



Cboe Titanium U.S. Equities Risk Management Specification

Version 1.1.11

January 27, 2025

This content is owned or licensed by Cboe Global Markets, Inc. or its affiliates ("Cboe") and protected by copyright under U.S. and international copyright laws. Other than for internal business purposes, you may not copy, reproduce, distribute, publish, display, perform, modify, create derivative works, transmit, or in any way exploit the content, sell or offer it for sale, use the content to construct any kind of database, or alter or remove any copyright or other notice from copies of the content.

Contents

- Introduction 2
 - Overview 2
- Equities Risk Limits 3
 - Risk Limit Levels 3
 - Risk Limit Types 4
 - Limit Execution Details 4
 - Certification 5
 - Risk Limit Breach Behavior 6
 - Cancel/Reject Behavior 7
- Managing Risk Profiles 8
 - Risk Management Tool 8
 - User Types 8
 - Viewing or Changing Risk Rules 10
 - Clearing Risk Rules 11
 - MPIDs 12
 - Notification Settings 13
- Contact Details 14
- Revision History 15

Introduction

Overview

Cboe Titanium U.S. Equities Risk Management functionality has been designed to assist US Equities trading members and clearing firms in managing risk at an aggregate (MPID) and RiskGroupID level. The limits described in this document are separate and distinct from the port-level limits **(will be sunset at a future date)** described in the [Web Portal Port Controls Specification](#). Risk limit breach behavior will depend on the configured risk rule (see [Risk Limit Breach Behavior](#) on page 6). Limits may not be reset, but limits may be raised intraday to allow trading to continue when a breach occurs. Limits are configured by the trading firm by default, but a trading firm may optionally delegate control of risk limits for a particular MPID to the clearing firm.

Risk limits do not affect an in-process equity auction, including an auction in a Cboe-Listed symbol. If a Risk trip occurs after an auction cutoff time, then no resting orders will be cancelled for the MPID until the auction is concluded. If there are shares leftover that would normally transition from the auction book to continuous trading, then those shares will be cancelled before that transition occurs.

All risk limit evaluation is performed by a process that consumes a trade by trade feed consisting of activity from all matching units. When a risk breach occurs, then that process immediately sends a message to all matching units in the environment to reject new orders and optionally cancel existing orders. As a result, risk limits defined in this document are done on a best efforts basis where some amount of over execution beyond the defined limit could occur.

Equities Risk Limits

Risk Limit Levels

All risk limits must be set at one of the levels defined below.

- MPID Level - Risk limits apply to activity for the defined MPID.
- Strategy/RiskGroupID Level - Risk limits apply to activity for the defined *RiskGroupID* and MPID combination. The usage of Risk Group-IDs is dependent on having a purge port. For every purge port that a Member obtains, they will receive the ability to define risk limits for 10 distinct *RiskGroupIDs*.

Additional levels may be added over time with notice.

Risk Limit Types

A collection of risk limits may be defined for each level. When any one of the limits is breached open orders will be cancelled, and any new orders received will be rejected. Members may configure both an MPID level limit as well as a more specific Strategy/RiskGroupID level limit for a subset of the order flow for that same MPID. Both limits will be in effect concurrently.

Table 1. Risk Limit Types

LIMIT NAME	TYPE	DESCRIPTION
Absolute Gross Notional Value	abs_ntnl	<p>A notional value (price * size) for each execution is calculated and summed towards the defined limit.</p> <p>When (Buy notional) + (Sell Notional) >= Defined Limit, then risk limit is breached.</p>
Absolute Net Notional Value	abs_nntnl	<p>A notional value (price * size) is calculated for each execution. Buy trades count as positive values and sell trades count as negative values. All values are summed, and when the absolute value of the sum exceeds the defined limit, then the risk limit is breached.</p> <p>When (Buy Notional) - (Sell Notional) >= Defined Limit, then risk limit is breached.</p>
Aggregated Gross Credit	agg_gcdt	<p>Aggregated Gross Credit is calculated as the total notional value (price*size) of all open orders plus all executed orders. All values are summed, and when the value exceeds the defined limit, the risk limit is breached. Unexecuted market orders do not impact open order exposure as those orders do not have a price at time of order entry.</p> <p>When (Open Buy Notional) + (Executed Buy Notional) + (Open Sell Notional) + (Executed Sell Notional) >= Defined Limit, the risk limit is breached.</p>
Aggregated Net Credit	agg_ncdt	<p>Aggregated Net Credit is calculated as the total notional value (price*size) of all open orders plus all executed orders, with buys netted against sells. When the absolute value exceeds the defined limit, the risk limit is breached. Unexecuted market orders do not impact open order exposure as those orders do not have a price at time of order entry.</p> <p>When (Open Buy Notional + Executed Buy Notional) - (Open Sell Notional + Executed Sell Notional) >= Defined Limit, the risk limit is breached.</p>

Limit Execution Details

A risk trip is performed by the system immediately after a breach once any risk limit is detected, but there is the possibility that overexecution beyond the defined limit can occur. Under normal circumstances the trip is expected to be distributed to all matching units in less than 1ms. In addition, a single order that will remove against multiple resting orders will be allowed to do so completely, even if a risk limit is breached before the last execution occurs. Orders that have been routed away may also receive executions before those orders may be cancelled by the Exchange.

