



PureStream on Nasdaq Europe - Draft protocols changes

INET Nordic

Nordic Equities Markets



REVISION 1.00.2
15 NOV 2024
APPROVED

Copyright © 2024, Nasdaq, Inc. All rights reserved.

All content in this document is owned, or licensed, by Nasdaq, Inc. or its affiliates ('Nasdaq'). Unauthorized use is prohibited without written permission of Nasdaq.

While reasonable efforts have been made to ensure that the contents of this document are accurate, the document is provided strictly "as is", and no warranties of accuracy are given concerning the contents of the information contained in this document, including any warranty that the document will be kept up to date. Nasdaq reserves the right to change details in this document without notice. To the extent permitted by law no liability (including liability to any person by reason of negligence) will be accepted by Nasdaq or its employees for any direct or indirect loss or damage caused by omissions from or inaccuracies in this document.

Document History

Revision	Published	Author(s)	Summary of Changes
1.00	17 Oct 2024	Nasdaq	Issue version
1.00.2	15 Nov 2024	RnTh	Updated Cancel Order Reasons codes in the Cancelled Order message – section 2.2.5. Added new value “A” = Pending New to Tag [39] and [150], and PureStream MIC Code to LastMkt in section 2.4.1 – Execution Report.

Table of Contents

1	Overview	5
1.1	Purpose of document	5
1.2	Protocol specifications.....	6
1.3	Support.....	7
2	Messaging changes	8
2.1	Overview	8
2.1.1	Enter Order Message	8
2.1.2	Replace Order Message	8
2.1.3	Appendix A – Additional Fields Inbound.....	9
2.2	OUCH messaging - Outbound	10
2.2.1	Pending Order Message (New message)	10
2.2.2	Stream Status Message (New message).....	10
2.2.3	Order Accepted Message	11
2.2.4	Order Replaced Message.....	11
2.2.5	Cancelled Order Message.....	11
2.2.6	Cancel Pending Message	12
2.2.7	Replace Pending Message	12
2.2.8	Executed Order Message.....	13
2.2.9	Broken Trade Message.....	13
2.2.10	Appendix A – Additional Fields Outbound	13
2.3	FIX messaging - Inbound	15
2.3.1	New Order - Single.....	15
2.3.2	Order Cancel/Replace Request	16
2.4	FIX messaging - Outbound	17
2.4.1	Execution Report.....	17
2.5	ITCH (also used with NLS).....	19
2.5.1	Order Book Directory Message	19

1 Overview

Nasdaq Nordic¹ plans to introduce **PureStream** trading to the European market during 2025, **pending regulatory approval**.

PureStream on Nasdaq Europe is a volume-based trajectory trading facility designed to minimize market impact while maximizing liquidity from equal counterparts.

PureStream matches Indications of Interest (IOIs) based on liquidity transfer rates (LTR). This allows institutional investors to minimize market impact and automate execution of trading interests by trading a percentage of the market's future volume at the market's Volume-Weighted Average Price (VWAP).

IOIs are matched with one or multiple another PureStream IOIs based on the specified LTR, instead of a specific price. LTR indicates the percentage of volume (e.g., 20%) of Benchmark Trades a user is willing to trade. When IOIs are firmed-up and matched, Streams are established which are not published (not sent on market data feeds like ITCH/NLS).

When a set of Benchmark Trades occur (e.g. total of 10,000 shares), a PureStream Trade is executed in a Stream based on their LTR-rate (10,000 shares * 20% = 2,000 shares) at VWAP and published in real time as negotiated trade via NLS and GCF/tip feeds.

For more information please refer to the [website](#) for PureStream on Nasdaq Europe.

1.1 Purpose of document

The purpose of this document is to present the Draft changes to the protocol specifications to help members and ISVs to prepare for the implementation (note it can be subject to change).

The service will be available both on FIX and OUCH.

While the concept of IOI messaging is explained in detail, generally IOIs are referenced as orders.

Note that the launch of the PureStream service is pending regulatory approval.

