Nasdaq Nordic – PRM Protocol

INET Nordic

Nordic Equities Market

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Approved

Document1

Document History

Revision	Published	Author(s)	Summary of Changes
1.00.0	23 May 2024	STSR	First version.

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1 Overview

This document contains the PRM API protocol for users to manage their Pre-Trade Risk Management account configuration in INET Nordic.

Find more details about Nasdaq Pre-Trade Management for INET Nordic services at
https://www.nasdaq.com/solutions/pre-trade-risk-management

1.1 Architecture

The PRM protocol is composed of logical messages passed between the PRM host and the client application.

All messages sent from the PRM host to the client are assumed to be sequenced, and their delivery must be guaranteed by some lower level protocol. The SoupBinTCP (available separately) is typically used to guarantee the delivery and sequencing of PRM messages sent from the host to the client.

Messages sent from the PRM client to the host are inherently non-guaranteed, even if they are carried by a lower level protocol that guarantees delivery (like TCP/IP sockets). Therefore, all host-bound messages are designed so that they can be benignly resent for robust recovery from connection and application failures.

Each physical PRM host port is bound to a Nasdaq Nordic-assigned logical PRM Account. On a given day, every configuration modification entered on PRM is uniquely identified by the combination of the logical PRM Account and the participant-created user reference number.

All messages have a fixed message length but some fields may be optional and if not required they have to be filled in with '-1' or '?' depending on field type.

Nasdaq Nordic can add new message fields and message types to this specification. In general, new message fields will be added to the end of the message. Participants should use decoders that ignore unknown outbound (from Nasdaq Nordic) message types as well as outbound messages that expand with new fields added to the end of the message.

1.2 Data Types

All **Alpha** fields are left-justified and padded on the right with spaces.

All **numeric** fields are binary encoded, big-endian numbers. Four flavors of numeric fields are supported:

Longs (8 bytes), Integers (4 bytes), Shorts (2 bytes), and Bytes (1 byte).

- o **UserRefNum** is an Integer field with a unique sequential number starting from 1 at start of day. The UserRefNum must be day unique per PRM account.

Timestamps are encoded as numeric fields and express the time as nanoseconds since midnight, UTC. All timestamps may be represented as a single Long.

Fields may be ignored by the inbound port when set to special non-updating values, whereby any existing configuration will be reused. To read the current configuration without changing any field, send in this value for all applicable fields.

If the client sends in an Integer with a value of '-1', the existing field will not be updated.

If the client sends in an Alpha filled with bytes of ascii '?', the existing field will not be updated.

Some fields require values to be set (e.g. PRM Account and Currency).

1.3　Fault Redundancy

A single PRM Account can be bound to multiple physical PRM machines. These PRM machines then act as mirrors of each other for fault redundancy. In this configuration, both machines are able to handle configuration modifications, and any outbound messages would be simultaneously generated by both physical PRM hosts.

2   Message Formats

Each new settings modification must have a new reference number that is larger than the previous reference number and that is unique to the day and that logical PRM account. If you send a valid request, you should always receive an Account settings response message.

2.1   Inbound Messages

2.1.1   Account Query Message

This inbound message returns the PRM API port's next expected user reference number.

Account Query				
Name	**Offset**	**Length**	**Value**	**Notes**
Type	0	1	”Q”	Identifies this message as an Account Query

2.1.2   Modify Account Settings Message

This inbound message updates the settings for a given PRM Account.

Modify Account Settings				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	”C”	Identifies this message as a Modify Account Settings
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Repeated Order Generation	11	4	Integer	Maximum allowed number of consecutive identical orders. (previous value kept if: -1)
Trigger Restrict Symbol On Repeated Order Generation	15	1	Alpha	Restrict symbol when order repetition limit is breached? • ”Y” = Enabled • ”N” = Disabled (previous value kept if: ?)

In Auction Market Order Prevention	16	1	Alpha	Enable Market Order Prevention? • "Y" = Enabled • "N" = Disabled (previous value kept if: ?)
In Auction Fat Finger Protection	17	1	Alpha	Enable Fat-Finger Protection? • "Y" = Enabled • "N" = Disabled (previous value kept if: ?)
In Auction Market Order Protection	18	1	Alpha	Enable Market Order Protection? • "Y" = Enabled • "N" = Disabled (previous value kept if: ?)
Block and Cancel	1	1	Alpha	Block/ Unblock/ Cancel open orders of this prm account • "B" = Block • "U" = Unblock • "C" = Block + Cancel (previous value kept if: ?)

2.1.3   Modify Order Book Restriction Message

This inbound message marks an Order Book as restricted or non-restricted for a given PRM Account.

