

AOD – Protocol Changes

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1 Introduction

Auction On Demand (AOD) is available for shares in Nasdaq Copenhagen, Nasdaq Helsinki, Nasdaq Stockholm and Nasdaq Iceland, including respective First North markets. It should be noted, that just as for the Nordic@Mid book, there are no separate order book reference data records for AOD in TotalView-ITCH (Order Book Directory) or GCF/TIP (Basic Data Tradable). Reference data indicating whether an order book is enabled for AOD is distributed per symbol (a.k.a. Order Book ID).

To participate in the AOD book, orders use a new Display instruction (A).

When there is a matching situation, orders that are included in the indicative auction result cannot be canceled or replaced to reduce their marketability. Pending cancel and replace messages will be used to inform clients in applicable cases. The cancel or replace is deferred until the book is uncrossed and if the order is still live at that time. It should be noted that INET allows a single pending action per order. If the user sends a second cancel or replace message:

- Over OUCH, the message will be silently dropped;
- Over FIX, the message will be rejected.

AOD executions are indicated with new Liquidity indicators (P and Q).

AOD orders are not publicly displayed in market data. A new NOII like message (MOII) provides the indicative auction price and paired quantity when there are executable orders. The normal Cross Trade message relays the aggregated auction result but a new Cross Type (A) indicates that the trade occurred in the AOD book.

In the below, all changes to current protocols are highlighted with a **yellow** background.

2 FIX Order Entry

A new section is added to describe the conditions for a AOD order:

3.3.x Auction On Demand (AOD) Book Orders

The following table describes how to send a AOD order:

Tag	Field	Description
18	ExecInst	Set Execution Instruction to M = Midpoint peg

Tag	Field	Description
211	PegDifference	Leave this field blank, no peg offset supported
40	OrdType	Set Order Type to P = pegged order
9140	DisplayInst	Set Display Instruction to A = AOD
44	Price	Optional. Limit price act as a cap/floor for trade executions
110	MinQty	Optional. In the AOD book, interpreted as the minimum executable size (MES)
59	TimeInForce	0 = DAY or; 6 = GTT.
76	ExecBroker	Leave this field blank, routing is not supported.

Notes about minimum execution size (MES):

- In the AOD book, the MinQty field behavior differs from other books.
- An order with a MES condition will only execute against contra orders that have at least the MES size.
- The MES applies to all (partial) executions
- A single execution does not need to be an increment of the MES. If e.g. the order is for 1,000 shares with a MES of 100, an individual execution may take out a contra order of 123.
- If the residual of a MES order is below the original MES size, the MES is adjusted to equal the residual. If the above order is executed down to a residual of 75, the MES is adjusted to 75.

5.5.1 New Order Single

Tag	Field	Reqd	Comments
110	MinQty	N	MinQty is currently supported for orders with a TimeInForce [59] = 3 and 4 or for hidden orders with TimeIn Force [59] = 0, 1, or 6. Minimum Quantity orders may be entered during the auctions; however, the minimum quantity feature will only be enforced during the continuous market and in the Auction On Demand (AOD) book. MinQty must be a round lot.
9140	DisplayInst	N	May be used to specify different display options. The default for this tag is dependent upon the value sent in [111]. If 111=0, then the default for 9140 = N. Otherwise, the default is Y. "I" is only valid if CrossTradeFlag [9355] is present. Valid values: I = Imbalance only M = Nordic@Mid dark book N = Non-Display A = Auction On Demand book Y = Display (Anonymous as per market rules)

5.1.3 Order Cancel Replace Request

The Order Modification Request is used to change the parameters of an existing order.

Do not use this message to cancel the remaining quantity of an outstanding order, use the Cancel Request message for this purpose.

Note that while it is necessary for the ClOrdID to change and be unique, the OrderID field does not necessarily have to change as a result of the Order Modification request.

Only Price, Order Quantity, **Min Qty**, Max Floor, DisplayRange, ClRefId, Clearing Account, BrSeqNbr and applicable algo-parameters (refer to section 8.3) can be changed via the cancel/replace request message. If these fields were populated on the new order single, then you must submit all of these fields on the cancel/replace request so that the host knows whether your intention is to change them or not. All other fields should be retransmitted as sent in the original order.

