Japannext JNX

ITCH Market Data Specification (Bonds)

Version 2.00

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1 Introduction

This document explains access to the **bonds market data services** of **Japannext PTS** via the **ITCH** protocol. It describes the service configuration and specifies the application messages.

For further information and inquiries regarding trading services, and for questions concerning connectivity, contact Japannext Technical Support at ito@japannext.co.jp.

2 Overview

ITCH is an industry-standard binary market data message protocol widely used by financial institutions in the electronic exchange of securities transactions. ITCH provides tick-by-tick details for all displayable orders in the Japannext PTS execution system.

Japannext PTS offers two options for the transport layer for ITCH messages:

- **SoupBinTCP** as the point-to-point messaging protocol
- **MoldUDP64** as the one-to-many messaging protocol

3 Data Types

- Integer fields are unsigned big-endian (network byte order) binary-encoded numbers.
- Signed integer fields are signed big-endian (network byte order) binary-encoded numbers.
- Alpha fields are left-justified and right-padded with spaces.
- Price fields are 4-byte signed integer fields. When converted to a fixed-point number format, price fields have 7 whole number digits and 3 decimal places. The maximum representable value is 2,147,483.646 (7FFFFFFE hex) and the minimum representable value is –2,147,483.648 (80000000 hex).
- Quantity fields are 4-byte integer fields with a maximum representable value of 2,147,483,647 (7FFFFFFF hex).

4 Outbound Sequenced Messages

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

4.1 Timestamp – Seconds Message

To improve bandwidth efficiency, the timestamp is separated into two parts:

- The '**seconds**' part—a standalone **Timestamp – Seconds Message** reflecting the number of seconds past midnight of the day that the trading session started.
- The '**nanoseconds**' part—a field within individual messages as the number of nanoseconds since the most recent **Timestamp – Seconds Message**.

A **Timestamp – Seconds Message** is sent for every second in which at least one other message type is sent.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is T = Timestamp – Seconds Message.
Timestamp – Seconds	1	4	Integer	Number of seconds past midnight of the day that the trading session started.

4.2 System Event Message

System Event Messages denote data feed, system, and market events.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is S = System Event Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Group	5	4	Alpha	Order book group identifier. Blank if system-wide event. Value: DJGB = JGB Market
System Event	9	1	Alpha	Refer to **Table 1** below.

Table 1 - System events value description

Value	Description
O	Start of Messages: Always the first message (except for Timestamp – Seconds Messages) sent on any trading day.
S	Start of System Hours: Market is open and ready to start accepting orders.
Q	Start of Market Hours: Start of trading session.
M	End of Market Hours: End of trading session.
E	End of System Hours: Market is closed and will not accept any new orders.
C	End of Messages: Always the last message sent on any trading day.

4.3 Price Tick Size Message

Price Tick Size Messages define a set of price tick size tables. **Price Tick Size Messages** are sent before **Orderbook Directory Messages**.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is L = Price Tick Size Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Price Tick Size Table Id	5	4	Integer	Price tick size table identifier.

Price Tick Size	9	4	Integer	Yield tick size.
Price Start	13	4	Signed Integer	Start of yield range for this yield tick size.

4.4 Orderbook Directory Message

Orderbook Directory Messages provide information about order books available in the Japannext PTS execution system. **Orderbook Directory Messages** are sent at the start of each trading day. Initial reference yields are provided via **Order Added Messages** sent after the **Orderbook Directory Messages**.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is R = Orderbook Directory Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Orderbook Id	5	4	Integer	Bond code per SICC definition.
Orderbook Code	9	12	Alpha	International Securities Identification Number (ISIN).
Group	21	4	Alpha	Order book group identifier. Value: DJGB = JGB Market
Round Lot Size	25	4	Integer	Number of shares that represent a round lot.
Price Tick Size Table Id	29	4	Integer	Price tick size table identifier.
Price Decimals	33	4	Integer	Number of decimal places in price fields. Value is 3.
Upper Price Limit	37	4	Signed Integer	Maximum tradable yield.
Lower Price Limit	41	4	Signed Integer	Minimum tradable yield.

4.5 Trading State Message

A **Trading State Message** indicates the current trading state of an order book.

