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| Nomura US NX FIX Interface Specifications |
|  |

US Equities

Version 1.5

Jan 10, 2010

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1. Introduction
   1. Purpose of document

This document defines the implementation of the Financial Information Exchange (FIX) protocol by Nomura on the “NXT Connect” connectivity platform. It provides guidance and reference for counterparts who wish to establish FIX connectivity and order flow with Nomura dark pool, NX.

This document should be read in conjunction with the FIX Protocol document on the FIX Protocol website (http://www.fixprotocol.org). It is assumed that the reader has a full understanding of the published FIX Protocol. This document is not intended to replace or supplement the FIX Protocol, but to provide detail and scope of Nomura’s implementation of the protocol.

1. FIX Connectivity and Contact Details
   1. Overview of FIX Connectivity at Nomura

This document outlines the standard usage and behavior of FIX protocol based connectivity to Nomura. Some optionality is provided around instrument and product identification. Please do not hesitate to discuss any aspect of this document with your sales contact or the contacts below.

* 1. Contacts

|  |  |
| --- | --- |
| **Contact** | **Details** |
| Company | Nomura Securities Inc.  2 World Financial Center, Building B  New York, NY 10281 |
| US ETS Client Service | US Hotline: 212-667-1146  [usconnectivityservices@us.nomura.com](mailto:usconnectivityservices@us.nomura.com) |
| US ETS Product Management | Amar Vaidya  212-667-2486  [amar.vaidya@nomura.com](mailto:amar.vaidya@nomura.com)  Sanjoy Choudhury  212-667-2062  [sanjoy.choudhury@nomura.com](mailto:sanjoy.choudhury@nomura.com) |

* 1. Logon Details

|  |  |
| --- | --- |
| **Production and Integration** | **Details** |
| CompID | NMRUS and NMRUS\_TEST |
| SubID | SenderSubID and OnBehalfOfCompID supported |
| Encryption (Tag 98) | None (unencrypted) |
| FIX Version | 4.2 |
| Session Start Time / End Time | Please discuss with your Nomura contact |
| Session Initiator | Client (preferred) |
| Heartbeat Interval | 30 seconds |
| UTC Timestamp format | YYYYMMDD-HH:MM:SS.sss (milliseconds) format |

* 1. Session Recovery

Standard FIX Resend Request message is supported for requesting missed messages. NXT Connect would also send out a Resend Request to counterparty if a sequence gap is detected.

1. FIX Message Structures

Only the FIX messages relevant to communicating between Nomura and the client’s FIX engine are included in this document. Each message type described here lists fields expected and supported by Nomura. Required fields not outlined in this document are not exempt from the protocol adaptation. Nomura-supported FIX message types containing valid, non-required tags will be processed as per the FIX Protocol, however, any tags not explicitly utilized by Nomura will be ignored. FIX message types that are not supported by Nomura will be ignored.

The Nomura FIX Interface is based on FIX 4.2 (see the FIX website http://www.fixprotocol.org).

* 1. Administrative Messages

|  |  |
| --- | --- |
| **Description** | **Tag = Value** |
| Logon Message | 35 = A |
| Heartbeat | 35 = 0 |
| Test Request | 35 = 1 |
| Resend Request | 35 = 2 |
| Reject | 35 = 3 |
| Sequence Reset | 35 = 4 |
| Logout | 35 = 5 |

* 1. Application Messages

The application message is composed of the standard header followed by the message body and trailer. Below is a general description of messages as well as types particular to Nomura. The following message types are supported:

|  |  |
| --- | --- |
| **Description** | **Tag = Value** |
| Execution Report | 35 = 8 |
| Order Cancel Reject | 35 = 9 |
| New Order – Single | 35 = D |
| Order Cancel Request | 35 = F |
| Order Cancel Replace Request | 35 = G |

* + 1. FIX message constructs

Nomura will ensure that all FIX messages have the required mandatory fields as per the supported version of the FIX protocol. Relevant non-mandatory fields are also documented below. Nomura reserves the right to send additional non-mandatory fields (without notification or revision of this document) provided that the overall validity of the FIX message remains intact.

Any fields received by Nomura which are not documented below will be ignored

The following tables represent the key, mainly mandatory, fields that Nomura supports for each message type, and the supported values for each field. Each table does not represent a complete FIX message.