Time priority is retained only if the sole modification to the order is a decrease in size.

The Order Modification Request Message is described in the following table:

Tag	Field	Reqd	Comments
110	MinQty (field added)	N	This field may be modified on cancel/replace.
9140	DisplayInst	N	<p>May be used to specify different display options. The default for this tag is dependent upon the value sent in [111]. If 111=0, then the default for 9140 = N. Otherwise, the default is Y. "I" is only valid if CrossTradeFlag [9355] is present.</p> <p>Valid values: I = Imbalance only M = Nordic@Mid dark book N = Non-Display A = Auction On Demand book Y = Display (Anonymous as per market rules)</p>

5.2.1 Execution Report

Tag	Field	Reqd	Comments
39	OrdStatus	Y	<p>Valid values: 0 = New 1 = Partial Fill 2 = Filled 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected E = Pending Replace</p>
150	ExecType	Y	<p>Describes the specific Execution Report.</p> <p>Valid values: 0 = New 1 = Partial Fill 2 = Filled 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected D = Restated</p>

Tag	Field	Reqd	Comments
			E = Pending Replace
9140	DisplayInst	N	<p>May be used to specify different display options. The default for this tag is dependent upon the value sent in [111]. If 111=0, then the default for 9140 = N. Otherwise, the default is Y. Value "I" is valid only if CrossTradeFlag [9355] is present.</p> <p>Valid values:</p> <ul style="list-style-type: none"> I = Imbalance only M = Nordic@Mid dark book N = Non-Display A = Auction On Demand book Y = Display (Anonymous as per market rules)
9882	LiquidityFlag	N	<p>Returned on ExecType [150] = 1 (Partial Fill) and 2 (Fill) messages. For execution algos, returns the child LiquidityFlag [9882].</p> <p>Valid values:</p> <ul style="list-style-type: none"> 0 = Unspecified destination 1 = Chi-X 2 = Turquoise 3 = BATS 4 = Burgundy (deprecated as of Apr. 27, 2015) 5 = Oslo market 6 = Liquidnet 8 = Oslo market member A = Nordic added liquidity C = Auction trade E = Trade cancel M = Nordic@Mid trade P = Auction On Demand (AOD) trade Q = Auction On Demand (AOD) trade, internalized R = Nordic removed liquidity S = Self-Trade, added liquidity (no clear, no publish) T = Self-Trade, removed liquidity (no clear, no publish) V = Self-Trade, Nordic@Mid (no clear, no publish) W = Nordic added liquidity, Top-of-Book X = Continuous market trade, internalized Y = Auction trade, internalized Z = Nordic@Mid trade, internalized

2.1 Rejected Cancel

Tag	Field	Reqd	Comments
102	CxlRejReason	N	<p>Code to identify reason for cancel rejection.</p> <p>Valid values:</p> <ul style="list-style-type: none"> 0 = Too late to cancel (Order already cancelled or is in pending cancel or pending replace state) 1 = Unknown order (Original order unacknowledged)

Tag	Field	Reqd	Comments
			2 = Broker Option - used for the following reasons: Market Closed; Unknown MPID; Duplicate ClOrdId; Routing Not Allowed; Change of order type from limit to market; Qty greater than account limit or less than 0; Replace qty to less than exhausted; Invalid price; Order should be tick adj but tick adj rejects are active; Replace changes nothing; New order not allowed per market conditions; Poss dup order when poss dup is not allowed 3 = Order already in Pending Cancel or Pending Replace status

3 FIX Drop

The same changes as for the FIX Order Entry Execution Report message.

