NYSE Pillar
Risk Controls

NYSE Equities

NYSE Arca Equities

NYSE American Equities

NYSE National Equities

NYSE Texas Equities

NYSE Arca Options

NYSE American Options

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1. Introduction

The NYSE Group equities and options markets offer a suite of client configurable risk controls on the NYSE Pillar trading platform. This functionality is currently available to Entering Firms (including NYSE Floor Brokers and Options Market Makers) and to equities Clearing Firms provided consent by the Entering Firm.

Users may view, set, and monitor these controls via the NYSE Pillar Trade Ops Portal (TOP) web UI or the NYSE Pillar Binary Gateway.

All risk controls are optional, with the exception that for Options Market Makers, Activity-based risk limits are mandatory for order/quote entry (see *Activity-based Controls* for more detail).

The suite of risk controls currently available consists of the following:

Risk Control	Equities Markets	Options Markets
Single Order Max Qty	Y	Y
Single Order Max Qty as Percentage of Symbol ADV	Y	
Single Order Max Notional Value	Y	Y
Gross Credit - Executed; Open; Open + Executed	Y	
Activity-based Controls - Rolling Transaction; Volume; Percentage		Y
Reject ISO Day	Y	Y
Reject ISO IOC	Y	Y
Reject Market Orders (except MOO & MOC)	Y	Y
Reject MOO & MOC	Y	Y
Reject Early Trading Session designation	Y	
Reject Late Trading Session designation	Y	
Require LocateBroker on Sell Short & Sell Short Exempt orders	Y	
Reject Restricted Symbol	Y	Y
Reject Sell Short for Symbol	Y	
Reject Sell Short Exempt for Symbol	Y	
Limit Order Price Protection	Y	Y
Max Duplicative Orders	Y	Y
Order Rate Threshold	Y	Y
Kill Switch • Cancel orders - auction orders; non-auction orders; GTC orders • Block/Re-enable order entry	Y	Y

2. Risk Management is the Firm's Responsibility

The risk control features discussed in this document are intended to be supplemental to the firm's internal monitoring and procedures related to risk management. The risk controls are not designed to be a firm's sole means of risk control and should not be relied upon as such. Any risk control features are configurable and under the direct control and supervision of the firm. NYSE expressly disclaims all responsibility for the configuration of the risk control features. Moreover, use of the risk controls will not automatically constitute compliance with any exchange or federal rules, including but not limited to SEC Rule 15c3-5 (the "Market Access Rule"), and it is the firm's sole responsibility to ensure its own compliance with the Market Access Rule and all other exchange and federal rules.

3. Risk Entities

A Risk Entity is a business unit for which different risk limits may be set. Applicability per market and risk control type is as follows:

	MPID	MPID + SubID	Floor Broker Firm + MPID + SubID	MPID + MMID	Symbol + MPID	Symbol + MPID + SubID	Symbol + MPID + MMID
Equities Markets	Y	Y	Y - NYSE Only		Y	Y	
Options Markets	Y	Y		Y	Y	Y	Y
Single Order Max Qty	Y	Y	Y	Y			
Single Order Max Qty as Percentage of Symbol ADV	Y	Y			Y	Y	
Single Order Max Notional Value	Y	Y	Y	Y			
Gross Credit - Executed; Open; Open + Executed	Y	Y	Y - Open + Executed only				
Activity-based - Rolling Transaction; Volume; Percentage					Y		Y
GRMP for Activity-based	Y			Y			
Reject ISO Day	Y	Y		Y			
Reject ISO IOC	Y	Y		Y			
Reject Market Orders (except MOO & MOC)	Y	Y		Y			
Reject MOO & MOC	Y	Y		Y			
Reject Early Trading Session designation	Y	Y					
Reject Late Trading Session designation	Y	Y					
Require LocateBroker on Sell Short & Sell Short Exempt orders	Y	Y					
Reject Restricted Symbol					Y	Y	Y
Reject Sell Short for Symbol	Y	Y			Y	Y	
Reject Sell Short Exempt for Symbol	Y	Y			Y	Y	
Limit Order Price Protection	Y	Y		Y			
Max Duplicative Orders	Y	Y		Y			
Order Rate Threshold	Y	Y		Y			
Kill Switch	Y	Y	Y	Y	Y*	Y*	Y

*Options markets only

Note: in table above, “Symbol” refers to symbol + suffix for equities markets and to underlying symbol for options markets.

- **MPIDs** - are automatically available as Risk Entities, as applicable per market

- **Optional MPID + SubID Hierarchy**
  - Entering Firms have the ability to register SubIDs within their MPIDs upon request to NYSE Client Relationship Services (CRS)
  - Allows firm to segment risk at a lower level than MPID (e.g., different trading desks)

- An MPID level limit includes the aggregated risk calculations of all associated SubIDs
- SubID format
  - FIX - 4 characters alphanumeric
  - Binary v2 order message (options markets only at this time) - 4 characters alphanumeric
  - Binary v1 order message (equities markets only) - 1 character alphanumeric

- **Optional Order Entry Gateway Restrictions** - NYSE Pillar Gateway customer sessions (FIX and Binary) may be configured with the following restrictions. If configured for a given session (identified by its SenderCompID), the restriction will apply to all orders entered via that session.

  - **OrderCapacity Defaulting (Equities Markets)** - instruct Pillar to default a specified value in the OrderCapacity field (such as A - Agency) on all orders. If the order is entered with a different OrderCapacity value, Pillar will overwrite the value with the configured default before accepting/acknowledging the order.

  - **Direct Market Access** - an order entry session configured as Direct Market Access includes the following restrictions:
    - **Bulk Cancel Restriction** - if entered, all bulk cancel requests will be rejected with R166: Invalid Permission for SenderCompID. The order entry firm may use single order cancel requests or Cancel on Disconnect only.
    - **SubID Restriction** - requires all orders to be entered with a specific, single MPID + SubID combination. Orders entered with any other combination of MPID + SubID, or without a SubID, will be rejected with R007: Invalid OnBehalfOfSubID.

- **Symbol Level Risk Entities**
  - **Options Markets: Symbol + MPID; Symbol + MPID + MMID** - are automatically available as Risk Entities.

  - **Equities Markets: Symbol + MPID; Both Equities & Options Markets: Symbol + MPID + SubID** - these Risk Entities are created upon demand by a Risk User either via TOP (see *Screenshots* section of this spec) or NYSE Pillar Binary Gateway - Risk Admin session (see binary protocol spec).

    A maximum of 200 symbols per MPID/200 symbols per MPID + SubID may be designated as active Risk Entities at any given time. Requests to configure more than 200 will be rejected.

    Each start of day, symbol level Risk Entities that were configured at the end of the prior day are automatically active for the current day. Symbol level Risk Entities may be added/removed intraday, subject to a maximum of 200 symbols added and 200 different symbols removed per day.

    Upon removing a symbol level Risk Entity, all risk controls previously configured for that entity will automatically be turned off and limits cleared.

- **Options Market Maker** - risk is attributed separately per MPID + MMID and Underlying Symbol + MPID + MMID, and does not roll up to MPID level. SubIDs are not applicable.

  Market Maker Quotes and Market Maker orders (identified as CustomerOrFirm = Market Maker) that are entered with the same MMID are aggregated together - any limit set or action taken at that level will apply to both. Firms that wish to maintain separate limits for orders and quotes may request different MMIDs intended for order entry vs. quoting.

- **"SubIDIndicator" order instruction** - in NYSE Pillar Gateway, if a SubID is provided on an order with Self-trade Prevention (STP), the default behavior is that the STP identifier becomes the combination of the MPID + SubID.

  For a given order, to use SubID for risk control purposes but ignore it for STP, the "SubIDIndicator" instruction may be specified with a value of 1. See the NYSE Pillar Gateway FIX and Binary protocol specifications for more details.

  - **0/tag not sent** = for this order, use SubID for both Pre-Trade Risk Controls and STP (within the MPID)
  - **1** = for this order, use SubID for Risk Controls only (STP at MPID level)

	Order Entry Protocol	
Risk Entity	NYSE Pillar Gateway (all markets)	CCG/UTPDirect Gateways (NYSE only)
MPID*	OnBehalfOfCompID (FIX-115); MPID field (Binary)	• Entering Firms provide NYSE Client Relationship Services with an MPID to associate to each existing mnemonic • Pillar uses the mnemonic provided on orders in OnBehalfOfCompID (Binary/FIX-115) to look up associated MPID
➔ **SubID** within MPID	OnBehalfOfSubID (FIX-116); MPSubID field (Binary)	Pillar treats the mnemonic provided on orders in OnBehalfOfCompID (Binary/FIX-115) as the SubID
➔ **MMID** within MPID; options markets only	SenderSubID (FIX-50); MMID field (Binary)	N/A

*For orders routed through NYSE Floor Brokers - distinct limits set per **Floor Broker Firm (CRD)** + MPID + SubID

4. Risk Users

Risk Users are firms entitled to view, configure, and/or take action (kill switch, reinstate) on risk controls and Risk Entities.

Multiple users may set different limits for the same Risk Entity. The most restrictive limit is always enforced.

- **Entering Firm** - includes members routing to the exchange and members providing direct market access to third parties. Entitlements are further separated for:
  - **NYSE Floor Broker** - access is limited to Floor Broker CRD + MPID + SubID risk entities
  - **Options Market Maker** - access is limited to MPID + MMID and Underlying + MPID + MMID risk entities

- **Clearing Firm (Equities Markets)**
  - A correspondent clearing firm may be designated as a Risk User by Entering Firm consent via TOP
  - Consent is given per Risk Entity (individual MPID, MPID + SubID, or Floor Broker Firm CRD + MPID + SubID) - to read Entering Firm risk controls and/or write their own Clearing Firm limits as follows:
    - Write consent provides the Clearing Firm with the ability to set limits/take action for the following risk controls - Single Order Maximum Quantity, Single Order Maximum Notional Value, Gross Credit, and Kill Switch
    - All other Risk Controls are eligible for Read consent only

5. Risk Controls

5.1 Single Order - Maximum Quantity, Maximum Notional Value

Market Applicability: equities markets; options markets

Breach Action: triggered when calculation > limit:

- **Equities Markets** - single order reject on order arrival
- **Options Markets** - single order reject on order arrival, except market orders entered during pre-open/halt are subjected to the Maximum Notional Value check after the opening/re-opening auction and cancelled if the leaves quantity breaches the limit

Calculation:

- **Single Order Max Qty** - value as specified in OrderQty field of the order
- **Single Order Max Notional Value** - calculated as risk reference price x OrderQty. See *FAQ* for more detail regarding reference prices

Configuration:

- **Single Order Max Qty** - limit represented in number of shares (equities markets) or contracts (options markets)
- **Single Order Max Notional Value** - limit represented in USD

Design: implemented in the order path. Each individual order that would exceed the configured limit will be rejected on arrival (except for Single Order Max Notional check on options market orders entered during pre-open/halt. See *Breach Action* for more detail)

5.2 Single Order Maximum Quantity as Percentage of Symbol Average Daily Volume (Equities Markets)

Market Applicability: equities markets

Breach Action: triggered when OrderQty > calculated maximum quantity. Single order reject on order arrival

Calculation: the single order maximum quantity for a given symbol is calculated as the symbol's Average Daily Volume x the configured percentage limit

Reference Data: at the end of each trading day, the rolling 20-day consolidated Average Daily Volume (ADV) is updated for each symbol, rounded up to nearest round lot. Symbols are then categorized into ADV ranges. A mapping of symbols and their ADV range assignments is provided to Risk Users each start of day via the NYSE Pillar Trade Ops Portal and NYSE Pillar Binary Gateway (*Equities Symbol Reference Data* message).