* + 1. New Order – Single

The New Order – Single message type is used to send single stock orders to Nomura.

| **Tag** | **Field Name** | **Req'd** | **Comments** |
| --- | --- | --- | --- |
|  | Standard Header | Y | MsgType = D, Order – Single |
| 1 | Account | Y | Account mnemonic |
| 11 | ClOrdID | Y | Unique identifier of the order as assigned by institution. Nomura encourages (but does not require) clients to implement date within this field to ensure uniqueness over time. Maximum length of 20 characters. |
| 18 | ExecInst | N | Values supported depends on the Market.  6 = Add Liquidity Only (will not fill if the cross results in this order taking liquidity)  M = Mid-point for pegged orders  R = Primary for pegged orders  P = Market for pegged orders  Values of f (ISO) and 5 (Held) are not supported, and will be rejected |
| 21 | HandlInst | Y | Used to indicate flow type handling.  1 = Auto Private |
| 22 | SecurityIDSource | N | Identifies class of SecurityID. Nomura requests that clients use Tag 22 and Tag 48 to identify securities, and also that clients send 5 = RIC to ensure the broadest compatibility across markets and products. Please refer to Section 4.1 for further information. |
| 114 | LocateReqd | N | Required for Short Sale orders.  Y – Nomura will reject, will not perform locate  N – Client has already performed the locate |
| 5700 | LocateBroker | N | Required for all short sell orders if 114 = N |
| 47 | OrderCapacity (Rule80A) | Y | Supported values:  A = Agency  K = Program Order, non-index arb, for individual customer  Y = Program Order, non-index arb, for other agency |
| 38 | OrderQty | Y | Number of shares ordered |
| 40 | OrdType | Y | 1 – Market  2 - Limit  P – Pegged |
| 44 | Price | N | Price per share. Conditionally required depending on OrdType (40) value. Maximum of 2 decimals for stocks below $1, and 4 decimals for stocks over $1 |
| 48 | SecurityID | N | As defined per field 22. Please refer to Section 4.1 for further information. |
| 54 | Side | Y | 1 = Buy  2 = Sell  5 = Sell Short  6 = Sell Short Exempt (Rule 201) |
| 55 | Symbol | Y | Ticker symbol. Please refer to Section 4.1 |
| 65 | SymbolSfx | N | Used for CMS Suffix |
| 59 | TimeInForce | N | 0 = Day (Default)  2 = On Open (Not yet available)  3 = IOC  7 = On Close(Not yet available) |
| 60 | TransactTime | Y | Time of order creation, including millisecond |
| 110 | MinQty | N | Minimum filled quantity (for exchanges which support it) |
| 1688 | ShortSaleExemptionReason | N | Required if Side is SellShortExempt.  The valid values are:  0 = Exemption Reason Unknown  1 = Incoming Short Sale Exempt  2 = Above National Best Bid (Broker Dealer Provision)  3 = Delayed Delivery  4 = Odd-Lot  5 = Domestic Arbitrage  6 = International Arbitrage  7 = Underwriter or Syndicate Distribution  8 = Riskless Principal  9 = VWAP |

* + 1. Execution Report – From Nomura

The Execution Report message type is sent from Nomura and is used to confirm the receipt of an order, to confirm changes to existing orders, to relay fill information, and to communicate order status and order rejections.

Execution Report messages sent to the client support the following status:

|  |  |
| --- | --- |
| **Description** | **Tag = Value** |
| New | 39 = 0 |
| Partially Filled | 39 = 1 |
| Filled | 39 = 2 |
| Done For Day | 39 = 3 |
| Cancelled | 39 = 4 |
| Replaced | 39 = 5 |
| Pending Cancel | 39 = 6 |
| Pending Replace | 39 = E |
| Rejected | 39 = 8 |
| Pending New | 39 = A |
| Expired | 39 = C |

