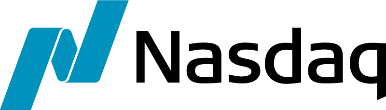
**NASDAQ Futures, Inc. (NFX)   
TradeGuard PTRM Reference Guide**

Version1.05 **|**2018-12~~0~~-12~~3~~

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# executive summary

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## Introduction

TradeGuard is centered on the establishment of a Pre-Trade Limits Groups (PTLGs), which are comprised ofone or more accounts or trading users connected to the same Firm.. Trading Participants can monitor customer exposures and adjust risk limits in real-time via the TradeGuard User Interface (UI).

\*\*\*\*\*

# Tradeguard overview

Trading Participants (Participant) can set various Pre-Trade risk limits to control their house trading activity and the trading activity of their clients at the Participant account level, including prevention of potentially erroneous transactions and Pre-Trade checks of trade reported transactions.



TRADING SYSTEM GATEWAY

TRADING SYSTEM

**Block!**

**TRADEGUARD PTRM**

ORDER

**At-Trade**

* Order/second rate check
* Block on disconnect Safeguard
* E-Mail notifications

**Pre-Trade**

* PTLG Admin
* Accumulated Quantity Checks
* Max Order Size
* Symbol Restrictions

TRADEGUARD

TradeGuard consists of a number of Pre-Trade risk checks that can be combined in a flexible way, to validate Orders prior to allowing them into the Trading System. When Orders (including Quotes) are rejected, TradeGuard provides customers with clearly defined reasons for the rejection via a FIX message.

The TradeGuard User Interface provides Clearing Futures Participants with the ability to directly control and update all risk limits at the account and user level, including the ability to quickly mass cancel Orders (including Quotes) and block Order flow.

Notifications via e-mail are generated by TradeGuard to alert Clearing Futures Participants and their clients as threshold levels are breached. When Pre-Trade risk parameters have been met or exceeded, the Exchange’s Trading System will reject all new Orders (including Quotes) for the Futures Participant, Authorized Trader or Authorized Customer until the Authorized Risk Officer adjusts the Pre-Trade risk parameters.

# Tradeguard definitions and configuration

This section defines the key terms and configurations that are vital to TradeGuard, its setup, and efficient operations.

## Account

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## Account Setup

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## Authorized Trader

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## Futures and Option Contracts

\*\*\*\*\*

## CLEARING FUTURES Participant

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## Pre-Trade Limits Group

As previously mentioned, PTLG is comprised of a single account/user or a group of accounts/users connected to the same Firm. A PTLG can therefore encompass the entire Order flow of a Participant or simply Orders submitted by a single account/user or a group of accounts/users. A PTLG may only be connected to one User ID and an account may only be associated with one PTLG. PTLGs may consist of either accounts or User IDs, but not both.

Sponsoring Participants (FCMs/Clearing Firms) also have the ability to create a Master Pre Trade Limit Group (MASTER\_PTLG) for each Sponsored Participant. The limits set in the MASTER\_PTLG will define the maximum cumulative consumption for all Users/Accounts of the Sponsored Participant and all PTLG’s relating to that Sponsored Participant.

FCM and exchange users are the only ones who can create/edit/delete Master PTLG’s. Sponsored Participant PTR users can add/edit limits on one or several sub-groups (regular Pre-Trade Limit Groups - PTLG).

The consumption of risk levels in the Sub-PTLGs can never exceed the consumption of the Master PTLG set by the Clearing Futures Participant. This means that the Clearing Futures Participant ultimately controls the total risk exposure of their customers, even though individual limits can be adjusted by Futures Participants.

Only one Master PTLG can be added for a Sponsoring Participant and every Sponsored Participant.

Active risk checks and their limits are configured per PTLG as described in the sections that follow. It is not possible to create and activate a PTLG intra-day nor is it possible to add or remove accounts from a PTLG intra-day (any intra-day change request will be held for overnight processing).

Account information is not included in a mass quote (bunched) message. Participants that will be making markets using the mass quote functionality will have their mass quote consumption accumulate in a default PTLG. Each Participant can have only one default PTLG, and additional, standard accounts can be included in a Default PTLG.