In addition, the individual symbol ADVs used to calculate Max Qty are displayed for reference in TOP.

For Symbol first day of trading (IPO, Direct Listing, ETP first day) - the ADV will be loaded with a default ADV = 10,000 shares. Risk Users have flexibility to decide how to handle these symbols (apply a percentage limit or exclude from the check by setting the parameter Minimum ADV to Apply Check < 10,000 shares).

Configuration:

Percentage ADV limits are generally set by ADV range - represented as RiskRangeID - and applied to all symbols belonging to that range.

Alternatively, a custom limit may be set for an individual symbol.

In addition, for each Risk Entity, a minimum Symbol ADV for which to apply this check may optionally be specified. If specified, all orders in symbols with ADV less than the minimum value will be accepted regardless of their quantity.

- **Configure by Symbol ADV Range** - using risk entity MPID, MPID + SubID, or MPID + MMID (Options MM only)

RiskRangeID	Symbol ADV Range
0	Optional; used to specify Minimum ADV to Apply Check (see below)
1	Below or Equal to 10,000 shares
2	Above 10,000 shares and Below or Equal to 100,000 shares
3	Above 100,000 shares and Below or Equal to 1,000,000 shares
4	Above 1,000,000 shares

- **Configure for Individual Symbol** - using risk entity Symbol + MPID, Symbol + MPID + SubID, or Symbol + MPID + MMID (Options MM only)
    - A limit configured for an individual symbols takes precedent over any limits configured at the RiskRangeID level
    - This is subject to the maximum number of equities symbol level risk entities that may be configured at any given time (see *Risk Entities*)
    - Configuring a symbol level Risk Entity with RiskControlActivation = 0 (off) will assign the symbol back into its RiskRangeID and the limit configured for that RiskRangeID will be applied to all new orders for that symbol

- **Limits** - valid limit values must comply with the following parameters:

Type	Min	Max	Increment
PercentageLimit	1%	999,999,999 %	1%

- **Minimum ADV to Apply Check** - optional parameter. If opting in, valid values must comply with the following parameters:

Type	Min	Max	Increment
RiskMinimumValue	1 share	999,999,999 shares	1 share

Design: implemented in the order path. Each individual order that would exceed the configured limit will be rejected on arrival

5.3 Order Restriction

Market Applicability: equities markets; options markets except where noted under "Configuration"

Breach Action: single order reject on order arrival

Configuration:

- **Reject ISO IOC** - on/off
- **Reject ISO Day** - on/off
- **Reject Market Orders (except MOO & MOC)** - on/off. Applicable to Market Day, Market GTC, Primary Only Market Day, and Market side of CUBE
- **Reject MOO & MOC** - on/off. Applicable to regular MOO/MOC and Primary Open/Close Only Market orders
- **Reject Early Trading Session designation** - on/off (equities markets). Regardless of order entry time, applicable to orders designated with TradingSessionID = Early, Early/Core & Early/Core/Late
- **Reject Late Trading Session designation** - on/off (equities markets). Regardless of order entry time, applicable to orders designated with TradingSessionID = Late, Core/Late & Early/Core/Late
- **Require LocateBroker on Sell Short & Sell Short Exempt orders** - on/off (equities markets). Applicable to orders with Side = Sell Short, Sell Short Exempt, Cross Short, and Cross Short Exempt.

  Note: for Risk Entities using NYSE Pillar Binary Gateway for order entry, the Cancel/Replace message must be used to change an order from sell long to short/short exempt, instead of the Modify Request message which does not support the LocateBroker field

Design: implemented in the order path. Each individual order subject to the configured restriction will be rejected on arrival

5.4 Symbol Restriction

Market Applicability: equities markets; options markets except where noted under "Configuration"

Breach Action: single order reject on order arrival

Configuration:

- **Reject Restricted Symbol (all Sides)** - on/off
- **Reject Sell Short for Symbol*** - on/off (equities markets). Applicable to orders with Side = Sell Short and Cross Short
- **Reject Sell Short Exempt for Symbol*** - on/off (equities markets). Applicable to orders with Side = Sell Short Exempt and Cross Short Exempt

*May be set for an individual symbol (Symbol + MPID / Symbol + MPID + SubID level) or across all symbols (MPID / MPID + SubID level)

For equities markets, restrictions set per individual symbol are subject to the maximum number of symbol level risk entities that may be configured at any given time (see *Risk Entities*)

Design: implemented in the order path. Each individual order subject to the configured restriction will be rejected on arrival

5.5 Limit Order Price Protection

Market Applicability: equities markets; options markets

Breach Action: single order reject when applied on order arrival, or cancellation when applied to a previously entered order

Calculation: buy(sell) limit greater than(less than) or equal to Reference Price plus(minus) the Price Protection Limit

- During the Early & Late trading sessions, price check is not applied when the contra side NBBO is not available
- Calculation is truncated to the MPV of the security
- Price Protection Limits are subject to a mandatory Exchange default, which serves as the maximum limit value
    - Risk Users may configure limits to be equal to or lower than the Exchange default. Requests to set a higher limit will be rejected (with exception for Early/Late Trading Multiplier as specified below)
    - Exchange defaults and custom limits are configured with both a dollar and percentage amount, where the greater of dollar or percentage is applied on an order-by-order basis

Configuration: Price Protection Limits are configured by limit price range - represented as RiskRangeID. A Risk User who chooses to configure limits must specify a valid value for each range.

In addition, a Risk User may optionally specify certain multipliers to be applied across all ranges (Equities Markets).

Configuration is "all or none" - until Pillar accepts a limit for each range and the Risk User subsequently sends a request to activate their configurations, the Exchange default will apply for all ranges. To apply Multipliers on top of Exchange default limits, the Risk User must explicitly enter limits equal to the Exchange default in addition to specifying their Multiplier values.

- **Equities Markets**
    - **Reference Price** - during Early & Late trading sessions: contra side NBBO. During Core trading session - contra side NBBO; if none: consolidated last sale; if none: previous day closing last sale
    - **Price Protection Limit** - determined by consolidated last sale; if none: previous day closing last sale. Limits must be specified per RiskRangeID in pairs, represented as **the greater of a dollar amount or percentage**

RiskRangeID	Consolidated Round Lot Trade	Price Protection Limit		
		Exchange Default/ Max	Min	Increment
1	Below or Equal to $25.00	Greater of **$0.15** or **10%**	**$0.00** or **0%**	**$0.01** or **1%**
2	Above $25.00 and Below or Equal to $50.00	Greater of **$0.15** or **5%**		
3	Above $50.00	Greater of **$0.15** or **3%**		

    - **Early/Late Trading Multiplier (optional; Equities Markets)** - may be configured to apply a double-wide price check to orders that first become eligible to trade in the Early or Late Trading Sessions (calculated as Price Protection Limit x Early/Late Trading Multiplier).

	Max	Min	Increment
Early/Late Trading Multiplier	2	1	1

    - **Closing Only Multiplier (optional; Equities Markets)** - may be configured to apply a wider price check to Limit on Close and Imbalance Offset on Close orders. This is not subject to an Exchange default value; by default, Closing Only orders are excluded from the price check

	Max	Min	Increment
Closing Only Multiplier	10	1	1

- **Options Markets - Single Leg**
  - **Reference Price**
    - Orders/quotes that arrive during continuous trading - contra side NBBO
    - Orders/quotes that arrive prior to the opening and during a halt - Auction Price; if none: contra side Auction Collar; if none: contra side NBBO
    - Price check is not applied when the Reference Price is not available
  - **Price Protection Limit** - determined by Reference Price above. Limits must be specified per RiskRangeID in pairs, represented as **the greater of a dollar amount or percentage**. Where the Exchange default is $0.00 or 0%, firms must enter that default limit

RiskRangeID	Reference Price	Price Protection Limit		
		Exchange Default/ Max	Min	Increment
1	Below or Equal to $1.00	Greater of **$0.30** or **0%**	**$0.00** or **0%**	**$0.01; percentage must be set as 0%**
2	Above $1.00 to $2.00	Greater of **$0.00** or **50%**	**$0.00** or **0%**	**1%; USD must be set as $0.00**
3	Above $2.00 to $3.00	Greater of **$0.00** or **50%**		
4	Above $3.00 to $5.00	Greater of **$0.00** or **50%**		
5	Above $5.00 to $7.50	Greater of **$0.00** or **50%**		
6	Above $7.50 to $10.00	Greater of **$0.00** or **50%**		
7	Above $10.00 to $20.00	Greater of **$0.00** or **40%**		
8	Above $20.00 to $50.00	Greater of **$0.00** or **30%**		
9	Above $50.00 to $100.00	Greater of **$0.00** or **20%**		
10	Above $100.00	Greater of **$0.00** or **10%**		

- **Options Markets - Complex**
  - **Reference Price**
    - Orders/quotes that arrive during continuous trading - contra side Derived NBBO
    - Orders/quotes that arrive prior to the opening and during a halt - Auction Price; if none: contra side Derived NBBO
  - **Price Protection Limit** - determined by Reference Price above. Limits must be specified per RiskRangeID in pairs, represented as **the greater of a dollar amount or percentage**. Where the Exchange default is $0.00 or 0%, firms must enter that default limit

RiskRangeID	Reference Price	Price Protection Limit		
		Exchange Default/ Max	Min	Increment
1	Below or Equal to $1.00	Greater of **$1.00** or **0%**	**$0.00** or **0%**	**$0.01; percentage must be set as 0%**
2	Above $1.00 to $2.00			
3	Above $2.00 to $3.00			
4	Above $3.00 to $5.00			
5	Above $5.00 to $7.50			

6	Above $7.50 to $10.00			
7	Above $10.00 to $20.00			
8	Above $20.00 to $50.00			
9	Above $50.00 to $100.00			
10	Above $100.00			

- **Hierarchy** - when an order maps to multiple Risk Entities, the price check follows a different hierarchy from all other Risk Controls. Rather than enforcing the most restrictive limit, the price check is applied using the Price Protection Limit determined by the following hierarchy, ranked from highest to lowest. The Limit value associated with the highest ranked Risk Entity will be applied, even if it's not the most restrictive:

  Entering Firms (all markets)
  - MPID + SubID
  - MPID
  - Exchange Default/Maximum

  Options Market Makers
  - MPID + MMID
  - Exchange Default/Maximum

  Example: assume Equities MPID = ABCD and SubID = Sub1. Limits for Above $50.00 are configured as follows:

  - ABCD + Sub1 → 2%
  - ABCD → 1%
  - Exchange Default → 3%

  An order arriving with ABCD + Sub1 will be evaluated for the price check using Limit = 2% because the MPID + SubID level limit (2%) is ranked higher than the MPID level limit (1%), even though it's less restrictive.

Order Evaluation: each trading day, the price check is applied to Limit orders, Inside Limit orders (Equities Markets), and Market Maker Quotes (Options Markets). This includes prior day GTC orders (Options Markets).

Order Entered:	Price Check Applied:
During continuous trading, designated for current trading session	On order arrival.
Designated for a future trading session	During session transition, following the Early/Core/Closing Auction (order may participate in auction). NYSE market only - price check not applied to orders for NYSE Primary Symbols entered prior to the Core Open Auction or after scheduled closing time.
During a trading halt	Options Markets - price check applied following the re-opening auction, including orders on the book prior to the halt that may have been previously subjected to the price check. Equities Markets - price check not applied to orders for NYSE/Arca/American Primary Symbols on the respective listing market (including Closing Only orders entered during halt).

