Genium INET GLIMPSE

Protocol Specification

Revision 2.5

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Confidentiality/Disclaimer

Contents

1 Overview

A complement to the Genium INET ITCH real-time data feed product, GLIMPSE is a point-to-point data feed connection that provides direct data feed customers with a snapshot of the current state of the order books traded in the Genium INET system. GLIMPSE uses the same message formats as ITCH.

GLIMPSE can be used to quickly sync up with the ITCH feed. At the end of the GLIMPSE snapshot it will provide a sequence number that can be used to connect and sync up with the real-time ITCH feed.

GLIMPSE provides the following:

- Basic Reference Data for each order book including intra-day updates up until the time of login.
- Current trading state of each order book including halted order books and current workup status (if applicable).
- All displayable orders for each order book.
- An End of Snapshot message providing the ITCH sequence number to use when connecting to the real-time ITCH feed.

2 Architecture

The GLIMPSE feed is made up of a series of sequenced messages. Each message is variable in length based on the message type. The messages will be binary encoded using SoupBinTCP. SoupBinTCP takes care of sequencing and delivery guarantees. For more information about SoupBinTcp, please refer to the SoupBinTcp specification.

NOTE: Users must log in with SoupBinTCP sequence number 1 to correctly receive data.

Protocol Option	***Description***
SoupBinTCP	SoupBinTCP is a lightweight point-to-point protocol, built on top of TCP/IP sockets that allow delivery of a set of sequenced messages from a server to a client in real-time. SoupBinTCP guarantees that the client receives each message generated by the server in sequence, even across underlying TCP/IP socket connection failures. The sequence numbers are implicit, meaning that the client maintains a counter that is increased every time a message is received. At reconnect after a connection loss, the client submits the last seen sequence number in its Logon message, and the server resends every message starting from that sequence number.

3 Data Types

All Integer fields are composed of binary encoded numbers.

All alpha fields are left justified and padded on the right with spaces.
The Alpha fields are composed of non-control ISO 8859-1 (Latin-1) encoded bytes.

DATA TYPES		
Type	***Size***	***Notes***
Numeric	1, 2, 4, 8 or 16 bytes	Unsigned big-endian binary encoded numbers. **NOTE:** The transport layer, SoupBinTCP, uses big-endian for its numeric values.
Alpha	variable	Left justified and padded on the right with spaces.
Price	4 or 8 bytes	Prices are signed integer fields. Number of decimals is specified in the Order book Directory message. **NOTE:** A Price field with bit 31 set (the highest bit, MIN_INT) while all other bits are zero (decimal -2147483648) means that no price was available. This value also represents a market order in the Add Order messages.

4 Message Formats

The GLIMPSE feed is composed of a series of messages that describe the current state of the order books in the Genium INET trading system.

Upon log on, the user will receive the following messages (in the order given here):

1. Order book Directory messages for all traded order books.
2. Tick Size Table Entry messages to convey the Tick Size tables used for each order book.
3. Short Sell Status messages indicates the short sell rules of an order book. (Equity market instruments only)
4. Order book State messages with the current state of all order books.
5. Add Order messages for all displayable orders in the system at the time of login.
6. GLIMPSE Snapshot message that gives the SoupBinTCP sequence number to be used when reconnecting to the ITCH feed.

NOTE: GLIMPSE uses the same message formats as ITCH.

4.1 Time Messages

For bandwidth efficiency reasons, NASDAQ will separate the timestamps into two pieces:

Timestamp portion	***Message Type***	***Notes***
Seconds	Standalone message.	Unix time (number of seconds since 1970-01-01 00:00:00 UTC) **NOTE:** A Timestamp – Second message will be disseminated for every second for which there is at least one payload message.
Nanoseconds	Field within individual messages.	Reflects the number of nanoseconds since the most recent Timestamp-Seconds message that the payload message was generated.

4.1.1 Seconds Message

This message is sent every second for which at least one message is being generated. The message contains the number of seconds since the start of 1970-01-01 00:00:00 UTC, also called Unix Time.

TIMESTAMP – SECONDS MESSAGE				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"T"	Seconds Message.
Second	1	4	Numeric	Unix time (number of seconds since 1970-01-01 00:00:00 UTC)

4.2 Reference Data Messages

4.2.1 Order book Directory

Order book directory messages are disseminated for all active securities, including halted securities, in the Genium INET Trading system.