Modify Order Book Restrict Restriction				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"R"	Identifies this message as a Modify Order Book Restriction
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Order Book	11	4	Integer	Order Book to be restricted.

State	15	1	Alpha	Describes whether the restriction is currently active • "A" = Active • "I" = Inactive (previous value kept if: ?)

2.1.4 Modify Market Segment Restriction Message

This inbound message marks a Market Segment as restricted or non-restricted for a given PRM Account.

Modify Market Segment Restriction				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"S"	Identifies this message as a Modify Market Segment Restriction
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Market Segment	11	2	Integer	Market Segment to be restricted.
State	13	1	Alpha	Describes whether the restriction is currently active • "A" = Active • "I" = Inactive (previous value kept if: ?)

2.1.5 Modify Limit Settings Message

This inbound message updates the Limit settings for a given PRM Account & Currency.

Modify Limit Settings				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"L"	Identifies this message as a Modify Limit Settings

UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Currency	11	3	Alpha	Currency in which the settings apply.
Max Quantity	14	8	Integer	Maximum number of shares allowed on a per order basis. (previous value kept if: -1)
Max Value	22	8	Integer	Maximum Order Value (price * quantity) allowed on a per order basis. (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Notional Value	30	8	Integer	Notional Value (price * quantity) on a per order basis. (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Total Risk Value	38	8	Integer	Total Risk Value (open orders plus trades) (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Trade Buy Value	46	8	Integer	Trades Buy Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Trade Sell Value	54	8	Integer	Trades Sell Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)

Trade Net Value	62	8	Integer	Trades Net Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Open Order Buy Value	70	8	Integer	Open Orders Buy Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Open Order Sell Value	78	8	Integer	Open Orders Sell Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Open Order Net Value	86	8	Integer	Open Orders Net Value (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)
Max Quantity Auction	94	8	Integer	Maximum number of shares allowed on a per order basis specific to auctions. (previous value kept if: -1)
Max Value Auction	102	8	Integer	Maximum Order Value (price * quantity) allowed on a per order basis specific to auctions. (previous value kept if: -1) Note: Signed integer field with implied scale of 4 (number of digits to the right of the decimal point)

2.1.6 Modify Account Currency Setting Message

This inbound message updates the settings for a given PRM Account's currency.

Modify Account Currency Settings				
Name	**Offset**	**Length**	**Type**	**Notes**

Type	0	1	"F"	Identifies this message as a Modify Account Currency Settings
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Currency	11	3	Alpha	Currency in which the settings apply.
Reject All Flag	14	1	Alpha	Reject all orders? • "Y" = Enabled • "N" = Disabled (previous value kept if: ?)
Blow Through Protection	15	1	Alpha	Enable Blow-Through Protection? • "Y" = Enabled • "N" = Disabled (previous value kept if: ?)

2.2 Outbound Messages

2.2.1 Account Query Response Message

This outbound message provides the PRM API port's next expected user reference number.

Account Query				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"Q"	Identifies this message as a Response to the Account Query message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.

2.2.2 Account Settings Response Message

This outbound message indicates that the settings for a given PRM Account have been updated.

Account Settings				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"C"	Identifies this message as a Response to the Modify Account Settings message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Repeated Order Generation	11	4	Integer	Maximum allowed number of consecutive identical orders.
Trigger Restrict Symbol On Repeated Order Generation	15	1	Alpha	Restrict symbol when order repetition limit is breached? • "Y" = Enabled • "N" = Disabled
In Auction Market Order Prevention	16	1	Alpha	Enable Market Order Prevention? • "Y" = Enabled • "N" = Disabled

In Auction Fat Finger Protection	17	1	Alpha	Enable Fat-Finger Protection? • "Y" = Enabled • "N" = Disabled
In Auction Market Order Protection	18	1	Alpha	Enable Market Order Protection? • "Y" = Enabled • "N" = Disabled
Block and Cancel	1	1	Alpha	Block/ Unblock/ Cancel open orders of this PRM Account • "B" = Blocked • "U" = Unblocked • "C" = Blocked and Cancelled

2.2.3 Order Book Restriction Response Message

This outbound message indicates that an Order Book has been restricted or non-restricted for a given PRM Account.

Order Book Restriction Update				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"R"	Identifies this message as a Response to the Modify Order Book Restriction message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
Timestamp	5	8	Timestamp	Nanoseconds past midnight in UTC
PRM Account	13	6	Alpha-numeric	PRM Account in which the settings apply.
Order Book	19	4	Integer	Order Book that has been restricted.
State	23	1	Alpha	Describes whether the restriction is currently active • "A" = Active • "I" = Inactive

2.2.4 Market Segment Restriction Response Message

This outbound message indicates that a Market Segment has been restricted or non-restricted for a given PRM Account.

