

MDP 3.0 - All-Or-None Processing

A Repo instrument can be eligible for All-Or-None (AON) orders. An AON order:

- must be executed in its entirety or not at all
- can only match with another AON order of the **same price** and **total order quantity**
- has a separate order book and Security ID from that of the non-AON version of the instrument.



For purposes of this explanation, the non-AON instrument is considered the "parent" of the AON instrument.

A Repo AON-eligible instrument is identified in the Security Definition (tag 35-MsgType=d) message by tag 872=InstAttribValue bit 23=1 (All or None instrument).

Market By Price (MBP) and Market by Order Limited Depth (MBOLD) order books for the AON instrument will be separate from the parent Repo instrument.

For related AON and parent instruments, the counterpart instrument is identified in the Security Definition message repeating group tag 1650-RelatedSecurityID.

All trade statistics are separate for the parent instrument and the related AON market **except** VWAP, which combines the AON and parent markets.



Separate VWAPs are not disseminated for AON instruments. AON Trades are included in the VWAP for the parent Repo instrument.

All-Or-None Processing Examples

The examples below illustrate AON processing.



For simplicity, only Market by Order Limited Depth (MBOLD) books are used in examples below, however, Market by Price (MBP) books are also sent on the Conflated Market Data feed.

For more information on conflation processing see [Conflated Market Data Processing](#).

Example 1 - AON Order Entered

This example shows a new AON limit bid order accepted and added to the second level of the book.

Starting MBOLD Book - AON Instrument

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.906	5	107	833653
816020	317	10	1.91	2				

Starting MBOLD Book - Related Parent Instrument

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	1.908	1	1.906	5	107	833653
752889	887	10	1.908	2	1.905	25	180	625970
716967	992	20	1.91	3				

New AON Order Entered

A new AON order is entered to bid 20 @ 1.907. A Snapshot (tag 35-MsgType=W) book update is generated:

MBOLD Snapshot (35=W) AON Book Update

Tag Number	FIX Name	Value	Description
48	SecurityID	12345	A unique instrument ID value will not be reused until the next trade date following an instrument expiration or deletion.
268	NoMDEntries	4	
Data Block 1 - Bid			
37	OrderID	632	Order ID

37707	MOrderPriority	825420	Order priority for execution on the order book
270	MEntryPx	1.907	Order price of the Market Data Entry
37706	MDisplayQty	5	Visible Order Qty
269	MEntryType	0	Bid - Market Data entry type
Data Block 2 - Ask			
37	OrderID	107	Order ID
37707	MOrderPriority	833653	Order priority for execution on the order book
270	MEntryPx	1.906	Order price of the Market Data Entry
37706	MDisplayQty	5	Visible Order Qty
269	MEntryType	1	Ask - Market Data entry type
Data Block 3 - Bid (Newly Added)			
37	OrderID	709	Order ID
37707	MOrderPriority	895224	Order priority for execution on the order book
270	MEntryPx	1.907	Order price of the Market Data Entry
37706	MDisplayQty	20	Visible Order Qty
269	MEntryType	0	Bid - Market Data entry type
Data Block 4 - Bid			
37	OrderID	317	Order ID
37707	MOrderPriority	816020	Order priority for execution on the order book
270	MEntryPx	1.91	Order price of the Market Data Entry
37706	MDisplayQty	5	Visible Order Qty
269	MEntryType	0	Bid - Market Data entry type

Resulting MBOLD Book - AON Instrument

The AON book is updated with the new order.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.906	5	107	833653
895224	709	20	1.907	2				
816020	317	10	1.91	3				

Resulting MBOLD Book - Related Parent Instrument

The related instrument is **not** updated.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	1.908	1	1.906	5	107	833653
752889	887	10	1.908	2	1.905	25	180	625970
716967	992	20	1.91	3				

Example 2 - AON Trade

This example shows a new AON limit ask order with a price of 1.907 and an order quantity of 15 that results in a trade. The AON aggressor order trades with the 2nd highest priority bid order due to the price **and** quantity matching.

Starting MBOLD Book - AON Instrument

The AON book is updated with the new order.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.906	5	107	833653
895224	709	20	1.907	2				

816020	317	10	1.91	3				
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Starting MBOLD Book - Related Parent Instrument

The related parent instrument is **not** updated.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	1.908	1	1.906	5	107	833653
752889	887	10	1.908	2	1.905	25	180	625970
716967	992	20	1.91	3				

New AON Order Entered

A new **AON** order is entered to ask 20 @ 1.907. A Trade (35=X) and Snapshot (tag 35-MessageType=W) book update is generated:

AON Trade (35=X) Update

Tag Number	Tag Name	Value	Description
279	MDUpdateAction	0	0 = new. Type of Market Data update action.
269	MDEntryType	2	2 = trade. Type of Market Data entry.
48	SecurityID	12345	Unique instrument ID as qualified by the exchange.
270	MDEntryPx	1.907	Price of the Market Data Entry.
271	MDEntrySize	20	Aggregated trade quantity for the instrument at the price level represented by the Trade Summary entry.
5797	AggressorSide	2	0=No aggressor 1=Buy 2=Sell