**CFP customer Accounts**

**Acct 4 – AT 3.1**

**Acct 3 – AT 2.1, 2.2, 2.3**

**Acct 2 – AT 1.2**

**Acct 1 – AT 1.1**

# tradeguard risk checks

\*\*\*\*\*

## Trading Activity Risk Checks

### Daily Accumulated Volume/Quantity Checks

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### Reaching an Accumulated Volume or Quantity Limit

Since all accumulated volume or quantity Order (excluding Quotes) limits are Pre-Trade limits, they can never equal to or exceed the limits, except for Quotes. The Trading System may accept a portion of new Quotes if the entire Quote would cause the Pre-Trade risk parameters to be met or exceeded. A pre-trade accumulated volume or quantity Order (excluding Quotes) limit can be breached if a Clearing Futures Participant were to lower a limit below the existing consumption for a Contract or ICLG. Thus when an Order (excluding Quotes) is entered that will equal or exceed an accumulated volume or quantity limit for a Contract or ICLG, the Order would be rejected. The Trading System would reject all new Orders in their entirety, and accept the portion of new Quotes that permit the Pre-Trade risk parameters to not be met or exceeded. Likewise, if a Participant were to enter an Off-Exchange (i.e. Block or EFRP) transaction on behalf of a PTLG that will equal or exceed an accumulated volume or quantity limit for a Contract or ICLG the entire trade report would be rejected. The PTLG could re-enter a new Order or trade reported transaction in the same Contract or ICLG up to the amount of any unused consumption, but any Order/trade equal to or larger (excluding Quotes) than the unused consumption will always lead to a rejection. Any non-cancelling, open Order modifications for the affected Contract or ICLG that would equal or exceed the same accumulated volume or quantity limit would also be rejected. The PTLG can increase capacity (unused consumption) under a rejected limit by entering offsetting trades and/or canceling open Orders for the specific Contract or ICLG. Regardless, Authorized Traders connected to the PTLG will still be allowed to enter Orders on Order Books traded on other Contracts or ICLG until their respective accumulated volume or quantity limits are reached.

A Sponsored Participant can have one or zero MASTER PTLGs. If no MASTER\_PTLG is set, the orders from trading users for that participant will be risk checked against its own PTLGs only.

If a MASTER\_PTLG is created for a sponsored participant and is effective, all orders from the sponsored client will be risk checked against the MASTER\_PTLG, and, if there exist a sponsored PTLG group for the user or the account the order is placed with, the order will also be checked against these groups.

For more information on how the accumulated volume or quantity checks work, please refer to Appendix A of this Reference Guide– Examples on Daily Accumulated Quantity Checks.

*Please note that if no action is taken by the Clearing Futures Participant when a limit is reached, on the next trading day, the PTLG will be able to enter Orders (including Quotes) in the concerned Contract or ICLG up to the full amount of the existing limit as the limits reset to zero for each trading day.*

*Please be advised that PTRM is NOT designed to automatically cancel open Orders (including Quotes) and thereby prevent future executions of Orders already residing on the Order Book once a limit is reached. PTRM will only prevent new Orders from being accepted; previous Orders in the matching engine before the limit was reached may still be executed or cancelled.*

### Limitations of Accumulated Volume or Quantity Limits

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## Order Management Risk Checks

### Maximum Order Volume/Quantity Check

The Maximum Order Volume or Quantity Check is a Pre-Trade risk check that provides Clearing Futures Participants with the ability to check Central Limit Order Book (CLOB) Order volume or quantity against a pre-set volume or quantity limit per Contract, ICLG or Combination Order. The Order quantifier can be based on either the number of contracts (quantity calculation) or the underlying units of the specific Contract (volume calculation). For example, if the max Order quantity is set to calculate based on the quantity limit methodology and is set to 200 for the number of WTI futures contracts and an Order equals or exceeds 200 contracts, it will be rejected. Likewise, if the max Order limit is set to calculate based on the volume limit methodology and is set to 200,000 for the number of WTI barrels and an Order equals or exceeds 200,000 barrels, it will be rejected.

Different maximum Order volume or quantity checks can be set on different PTLG for the same Participant. Therefore, it is possible for a Clearing Futures Participant to assign different limits to different accounts for a Participant as long as the accounts are assigned to different PTLGs. If there is a Master PTLG configured for a Participant, validations on the Maximum Order Volume/Quantity will be on both the Master and corresponding Sub PTLG. The lower of the two values will be used as the max threshold for this validation.

Different maximum Order volume or quantity thresholds can be specified per Contract or ICLG. As an example, Clearing Futures Participants could request that the CLOB maximum Order size for WTI Crude should be less than 1,000 contracts while for Brent Crude the CLOB limit should be less than 250 contracts.