ORDER BOOK DIRECTORY				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"R"	Order book Directory Message
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order book ID	5	4	Numeric	Denotes the primary identifier of an order book. **NOTE:** Expired Order book IDs may be reused for new instruments.
Symbol	9	32	Alpha	Security short name.
Long Name	41	32	Alpha	Human-readable long name of security.
ISIN	73	12	Alpha	ISIN code identifying security.
Financial Product	85	1	Numeric	Values: 1 = Option 2 = Forward 3 = Future 4 = FRA 5 = Cash 6 = Payment 7 = Exchange Rate 8 = Interest Rate Swap 9 = REPO 10 = Synthetic Box Leg/Reference 11 = Standard Combination 12 = Guarantee 13 = OTC General 14 = Equity Warrant 15 = Security Lending 18 = Certificate
Trading Currency	86	3	Alpha	Trading currency.
Number of decimals in Price	89	2	Numeric	This value defines the number of decimals used in price for this order book. **NOTE:** A value of 256 means that the instrument is traded in fractions (each fraction is 1/256).
Number of decimals in Nominal Value	91	2	Numeric	This value defines the number of decimals in Nominal Value.
Odd Lot Size	93	4	Numeric	Indicates the number of securities that represent an odd lot for the order book. **NOTE:** A value of 0 indicates that this lot type is undefined for the order book.
Round Lot Size	97	4	Numeric	Indicates the quantity that represent a round lot for the issue

Block Lot Size	101	4	Numeric	Indicates the number of securities that represent an odd lot for the order book. **NOTE:** A value of 0 indicates that this lot type is undefined for the order book.
Nominal Value	105	8	Numeric	Nominal value.
Number of Legs	113	1	Numeric	Number of legs. Only applicable for combination instruments.
Underlying Order book ID	114	4	Numeric	Order book ID of underlying instrument. Only applicable for derivative instruments except for combinations
Strike Price	118	4	Price	Only applicable for derivative instruments.
Expiration Date	122	4	Date	Date of expiration. Only applicable for derivative instruments.
Number of decimals in Strike Price	126	2	Numeric	Number of decimals used in Strike Price for this or- der book. Only applicable for derivative instruments.
Put or Call	128	1	Numeric	Option type. Values: 1 = Call 2 = Put A value of 0 indicates that Put or Call is undefined for the order book.

4.2.2 Combination Order book Directory

The Combination Order book Directory is a specialized directory message used when Combination order books are traded at the marketplace. It represents both standard combinations defined by the exchange, and tailor-made combinations created by members.

COMBINATION ORDER BOOK DIRECTORY				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"M"	Combination Order book Directory Message
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Combination Order book ID	5	4	Numeric	Denotes the primary identifier of an order book. NOTE: Expired Order book IDs may be reused for new instruments.
Leg Order book ID	9	4	Numeric	Order book ID of Leg instrument
Leg Side	13	1	Alpha	Values: B = As Defined C = Opposite
Leg Ratio	14	4	Numeric	

4.2.3 Tick Size Table Entry

This message contains information on a tick size for a price range. Together, all Tick Size messages with the same Order book ID form a complete Tick Size Table. Each Order book has a set of Tick Size Table Entries to define its tick size table.

TICK SIZE TABLE ENTRY				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"L"	Tick Size Message
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order book ID	5	4	Numeric	The order book this entry belongs to.
Tick Size	9	8	Numeric	Tick Size for the give price range
Price From	17	4	Price	Start of price range for this entry.
Price To	21	4	Price	End of price range for this entry. Zero (0) means infinity.

4.2.4 Short Sell Status

A Short Sell Status Message "V" indicates the short sell rules of an order book.

TICK SIZE TABLE ENTRY				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"V"	Short Sell Status Message
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order book ID	5	4	Numeric	Order book identifier. (Only applicable for Equity Market instruments)
Short Sell Restriction	9	1	Numeric	Indicates whether short selling is allowed or not. Valid values: 1 : No restrictions (Short sell is allowed) 2 : Security is not shortable (Short sell is prohibited
Short Sell Validation	10	1	Numeric	Indicates what Short Sell validation rule applies. This value is only used by the system for orders that are flagged as Short Sell. Valid values; 0 : No validation 1 : Price greater or equal to LTP

4.3 Event and State Change Messages

4.3.1 Order book State Message

The Order book state message relays information on state changes.

ORDER BOOK STATE MESSAGE				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"O"	Order book State Message.
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order book ID	5	4	Numeric	Order book identifier.
State Name	9	20	Alpha	Name of Order book State

4.4 Market by Order Messages

NOTE: Order IDs are only unique per order book and side. When modifying or deleting orders, be careful to only update the order with the correct side and order book, since the same Order ID may be present in multiple order books and/or sides.

4.4.1 Add Order Messages

An Add Order Message indicates that a new order has been accepted by the Genium INET Trading system and was added to the displayable book. The message includes an Order ID that *is unique per Order book and side* used by the Genium INET Trading system to track the order.