- **In addition, price check may optionally be applied to the following** - by default, price check is not applied to these order types but may optionally be applied by specifying the Closing Only Multiplier (see *Configuration*). If the Multiplier is configured, the price check will be applied to these order types on order arrival:
    - Limit on Close
    - Imbalance Offset on Close

- **Price check is not applied to:**
    - Limit on Open Order
    - Imbalance Offset Order
    - Orders entered prior to IPO/Direct Listing Core Open Auction
    - Options Cross Order - single leg & complex
    - Options Open Outcry Order (including Cabinet) - single leg & complex
    - NYSE Floor Broker Cross Order

Design: implemented in the order path. Each individual order that would exceed the configured limit will be rejected or cancelled as per above

5.6 Maximum Duplicative Orders

Market Applicability: equities markets; options markets

Breach Action: triggered when count of duplicative orders = limit. Single order reject on arrival of additional duplicative orders until count < limit, at which point order acceptance will automatically resume; non-duplicative orders continue to be accepted at all times

Calculation: limits are enforced per counter. On each gateway session (SenderCompID), a pair of duplicative order counters - buy and sell - is maintained for each Risk Entity. An incoming order is mapped to a single counter only, as follows.

Entering Firm (all markets) - if a buy(sell) order:

- Can be mapped to MPID + SubID and a limit is configured at that level - it will be attributed to the MPID + SubID Buy(Sell) Counter. It will not be attributed to the MPID Counter
- Otherwise - the order will be attributed to the MPID Buy(Sell) Counter and subject to any limit configured at that level. If the order has a SubID, it will be ignored and the duplicative criteria will track the MPID only

Options Market Maker - a buy(sell) order will always be attributed to the corresponding MPID + MMID Buy(Sell) Counter and subject to any limit configured for it

The counters are maintained over a rolling time window, the size of which is configured by the Risk User, and track the following combination of duplicative order criteria:

SenderCompID + Risk Entity (MPID, MPID + SubID, or MPID + MMID as determined above), with separate counters for

- Buy orders - with same Symbol* + Price + OrderQty as previous buy order attributed to same counter. Applicable to orders with Side = Buy and Cross
- Sell orders - with same Symbol* + Price + OrderQty as previous sell order attributed to same counter. Applicable to orders with Side = Sell, Sell Short, Sell Short Exempt, Cross Short, and Cross Short Exempt

*Symbol = symbol + suffix for equities markets; underlying symbol for options markets

The first order counts as 1 and sets the criteria. Each incoming buy(sell) order is compared against the previous buy(sell) order that mapped to the same counter. Both accepted and rejected orders are counted (Application Layer Reject only; Session Layer Rejects not counted).

- If all the criteria are the same, the incoming buy(sell) order is considered duplicative and the counter is incremented by 1
- If any criteria are different, the incoming order resets that counter to 1 and updates the criteria

In the absence of orders, a counter will be reset to 0, and the duplicative criteria cleared, upon expiration of the time window.

Configuration: valid limit values must comply with the following parameters:

Type	Min	Max	Increment
CountLimit	1 duplicative order	999 duplicative orders	1 duplicative order
TimeLimit	500,000 microseconds	10,000,000 microseconds	500,000 microseconds

An intraday update to any of the above configurations will end the current rolling timer, reset the buy and sell counters to 0, clear the duplicative order criteria, and start a new time window taking into account orders entered after the reset only.

Design: implemented in the order path. Each individual order that would exceed the configured limit will be rejected on arrival

5.7 Gross Credit (Equities Markets)

Market Applicability: equities markets

Breach Action: triggered when calculation > limit. Configurable, see below

Calculation: sum of the USD values of open orders, executed orders, and/or the sum of open and executed orders across all symbols on a given day, where both buy and sell orders are counted as positive values.

- Orders fully or partially routed to away markets are included in the calculations
- Calculations are adjusted for execution price and trade busts
- Trade corrections and allocations are not counted
- Test symbol orders & executions are excluded from the calculations. Upon breach of a Gross Credit limit configured with a breach action of cancel non-auction orders & block or block only:
    - Resting open orders in test symbols will be excluded from cancellation
    - New orders in test symbols will be excluded from blocking and will continue to be accepted

Configuration:

- **Gross Credit Limits** - represented in USD. Up to three limits may be configured, with each enforced independently:
    - Open + Executed
    - Open

    - Executed
- When setting more than one of the above limits, the relative value of each is not validated or restricted. For example, Open + Executed = $1M, Open = $2M, and Executed = $3M would be allowed. **Breach Action** - for each of the three available Gross Credit limits, a separate Breach Action must be specified to be taken automatically upon breach:
    - Notification only
    - Block only - accept cancels; reject order, modify, cancel/replace
    - Cancel Non-Auction orders & Block

In the event multiple limits are breached, each breach action will be applied independently. If one or more of the breached limits invoked the Block action, only one reinstatement request from each applicable Risk User is required to resume order entry for the Risk Entity.

Reinstatement following breach: steps to reinstate the affected Risk Entity are as follows.

- Increase credit limit or cancel orders as applicable to bring the corresponding credit calculation below the breached limit
- Reinstatement Approvals - submit via TOP or NYSE Pillar Binary Gateway - Risk Admin session
    - **Risk User whose limit was breached** - approval required
    - **Entering Firm** - approval required for breach of both their own and Clearing Firm limits
        - Limit set by NYSE member Customer for trading activity by Floor Broker Firm on behalf of Customer - approval required by both Customer and Floor Broker Firm
    - **Clearing Firm** - approval conditionally required based on Entering Firm consent (see *Configure → Consent to Clearing Firm*, above):
        - **Read** - approval required for breach of Entering Firm limits only
        - **Write** - approval required for breach of Clearing Firm limits only
        - **Read & Write** - approval required according to both Read and Write above

Design: implemented in a dedicated process outside of the order path. As such, one or multiple marginal orders that would cause a breach may be accepted and may execute before the breach action is triggered. Firms can limit this marginal risk by utilizing the single order controls

5.8 Order Rate Threshold

Market Applicability: equities markets; options markets

Breach Action: triggered when count of orders = limit. Single order reject on arrival of additional orders until count < limit, at which point order acceptance will automatically resume

Calculation: limits are enforced per counter. On each gateway session (SenderCompID), a counter of order, modify, and cancel/replace requests is maintained for each Risk Entity. An incoming order is mapped to a single counter only, as follows.

Entering Firm (all markets) - if an order:

- Can be mapped to MPID + SubID and a limit is configured at that level - it will be attributed to the SenderCompID + MPID + SubID Counter. It will not be attributed to the SenderCompID + MPID Counter
- Otherwise - the order will be attributed to the SenderCompID + MPID Counter and subject to any limit configured at that level. If the order has a SubID, it will be ignored and the counter will track the MPID only

Options Market Maker - an order will always be attributed to the corresponding SenderCompID + MPID + MMID Counter and subject to any limit configured for it

The counters are maintained over a rolling time window, the size of which is configured by the Risk User. Both accepted and rejected orders are counted (Application Layer Reject only; Session Layer Rejects not counted).

In the absence of orders, a counter will be reset to 0 upon expiration of the time window.

Note that the Order Rate Threshold is separate and in addition to the global NYSE Pillar Gateway message throttle, which is applied to messages traversing the order path prior to application of the Order Rate Threshold. For details, see the "Message Throttling" section of the NYSE Pillar FIX or Binary Gateway Specification.

Configuration: valid limit values must comply with the following parameters:

Type	Min	Max	Increment
Order Rate Threshold – Max Orders across All Symbols			
• CountLimit	1 order	999,999,999 orders	1 order
• TimeLimit	500,000 microseconds	30,000,000 microseconds	500,000 microseconds

An intraday update to any of the above configurations will end the current rolling timer, reset the corresponding Risk Entity's order rate counters to 0, and start a new time window taking into account orders entered after the reset only.

Design: implemented in the order path. Each individual order that would exceed the configured limit will be rejected on arrival

5.9 Activity-based Controls (Options Markets)

Activity-based Controls are available on the options markets - mandatory for Options Market Makers, and optional for all other Entering Firms.

Rolling Transaction/Volume/Percentage limits are configured and breach action applied per Underlying Symbol. GRMP keeps count of the number of breaches across all Underlying Symbols and has its own breach action that applies across all Underlying Symbols.

5.9.1 Rolling Transaction/Volume/Percentage - per Underlying Symbol (Options Markets)

Market Applicability: options markets

Specifics for Options Market Makers:

- **Activity-based risk limits** - are mandatory for order/quote entry in all underlying symbols - both appointed and non-appointed. If an Underlying + MPID + MMID is not configured with an Activity-based limit, all orders/quotes with those identifiers will be rejected
    - There is no default limit for Activity-based Controls in Pillar

- Market Makers must set and maintain their own limits. This includes initial "day 1" setup and on an ongoing basis as new underlying symbols are added to the NYSE Arca and NYSE American Options markets (intraday or overnight) and/or Market Makers begin or cease trading certain symbols

- **Arbitrage & Intrinsic Value Check Breaches** - an order/quote reject due to failing the matching engine Arbitrage (buy side) or Intrinsic Value (sell side) price checks will also trigger an automated breach action of Cancel Non-Auction Orders & Block in the affected Underlying + MPID + MMID, and increment the GRMP counter. The Market Maker must then follow the same steps to reinstate as described for Activity-based Controls

  For more information regarding these price checks, including details on their calculation, see Functional Differences – NYSE Group Options Platforms → *Arbitrage Check* and *Intrinsic Value Check*

Breach Action: triggered when calculation > limit. Configurable, see below

Calculation:

- **Transaction Based** - counts the number of order/quote executions that occur over the rolling time window
- **Volume Based** - counts the number of order/quote contracts executed over the rolling time window
- **Percentage Based** - calculates the number of order/quote contracts executed as a percent of total order/quote quantity over the rolling time window. This percentage is calculated for each of the firm's orders/quotes for the given underlying symbol, and these individual percentages are summed and compared against the configured risk limit.

  Example of Percentage Based: If a firm has four open orders/quotes for a given underlying symbol on the book, and specifies its percentage based risk limit for that underlying symbol to be 100%, its risk level would be calculated as follows:

Order/ Quote ClOrdID	Order/ Quote Quantity	# of Contracts Executed	Percentage Calculation for the Underlying Symbol
ClOrdID-1	100	40	40%
ClOrdID-2	50	20	40%
ClOrdID-3	200	20	10%
ClOrdID-4	150	15	10%
Total	**500**	**95**	**100%**

  When the aggregate percentage of contracts executed among all the firm's orders for this underlying symbol during the 100 millisecond time window exceeds the specified limit of 100%, Percentage Based RM would be breached, and the remaining open quantity in the four orders would be cancelled by the Exchange. In this case, that occurs when 95 contracts are executed

Configuration:

- **Underlying Symbol** - select one, or bulk update across all underlying symbols
- **Type** - one of Transaction, Volume, or Percentage per underlying symbol
- **Breach Action** - to be taken automatically upon breach:
  - Notification only
  - Block only - accept cancels; reject order, modify, cancel/replace
  - Cancel Non-Auction orders & Block - *Note: this also excludes GTC, IOC, and IOC Cross (CUBE, QCC, Customer to Customer) orders. By default, GTX orders are subject to cancellation unless otherwise specified via the IOC Attribution setting*

- **Limits** - valid limit values must comply with the following parameters:

Type	Min	Max	Increment
Activity-based – Rolling Transaction			
• CountLimit	1 transaction	2,000 transactions	1 transaction
• TimeLimit	100,000 microseconds	300,000,000 microseconds	1,000 microseconds
Activity-based – Rolling Volume			
• CountLimit	1 contract	500,000 contracts	1 contract
• TimeLimit	100,000 microseconds	300,000,000 microseconds	1,000 microseconds
Activity-based – Rolling Percentage			
• PercentageLimit	50%	200,000%	1%
• TimeLimit	100,000 microseconds	300,000,000 microseconds	1,000 microseconds

- **IOC Attribution** - controls whether IOC, FOK, and GTX orders will be included/excluded from calculations and whether GTX orders will be included/excluded from cancellation upon breach
  - Include
  - Exclude

An intraday update to any of the above configurations will end the current rolling timer, reset calculations to 0, and start a new time window taking into account execution activity that occurs after the reset only.