For Mass Quotes the maximum Order quantity check is performed per transaction. This means that the maximum quantity a user can add via one mass quote transaction is always 2 \* MaxSize \* Maximum Number of Quote Items. E.g., with a Max CLOB Order Limit of 2, an optimized mass quote (NFX caps the max number of Instruments at 37), it’s possible to add 1,776 (2\*24\*37) contracts regardless of any active daily accumulated quantity checks.

Orders in Combination Order Books are handled differently depending of the composition of the leg contracts.

|  |  |  |
| --- | --- | --- |
| **Type of Combination** | **Examples** | **Max Order Volume or Quantity Check** |
| All leg contracts are of the same Instrument class. | WTI Crude combo:  CLQM5/N5  RBOB Combo:  RBQZ5/F6 | Net exposure is validated against the specified limit in the applicable Instrument. If zero net exposure no validation is done. |
| Leg contracts are not of the same Instrument class. | Combo Contracts combining Crude Oil futures:  WTI vs Brent Crude– CLQM5/BFQM5  Combo Contracts combining different commodities:  Crack: RBOB versus WTI Crude  RBQZ5/CLQZ5 | The exposure in each leg contract is validated against the corresponding limit for the Instrument. |

### Maximum Trade Report Size

Maximum Trade Report (Block and EFRP) Size is a Pre-Trade risk tool that permits Participant to place an upper limit on the volume or quantity for trade reporting of Off-Exchange transactions. If the trade report volume or quantity is equal to or greater than the pre-set limit, the off-exchange trade report will be rejected. Similar to other risk tools, the Maximum Trade Report Size can be set at the Product, ICLG or Combination level.

For multi-leg trade report transactions, each leg will be validated individually against the Maximum Trade Report Size limit. If at least one leg exceeds the pre-set limit, the entire transaction will be rejected.

The Max Trade Report Size limit, along with the Max Order Quantity Check (for CLOB Orders), will allow Participants to manage both Orders within the CLOB and Block Trade transactions using a combined volumetric position limit. Participants will be able to manage max order/trade sizes in both CLOB and trade reported transactions independently at significantly different levels.

The Max Trade Report Size will also allow Participants to restrict accounts from transacting certain trade reported transactions, which meet or exceed the limit, by instrument class. Participants may set the Max Trade Report Size below the specific product Block Trade threshold (note that minimum threshold allowable for EFRPs is 1 contract). Setting the Max Trade Report Size limit to zero will allow for an “unlimited” trade report size.

Similar to other Pre Trade validations, if there is a Master PTLG configured for a Participant, validations on the Max Trade Report Size will be done on both the Master and corresponding Sub PTLG. The lower of the two values will be used as the max threshold for this validation.

### Mass Cancel of Open Orders

Risk Managers can quickly and easily cancel ALL open Orders, including Quotes, (“Kill Switch”) for a PTLG via the TradeGuard User Interface.

This feature will immediately cancel ALL open, active and inactive Orders for ALL of the accounts associated with the respective PTLG.

This mass Cancel functionality can be executed with two mouse clicks via the UI, but can only be executed for a single PTLG.

Performing the Mass Cancel function on a Master PTLG, will cancel all open orders for all PTLG’s that are associated to the Sponsored Member/Master PTLG.

## Order Rate Risk Check

The maximum Order rate/sec limit is defined as new Orders/second-time-interval and is set per PTLG and is measured as the combined Order flow sent to the Trading System for all Users connected to that PTLG.

The Order rate is based on information received after Order insertion (post Order validation). Thus, it is possible that Orders that are above the configured limit will be accepted and inserted to the Order Book.

The limit shall be expressed as an Order per 0.1 second to 5.0 second-time-interval (configurable at a minimum increment of 0.1 second by the user). If the Order rate equals or exceeds the configured Order rate limit when the TradeGuard check is done, a breach will occur and the PTLG group is blocked on all Contracts and/or ICLGs. For example, with a time interval setting at 2.0 seconds and a corresponding Order rate limit set at 50 Orders, TradeGuard will accept a maximum number of 49 Orders every 2.0 seconds.

The goal with this control is to capture abnormal aggregated Order/sec rates resulting from Orders submitted via a PTLG.

It is not possible to set different max Order/sec limit per Contract or ICLGs within a PTLG.

Should the limit be breached, the following actions will be taken:

* The affected PTLG will be blocked and all new Orders will be rejected; and
* It will still be possible to cancel open Orders(including Quotes), which remain in the Order Book and are not canceled.

A block of a PTLG as a result of an Order rate breach must be unblocked manually by the Clearing Futures Participant or the Exchange, once the root cause of the excessive Order generation has been identified and resolved.