Before the start of system hours, Japannext PTS initiates an order book trading state spin. In this spin, **Trading State Messages** are sent for all order books eligible for trading at the start of system hours. If an order book is absent from the order book trading state spin, clients should assume that the order book is suspended at the start of system hours. After the start of system hours, **Trading State Messages** are sent to relay changes in the trading state for individual order books.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is H = Trading State Message.

Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Orderbook Id	5	4	Integer	Bond code per SICC definition.
Group	9	4	Alpha	Order book group identifier. Value: DJGB = JGB Market
Trading State	13	1	Alpha	Current trading state. Values: T = Trading V = Suspended

4.6 Order Added Message

An **Order Added Message** indicates that a new order has been accepted by the Japannext PTS execution system and has been added to the displayable order book. These messages include an Order Number which is unique per day per order book group.

Reference yields are provided via **Order Added Messages** with an Order Number value of zero. Initial reference yields are sent after the **Orderbook Directory Messages**. A manual reference yield update generates an additional **Order Added Message**.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is A = Order Added Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Order Number	5	8	Integer	Reference number of accepted order. Zero indicates a reference yield message, which may be generated in response to an order book trading state spin or a yield update.
Buy/Sell Indicator	13	1	Alpha	Side of order. Values: B = Buy S = Sell Ignore if reference yield message.
Quantity	14	4	Integer	Total number of shares added to order book. Ignore if reference yield message.
Orderbook Id	18	4	Integer	Bond code per SICC definition.
Group	22	4	Alpha	Order book group identifier. Value: DJGB = JGB Market
Price	26	4	Signed Integer	Order yield. For a reference yield message, a value of 2,147,483.647 (7FFFFFFF hex) denotes no reference yield available.

4.7 Order Executed Message

An **Order Executed Message** is sent whenever an order in the order book is fully or partially executed. This message includes a Match Number which is unique per day per order book group. It is possible to receive several **Order Executed Messages** for the same Order Number if the order is executed in multiple parts. **Order Executed Messages** for the same order are cumulative. The execution yield may be derived from the passive order yield.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is E = Order Executed Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Order Number	5	8	Integer	Reference number of executed order.
Executed Quantity	13	4	Integer	Number of shares executed.
Match Number	17	8	Integer	Reference number of match.

4.8 Order Deleted Message

An **Order Deleted Message** is sent whenever an order in the order book has been canceled. Remaining shares are no longer accessible, and accordingly, the order must be removed from the order book.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is D = Order Deleted Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Order Number	5	8	Integer	Reference number of canceled order.

4.9 Order Replaced Message

An **Order Replaced Message** is sent whenever an order in the order book has been replaced. New order details are provided for the replacement, along with a New Order Number to be used.

Name	Offset	Length	Type	Comments
Message Type	0	1	Alpha	Value is U = Order Replaced Message.
Timestamp – Nanoseconds	1	4	Integer	Number of nanoseconds since last Timestamp – Seconds Message.
Original Order Number	5	8	Integer	Reference number of original order.

New Order Number	13	8	Integer	Reference number of replaced order.
Quantity	21	4	Integer	New total number of shares displayed in order book.
Price	25	4	Signed Integer	New yield of order.

5 Revision History

Date	Version	Description
2025-09-17	2.00	Document format has been revamped. Section numbers changed to accommodate new format. Added links to Japannext SoupBinTCP Specification and Japannext MoldUDP64 Specification. Updated description of Order Number message to explain value of zero. Other parts of the text have been reworded to improve readability. No other factual changes made to technical content.
2017-12-18	1.2	Renamed messages: Orderbook Directory → Orderbook Directory Message Orderbook Trading Action → Trading State Message Add Order Message → Order Added Message Order Delete Message → Order Deleted Message Order Replace Message → Order Replaced Message. Clarified initial and update reference price mechanisms.
2017-10-26	1.1	Replaced Order Reference Number field name with Order Number Replaced Security with Orderbook in message and field names. Replaced Bonds with Quantity in data type descriptor and field names. Replaced Yield with Price in data type descriptor, and message and field names.
2016-12-05	1.0	Initial version.