Reinstatement following breach: the Risk User (Entering Firm/Options Market Maker) whose limit was breached must submit Reinstatement Approval via TOP or NYSE Pillar Binary Gateway for the affected Risk Entity (Underlying Symbol + MPID or Underlying Symbol + MPID + MMID)

Design: implemented in the execution path. Pillar will evaluate for a breach at the end of each transaction and apply the breach action if applicable, before processing the next transaction. A single transaction may include one or multiple executions in excess of the configured limit

5.9.2 Global Risk Mitigation Protection (GRMP) - across all Underlying Symbols (Options Markets)

Market Applicability: options markets

Breach Action: triggered when calculation > limit. Cancel Non-Auction Orders & Block, across ALL underlying symbols. Accept cancels; reject order, modify, cancel/replace. *Note: this also excludes GTC, IOC, and IOC Cross (CUBE, QCC, Customer to Customer) orders.*

Calculation: Pillar keeps an aggregate counter of the number of Rolling Transaction, Volume, and/or Percentage breaches that occur for the MPID or MPID + MMID across all underlying symbols, over the course of the GRMP rolling time window

Configuration:

- **Limits** - valid limit values must comply with the following parameters:

Type	Min	Max	Increment
TimeLimit	100,000 microseconds	300,000,000 microseconds	1,000 microseconds
CountLimit	25 underlying-level breaches	100 underlying-level breaches	1 underlying-level breach

- Note: all Risk Entities are preconfigured with the minimum GRMP limit of 25 underlying-level breaches over 100,000 microseconds

Reinstatement following breach: steps to reinstate the affected Risk Entity are as follows.

- The Risk User (Entering Firm/Options Market Maker) whose limit was breached must submit a request for reinstatement by email to the Trade Operations Desk at tradingox@nyse.com (this step cannot be done via TOP or NYSE Pillar Binary Gateway)
- Once the Trade Operations Desk has manually approved GRMP reinstatement on behalf of the Risk User, the MPID or MPID + MMID will be unblocked for order/quote entry in all underlying symbols except those that specifically triggered the GRMP breach, which the Risk User must then individually approve for reinstatement

Design: implemented in the execution path. Pillar will evaluate for a breach at the end of each transaction and apply the breach action if applicable, before processing the next transaction. A single transaction may include one or multiple executions in excess of the configured limit

6. Tools & Entitlements

Pillar risk controls are accessible via the following tools. The same functionality is available in both tools, with the exception that Entering Firms may only configure email addresses and update consent to Clearing Firm settings via TOP.

6.1 NYSE Pillar Trade Ops Portal

Market Applicability: equities markets; options markets

NYSE Pillar Trade Ops Portal (TOP) is a web-based user interface.

- Risk controls are available as a distinct module in the TOP UI
- Users should fill out and submit TOP request forms to provision access to the risk module:
  - Equities Markets - NYSE Pillar Trade Ops Portal - User Request and Authorization
  - Options Markets - NYSE Pillar Trade Ops Portal - User Request and Authorization
- SubID Registration - NYSE Pillar SubID Request Form
- A firm (Risk User) may have different levels of entitlement for individual user logins. See Entitlements table below for more information
  - View Only
  - Risk Desk - view and configure
  - Risk Officer - view, configure, action (kill switch, reinstate)

6.2 NYSE Pillar Binary Gateway

Market Applicability: equities markets; options markets

- NYSE Pillar Binary Gateway
  - Messaging in binary protocol, but risk controls apply to both FIX and Binary order flow based on Risk Entity
  - Dedicated "Risk Admin" session enables a Risk User to update their risk controls, and excludes order/quote entry capabilities
  - "Options Market Maker" session supports both risk control updates and order/quote entry
  - Specifications:
    - Equities Markets - NYSE Pillar Equities Binary Gateway Protocol Specification
    - Options markets - NYSE Pillar Options Binary Gateway Protocol Specification
    - Refer to the following sections:
      - Risk Limit Update Request
      - Risk Action Request
      - Risk Control Acknowledgement
      - Risk Control Alert
      - Message Throttling section - describes how the above Request messages are weighted toward the Pillar Gateway message throttle limit

- Risk Admin session configuration
  - Each Risk Admin session is configured as a single Risk User type - Entering Firm, Options Market Maker, or Clearing Firm (Equities Markets)
  - Entitlement is Risk Officer - view, configure, action (kill switch, reinstate). See Entitlements table below for more information
  - Users should fill out and submit gateway session request forms to provision Risk Admin sessions:
    - Session Request Form - Certification Environment
    - Session Request Form - Production

6.3 Entitlements

Entitlement	Capabilities
View	Ability to view risk controls. • **Configurations** - view risk control limits and related configurations • **Gross Credit** - monitor credit usage

Configure	• **Risk Control configurations**
	  ○ Configure risk control limits and other associated properties
	  ○ Intraday updates to controls are supported
	
	• **Consent to Clearing Firm (Equities Markets)** - for each Risk Entity, the Entering Firm may optionally consent to providing a correspondent clearing firm with one of the following entitlements:
	  ○ **Read** - view, receive notifications, approve reinstatement for Entering Firm limits
	  ○ **Write** - set, receive notifications, approve reinstatement for their own Clearing Firm limits. Applicable to the following risk controls only:
	  ▪ Single Order Maximum Quantity
	  ▪ Single Order Maximum Notional value
	  ▪ Gross Credit
	  ▪ Kill Switch

Entitlement	Capabilities
	For all other risk control types, Write consent does not apply (however, Read consent is available) ○ **Read & Write** - superset of Read and Write capabilities above The Entering Firm may change the consent during Pillar operational hours only. Upon acceptance of the change, Pillar will send the Clearing Firm an email notification reflecting the new configuration. • **Email** - for each Risk Entity, Entering Firm and Clearing Firm may configure email addresses to receive the following notifications ○ **Gross Credit** - notifications sent at 50/75/90% and breach of limit ○ **Activity-based Risk Controls** - notification sent upon breach of limit ○ **Kill Switch** - notification upon block/unblock ○ **Email Address & Consent to Clearing Changes** - notification upon changes to email address and Consent to Clearing Firm settings
Kill Switch Action	Take manual action on a Risk Entity's open orders and/or ability to enter new orders: • Block new order entry • Unblock • Cancel Non-Auction Orders (except GTC) • Cancel Auction Orders • Cancel GTC Orders Following a Kill Switch - Block action, the affected Risk Entity may be unblocked only by the same Risk User (firm) that applied the block.
Reinstate	Following a credit breach, approve reinstatement for the affected Risk Entity to resume accepting incoming orders.

7. Exclusions

The following are excluded from certain risk controls as indicated:

- **NYSE**
  - **Floor Broker orders entered via legacy NYSE CCG gateway** - subjected to Single Order Max Quantity, Single Order Max Notional Value, Gross Credit, Limit Order Price Protection, and Kill Switch. Excluded from all other Risk Controls
  - **Floor Broker Cross Order & Crossing Transaction** - excluded from all Risk Controls
  - **DMM Manual Interest** - subjected to Single Order Max Quantity, Single Order Max Notional Value, Gross Credit, Limit Order Price Protection, and Kill Switch. Excluded from all other Risk Controls

- **NYSE Texas** - if entered on a parent order routed to Brokerplex, the FIX tag LocateBroker (5700) will not be passed through on resulting child orders entered on Pillar

- **Options Market Maker Quotes** - subjected to Activity-based, Limit Order Price Protection, and Kill Switch. Excluded from all other Risk Controls. Note: Market Maker Orders are subjected to all Risk Controls

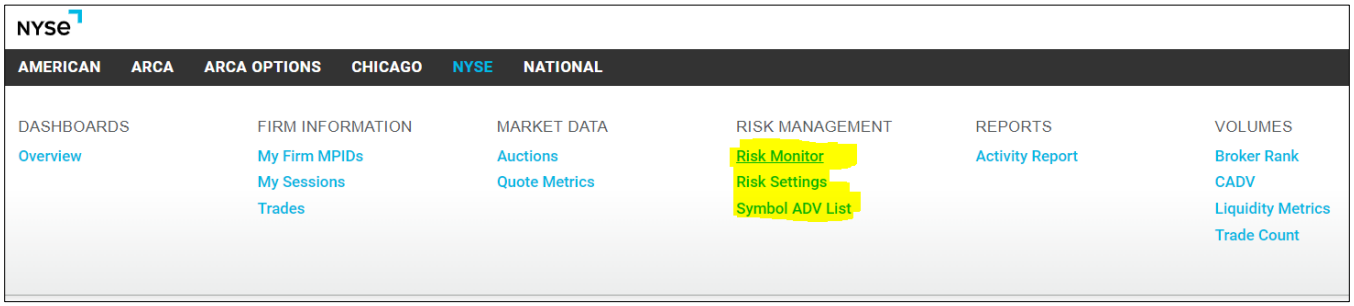
- **Post-trade Adjustments (all markets)** - busts, corrections, and allocations are excluded from all Risk Controls

8. Screenshots: NYSE Pillar Trade Ops Portal (TOP)

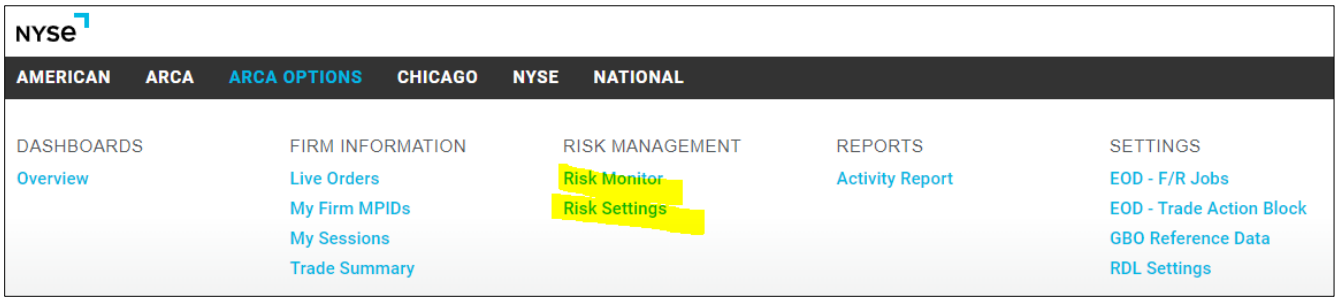
The following details screens available in TOP to enable Risk Controls applied at the Pillar Matching Engine. Once entitled for these features, they can be accessed via tabs available in TOP (highlighted below).

Note: this section will be updated in a future version of the spec with screenshots reflecting the upcoming phase of risk controls.

Equities Markets:



Options Markets:



Equities Markets: the screenshots within this document assume an Entering Firm user with Risk Officer access and use the dummy Risk Entities established in the table below:

Risk Entity	Entering Firm CRD	Clearing Firm CRD
PILR	999999999	123123
PILR+1 (subID of PILR)	999999999	123123
PILX	999999999	123123

Options Markets: the screenshots within this document assume an Options Market Maker user with Risk Officer access.

Risk Monitor

Displays current credit calculations inside the Pillar Matching Engine and supports the ability for user to take Kill Switch or Reinstatement action on Risk Entities. The default view is that all Risk Entities will be collapsed.