Master PTLGs have configurable Order Rate Risk Checks. If a Master PTLG is configured for the Sponsored Participant, the lower of the two thresholds will cause the risk group to become blocked.

If the Master PTLG Order Rate Limit is breached, all sub PTLGs will be blocked until the group is manually unblocked.

The Order Rate Check is based on new Orders inserted into the book. If an Order is traded at entry it will also count towards the Order Rate limit. The following examples will be ignored by the Order Rate Check:

* Order cancel requests;
* Time in Force Conditions that do not stay in the Order Book, such as Immediate or Cancel Orders (IOC) or Fill or Kill Orders (FOK) (except in auctions where they do stay in the Order Book);
* rejected Orders; and
* Order modifications.

For Mass Quotes the maximum Orders/sec check is done per item and side, meaning that a limit of 100 Orders/second will only allow the user to enter 49 double sided items per transaction without being blocked.

Stop Orders are validated against the maximum Orders/sec when triggered, and not at entry.

## Trading Restrictions

### Restricted Contracts

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### Blocking PTLGs

Clearing Futures Participants are able to manually block/unblock a PTLG using the TradeGuard UI.

Users of a blocked PTLG are:

* Not permitted to enter new Orders nor alter existing Orders;
* Able to delete existing Orders;
* Permitted to login; and
* Able to view the market, receive broadcasts, and send queries.

A manually blocked PTLG can be unblocked intra-day manually with the TradeGuard UI by a Clearing Futures Participant, or if nothing is done then the PTLG will be unblocked automatically the next day.

Master PTLGs can also be manually blocked by FCM and Exchange Users, which will function in the same manner described above, but will block all PTLGs related to the Sponsored Participant.

## Connectivity Issues

### Automatic Block at Drop Copy Disconnect Safeguard

\*\*\*\*\*

## Risk Manager Support Tools

### Email Notifications

The PTRM service automatically sends e-mail alerts to a list of pre-defined recipients connected to a PTLG in the following cases:

* For Pre-Trade risk checks there are two levels that can be configured to generate emails:
  + A notice level (percentage of limit) that is configurable per PTLG; and a
  + A warning level (percentage of limit) that is configurable per PTLG.
* When an Order is rejected TradeGuard will send a FIX message to the associated Users in the event that a limit is lowered by the Clearing Futures Participant below its current consumption and therefore breached, an email notification of the breach will be sent to the configured recipients.

Not more than one of each the notification and warning emails will be generated per day per PTLG, Contract or ICLG and type of risk check. Thus, no more than one notification and warning mail for every configured limit will be sent per day.

If a limit is changed intra-day by the Clearing Futures Participant, the counter is reset, meaning that one notification and warning and email will be allowed for that specific limit check regardless of what emails have been sent before the limit was adjusted.

Please note, as an Order rate limit breach results in a hard block (i.e. it requires a manual unblock by the sponsor), a new email will be generated each time the Order rate limit is breached.

Email notifications can be set on both Master and Sub PTLGs.

Below are examples TradeGuard e-mail notifications:

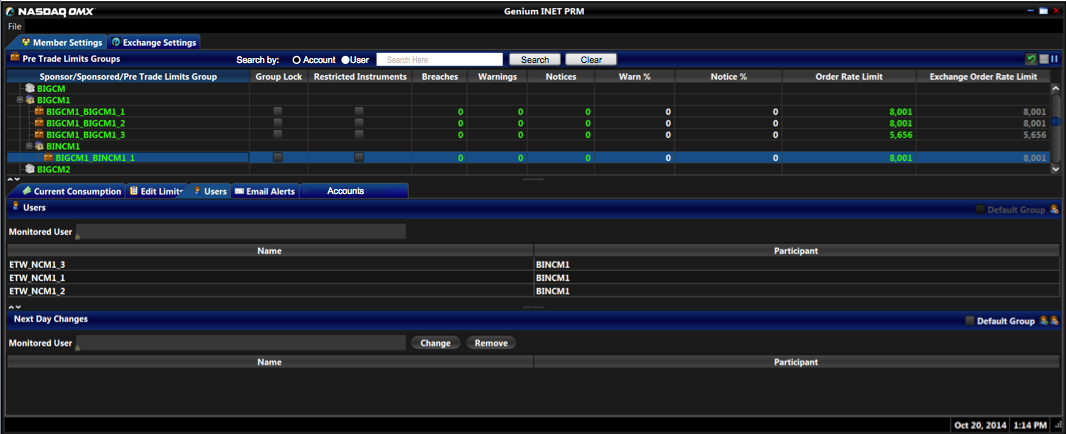
Breach Event, Group: XXX\_XXX, Risk Check: TOTAL\_NET\_BUY, Time: Fri Feb 15 09:23:16 CET 2013, Event Level: Notice, Consumed: 40, Limit: 50