MBOLD Snapshot (35=W) AON Book Update

Tag Number	FIX Name	Value	Description
48	SecurityID	12345	A unique instrument ID value will not be reused until the next trade date following an instrument expiration or deletion.
268	NoMDEntries	4	
Data Block 1 - Bid			
37	OrderID	632	Order ID
37707	MDOOrderPriority	825420	Order priority for execution on the order book
270	MDEntryPx	1.907	Order price of the Market Data Entry
37706	MDDisplayQty	5	Visible Order Qty
269	MDEntryType	0	Bid - Market Data entry type
Data Block 2 - Ask			
37	OrderID	107	Order ID
37707	MDOOrderPriority	833653	Order priority for execution on the order book
270	MDEntryPx	1.906	Order price of the Market Data Entry
37706	MDDisplayQty	5	Visible Order Qty
269	MDEntryType	1	Ask - Market Data entry type
Data Block 3 - Bid			
37	OrderID	317	Order ID
37707	MDOOrderPriority	816020	Order priority for execution on the order book
270	MDEntryPx	1.91	Order price of the Market Data Entry
37706	MDDisplayQty	5	Visible Order Qty
269	MDEntryType	0	Bid - Market Data entry type

Resulting MBOLD Book - AON Instrument

The AON book is updated with bid Order ID 709 removed.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.906	5	107	833653
816020	317	10	1.91	2				

Resulting MBOLD Book - Related Parent Instrument

The related parent instrument is **not** updated.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	101	1	102	5	107	833653
752889	887	10	101	2	103	25	180	625970
716967	992	20	100	3				

Example 3 - AON Locked Book

This example shows a new AON limit ask order with a price of 1.907 and an order quantity of 15 that results in the book becoming locked due to the top bid and ask prices matching. The AON limit ask order does not match due no corresponding price and quantity of 15 @ 1.907 on the bid side.

Starting MBOLD Book - AON Instrument

The AON book is updated with the new order.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.906	5	107	833653
923487	1021	10	1.907	2				
895224	709	15	1.908	3				

Starting MBOLD Book - Related Parent Instrument

The related parent instrument is **not** updated.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	1.908	1	1.906	5	107	833653
752889	887	10	1.908	2	1.905	25	180	625970
716967	992	20	1.91	3				

New AON Order Entered

A new AON order is entered to ask 15 @ 1.907. A Snapshot (tag 35-MessageType=W) book update is generated:

MBOLD Snapshot (35=W) AON Book Update

Tag Number	FIX Name	Value	Description
48	SecurityID	12345	A unique instrument ID value will not be reused until the next trade date following an instrument expiration or deletion.
268	NoMDEntries	4	
Data Block 1 - Bid			
37	OrderID	632	Order ID
37707	MDOOrderPriority	825420	Order priority for execution on the order book
270	MDEntryPx	1.907	Order price of the Market Data Entry
37706	MDDisplayQty	5	Visible Order Qty
269	MDEntryType	0	Bid - Market Data entry type
Data Block 2 - Ask (New Update)			
37	OrderID	953	Order ID
37707	MDOOrderPriority	900540	Order priority for execution on the order book
270	MDEntryPx	1.907	Order price of the Market Data Entry

37706	MDDisplayQty	15	Visible Order Qty
269	MDEntryType	1	Ask - Market Data entry type
Data Block 3 - Bid			
37	OrderID	1021	Order ID
37707	MDOOrderPriority	923487	Order priority for execution on the order book
270	MDEntryPx	1.907	Order price of the Market Data Entry
37706	MDDisplayQty	10	Visible Order Qty
269	MDEntryType	0	Bid - Market Data entry type
Data Block 4 - Ask			
37	OrderID	107	Order ID
37707	MDOOrderPriority	833653	Order priority for execution on the order book
270	MDEntryPx	1.906	Order price of the Market Data Entry
37706	MDDisplayQty	5	Visible Order Qty
269	MDEntryType	1	Ask - Market Data entry type
Data Block 5 - Bid			
37	OrderID	709	Order ID
37707	MDOOrderPriority	895224	Order priority for execution on the order book
270	MDEntryPx	1.908	Order price of the Market Data Entry
37706	MDDisplayQty	15	Visible Order Qty
269	MDEntryType	0	Bid - Market Data entry type

Resulting MBOLD Book - AON Instrument

The AON book is updated with a locked book at the price of 1.907.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
825420	632	5	1.907	1	1.907	15	953	900540
923487	1021	10	1.907	2	1.906	5	107	833653
895224	709	15	1.908	3				

Resulting MBOLD Book - Related Parent Instrument

The related parent instrument is **not** updated.

Order Priority	Bid OrderID	Bid Quantity	Bid Book Price	Book Priority	Ask Book Price	Ask Quantity	Ask OrderID	Order Priority
723766	557	15	1.908	1	1.906	5	107	833653
752889	887	10	1.908	2	1.905	25	180	625970
716967	992	20	1.91	3				