



PQT Position Retrieval API

Version 1.0.1

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1 Revision History

1.0.1	12/05/2011	Section 2: Changed start time from 8:30 a.m. to 8:00 a.m.
1.0.0	10/13/2011	Initial Revision

2 Overview

The PQT Position Retrieval API is a messaging protocol provided to clients for obtaining same day positions from the PQT Position Server.

The Position Server is available on trading days, 8:00 AM – 6:00 PM. This enables clients to obtain Start Of Day, Intraday, and Post Trade positions.

3 High Level Functionality

The PQT Position Retrieval API provides a request/response mechanism for retrieving positions using a simple TCP/IP based protocol.

Each position request is for positions on one trading account, where the trading account is the client's Prime Brokerage Account. Each response contains a snapshot of all non-zero positions by symbol for the requested trading account. For security, clients are given one token per trading account for requesting positions.

Intra-day position calculations will only reflect trades that are executed through the Pico Market Gateway (PMG). Also, intra-day adjustments made to the Start of Day positions (for example, due to trade breaks) will not be visible through the API. All trades and Start of Day position adjustments will be reflected in the Start of Day positions for the next Trading Day.

4 Position Definition

4.1 Position Calculation

Positions are calculated by symbol and trading account and include the following information:

- **Symbol** – The trading symbol in Comstock Symbolology
- **NetShares** – A signed integer containing the number of open shares, where a positive number denotes a long position and a negative number denotes a short position.
- **TotalExecs** – The total number of execution messages (both Partial Fills and Full Fills) received on the current Trade Date that are included in this NetShares calculation.
- **TradingAccount** – The Prime Brokerage Account corresponding to this Position. This is the account corresponding to the Token sent in the Position Request.

Note that positions held overnight are reflected in the Net Shares value but not in the Total Execs value (see examples below).

4.1.1 Handling of Busts and Corrects

The position calculations do not take into account executions that are cancelled or corrected intra-day. However, the decrease in Net Shares due to a Bust or Correct will be reflected in the Start of Day positions on the subsequent Trading Day.

4.1.2 Example

Start Of Day Position:

200 MSFT

-300 AAPL

➔ Request Positions

➔ Position Response:

Symbol	NetShares	TotalExecs
MSFT	200	0
AAPL	-300	0

Intraday Activity:

SOLD 200 MSFT

BOT 300 AAPL

➔ Request Positions

➔ Position Response:

Symbol	NetShares	TotalExecs
MSFT	0	1
AAPL	0	1

SOLD 500 AAPL

BOT 150 AAPL

BOT 300 GE

➔ Request Positions

➔ Position Response:

Symbol	NetShares	TotalExecs
MSFT	0	1
AAPL	-350	3
GE	300	1

4.2 Symbology

Symbols are represented using Comstock Symbology. In accordance with this, Symbol and Suffix are sent together in one field. Suffixes are set according to the rules in the table below.

Description	Suffix
Preferred	-
Series or Class (A-Z)	.A, .B, etc.

When Issued	#
Emerging Company Marketplace	.EC
Called	.L
Rights	.R
Warrants	+

When multiple suffix values apply, suffixes are combined using the following precedence rules:

1. Preferred (-) or Warrant (+) ** this replaces the leading “.” in Series, Emerging Company, Called, and Rights
2. Series or Class (A-Z)
3. Called
4. When Issued

For example:

XYZ-A# = Symbol XYZ Preferred Series A When Issued

XYZ.B = Symbol XYZ Series B

XYZ.A# = XYZ Series A When Issued

5 Message Protocol

A client sends a Request message to the PQT Position Server and receives either a single Reject or a single Response. Messages are transmitted over a TCP connection.

The Request message contains a Token, assigned by PQT and provided to the client, which is uniquely associated with one of the client’s trading accounts. This Token will be echoed in messages sent back to the client. A Request will be rejected if the Token is invalid or if the Request is malformed; in the latter case, the PQT Position Server will disconnect the client’s connection after it sends the Reject.

5.1 Message Format

All messages are made up of an ASCII content string preceded by a binary message header and terminated with a NUL character (binary zero). The message header contains two fields: 2-byte message type and 4-byte length. All binary fields are in network byte order.

Field	Length	Type	Description
Type	2	Binary	Message type, which determines how to interpret the Content
Length	4	Binary	The number of bytes remaining in the message (includes the Content and Terminator).
Content	Variable	ASCII	Format is interpreted according to Message Type
Terminator	1	ASCII	NUL character (\0)

For example, a hypothetical message with Type 1 containing the content “hello” would look like the following when represented as hexadecimal bytes:

00 01 00 00 00 06 68 65 6C 6C 6F 00

The ASCII content string is composed of records delimited by linefeed (\n) characters. Each record is composed of fields delimited by pipe (|) characters. Fields must appear in a particular order; they are indexed values and not name-value pairs. The first field of each record is the Record Type.

Field values are all ASCII strings, but can be parsed into four different data types:

- **String:** ASCII text. The record/field delimiters (\n and |) and NUL (\0) are not allowed.
- **Date:** The format is yyyyMMdd
Example: September 21, 2011 would be "20110921"
- **Time:** Time of day to millisecond precision, GMT. The format is HHmmss.SSSZ
Example: 3:28:12.678 p.m. GMT would be "152812.678Z"
- **Integer:** Signed integer
Example: "5" or "-10"

The following sections describe each message type's content string in terms of records, fields, and field data types.

5.2 Position Request Message

The Message Type is 0x5130 (Q0 in ASCII). The content consists of a single record.

Index	Type	Description
0	String	Record Type: "HDR"
1	String	Token corresponding to the Trading Account for this request.

Example content string:

HDR|GoodToken|\n

5.3 Reject Message

The Message Type is 0x5230 (R0 in ASCII). The content consists of a single record.

Index	Type	Description
0	String	Record Type: "HDR"
1	String	Token copied from the Request. Will be "UNKNOWN" if the Reject is due to a malformed Request or some internal error.
2	Date	Date that the reject was generated (GMT).
3	Time	Time that the reject was generated (GMT).
4	String	Reason for the reject.

Example content string:

HDR|BadToken|20110921|203451.704Z|Unknown token 'BadToken'|\n

5.4 Position Response Message

The Message Type is 0x5030 (P0 in ASCII). The content consists of a single header record followed by zero or more position records. Response messages do not contain position records that have a value of zero; therefore, a Response will contain no position records if the Net Shares was zero at the end of the previous Trading Day and no orders have been executed during the current day.

Response Header Record:

Index	Type	Description
0	String	Record Type: "HDR"
1	String	Token copied from the Request.
2	Date	Date that the reject was generated (GMT).
3	Time	Time that the reject was generated (GMT).
4	Integer	Number of position records that are in this Response.

Per-Symbol Net Shares Position Record:

Index	Type	Description
0	String	Record Type: "SNS"
1	String	Trading Account
2	String	Symbol
3	Integer	Net Shares executed for this Symbol on this Account

Per-Symbol Total Executions Position Record:

Index	Type	Description
0	String	Record Type: "STE"
1	String	Trading Account
2	String	Symbol
3	Integer	Total Executions received for this Symbol on this Account

Example content string:

```
HDR|GoodToken|20110921|232137.380Z|2|\nSNS|Account|IBM|100|\nSTE|Account|IBM|1|\n
```