¹ For the purpose of this document Nasdaq Nordic refers to, either each individually or all together, Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd and Nasdaq Stockholm AB.

1.2 Protocol specifications

Updated protocol specifications including all changes related to this upcoming change will be available later at the Nasdaq Nordic Technical Information website, under [INET Nordic Protocol Specifications](#).

1.3 Support

For technical questions, please contact Nasdaq Exchange Services:

Exchange Services

Tel: +46 8 405 7700

E-mail: EMO@nasdaq.com

2 Messaging changes

2.1 Overview

This section describes the OUCH external messaging changes being made with the introduction of the PureStream trading. Additional fields/tags and new values to existing fields are described below.

2.1.1 Enter Order Message

Enter Order Message				
Name	Offset	Len	Value	Notes
Repeating Group				
Additional Appendage	41	Var	TagValue	Identifies the appendage. The available options supported on this message are: <ul style="list-style-type: none"> - Display New Tags: <ul style="list-style-type: none"> - Target Strategy - Min Rate - Max Rate - Conditional Type - Firm-Up ID (see Appendix A for more detail)

2.1.2 Replace Order Message

Replace Order Message				
Name	Offset	Len	Value	Notes
Repeating Group				
Additional Appendage	25	Var	TagValue	Identifies the appendage. The available options supported on this message are: <ul style="list-style-type: none"> - Target Strategy - Min Rate - Max Rate (see Appendix A for more detail)

2.1.3 Appendix A – Additional Fields Inbound

Tag	Name	Size ²	Value	Notes
7	Display	1	Alpha	New value: "S" = PureStream
14	Minimum Quantity	4	Integer	Additional description: For PureStream the minimum available quantity on contra IOI to initiate a stream.
30	Target Strategy	1	Alpha	The target strategy of the PureStream order. "0" = 5 - 15% "1" = 5 - 30% "5" = 10 - 200% "C" = Custom (Default)
31	Min Rate	2	Integer	PureStream minimum rate in the 1-500% range. Default = 1%. Only used for Target Strategy Custom.
32	Max Rate	2	Integer	PureStream maximum rate in the 1-500% range >= Min Rate. Default = 500%. Only used for Target Strategy Custom.
33	Conditional Type	1	Alpha	PureStream Order Type. "C" = Conditional Order "F" = Firm-Up Order (setting this value requires Firm-Up ID to be set as well)
34	Firm-Up ID	4	Integer	If this is sent it needs to be with a UserRefNum for an IOI that received a Firm-Up request. It also requires Conditional Type to be "F" (Firm-Up Order)

² The Size cited is that of just the optional field itself, not the encasing TagValue element

2.2 OUCH messaging - Outbound

This section describes the OUCH external messaging changes being made with the introduction of the PureStream trading. Two new messages are introduced, Pending Order Message and Stream Status Message. Additional fields/tags and new values to existing fields are described below.

2.2.1 Pending Order Message (New message)

This message is received when a Conditional Order is entered and PureStream starts to find an IOI match.

Pending Order Message				
Name	Offset	Len	Value	Notes
Message Type	0	1	"M"	Pending Order Message Identifier
Timestamp	1	8	Timestamp	Timestamp
UserRefNum	9	4	UserRefNum	Sequence number – starts at 1
Reason	17	1	Alpha	"S" - System Processing

2.2.2 Stream Status Message (New message)

When an IOI is Firmed-Up, Stream Status messages will be received with the current cumulative streaming LTR.

Stream Status Message				
Name	Offset	Len	Value	Notes
Message Type	0	1	"D"	Stream Status Message Identifier
Timestamp	1	8	Timestamp	Timestamp
UserRefNum	9	4	UserRefNum	Sequence number – starts at 1
CumRate	13	2	Integer	The current cumulative streaming LTR the order is achieving (includes all active streams for this IOI)
Status	15	1	Alpha	"O" = Stream On "X" = Stream Off