The displays below show the current state of each Risk Entity in the Pillar Matching Engine. The red risk entities are indicated as blocked due to breach action or kill switch.

Equities Markets:

RISK MANAGEMENT

RISK MONITOR

MPID: PILR | View My Limits: - | Block By: -

SEARCH RESET

Risk Entity	Block By Breach	Block By Kill Switch	
PILR	✓		KILL SWITCH

Risk User CRD	Type	Risk Control	Breach Action	Limit	Gross - USD	Gross - Usage	Open - USD	Executed - USD	Auc Open - USD
999999999	Entering	Gross	Notify	$100,000,000,000	606,115,592	0 %	0	606,115,592	0

Options Markets:

FIRM INFORMATION

RISK MONITOR

Risk User: NYSE Arca Pillar Test Firm | MPID: R103 | MMID: | View My Limits: - | Block By: - | Symbol:

SEARCH RESET

Risk Entity	Block By Breach		
A2RX94+R103	✓	KILL SWITCH	STATUS
B2RX94+R103	✓	KILL SWITCH	STATUS
R103	✓	KILL SWITCH	APPROVE

Risk Entities can be expanded to show the limits being enforced and calculated in the Pillar Matching Engine for a given Risk Entity.

Equities Markets: in the expanded view below, the Entering Firm gross credit limit for PILR is in excess of 100%, while other limits for PILR and the limits for other Risk Entities are not:

FIRM INFORMATION

PRE TRADE RISK MONITOR

Risk User: NYSE Pillar Test Firm | MPID: - | View My Limits: -

SEARCH RESET

Risk Entity	Block By Breach	Block By Kill Switch		
PILR	✓		KILL SWITCH	APPROVE

Risk User CRD	Type	Risk Control	Breach Action	Limit	Gross - USD	Gross - Usage (...	Open - USD	Executed - USD	Auc Open - USD
999999999	entering	Gross	notify	100,000,000	110,000,000	110.000 %	55,000,000	55,000,000	27,500,000
999999999	entering	Gross	block	100,000,000	110,000,000	110.000 %	55,000,000	55,000,000	27,500,000
123123	clearing	Gross	cancel	1,000,000,000	110,000,000	11.000 %	55,000,000	55,000,000	27,500,000
123123	clearing	Gross	block	1,000,000,000	110,000,000	11.000 %	55,000,000	55,000,000	27,500,000
123123	clearing	Gross	notify	1,000,000,000	110,000,000	11.000 %	55,000,000	55,000,000	27,500,000

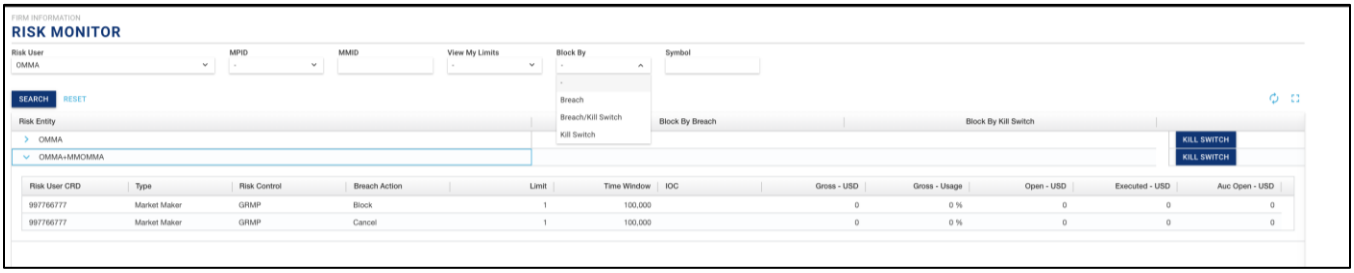
PILR+1 — KILL SWITCH

Risk User CRD	Type	Risk Control	Breach Action	Limit	Gross - USD	Gross - Usage (...	Open - USD	Executed - USD	Auc Open - USD
999999999	entering	Gross	block	55,000,000	45,000,000	82.000 %	9,000,000	36,000,000	2,250,000
999999999	entering	Gross	notify	55,000,000	45,000,000	82.000 %	9,000,000	36,000,000	2,250,000
123123	clearing	Gross	cancel	90,000,000	45,000,000	50.000 %	9,000,000	36,000,000	2,250,000
123123	clearing	Gross	block	90,000,000	45,000,000	50.000 %	9,000,000	36,000,000	2,250,000
123123	clearing	Gross	notify	90,000,000	45,000,000	50.000 %	9,000,000	36,000,000	2,250,000

PILX — KILL SWITCH

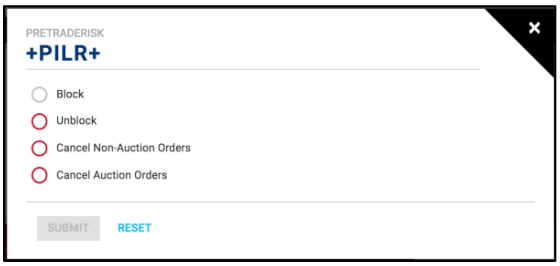
Risk User CRD	Type	Risk Control	Breach Action	Limit	Gross - USD	Gross - Usage (...	Open - USD	Executed - USD	Auc Open - USD
999999999	entering	Gross	block	1,000,000,000	375,000,000	38.000 %	93,750,000	281,250,000	84,375,000
999999999	entering	Gross	notify	1,000,000,000	375,000,000	38.000 %	93,750,000	281,250,000	84,375,000
123123	clearing	Gross	cancel	500,000,000	375,000,000	75.000 %	93,750,000	281,250,000	84,375,000
123123	clearing	Gross	block	500,000,000	375,000,000	75.000 %	93,750,000	281,250,000	84,375,000
123123	clearing	Gross	notify	500,000,000	375,000,000	75.000 %	93,750,000	281,250,000	84,375,000

Options Markets: in the expanded view below, the Options Market Maker Global Risk Mitigation Protection (GRMP) limit for OMMA+MMOMMA is in effect but not currently breached.

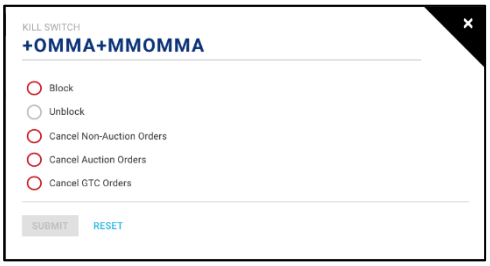


The KILL SWITCH button (based on entitlement) allows the following actions on a given Risk Entity.

Equities Markets:



Options Markets:



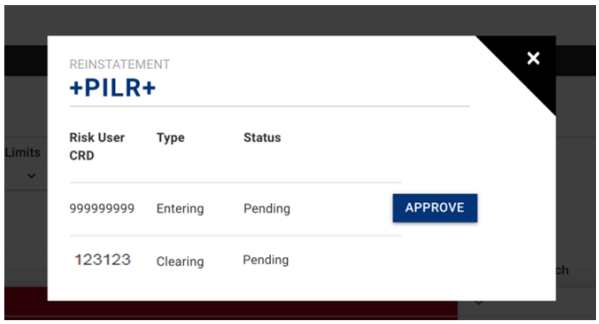
When a Risk Entity is blocked by breach (utilization of 100% for a gross credit or activity-based limit), an APPROVE button will appear on the grid (based on entitlement) to allow users to take steps to reinstate the impacted Risk Entity.

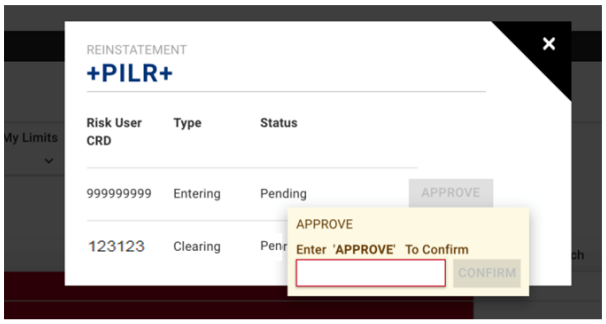
Clicking on APPROVE allows a user to take action to approve reinstatement.

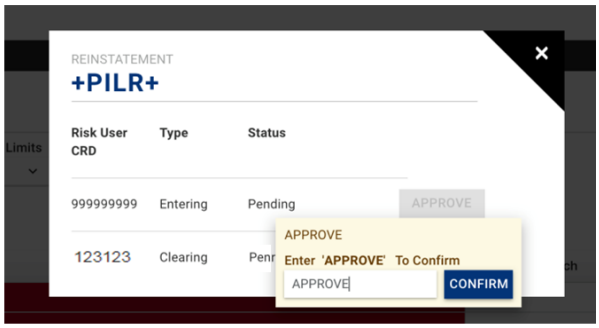
Equities Markets: the user can also see which other Risk User types (such as Clearing Firm) would need to approve reinstatement, and whether or not they have done so.

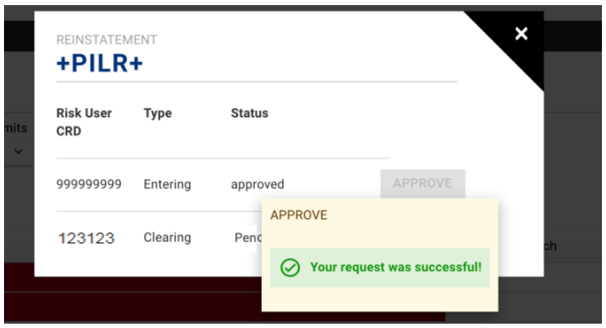
Options Markets: only the Entering Firm or Market Maker, as applicable, needs to approve reinstatement following an activity-based breach for a given underlying symbol. Following a Global Risk Mitigation Protection (GRMP) breach, only the Trade Operations Desk may approve reinstatement.

Workflow to approve is below (specific example shown is for ***equities markets***):





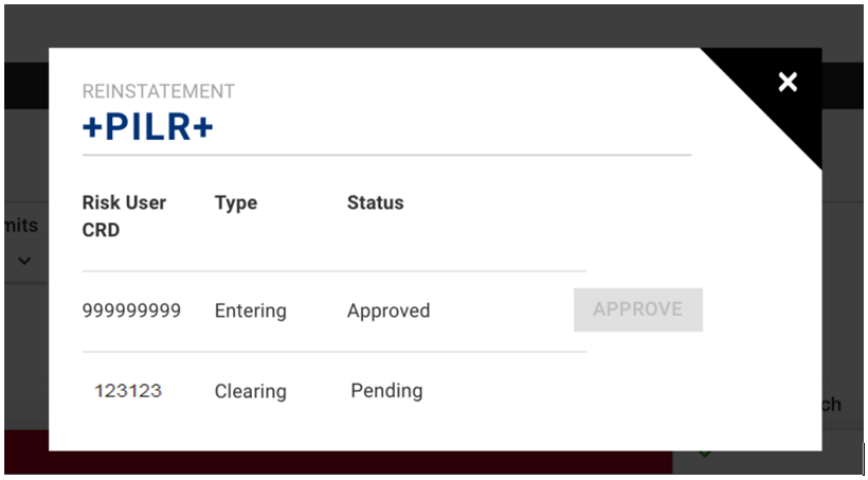




Once approved, the

icon on the Risk Monitor becomes a

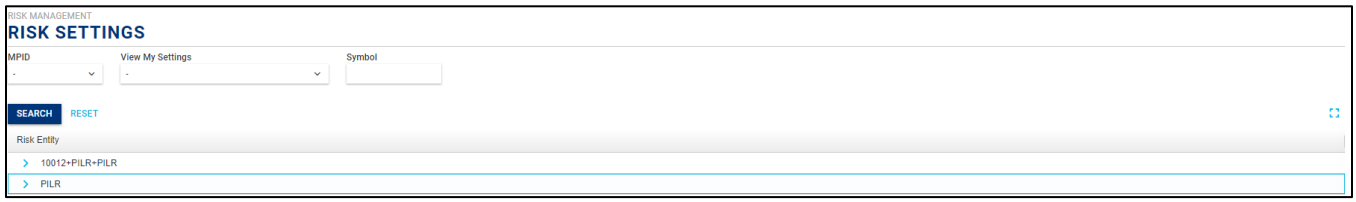
icon and the user will only be able to see status of the entity when clicking on the icon