Market Segment Restriction Update				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"S"	Identifies this message as a Response to the Modify Market Segment Restriction message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
Timestamp	5	8	Timestamp	Nanoseconds past midnight in UTC
PRM Account	13	6	Alpha-numeric	PRM Account in which the settings apply.
Market Segment	19	2	Integer	Market Segment that has been restricted.
State	21	1	Alpha	Describes whether the restriction is currently active • "A" = Active • "I" = Inactive

2.2.5 Limit Settings Response Message

This outbound message indicates that the Limit settings for a given PRM Account & Currency have been updated.

Limit Settings				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"L"	Identifies this message as a Response to the Modify Limit Settings message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Currency	11	3	Alpha	Currency in which the settings apply.
Max Quantity	14	8	Integer	Maximum number of shares allowed on a per order basis.

Max Value	22	8	Integer	Maximum Order Value (price * quantity) allowed on a per order basis.
Notional Value	30	8	Integer	Notional Value (price * quantity) on a per order basis.
Total Risk Value	38	8	Integer	Total Risk Value (open orders plus trades)
Trade Buy Value	46	8	Integer	Trades Buy Value
Trade Sell Value	54	8	Integer	Trades Sell Value
Trade Net Value	62	8	Integer	Trades Net Value
Open Order Buy Value	70	8	Integer	Open Orders Buy Value
Open Order Sell Value	78	8	Integer	Open Orders Sell Value
Open Order Net Value	86	8	Integer	Open Orders Net Value
Max Quantity Auction	94	8	Integer	Maximum number of shares allowed on a per order basis specific to auctions.
Max Value Auction	102	8	Integer	Maximum Order Value (price * quantity) allowed on a per order basis specific to auctions.

2.2.6   Account Currency Setting Response Message

This outbound message indicates that the settings for a given PRM Account's currency have been updated.

Account Currency Settings				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"F"	Identifies this message as a Response to the Account Currency Settings message
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.
PRM Account	5	6	Alpha-numeric	PRM Account in which the settings apply.
Currency	11	3	Alpha	Currency in which the settings apply.
Reject All Flag	14	1	Alpha	Reject all orders? • "Y" = Enabled • "N" = Disabled
Blow Through Protection	15	1	Alpha	Enable Blow-Through Protection? • "Y" = Enabled • "N" = Disabled

2.2.7   Reject Message

This outbound message indicates that an inbound message has been rejected.

Reject				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"J"	Reject message identifier.
UserRefNum	1	4	Integer	A unique sequential number starting from 1 at start of day.

Reason	5	1	Alpha	The reason the PRM change request was rejected. • "C" = Invalid currency • "A" = Invalid PRM Account • "N" = No Setting Present • "U" = Unauthorized

2.2.8   API Port Rate Breach Message

This outbound message indicates that the port's rate limit has been breached.

PRM Port Rate Breach				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"P"	API Port Rate Breach message identifier.
Timestamp	1	8	Timestamp	Nanoseconds past midnight in UTC

2.2.9   Account Rate Breach Message

This outbound message indicates that a PRM Account's rate limit has been breached.

Account Rate Breach				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"B"	Account Rate Breach message identifier.
Timestamp	1	8	Timestamp	Nanoseconds past midnight in UTC
State	9	1	Alpha	Describes whether the breach is currently active • "A" = Active • "I" = Inactive
PRM Account	10	6	Alpha-numeric	PRM Account whose rate limit has been breached.

2.2.10   Accumulated Values Message

This outbound message indicates the current Accumulated Values for a PRM Account & Currency. The message is sent after order or trade updates.

Accumulated Values				
Name	**Offset**	**Length**	**Type**	**Notes**
Type	0	1	"V"	Accumulated Values message identifier.
PRM Account	1	6	Alpha-numeric	PRM Account in which values have been tracked.
currency	7	3	Alpha	Currency in which values have been tracked.
lastUpdateTime	10	8	Integer	Last Update Time
riskTotalValue	18	8	Integer	Risk Total Value
tradesBuyValue	26	8	Integer	Trades Buy Value
tradesSellValue	34	8	Integer	Trades Sell Value
tradesTotalValue	42	8	Integer	Trades Total Value
ordersBuyValue	50	8	Integer	Orders Buy Value
ordersSellValue	58	8	Integer	Orders Sell Value
ordersTotalValue	66	8	Integer	Orders Total Value

Support

Specification documents are located at:

https://www.nasdaq.com/solutions/technical-information-inet-nordic-trading-platform