|  |  |  |  |
| --- | --- | --- | --- |
| **Tag** | **Field Name** | **Req'd** | **Comments** |
|  | Standard Header | Y | MsgType = 8 |
| 6 | AvgPx | Y |  |
| 11 | ClOrdID | Y | Unique identifier of the order as assigned by institution. |
| 14 | CumQty | Y | Currently executed shares for chain of orders |
| 17 | ExecID | Y | Unique identifier of the Execution Report message |
| 19 | ExecRefID | N | Required if ExecTransType (20) = Cancel (1) or Correct (2) |
| 378 | ExecRestatementReason | N | FIX 4.2 only. For optional use with ExecType = D (Restated) |
| 20 | ExecTransType | Y | Supported values:  0 = New  1 = Cancel  2 = Correct |
| 150 | ExecType | Y | Describes the type of execution report. Note that ExecType (150) describes the specific Execution Report, while OrdStatus (39) identifies the overall order status.  0 = New  1 = Partial fill  2 = Fill  3 = Done for day  4 = Canceled  5 = Replace  6 = Pending Cancel (e.g. result of Order Cancel Request)  8 = Rejected  A = Pending New  E = Pending Replace (e.g. result of Order Cancel/Replace Request) |
| 31 | LastPx | Y | Price of this (last) fill |
| 32 | LastShares | Y | Quantity of shares bought/sold on this (last) fill |
| 151 | LeavesQty | N |  |
| 37 | OrderID | Y | Used by Nomura. It is unique for each chain of orders. |
| 38 | OrderQty | Y |  |
| 103 | OrdRejReason | N | For optional use with OrdStatus = 8 (Rejected) |
| 39 | OrdStatus | Y |  |
| 41 | OrigClOrdID | N | Required for ExecType = PendingCancel, Replaced, or Cancelled. ClOrdID of the previous order (not necessarily the initial order) when cancelling or replacing an order. |
| 54 | Side | Y |  |
| 55 | Symbol | Y |  |
| 48 | SecurityID | N | Security identifier. Value is echoed back if present on request |
| 22 | SecurityIDSource | N | Identifies class of SecurityID. Value is echoed back if present on request |
| 44 | Price | N | Price per share. Value is echoed back if present on request |
| 40 | OrdType | Y | Echoed back |
| 59 | TimeInForce | N | Value is echoed back if present on request |
| 29 | LastCapacity | N | Broker capacity for fills  1 = Agent  2 = Cross as agent  3 = Cross as principal |
| 30 | LastMkt | N | Market of execution for last fill, or where the order was routed to |
| 58 | Text | N | Free format text string |
| 60 | TransactTime | Y | Time of execution, stamped by execution venue |
| 851 | LastLiquidityIndicator | N | Liquidity indicators as sent by execution venue.  1 = Added Liquidity  2 = Removed Liquidity |

Nomura will supply all mandatory fields for Execution Reports.

* + 1. Order Cancel Request

The Order Cancel Request message type is used to request the cancellation of the remaining quantity of an existing order.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tag** | **Field Name** | **Req'd** | **Comments** |
|  | Standard Header | Y | MsgType = F |
| 11 | ClOrdID | Y | Client’s new unique order ID. |
| 22 | SecurityIDSource | N |  |
| 38 | OrderQty | Y | Quantity of the original order |
| 41 | OrigClOrdID | Y | Unique identifier of the previous order. |
| 48 | SecurityID | N |  |
| 54 | Side | Y |  |
| 55 | Symbol | Y |  |
| 65 | SymbolSfx | N |  |
| 60 | TransactTime | Y | Time of cancel creation |

An immediate response to this message will be sent. An Execution Report with ExecType = Pending Cancel will be sent unless the Order Cancel Request has been immediately rejected (Order Cancel Reject message). The sending of an Execution Report with an ExecType = Pending Cancel indicates Nomura receipt of the Order Cancel Request but does not mean that the Order Cancel has been accepted.

For each request, the client should send a new ClOrdID and the OrigClOrdID. Any executions after the request is accepted will refer to the new ClOrdID. Subsequent requests refer to the previously sent ClOrdID as the OrigClOrdID and a new ClOrdID should be sent. If the request is rejected then the next request should refer to the last accepted ClOrdID as the OrigClOrdID, and a new ClOrdID should be sent.

* + 1. Order Cancel/Replace Request

The Order Cancel/Replace Request message type is used to change the parameters of an existing order. Modifiable fields are marked with an asterisk (\*).

| **Tag** | **Field Name** | **Req'd** | **Comments** |
| --- | --- | --- | --- |
|  | Standard Header | Y | MsgType = G |
| 11 | ClOrdID | N | Client’s new unique order ID |
| 21 | HandlInst | Y |  |
| 22 | SecurityIDSource | N |  |
| 38\* | OrderQty | Y | Quantity order to be replaced to |
| 40\* | OrdType | Y |  |
| 41 | OrigClOrdID | Y | Unique identifier of the previous order |
| 44\* | Price | N | In practice must be put in or else rejected (for limit) |
| 48 | SecurityID | N |  |
| 54 | Side | Y |  |
| 55 | Symbol | Y |  |
| 65 | SymbolSfx | N |  |
| 59\* | TimeInForce | N |  |
| 60 | TransactTime | Y | Time of cancel/replace request creation |
| 114 | LocateReqd | N |  |
| 5700 | LocateBroker | N |  |

An Execution Report with ExecType = Pending Replace will be sent unless the Order Cancel/Replace Request has been immediately rejected, in which case an Order Cancel Reject message will be sent. The sending of an Execution Report with an ExecType = Pending Replace indicates Nomura’s receipt of the Order Cancel/Replace Request but does not mean that the Order Cancel/Replace has been accepted.