Breach Event, Group: XXX\_XXX, Risk Check: TOTAL\_NET\_BUY, Time: Wed Feb 13 13:17:18 CET 2013, Event Level: Warning, Consumed: 95, Limit: 100

### TradeGuard User Interface

The Exchange provides Clearing Futures Participants with a TradeGuard User Interface which allows Clearing Futures Participants to:

* Define Master and Sub PTLGs and risk checks;
  + Configure Contracts or ICLGs and the associated limits for each risk check;
  + Define restricted Contracts;
  + Add/remove account to/from a PTLG; and
  + Add or change monitored user for a PTLG.
* FCM and exchange users are the only ones who can create/edit/delete Master PTLG’s.
* Sponsored Participant PTR users can add/edit limits on one or several sub-groups (regular Pre-Trade Limit Groups - PTLG).
* View the current consumption level of each risk check in real-time;
* Intra-day emergency block/unblock Order flow for a PTLG;
* Mass cancellation of all active, open Orders, including Quotes, for a PTLG;
* Identify if the maximum Order/sec limit has been breached;
* Unblock a PTLG that has breached the limit for maximum Order/sec; and
* Administrate e-mail addresses to receive alerts and warnings.



The TradeGuard UI may be configured such that a User has write access or read-only access. The scope of information available to a User may also be configured for all Participants (exchange users) or only for the Participant to which the User belongs (Participant users).

The UI is a web-based application accessed via a certificate and user credentials. The requirements to run the application are a Windows PC, at least 512MB of free memory, and Java 7 installed.

### Intra-day and Next Day Changes

The following table shows what changes can be made intraday or for the next day.

|  |  |  |
| --- | --- | --- |
| **CHANGE** | **Intraday** | **Next Day** |
| Update the quantity or volume check limit values | X |  |
| Update the Order rate limit | X |  |
| Select restricted Instruments | X |  |
| Add an email address to a Master or Sub PTLG notification list | X |  |
| Update an email address of a Master or Sub PTLG notification list | X |  |
| Update the warning and notice percentages on a Master or Sub PTLG | X |  |
| Add/Remove a Contract/ICLG to/from a Master or Sub PTLG |  | X |
| Change the calculation unit on a Contract |  | X |
| Remove an e-mail address from a Master or Sub PTLG notification list |  | X |
| Create or delete a Master or Sub PTLG |  | X |

# Appendix A – Examples

**Calculation until:** Volume

**Risk Limits (in contracts)**

|  |  |  |
| --- | --- | --- |
| **MaxSize** | **TotNetBuy** | **TotNetSell** |
| 61 | 200 | 200 |

The PTLG will neither be able to have a net traded exposure of more than 200 contracts in any direction.

**Current Consumption (in contracts)**

|  |  |  |
| --- | --- | --- |
| **MaxSize** | **TotNetBuy** | **TotNetSell** |
| 61 | 180 | 180 |

Presuming for the below examples that the PTLG has three open Orders of 60 contracts on each side of the book.

* Example 1 – PTLG enters a bid of 50 contracts in the Order Book.
  + The Order is rejected as the TotNetBuy (200 contract) limit would be exceeded.
* Example 2 - PTLG enters a bid of 20 contract in the Order Book.
  + The Order is rejected as all Orders are rejected if the resulting consumption is EQUAL TO GREATER THAN the respective limit.
* Example 3 – PTLG cancels two of its three, 60 contract buy Orders and then enters a new Order to buy 100 contracts.
  + The new 100 contract Order is rejected because it exceeds the Max Size limit of 61 contracts.
* Example 4 – PTLG cancels one of its three, 60 contract buy Orders and then enters a market Order to buy 60 contracts.
  + The Order is accepted and executed at the best market price or prices.

**Master Group Pre Trade Check Example**

|  |  |  |  |
| --- | --- | --- | --- |
|  | TNB “BLQ Fut” Limit | TNB “BLQ Fut” Consumptiuon | Result |
| MASTER\_PTLG | 1,000 | 1,000 | Breach |
| Group A | 700 | 500 | Pass |
| Group B | 800 | 500 | Pass |