2.2.3 Order Accepted Message

Order Accepted Message				
Name	Offset	Len	Value	Notes
Repeating Group				
Additional Appendage	57	Var	TagValue	Identifies the appendage. The available options supported on this message are: <ul style="list-style-type: none"> - Display New Tags: <ul style="list-style-type: none"> - Target Strategy - Min Rate - Max Rate - Conditional Type - Firm-Up ID (see Appendix A for more detail)

2.2.4 Order Replaced Message

Order Replaced Message				
Name	Offset	Len	Value	Notes
Repeating Group				
Additional Appendage	46	Var	TagValue	Identifies the appendage. The available options supported on this message are: <ul style="list-style-type: none"> - Target Strategy - Min Rate - Max Rate (see Appendix A for more detail)

2.2.5 Cancelled Order Message

Cancelled Order Message				
Name	Offset	Len	Value	Notes
Reason	17	1	Alpha	Reason the order was reduced or cancelled. See additional Cancel Order Reasons in the table below.

Cancel Order Reasons		
Reason	Name	Comments
"F"	PureStream Firm-Up Request	Conditional IOI was canceled due to potential match found. Firm-up to release the match.
"P"	Price	Price movements in the market forced this order to be cancelled.

2.2.6 Cancel Pending Message

Cancel Pending Message				
Name	Offset	Len	Value	Notes
Reason	13	1	Alpha	"S" - System Processing

2.2.7 Replace Pending Message

Replace Pending Message				
Name	Offset	Len	Value	Notes
Reason	17	1	Alpha	"S" - System Processing

2.2.8 Executed Order Message

Executed Order Message				
Name	Offset	Len	Value	Notes
Liquidity Flag	21	1	Alpha	New value: "S" = PureStream
Trading Mode	30	1	Alpha	New value: "5" = Trade Reporting (On Exchange)
Last Market	34	1	Integer	New MIC Codes for PureStream order book trades.

Last Market		
Value	MIC	Name
43	PCSE	NASDAQ COPENHAGEN A/S - PURESTREAM
44	PHEL	NASDAQ HELSINKI LTD - PURESTREAM
45	PSTO	NASDAQ STOCKHOLM AB - PURESTREAM
46	PFSE	FIRST NORTH SWEDEN – PAN-EUROPEAN PURESTREAM
47	PEUR	FIRST NORTH FINLAND – PAN-EUROPEAN PURESTREAM

2.2.9 Broken Trade Message

Broken Trade Message				
Name	Offset	Len	Value	Notes
Trading Mode	18	1	Alpha	New value: "5" = Trade Reporting (On Exchange)

2.2.10 Appendix A – Additional Fields Outbound

Tag	Name	Size ³	Value	Notes
7	Display	1	Alpha	New value: "S" = PureStream
14	Min Quantity	4	Integer	Additional description: For PureStream the minimum available quantity

³ The Size cited is that of just the optional field itself, not the encasing TagValue element

Tag	Name	Size ³	Value	Notes
				on contra IOI to initiate a stream.
30	Target Strategy	1	Alpha	The target strategy of the PureStream order. "0" = 5 - 15% "1" = 5 - 30% "5" = 10 - 200% "C" = Custom No default outbound.
31	Min Rate	2	Integer	PureStream minimum rate in the 1-500% range. Only used for Target Strategy Custom. No default outbound.
32	Max Rate	2	Integer	PureStream maximum rate in the 1-500% range >= Min Rate. Only used for Target Strategy Custom. No default outbound.
33	Conditional Type	1	Alpha	PureStream Order Type. "C" = Conditional Order "F" = Firm-Up Order
34	Firm Up ID	4	Integer	If this is sent it needs to be with a UserRefNum for an IOI that received a Firm-Up request. It also requires Conditional Type to be F (Firm-Up Order)

2.3 FIX messaging - Inbound

This section describes the FIX external messaging changes being made with the introduction of the PureStream trading. Additional fields/tags and new values to existing fields are described below.