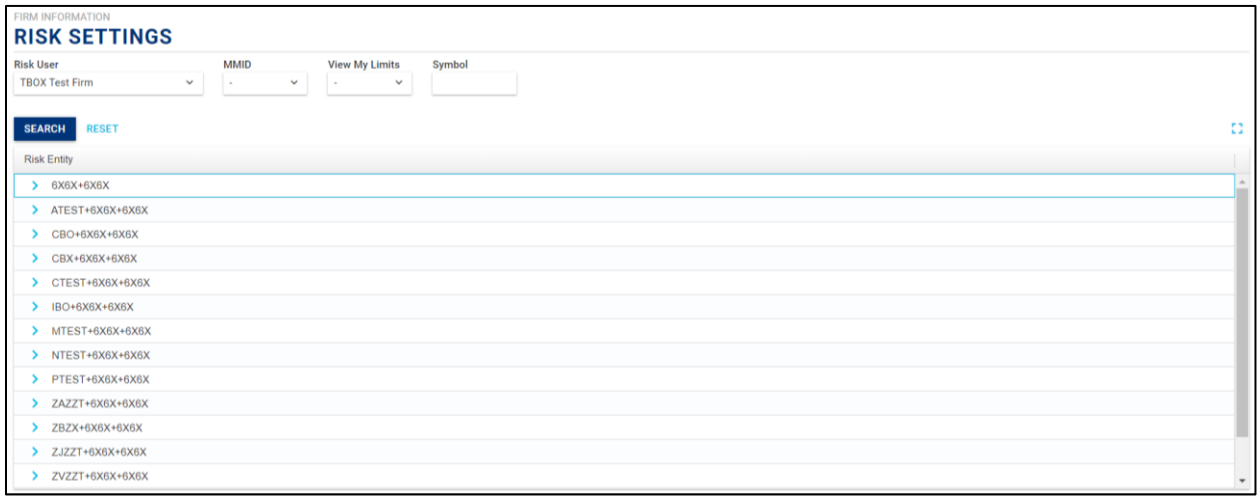
Risk Settings

Allows users to view and update risk settings. The default view is with all Risk Entities collapsed.

Equities Markets:

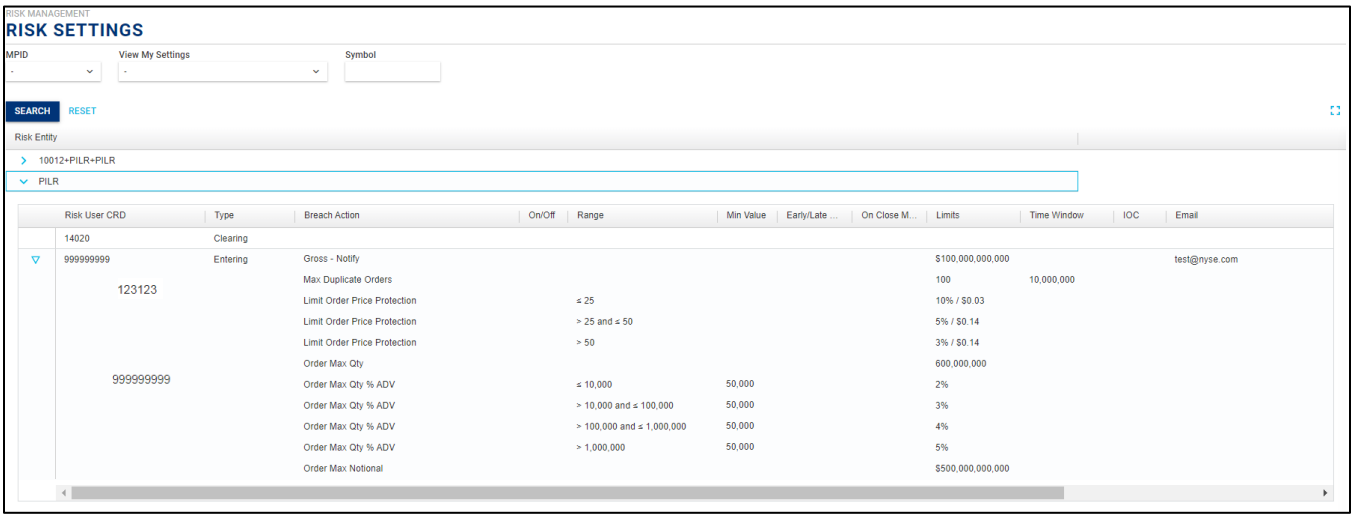


Options Markets:

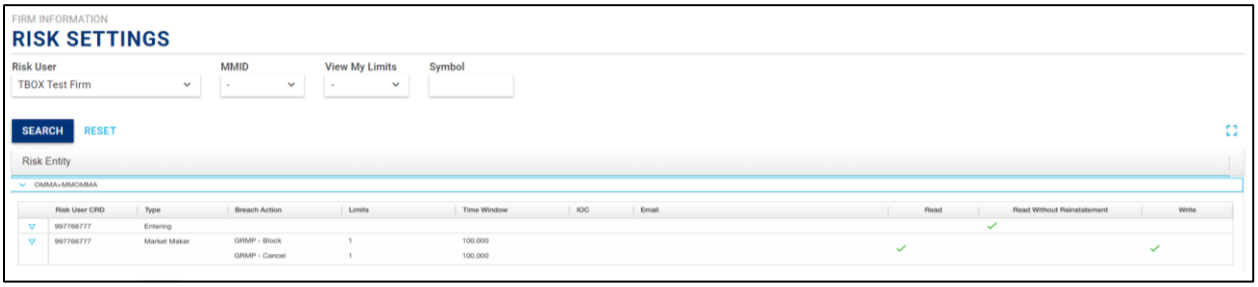


Users can click on Risk Entities to expand and show the settings for a given Risk Entity, as displayed below.

Equities Markets:

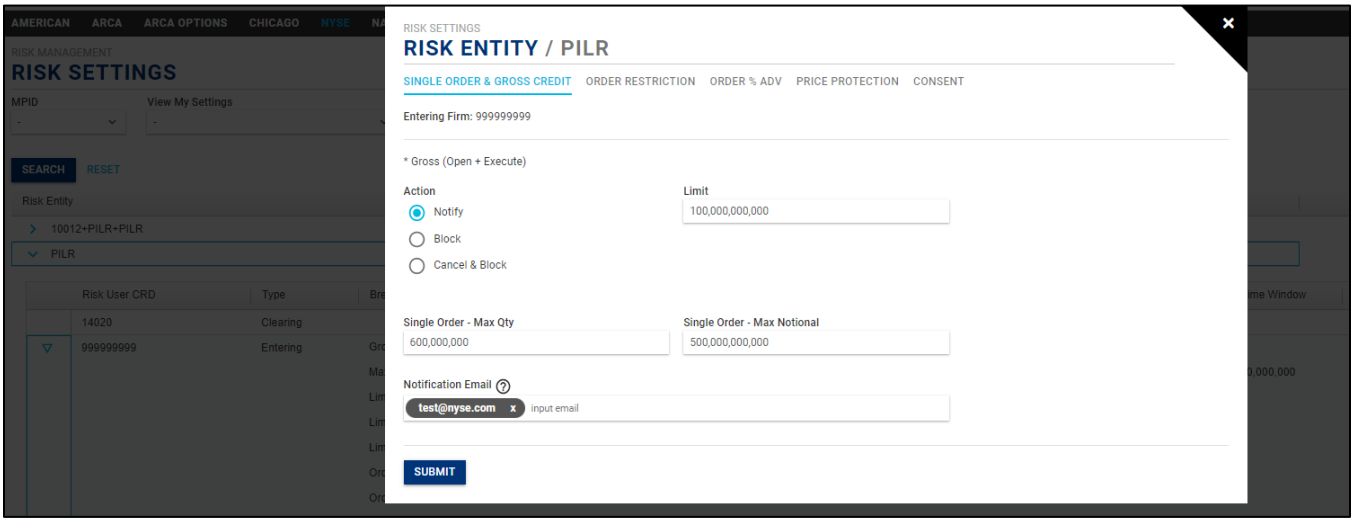


Options Markets:

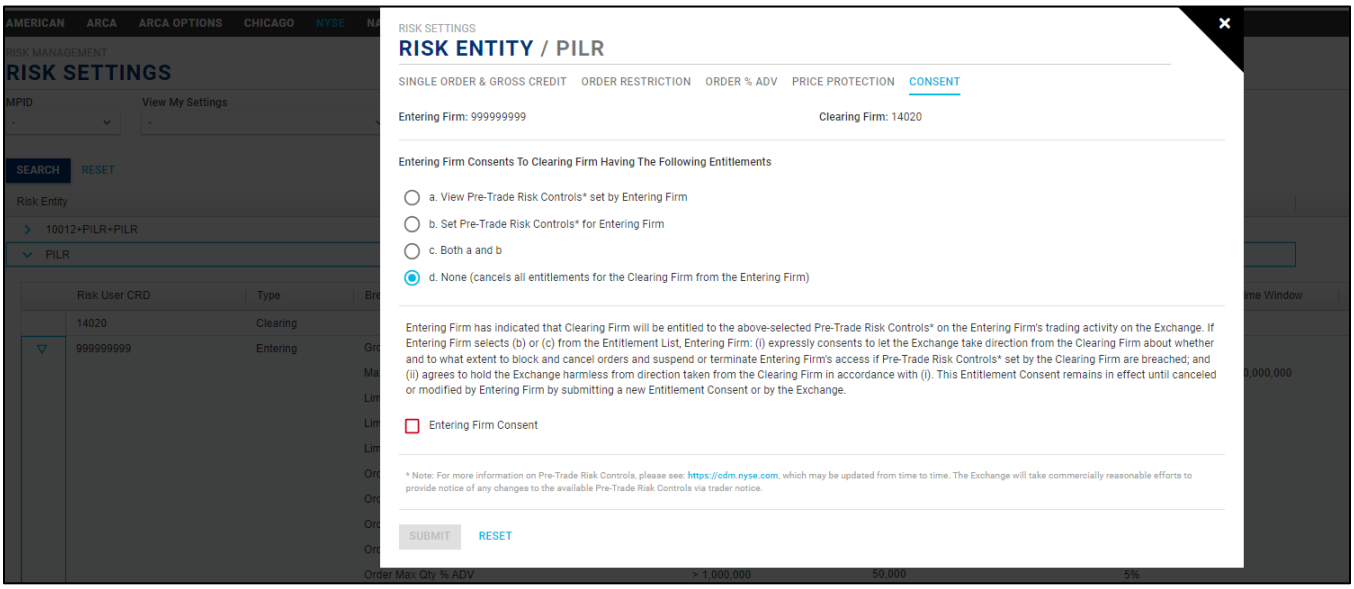


Clicking the button allows a user to update/establish settings for a Risk Entity, grouped into various tabs.

