ ever needs to fail over to the backup site, some messages sent at the moment of the failure may be lost. A robust application can simply re-send the pending messages, making the fail over seamless to the end user.

All inbound messages on an Purge Port are processed sequentially. This guarantees that if two requests are entered consecutively on the same connection, the first request entered will always be accepted first.

2.1. Mass Cancel Request ('M')

The Mass Cancel Request message allows firms to initiate the cancellation of one or more orders that are currently booked at the exchange if they match the criteria specified in the request. If no optional criteria are specified then all orders for the specified Firm/MPID will be cancelled. Optional criteria can be specified in the Appendage field using the tags described below.

Mass Cancel Request

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|--|
| Type | 0 | 1 | 'M' | Identifies this message as a Mass Cancel Request message type |
| User Reference Number | 1 | 4 | UserRefNum | As described above in Data Types. User Reference Numbers must be day-unique and strictly increasing for each Purge Port. |
| Firm | 5 | 4 | Alpha | This field should contain all caps. Firm identifier for the order entry firm. One logical account can potentially enter orders for multiple firms in a Service Bureau configuration. |
| Account | 9 | 6 | Alpha | Optional, Space filled if not specified Port account to mass cancel orders on |
| Symbol | 15 | 8 | Alpha | Optional, Space filled if not specified Symbol to mass cancel orders on |
| Appendage Length | 23 | 2 | Integer | Length of entire optional appendage. Zero (0) if no appendage follows |
| Optional Appendage | 25 | var | TagValue | The available options supported on this message are: Side Group ID See Appendix B for more detail |

2.2. Disable Order Entry Request ('D')

The Disable Order Entry Request allows firms the ability to initiate the following requests to block submissions of new orders on a particular MPID/account, or across all accounts for an MPID.

Disable Order Entry Request

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|--|
| Type | 0 | 1 | 'D' | Identifies this message as a Disable Order Entry Request message type |
| User Reference Number | 1 | 4 | UserRefNum | As described above in Data Types. User Reference Numbers must be day-unique and strictly increasing for each Purge Port |
| Firm | 5 | 4 | Alpha | This field should contain all caps. Firm identifier for the order entry firm. One logical account can potentially enter orders for multiple firms in a Service Bureau configuration. |
| Account | 9 | 6 | Alpha | Optional, Space filled if not specified Port account to mass cancel orders on |

2.3. Enable Order Entry Request ('E')

The Enable Order Entry Request allows firms the ability to initiate the following requests to unblock submission of new orders on a particular MPID/account, or across all accounts for an MPID.

Enable Order Entry Request

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|--|
| Type | 0 | 1 | 'E' | Identifies this message as a Enable Order Entry Request message type |
| User Reference Number | 1 | 4 | UserRefNum | As described above in Data Types. User Reference Numbers must be day-unique and strictly increasing for each Purge Port |
| Firm | 5 | 4 | Alpha | This field should contain all caps. Firm identifier for the order entry firm. One logical account can potentially enter orders for multiple firms in a Service Bureau configuration. |
| Account | 9 | 6 | Alpha | Optional, Space filled if not specified Port account to mass cancel orders on |

2.4. Account Query Request ('Q')

The Account Query Request message can be used when recovering state to request the next available UserRefNum that can be used for identifying new transactions.

Account Query Request

| Name | Offset | Len | Value | Notes |
|------|--------|-----|-------|--|
| Type | 0 | 1 | 'Q' | Identifies this message as an Account Query Request message type |

3. Outbound Messages

Outbound messages are generated by the Purge Port host and received by the client application.

3.1. Mass Cancel Response ('A')

This message acknowledges the receipt of a valid Mass Cancel Request message. The data fields from the Mass Cancel Request message are echoed back in this message.

Mass Cancel Response

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|---|
| Type | 0 | 1 | 'A' | Identifies this message as a Mass Cancel Response message type |
| Timestamp | 1 | 8 | Timestamp | Expressed as nanoseconds since midnight |
| User Reference Number | 9 | 4 | UserRefNum | The request User Reference Number as entered |
| Firm | 13 | 4 | Alpha | Firm specified on the mass cancel request |
| Account | 17 | 6 | Alpha | Port account specified on the mass cancel request |
| Symbol | 23 | 8 | Alpha | Symbol specified on the mass cancel request |
| Appendage Length | 31 | 2 | Integer | Length of entire optional appendage. Zero (0) if no appendage follows |
| Optional Appendage | 33 | var | TagValue | The available options supported on this message are: Side GroupID See Appendix B for more detail |

3.2. Disable Order Entry Response ('S')

This message acknowledges the receipt of the Disable Order Entry Request message. The data fields from the Enter Order Message are echoed back in this message.

Disable Order Entry Response

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|--|
| Type | 0 | 1 | 'S' | Identifies this message as a Disable Order Entry Response message type |
| Timestamp | 1 | 8 | Timestamp | Expressed as nanoseconds since midnight |
| User Reference Number | 9 | 4 | UserRefNum | The request User Reference Number as entered |
| Firm | 13 | 4 | Alpha | Firm specified on port disablement request |
| Account | 17 | 6 | Alpha | Port account specified on port disablement request |

3.3. Enable Order Entry ('N')

This message acknowledges the receipt of the Enable Order Entry Request message. The data fields from the Enable Order Entry Request message are echoed back in this message.

Replaced Message

| Name | Offset | Len | Value | Notes |
|-----------------------|--------|-----|------------|---|
| Type | 0 | 1 | 'N' | Identifies this message as a Enable Order Entry Response message type |
| Timestamp | 1 | 8 | Timestamp | Expressed as nanoseconds since midnight |
| User Reference Number | 9 | 4 | UserRefNum | The request User Reference Number as entered |
| Firm | 13 | 4 | Alpha | Firm specified on enablement request |
| Account | 17 | 6 | Alpha | Account specified on enablement request |

3.4. Account Query Response ('Q')

The Account Query Response message is sent in response to an Account Query Request to indicate the next available UserRefNum that can be used to identify new transactions.

Account Query Response

| Name | Offset | Len | Value | Notes |
|----------------------------|--------|-----|------------|---|
| Type | 0 | 1 | 'Q' | Identifies this message as an Account Query Response message type |
| Timestamp | 1 | 8 | Timestamp | Expressed as nanoseconds since midnight |
| Next User Reference Number | 9 | 4 | UserRefNum | The next available User Reference Number |

4. Support

If you have any questions or comments about this specification, email tradingservices@nasdaq.com. We welcome suggestions for new features or improvements.

Appendix A – Revision History

| Revision | Date | Change |
|----------|------------|-----------------|
| 1.0 | 2023/11/15 | Initial Version |

Appendix B – Optional Fields

| OptionTag | Option | Size | Type | Notes |
|-----------|----------|------|---------|--|
| 24 | Group ID | 2 | Integer | Group identifier specified on an order |
| 27 | Side | 1 | Alpha | "B" – buy orders "S" – sell orders "T" – short sell orders "E" – sell short exempt orders |