NOTE: Refer to the Data types chapter for a description of how market orders are represented.

Genium INET ITCH will support two variations of the Add Order message format.

4.4.1.1 Add Order – No MPID Attribution

This message will be generated for unattributed orders in the Genium INET Trading system.

ADD ORDER MESSAGE				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"A"	Add Order Message.
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order ID	5	8	Numeric	The identifier assigned to the new order. Note that the number is *only* unique per Order book and side.
Order book ID	13	4	Numeric	Order book identifier.

Side	17	1	Alpha	The type of order being added. "B" = buy order. "S" = sell order.
Order book Position	18	4	Numeric	Rank within order book. See Appendix A for details.
Quantity	22	8	Numeric	The visible quantity of the order. **NOTE:** Orders with an undisclosed quantity will have this field set to 0.
Price	30	4	Price	The display price of the new order. Refer to Data Types for field processing notes.
Exchange Order Type	34	2	Numeric	Additional order attributes. Values: 0 = Not applicable 1 = Force 2 = Short Sell 4 = Market Bid 8 = Price Stabilization 16 = Override Crossing 32 = Undisclosed 1024 = Fill-and-kill immediately 2048 = Firm color disabled 4096 = Convert to aggressive (if locked market) **NOTE:** Applicable types may be defined by the marketplace. **NOTE 2:** This field is a bit map. Multiple values may be set simultaneously.
Lot Type	36	1	Numeric	Lot Type. Values: 0 = Undefined 1 = Odd Lot 2 = Round Lot 3 = Block Lot 4 = All or None Lot

4.4.1.2 Add Order – MPID Attribution

This message will be generated for attributed orders and quotations entered into the Genium INET Trading system.

ADD ORDER – MPID ATTRIBUTION MESSAGE				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"F"	Add Order Message.
Timestamp – Nanoseconds	1	4	Numeric	Nanoseconds portion of the timestamp.
Order ID	5	8	Numeric	The unique identifier assigned to the new order. Note that the number is *only* unique per Order book and side.
Order book ID	13	4	Numeric	
Side	17	1	Alpha	The type of order being added. Values: "B" = buy order.

				"S" = sell order.
Order book Position	18	4	Numeric	Rank within order book. See Appendix A for details.
Quantity	22	8	Numeric	The visible quantity of the order. **NOTE:** Orders with an undisclosed quantity will have this field set to 0.
Price	30	4	Price	The display price of the new order. Refer to Data Types for field processing notes.
Exchange Order Type	34	2	Numeric	Additional order attributes. Values: 0 = Not applicable 1 = Force 2 = Short Sell 4 = Market Bid 8 = Price Stabilization 16 = Override Crossing 32 = Undisclosed 1024 = Fill-and-kill immediately 2048 = Firm color disabled 4096 = Convert to aggressive (if locked market) **NOTE:** Applicable types may be defined by the marketplace. **NOTE 2:** This field is a bit map. Multiple values may be set simultaneously.
Lot Type	36	1	Numeric	Lot Type. Values: 0 = Undefined 1 = Odd Lot 2 = Round Lot 3 = Block Lot 4 = All or None Lot
Participant ID	37	7	Alpha	Market participant identifier associated with the entered order.

4.5 End of Snapshot Message

The end of snapshot message returns the current ITCH sequence number to be used when connecting to the ITCH feed.
To maintain a real-time order display, firms should begin to process real-time Genium INET ITCH messages beginning with the sequence number stated in this snapshot message.
After the end of snapshot message transmission, user will be logged out immediately by the system.

END OF SNAPSHOT MESSAGE				
Name	***Offset***	***Length***	***Value***	***Notes***
Message Type	0	1	"G"	End of Snapshot Message.
Sequence Number	1	20	Alpha	Genium INET ITCH SoupBinTCP sequence number when the snapshot was taken. To be used when logging in to the SoupBinTCP ITCH feed. **NOTE:** While GLIMPSE is a binary feed, the SoupBinTCP uses ASCII characters to represent the sequence number.

5 Revision History

Date	Revision	Change Description
March 23, 2015	0.1	Initial version for Bist
September 15, 2015	2.1	Initial version for Phase 2
July 2, 2018	2.2	Order Book Directory, Combination Order Book Leg message update
Ocatober 22, 2019	2.3	"End of Snapshot Message" description update
October 09, 2024	2.4	"Tick Size" value is corrected from "Price" to "Numeric" in section "4.2.3 Tick Size Table Entry"
November 21, 2024	2.5	"4 Message Formats" and "4.2.4 Short Sell Status" sections updated.