For each request, client should send a new ClOrdID and the OrigClOrdID. Any executions after the request is accepted will refer to the new ClOrdID. Subsequent requests refer to the previously sent ClOrdID as the OrigClOrdID and a new ClOrdID is sent. If the request is rejected then the next request will refer to the last accepted ClOrdID as the OrigClOrdID, and a new ClOrdID is sent.

An Order Cancel/Replace Request will be rejected if it does not modify at least one of the following fields: OrderQty, Price, HandlInst, Symbol, Side, TimeInForce, Account, Currency, SecurityIDSource, SecurityID, OrdType, Text.

Requests to change price or decrease quantity are executed only when an outstanding quantity exists. Filled orders cannot be changed (i.e. quantity reduced or price change.)

* + 1. Order Cancel Reject – From Nomura

The Order Cancel Reject message is issued by Nomura upon receipt of an Order Cancel Request or Order Cancel/Replace Request message which cannot be honored.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tag** | **Field Name** | **Req'd** | **Comments** |
|  | Standard Header | Y | MsgType = 9 |
| 11 | ClOrdID | Y | Client’s unique order ID |
| 102 | CxlRejReason | N | Valid values:  0 = Too late to cancel  1 = Unknown order |
| 434 | CxlRejResponseTo | Y | Valid values:  1 = Order Cancel Request  2 = Order Replace Request |
| 37 | OrderID | Y | Nomura’s unique order ID |
| 39 | OrdStatus | Y | OrdStatus value after this cancel reject is applied |
| 41 | OrigClOrdID | Y | Unique identifier of the previous order |
| 58 | Text | N | A textual reason, if any. |
| 60 | TransactTime | Y | Time of Cancel Reject creation |

1. FIX Drop Copies

Customers can receive execution reports drop copies on a connection independent of order entry. The firm would connect to NXT Connect system at a pre-arranged IP address and Port number.

* 1. Administrative Messages

FIX administrative messages for session control – Heartbeat, Test Request, Resend Request and Logout are supported as described in the Fix Protocol Specifications.

* + 1. Logon Details

|  |  |
| --- | --- |
| **Production and Integration** | **Details** |
| CompID | NMRUS and NMRUS\_TEST |
| Encryption (Tag 98) | None (unencrypted) |
| FIX Version | 4.2 |
| Session Start Time / End Time | Please discuss with your Nomura contact |
| Session Initiator | Client |
| Heartbeat Interval | 30 seconds |
| UTC Timestamp format | YYYYMMDD-HH:MM:SS.sss (milliseconds) format |

* 1. Application Messages
     1. Execution Reports

All Fills (i.e. ExecType=1 or 2) are reported on the drop copy session. The Execution Report would contain all fields as described in **Section 3.2.3 Execution Report – From Nomura.**

1. Order processing
   1. Standard Equity Symbology

Supported formats: NYSE/ARCA Format (Tag 55+65), Nasdaq format (Tag 55), RIC, BETE, SEDOL, ISIN, CUSIP

**NYSE/ARCA Format (Default when tag 55 is populated)**

Tag 65 should contain suffix notation of instrument (65=PR for preferred, etc). For reference can read the “CMS Suffix” column in following link: <http://www.nasdaqtrader.com/Trader.aspx?id=CQSSymbolConvention>

**Nasdaq Format**

Tag 65 is not used for this format. Example: 55=VIA.B. For reference can read the “NASDAQ Instegrated Platform Suffix” column in following link: <http://www.nasdaqtrader.com/Trader.aspx?id=CQSSymbolConvention>

* 1. Order Validations

Nomura will apply maximum value limits on both a per-order and daily total basis, as agreed upon between Nomura and the client. For more information, please discuss with your Nomura Sales contact.

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(This sentence does not print).**