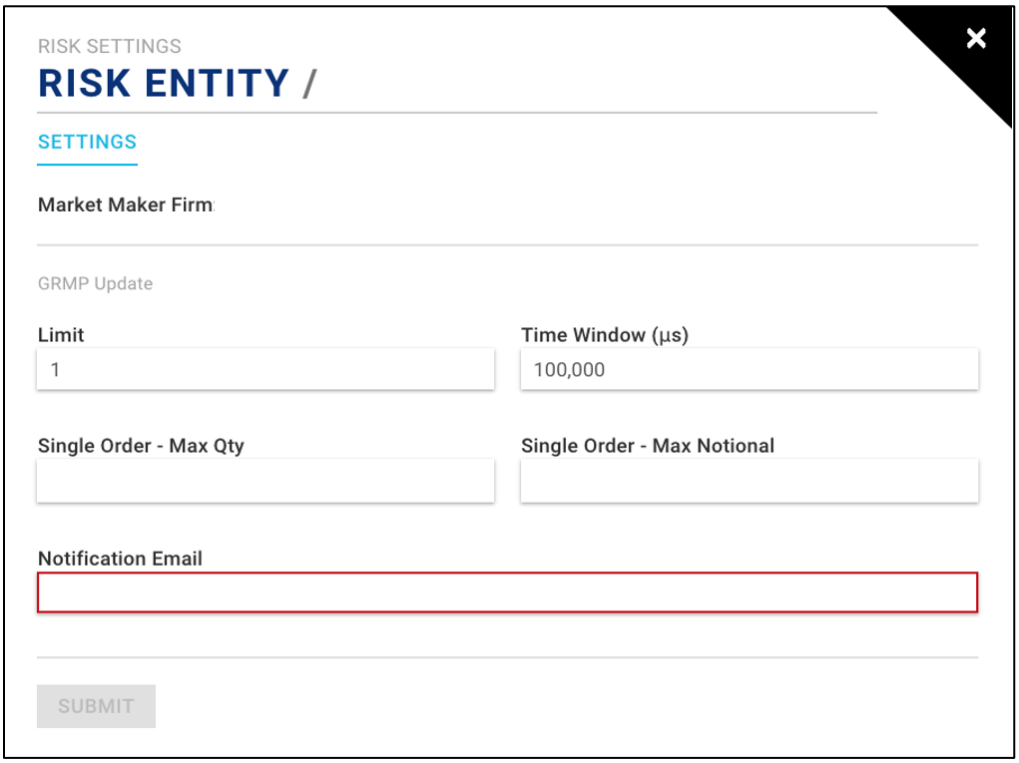
Equities Markets:



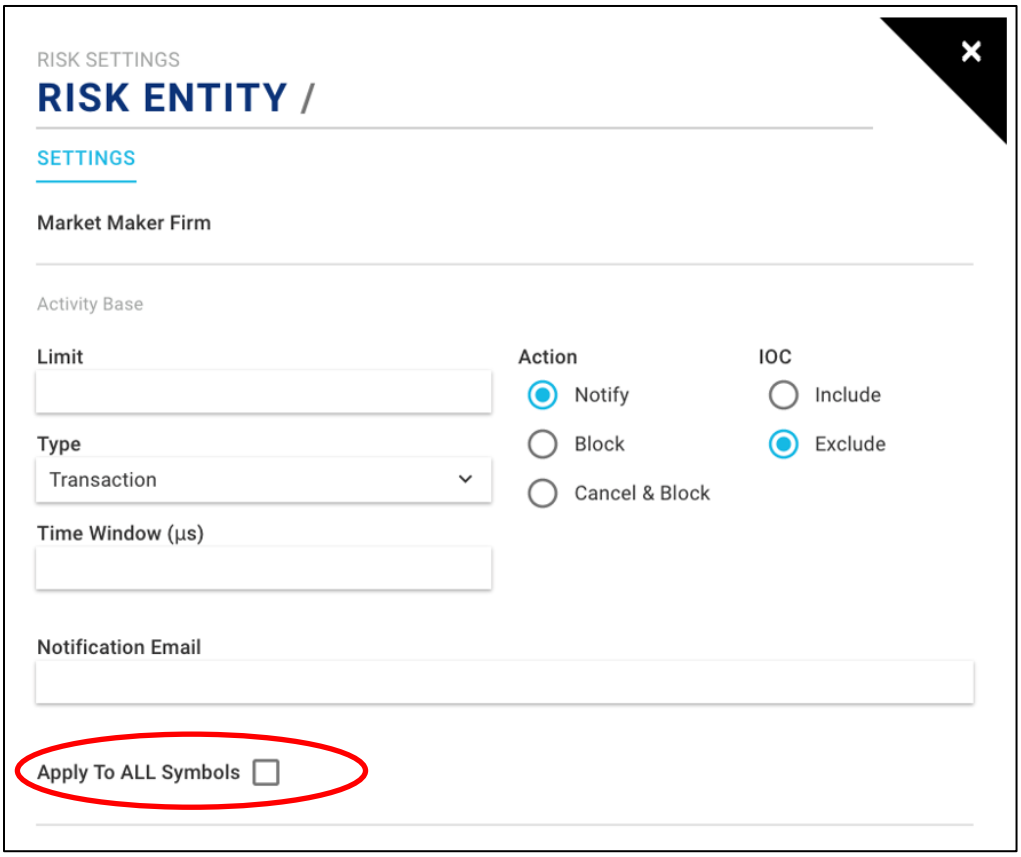
Entering Firm users will have access to another tab, where they can grant/update consent for Clearing Firm users (based on entitlement). The submit icon becomes available when the consent checkbox is clicked:



Options Markets:

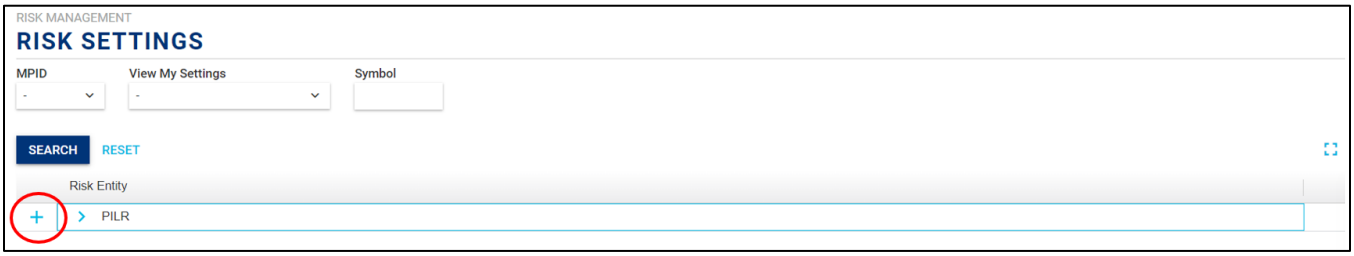


When updating an Activity-based (Transaction, Volume, or Percentage) limit, the popup dialog will apply the update to the individually selected underlying symbol by default, but also provides the option of applying the same settings to all underlying symbols by checking the box:

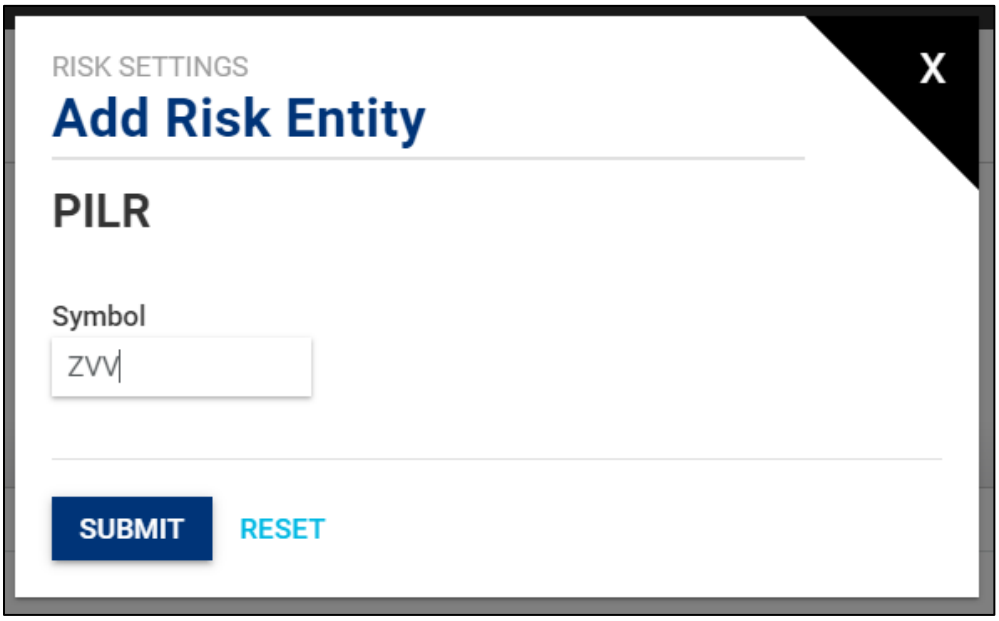


Certain symbol level risk entities must be added/removed on demand (equities markets - Symbol + MPID; both equities & options markets - Symbol + MPID + SubID).

To add, click the "+" sign next to the MPID or MPID + SubID for which you want to add the symbol.



Type the symbol into the popup dialog and click “Submit.”



To remove, click the trash can icon.

9. Frequently Asked Questions (FAQ)

Coverage

1. **Which NYSE Group exchanges offer risk controls? Is risk aggregated across the exchanges?**

   Risk controls are independently offered and separately calculated/applied by each NYSE Group equities and options market.

2. **Do the risk controls apply to orders from all gateway protocols?**

   Risk controls apply to orders routed to an NYSE Pillar matching engine. This includes orders originating from both NYSE Pillar ("native") Gateway and legacy NYSE CCG/UTPDirect, except as described in the *Exclusions* section of this specification. See *Risk Entities* for setup details.

3. **How are test symbols handled?**

   For Gross Credit, orders/executions in test symbols are excluded from calculations and breach.
   For all other risk control types, test symbols are subjected to the checks same as regular production symbols.

Risk Entities

4. **What is a Risk Entity, and which Risk Entities are available to me?**

   A Risk Entity is a business unit for which risk limits may be set. A risk limit applies to all order flow with the corresponding Risk Entity across all gateway sessions on a given market.

   By default in the TOP UI or Pillar Binary Gateway, Entering Firms have access to all their MPIDs. Options Market Makers have access to all MMIDs associated with a given MPID. In addition, Entering Firms may choose to register SubIDs within their MPIDs upon request to NYSE Client Relationship Services, after which any such registered MPID + SubID combinations will become available in TOP and NYSE Pillar Binary Gateway.

   Symbol level risk entities are also available for certain risk controls. See *Risk Entities*.

   Equities Markets - Entering Firms may additionally consent to providing correspondent Clearing Firms with entitlements for those Risk Entities that they clear. See *Entitlements → Configure → Consent to Clearing Firm*.

5. **What are SubIDs? Do I need them, and how might they be useful?**

   SubID is available via a customer-defined field on orders. It is not required, but may be used to set risk limits at a more granular level than MPID. For example, a firm may want to set different risk limits for different trading desks/strategies sharing the same MPID. In direct market access setups, unique SubIDs may be used to identify various third party clients sharing the same member firm MPID.

   SubIDs are supported for all Entering Firms except Options Market Makers, who are identified by their MMIDs.