Certification

Equities Exchange customers do not need to certify with the [Cboe Trade Desk](#) prior to using these Risk Management features but testing in the certification environment is highly recommended prior to setting any risk features in production.

Risk Limit Breach Behavior

When a risk limit is breached one of the following will occur depending on the configured risk rule:

- For Reject and Cancel, resting orders are cancelled and inbound orders are rejected.
- For Reject Only, resting orders are not cancelled and inbound orders are rejected.

In the case of a reject due to a MPID-level or Strategy/*RiskGroupID* risk limit breach the FIX and BOE *Text* field (58) will carry a value of:

- f: **RiskMgmtFirmLevel**

When either is observed by a customer, it indicates that any order still in flight, and any new orders issued for the MPID or MPID+*RiskGroupID* will be rejected. In order to continue trading after a risk limit breach, a user from either the trading firm or clearing firm must update their defined limit to an amount above their current risk exposure.

Customers may also initiate a self-imposed lockout at any time at either the MPID or MPID+*RiskGroupID* level using a purge message via the FIX or BOE order entry protocols. For more information consult the appropriate order entry specification.

Cancel/Reject Behavior

When a resting order or inbound order is executed and a risk limit is breached or when a self-imposed lockout (via Purge Orders request) is received, resting orders are optionally cancelled and inbound orders are rejected. In the case of an MPID-level risk limit breach or self-imposed lockout the FIX and BOE *Text* field (58) will carry a value of:

- f: ClearingFirm lockout

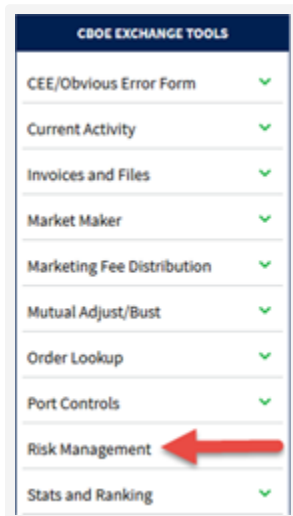
When this is observed by a customer, it indicates that any order still in flight, and any new orders issued for the MPID will be rejected. In order to continue trading after a risk limit breach a user from either the trading firm or clearing firm must raise the defined limit. In order to continue trading after a self-imposed lockout a risk reset message should be sent using FIX or BOE as defined in the respective specification.

Managing Risk Profiles

Customers are provided the ability to manage risk profiles through the [Cboe Customer Web Portal](#). Most of the features described below as part of the Risk Management section of the Cboe Customer Web Portal are also available through the [Secure Web API](#). One important difference is that the Secure Web API does not support applying changes to risk limits intraday.

Risk Management Tool

Customers can request a login to the Customer Web Portal from the Cboe Trade Desk. After logging into their Customer Portal account, users with appropriate access will be able to select the **Risk Management** link under **Cboe Exchange Tools** in the lower left menu of their account page.



Selecting this link will take the user to the tool. Features available within the Equities Risk Management Tool include the following.

- The ability to download a file containing the current risk limits that are in place for today's trading or the next trading day.
- The ability to upload a risk file to change the defined risk limits. The upload can be effective immediately or the next trading day.
- The ability to clear existing risk rules at the start of the next trading session.
- The ability to delegate risk limit settings to a clearing firm or take back control of risk settings from a clearing firm.
- The ability to configure which email addresses will receive notifications when certain thresholds are met.

Modification to a subset of rules must also include all existing rules for a particular firm's profile upload. Otherwise, existing rules omitted in the upload will be deleted.

User Types

Two user types will exist for the US Equities Risk Management tool: trading firm user and clearing firm user. Generally, a firm will act as either a clearing firm or a trading firm and Account Administrators will be able to easily configure users appropriately to match the firm type. However,

some firms may be self-clearing or have both a trading and clearing business, which will require the Account Administrators for each firm to designate individuals as either trading firm users or clearing firm users.

By default, control of all risk rules is provided to trading firm users only, but a trading firm user may optionally grant control of risk rules to its clearing firm. When control is given to a clearing firm, the trading firm will no longer be able to change or clear the current risk rules, but the trading firm user will still be able to view the current limits that are in place and receive email notifications at the defined notification levels.

Viewing or Changing Risk Rules

The Customer Web Portal and Secure Web API will support the download of currently effective risk rules for either the current trading date or the next trading date. In addition, the tool will allow privileged users to upload new rules to be applied effective immediately (via Web Portal only) or for the next trading date (via Web Portal or Web API). The cutoff for the next trading date is 6:30 a.m. ET for BZX/BYX/EDGA and 3:30 a.m. ET for EDGX. For example, a change uploaded at 2:00 a.m. ET on Tuesday will be effective for trading on Tuesday if the option to apply on the next trading date is selected.

