



**MEMOIR Top For Crypto  
Version 2.0**

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# 1 Overview

The MEMOIR Top For Crypto feed is a real-time top of book feed offered directly from the exchange.

The MEMOIR Top For Crypto feed provides an event-based binary messaging protocol that supports the following:

- **Trading Session Information** - Provides the state of the trading session.
- **Order Pricing Data** - Provides the best bid and best offer on the exchange
- **Instrument Mapping** - Supplies a mapping between symbology identifiers and token identifiers, which are used for order entry, and market data.
- **Instrument Trading Information** - Supplies status messages to inform participants of market events for an instrument.

The MEMOIR Top for Crypto feed is unidirectional and cannot be used to enter orders.

Application messages are implemented using a binary protocol based on [SBE \(Simple Binary Encoding\)](#).

## 2 Architecture

The MEMOIR Top for Crypto feed is a sequenced message stream using fixed-width binary messages.

The business level messaging is transported via the following protocols for framing and recovery:

- `MEMX-UDP` protocol - UDP Multicast based session transport for the real-time delivery of messages.
- `MEMX-TCP` protocol - TCP based gap fill replay service.

At the start of the trading session, a session ID will be provided, and messages begin at sequence number 1.

### **3 Encoding**

The Data Type and Header Encoding are common for all MEMOIR For Crypto feeds and are defined in the MEMOIR Common For Crypto Specification.



## 4 Message Field Types

All messages are composed of fields. Each field has a type.

Some Message Field Types are common for all MEMOIR For Crypto feeds and are defined in the MEMOIR Common For Crypto Specification.

## 5 Messages

This section defines the messages that make up the protocol. For each message, it lists the fields in the message, as well as each field's position and length in the message, its underlying type, and a description of its purpose.

Some Messages are common for some or all MEMOIR For Crypto feeds and are defined in the MEMOIR Common For Crypto specification.

### 5.1 Best Bid Offer

Provides an entire top of book update for a particular instrument during the snapshot procedure.

Note that this message will never be received when processing an incremental feed.

Field	Offset	Length	Type	Meaning
SBE Header	0	6	N/A	SBE Header with Schemald=7, Templated=10, BlockLength=50
Timestamp	6	8	UTCTimestampNanos	The timestamp when the event occurred.
TokenID	14	8	CHAR	A code uniquely identifying the instrument from the Instrument Directory.
BidSize	22	8	INT64	The best bid size.
BidPrice	30	8	FixedPointDecimal	The best bid price.
OfferSize	38	8	INT64	The best offer size.
OfferPrice	46	8	FixedPointDecimal	The best offer price.
BidRLPIndicator	54	1	Boolean	Indicates whether one or more RLP orders are present at a price equal to or better than the topmost price level on the bid.
OfferRLPIndicator	55	1	Boolean	Indicates whether one or more RLP orders are present at a price equal to or better than the topmost price level on the offer.

### 5.2 Best Bid

If only the bid (buy) side has changed for a particular instrument, this message will be sent.

Field	Offset	Length	Type	Meaning
SBE Header	0	6	N/A	SBE Header with Schemald=7, Templated=11, BlockLength=33
Timestamp	6	8	UTCTimestampNanos	The timestamp when the event occurred.
TokenID	14	8	CHAR	A code uniquely identifying the instrument from the Instrument Directory.
BidSize	22	8	INT64	The best bid size.
BidPrice	30	8	FixedPointDecimal	The best bid price.
RLPIndicator	38	1	Boolean	Indicates whether one or more RLP orders are present at a price equal to

Field	Offset	Length	Type	Meaning
				or better than the topmost price level on the bid.

### 5.3 Best Offer

If only the offer (sell) side has changed for a particular instrument, this message will be sent.

Field	Offset	Length	Type	Meaning
SBE Header	0	6	N/A	SBE Header with Schemald=7, Templated=12, BlockLength=33
Timestamp	6	8	UTCTimestampNanos	The timestamp when the event occurred.
TokenID	14	8	CHAR	A code uniquely identifying the instrument from the Instrument Directory.
OfferSize	22	8	INT64	The best offer size.
OfferPrice	30	8	FixedPointDecimal	The best offer price.
RLPIndicator	38	1	Boolean	Indicates whether one or more RLP orders are present at a price equal to or better than the topmost price level on the offer.

### 5.4 Clear Book

An operational action has resulted in the book state being reset.

Consumers processing this message should remove all existing orders from the book for the TokenID specified.

Field	Offset	Length	Type	Meaning
SBE Header	0	6	N/A	SBE Header with Schemald=7, Templated=13, BlockLength=16
Timestamp	6	8	UTCTimestampNanos	The timestamp when the event occurred.
TokenID	14	8	CHAR	A code uniquely identifying the instrument from the Instrument Directory.

## **6 Message/State Recovery Methods**

All MEMOIR for Crypto feeds are disseminated primarily over the MEMX-UDP transport protocol. Consumers of the feeds may periodically miss messages due to the unreliable nature of the UDP protocol. Message and State recovery procedures are described in the MEMOIR Common For Crypto specification.