4 OUCH

2.1 Enter Order

Field	Comments
Display	Valid values: Y = Display (default) N = Non-Display I = Imbalance Only A = Auction On Demand book W = Market Maker Order U = Market Maker Order Refresh P = Top-of-Book

2.2 Replace Order

Field	Comments
Display	Valid values: Y = Display (default) N = Non-Display I = Imbalance Only A = Auction On Demand book W = Market Maker Order U = Market Maker Order Refresh P = Top-of-Book

3.2.4 Executed Order

Field	Comments
Liquidity Flag	See Liquidity Flag Values table below. Valid values: A = Added Liquidity

Field	Comments
	R = Removed Liquidity C = Executed in one of the auctions P = Auction On Demand (AOD) trade Q = Auction On Demand (AOD) trade, internalized X = Internalized during the continuous market Y = Internalized during one of the auctions W = Added Liquidity, Top-of-Book S = Self-Trade, added liquidity (no clear, no publish) T = Self-Trade, removed liquidity (no clear, no publish)

3.2.x Cancel Pending (New)

A Cancel Pending Message is sent in response to a cancel request signifying that it cannot be immediately applied. Any unexecuted portion of the order will automatically be canceled as soon as possible.

While a cancel or replace is pending, any following cancel request for the same order will be ignored by OUCH.

Cancel Pending Message				
Name	Offset	Len	Value	Notes
Message Type	0	1	"P"	Cancel Pending Message
Timestamp	1	8	Integer	Timestamp - reflected as the number of nanoseconds past midnight
Order Token	9	14	Token	Order Token for the order that has its cancel pending
Reason	23	1	Alpha	Reason the order was pended. Clients should anticipate additions to this list and thus support all capital letters of the English alphabet. <ul style="list-style-type: none"> A - Cancel pending completion of Auction of Demand (AOD)

3.2.x Replace Pending (New)

A Replace Pending Message is sent in response to a replace request signifying that it cannot be immediately applied. The active order will automatically be replaced as soon as possible.

While a cancel or replace is pending, any following replace request for the same order will be ignored by OUCH.

Replace Pending Message				
Name	Offset	Len	Value	Notes
Message Type	0	1	"N"	Replace Pending Message
Timestamp	1	8	Integer	Timestamp - reflected as the number of nanoseconds past midnight
Old Order Token	9	14	Token	Token of the order being replaced
Order Token	23	14	Token	Token of the pending replacement order
Reason	23	1	Alpha	Reason the order was pended. Clients should

Replace Pending Message				
Name	Offset	Len	Value	Notes
				anticipate additions to this list and thus support all capital letters of the English alphabet. <ul style="list-style-type: none"> A – Replace pending completion of Auction of Demand (AOD)

5 FIX OUCH Drop

The same changes as for the FIX Order Entry Execution Report message.

6 Totalview-ITCH

Order Book Directory

Two new fields are added to the end of the message in order to enable clients to capture whether a symbol has a Nordic@Mid and AOD book respectively. The fields display the applicable MIC code used for the respective book. (Those MIC codes are also relayed in FIX Execution messages.)

Field	Comments
Nordic@Mid MIC	If specified, indicates that a Nordic@Mid order book is applicable for this symbol. The indicator is represented by the venue MIC for this order book.
AOD MIC	If specified, indicates that an Auction On Demand order book is applicable for this symbol. The indicator is represented by the venue MIC for this order book.

5.5.2 Cross Trade

Field	Comments
Cross Type	The cross session for which the message is being generated. Valid values: O = Opening Cross. I = Scheduled Intraday Auction C = Closing Cross. H = Cross for halted securities. A = Auction On Demand

5.7.x Auction On Demand Order Imbalance Indicator (MOII) (New)

MOII data is disseminated once for every Auction On Demand (AOD) order book when a cross auction period starts. After that, an update is sent each time an order book changes, in the minutes leading up to the uncross.

Field	Comments
Message Type	J = MOII message
Timestamp	Nanoseconds since midnight.
Tracking Number	Nasdaq Nordic internal tracking number
Paired Quantity	The total number of shares that are eligible to be matched at the

Field	Comments
	Current Reference Price.
Order Book	Order book ID
Equilibrium Price	Equilibrium Price if the order book is crossed; otherwise set to zero (0).
Cross Type	The cross session for which the message is being generated. Valid values: A = Auction On Demand