2.3.1 New Order - Single

Tag	Field	Reqd	Comments
	StandardHeader	Y	MsgType = D
9140	DisplayInst	N	New value: S = PureStream
110	MinQty	N	Additional description: For PureStream, minimum available quantity on contra IOI to initiate a stream.
847	TargetStrategy	N	The target strategy of the PureStream order. 1000 = 5 - 15% 1001 = 5 - 30% 1003 = Custom (Default) 1005 = 10 - 200%
27005	MinRate	N	PureStream minimum rate in the 1-500% range. (Default = 1%) Only used for TargetStrategy Custom
27006	MaxRate	N	PureStream maximum rate in the 1-500% range >= MinRate. (Default = 500%) Only used for TargetStrategy Custom
23012	ConditionalType	N	PureStream Order Type. C = Conditional Order (Default) F = Firm-Up Order
23014	FirmUpID	N	If this is sent it needs to be with a value received on a firm-up request. It also requires ConditionalType to be "F" (Firm-Up Order). Can only be sent on an Firm-Up Order Request.

2.3.2 Order Cancel/Replace Request

TargetStrategy, MinRate and MaxRate has been added to the list if changeable fields via the cancel/replace request.

Tag	Field	Reqd	Comments
	StandardHeader	Y	MsgType = G
9140	DisplayInst	N	New value: S = PureStream
847	TargetStrategy	N	Optional. The target strategy of the PureStream order. 1000 = 5 - 15% 1001 = 5 - 30% 1003 = Custom (Default) 1005 = 10 - 200%
27005	MinRate	N	PureStream minimum rate in the 1-500% range. Default = 1% Only used for TargetStrategy Custom
27006	MaxRate	N	PureStream maximum rate in the 1-500% range >= MinRate. Default = 500% Only used for TargetStrategy Custom

2.4 FIX messaging - Outbound

This section describes the FIX Order Entry and FIX DROP external messaging changes being made with the introduction of the PureStream trading. Additional fields/tags and new values to existing fields are described below.

2.4.1 Execution Report

Tag	Field	Reqd	Comments
	StandardHeader	Y	MsgType = 8
30	LastMkt	N	New MIC Codes for PureStream order book trades.
39	OrdStatus	Y	New value: A = Pending New
150	ExecType	Y	New value: A = Pending New
9140	DisplayInst	N	New value: S = PureStream
9882	LiquidityFlag	N	Returned on ExecType [150] = F (Trade) messages. New value: S = PureStream
847	TargetStrategy	N	The target strategy of the PureStream order. 1000 - 5 - 15% 1001 - 5 - 30% 1003 – Custom 1005 - 10 - 200%
27005	MinRate	N	PureStream minimum rate in the 1-500% range. Only used for TargetStrategy Custom
27006	MaxRate	N	PureStream maximum rate in the 1-500% range >= MinRate. Only used for TargetStrategy Custom
23012	ConditionalType	N	PureStream Order Type. “C” = Conditional Order (default) “F” = Firm-Up Order “R” = Firm-Up Request
23014	FirmUpID	N	For Firm-Up Requests, ID to be used when firming up the IOI. Otherwise as per the IOI.

Tag	Field	Reqd	Comments
27014	CumRate	N	The current cumulative streaming LTR the order is achieving (includes all active streams for this IOI)
855	SecondaryTrdType	N	64 = Benchmark
23023	OrderStreamStatus	N	O = Stream On X = Stream Off

2.5 ITCH (also used with NLS)

2.5.1 Order Book Directory Message

The Order Book directory message is described in the TotalView-ITCH protocol specification but also applicable for the Nasdaq Nordic Last Sale (NLS) feed. PureStream negotiated VWAP trades, are published on NLS and GCF/TIP feeds, not on ITCH.

Order Book Directory				
Name	Offset	Length	Value	Notes
MIC	47	4	Alpha	Market Identifier Code identifying the Market. If specified, indicates that a Lit order book is applicable for this symbol.
PureStream MIC	97	4	Alpha	If specified, indicates that a PureStream order book is applicable for this symbol. The indicator is represented by the venue MIC for this order book.

Adding a new field to Order Book Directory message 'PureStream MIC'. Updated the MIC field description as it can be unspecified (not traded in the Nasdaq Lit Book).