The file format used for uploading a new profile or downloading a copy of an active file is identical. Each line of the file represents a rule containing a comma separated list of fields. An example file is provided within the Customer Web Portal Risk Management tool. The file format for Equities is defined below.

Mpid, limit_type, symbol, limit_value, risk_group_id, reject_behavior

Table 2. Viewing or Changing Risk Rules

PARAMETER	DESCRIPTION
<i>mpid</i>	Specifies the MPID to which the risk setting applies. A valid MPID must be included and the firm must have control of the MPID.
<i>limit_type</i>	The limit type must be one of the following values: abs_ntnl - Absolute Gross Notional abs_nntnl - Absolute Net Notional agg_gcdt - Aggregated Gross Credit agg_ncdt - Aggregated Net Credit
<i>symbol</i>	Not supported. Must be blank.
<i>limit_value</i>	This value must be an integer value. Floating point values are not accepted. When the limit type is a notional type, this represents whole dollars.
<i>risk_group_id*</i>	Optional field, integer 1-65535. Used to specify a risk group for an MPID.
<i>reject_behavior*</i>	rej_cncl (resting orders are cancelled and inbound orders are rejected) or rej_only (resting orders are not cancelled and inbound orders are rejected) If not specified, rej_cncl is default. Please note that only one reject_behavior per limit_type is allowed.

*Optional parameter

Clearing Risk Rules

A user may clear all risk rules for a given MPID (or all controlled MPIDs) through the Customer Web Portal and Secure API. Using this feature clears all rules effective for the next trading date (not effective immediately).

MPIDs

The Customer Web Portal and not the Secure Web API will support the ability for a **trading firm user only** to grant control of one or more MPIDs (including all associated *RiskGroupIDs*) to the clearing firm or take back control of one or more MPIDs and associated *RiskGroupIDs* from a clearing firm. Clearing firm users will be able to view all MPIDs that clear through that clearing firm and will be given a display to be able to see which MPIDs have been given over to the clearing firm to control.

Notification Settings

The Customer Web Portal and not the Secure Web API will support the ability for trading firm users and clearing firm users to specify one or more email addresses that will be notified when any MPID reaches a 50%, 70%, 90%, or 100% (breach) level. Emails are sent to both lists (that specified by the trading firm and that specified by the clearing firm) for all alert levels regardless of which firm has control over setting the limits for a given MPID. Emails will only be sent once at least one rule is configured for an MPID.

Contact Details

If you have any questions or would like to begin using Risk Management, please contact your account manager or the Cboe Trade Desk.

Cboe Trade Desk: 913.815.7001 | tradedesk@cboe.com

Revision History

DOCUMENT VERSION	DATE	DESCRIPTION
1.0.0	03/06/20	Initial Version 1.0.0.
1.0.1	04/15/20	Secure Web API will not support the "apply immediately" option for updates to risk limits. Cutoff for the "apply next trading date" option is midnight ET. Example added.
1.1.0	04/24/20	Updated wording users will receive after breaching a risk limit. Added support for setting Risk Group ID limits (effective 5/15/20 for EDGA and 5/22/20 for BZX/BYX/EDGX).
1.1.1	05/13/20	Updated effective dates for support for setting Risk Group ID limits to 5/22/20 for EDGA and 5/29/20 for BZX/BYX/EDGX).
1.1.2	10/20/20	Removed effective notes for released features.
1.1.3	12/04/20	Updated the cutoff time for uploading risk rules.
1.1.4	12/04/20	Updated effective date for early EDGX cutoff time to TBD.
1.1.5	02/08/21	Updated effective date for early EDGX cutoff time to 03/08/21.
1.1.6	12/09/21	Updated copyright information.
1.1.7	11/09/23	Updated copyright information and formatting.
1.1.8	09/20/24	Updated Overview section to indicate port-level limits will be sunset at a future date. Added Reject and Cancel and Reject Only risk rule behavior throughout Section 1 and 2. Added two new Risk Limit Types; Aggregated Gross and Net Credits (effective 01/27/25 on EDGA and effective 02/03/25 on BYX, BZX, and EDGX 11/22/24). Added two new Risk Limit Breach Behaviors: Reject and Cancel and Reject Only (effective 01/27/25 on EDGA and effective 02/03/25 on BYX, BZX, and EDGX 11/22/24). Clarified that risk_group_id is used to specify a risk group for a single MPID. Updated reject value due MPID and Strategy/RiskGroupID level risk limit breach value to f: RiskMgmtFirmLevel.
1.1.9	11/18/24	Updated the effective date of two new Risk Limit Types and two new Risk Limit Breach Behaviors to 01/27/25 on EDGA and effective 02/03/25 on BYX, BZX, and EDGX.
1.1.10	01/15/25	Updated with Cboe Titanium branding.
1.1.11	01/27/25	Updated Risk Limit Breach Behavior to clarify that in order to continue trading after a risk limit breach, a user from either the trading firm or clearing firm must update their defined limit to an amount above their current risk exposure Clarified that modifications to a subset of rules must also include all existing rules for a particular firm's profile upload.