6. **How do orders routed to NYSE Floor Brokers fit into the risk controls structure?**

   - **Risk Entity & Entitlements** - Floor Brokers may set limits on behalf of their customers' MPID + SubID/mnemonic
     - Risk Entity is represented as Floor Broker CRD + MPID + SubID/mnemonic
     - Customers are able to view and will receive notifications for any limits set by the Broker
     - Customers may also set their own limits at this level for the orders they route to each Floor Broker Firm, if desired

- **Reinstatement** - following a breach that involves the "Block" action, reinstatement approvals are required as follows:
    - **If Entering Firm owns the limit** - both Entering Firm and Floor Broker need to approve reinstatement
    - **If Floor Broker owns the limit** - only the Floor Broker needs to approve reinstatement

- **Hierarchy** - Entering Firm limits at the MPID or MPID + SubID level apply both to orders routed directly to the matching engine, as well as orders routed to NYSE Floor Brokers and subsequently routed to the matching engine

7. **How do Options Market Makers fit into the risk controls structure?**

    - **Risk Entity & Entitlements** - Market Makers may set limits per MPID + MMID and per Underlying + MPID + MMID. See *Risk Entities* for more details.

      In the case where an Entering Firm and Market Maker share a given MPID, entitlements are as follows:
        - The Entering Firm associated with the MPID is able to view and will receive unsolicited notifications and alerts for any risk controls configured by the Market Maker
        - However, the Entering Firm may not set limits or take any action at the Market Maker level such as invoke kill switch, approve reinstatement following an activity-based breach, query Market Maker limits on demand via NYSE Pillar Binary Gateway, etc. Those entitlements are reserved for the Market Maker

    - **Reinstatement** - following a breach that involves the "Block" action, reinstatement approval is required from the Market Maker only

    - **Hierarchy** - none. There is no hierarchy for Market Maker risk calculations (MMID calculations do not roll up to MPID level calculations), and SubIDs are not applicable

Configuration

8. **For a given Risk Entity and risk control, if one Risk User sets a lower risk limit compared to another Risk User, which one will be enforced?**

   Pillar enforces all risk limits independently, so the most restrictive limit will always be enforced - with an exception for Limit Order Price Protection (see corresponding section of this specification for details).

   Example - for MPID = ABCD, if the Clearing Firm sets a credit limit of $1 million with the breach action "Block," and the Entering Firm sets a credit limit of $1.2 million with the action "Cancel and Block," the first order/execution for ABCD to breach 1M will block new order entry for ABCD.

9. **What is the meaning of risk limit values set to 0 and not set at all?**

   0 is the most restrictive limit ($0, 0 shares/contracts, 0 Transactions, etc.).

   Not setting a limit means unlimited order entry/trading (subject to limits otherwise enforced by Exchange rules). A limit not set is represented in the TOP UI as a blank field, and in the NYSE Pillar Binary Gateway as limit = (-1) or RiskControlActivation field = 0 (off).

10. **Can risk limits be updated intraday? Do the settings persist overnight?**

    Yes, risk limits can be updated intraday and persist from end of day to the next start of day.

Risk Reference Price

11. **What reference price is used in calculating the Single Order Notional and Gross Credit value of an open order?**

    The risk reference price is assigned to an order on arrival, except for Single Order Max Notional check on options market orders entered during pre-open/halt. See *Single Order - Maximum Notional Value Breach Action* for more detail on this scenario.

    The reference price is generally the limit price of the order, except as provided below, and is updated upon acceptance of any subsequent Modify or Cancel/Replace Requests.

    - **Equities Markets** - for Opening/Closing D Orders (NYSE Floor Broker), Market orders, and Market Pegged orders entered during the Core trading session, Pillar will use the consolidated last sale. For such orders entered during the Early or Late trading sessions, Pillar will use the prior day official closing price

    - **Options Markets** - for Market orders, Pillar will use the contra-side Market Collar (for Buy orders - upper market collar, for Sell orders - lower market collar)

General Processing

12. **Will a Risk User that chooses to set limits for these risk controls experience more latency compared to a Risk User that does not set limits?**

    No. All orders entered on the Exchange will pass through the risk checks regardless of whether limits are configured. As such, an Entering Firm that chooses not to set limits nor permit its Clearing Firm to set limits on its behalf will not achieve any latency advantage with respect to its trading activity on the Exchange. In addition, any latency applied to all participants as a result of this implementation is *de minimis*.

13. **What executions count toward Activity-based controls?**

    Executions for all single leg and complex order types are counted, with a client configuration that controls whether to include/exclude IOC, FOK, and GTX executions. Both auction and continuous trading executions are counted.

    For the Rolling Transaction calculation, each leg of a complex order is counted as 1 transaction.

14. **Is the automated breach action to "Cancel Non-Auction orders & Block" subject to Exchange rules restricting order cancellation? What about the Kill Switch commands to "Cancel Auction Orders" and "Cancel Non-Auction Orders"?**

    Yes, all existing cancel restrictions defined in Exchange rules and systemically enforced today will continue to be enforced upon a credit breach or Kill Switch event by excluding certain orders from cancellation as necessary. For example, upon a Kill Switch command to "Cancel Auction Orders" after a MOO/LOO Cancellation Cutoff time, MOC/LOC orders will be cancelled but MOO/LOO orders will remain open.

15. **After updating Risk Entity settings, approving reinstatement, or initiating a Kill Switch action, how do I verify whether it was processed?**

    An update has been processed once it appears in TOP Risk Monitor or a confirmation message is sent to the firm via the NYSE Pillar Binary Gateway as specified below.

    Via TOP - following each of these commands, it is advised that the user always check the TOP Risk Monitor page before taking any further action, regardless of whether TOP responded with an acknowledgement or error message. Processing may be verified via Risk Monitor as follows:

    - **Update Risk Entity settings** - verify the new settings appear as rows

- **Approve reinstatement** - verify the "Approve" icon disappears. If approvals from other Risk Users are required and still pending, you may also click the "Status" icon and verify that your firm is listed with a Status of "Approved"
- **Kill Switch block** - verify an indicator appears in the "Block by Kill Switch" column
- **Kill Switch un-block** - verify the indicator disappears in in the "Block by Kill Switch" column
- **Kill Switch cancel non-auction orders** - verify the "All Orders" calculation is updated to reflect the cancelled orders (calculations currently available for equities markets only)
- **Kill Switch cancel auction orders** - verify the "Auc Orders" calculation is updated to reflect the cancelled orders (calculations currently available for equities markets only)

Via NYSE Pillar Binary Gateway - processing may be verified as follows:

- **Query Risk Entity** - to confirm updated settings, reinstatement approval, and Kill Switch block/un-block status, send a Risk Action Request with RiskActionType = 1 (Query Risk Entity)
- **Kill Switch Order Cancellation** - UROUTs for the cancelled orders/quotes will be sent to the corresponding order/Options Market Maker Quote entry sessions with R226: Risk - Kill Switch. The UROUTs serve as confirmation that the kill switch action was processed

Breach and Kill Switch

16. **How will I know if a reject or UROUT is the result of an automated risk breach or Kill Switch action?**

    The following new reason codes will be sent on order reject and UROUT messages via order entry gateways:

    R007: Invalid OnBehalfOfSubID (note: used for SubID Restriction on order entry gateways)
    R081: Price Too Far Outside (note: used for Limit Order Price Protection)
    R223: Risk - Single Ord Max Qty
    R224: Risk - Single Ord Max Notional
    R225: Risk - Gross Credit Breach
    R226: Risk - Kill Switch
    R284: Risk - Roll Transact Breach
    R285: Risk - Roll Vol Breach
    R286: Risk - Roll Pct Breach
    R287: Risk - Roll GRMP Breach
    R288: Risk - MM Arbitrage Breach
    R289: Risk - MM Intrinsic Breach
    R312: Risk - Rej ISO
    R313: Risk - Rej Mkt Orders
    R314: Risk - Rej MOO MOC
    R315: Risk - Rej Early Trading
    R316: Risk - Rej Late Trading
    R317: Risk - Rej Restricted Symbol
    R318: Risk - Rej Sell Short for Symbol
    R319: Risk - Rej Sell Short Exempt for Symbol
    R320: Risk - Rej Ord Max Qty Symbol ADV
    R321: Risk - Max Duplicative Ord
    R322: Risk - Require LocateBroker

17. **Following a Credit breach, what process should I follow in approving reinstatement?**

    First, you should cancel open orders and/or increase the breached credit limit(s) such that the current credit calculation is lower than the credit limit(s) that triggered the breach. Then, each Risk User whose reinstatement approval is required must approve reinstatement. See *Gross Credit → Reinstatement following breach*.

18. **Which type of consent given by an Entering Firm to their correspondent Clearing Firm will allow the Clearing Firm to use Kill Switch actions?**

    Write consent includes the Kill Switch capabilities for the Clearing Firm.

19. **For a given Risk Entity, if one Risk User commits the Kill Switch-Block command, can a different Risk User commit the Kill Switch-Unblock command?**

    No, Unblock must be performed by the same Risk User who committed the Block. For example, if the Clearing Firm blocks a Risk Entity, the Entering Firm will not be able to Unblock it; only the Clearing Firm may do so.

Notifications

20. **What types of notifications will I receive as a risk control user?**

    Notifications will be sent via email and Binary Gateway Risk Admin session for Gross Credit thresholds/breach; Activity-based breach; when reinstatement is processed for a previously breached Risk Entity; and Kill Switch block/unblock events.

    Notifications will be sent via email only for changes to the email address configuration and changes in consent given to a Clearing Firm by Entering Firm.

21. **How many email addresses may be configured to receive notifications?**

    Email addresses may be configured via the NYSE Pillar Trade Ops Portal per Risk Entity, per Risk User (Entering Firm, NYSE Floor Broker Firm, Options Market Maker, Clearing Firm). Multiple email addresses may be specified, up to a maximum total of 200 characters inclusive of all the addresses and a delimiter automatically applied between each one.

22. **What information will be provided in the Gross Credit and Activity-based threshold/breach notifications?**

    A single message will be generated, inclusive of the following data elements:
    - **Risk Entity** - that met the threshold/breach condition
    - **CRD Number & Type (Entering/Clearing/Floor Broker/Options Market Maker)** - that configured the Gross Credit or Activity-based limit for the affected Risk Entity. On email messages only, the text name of the Risk User will also be provided
    - **Risk Control** - the limit value and action (notifications only; block only; cancel non-auction orders & block) of the Gross Credit or Activity-based control configured for the affected Risk Entity
    - **Notification Type** - Thresholds (> 50%; > 75%; > 90%); Breach (> 100%)

Customer Outputs

23. **Will I be able to receive output files reflecting my risk control settings and activity?**

    Yes, a set of files called Risk Outputs are available to Entering Firms, NYSE Floor Brokers, Options Market Makers, and Clearing Firms. Upon request, the outputs will be made available for secure pick-up via Managed File Transfer (MFT). Firms may subscribe to outputs by submitting a request to NYSE-CustomerOutput@ice.com.

10. Document Version History

Date	Doc. Version #	Change Summary
March 28, 2025	4.3	Rebranded NYSE Chicago to NYSE Texas.
February 28, 2025	4.2	Gross Credit & Frequently Asked Questions (FAQ) - for Gross Credit, orders/executions in test symbols are excluded from calculations and breach. For all other risk control types, test symbols are subjected to the checks same as regular production symbols.
June 17, 2024	4.1	Added support for Order Rate Threshold – Max Orders across All Symbols. Order Restriction - removed support for Reject ISO; replaced with Reject ISO IOC & Reject ISO Day.
March 11, 2024	4.0	Gross Credit (equities markets) - added support for Gross Credit - Executed and Gross Credit - Open limits. Limit Order Price Protection - during the Core Trading Session, when there is no contra-side NBBO, the price check will be calculated using the consolidated round lot last sale, or if none, the previous day closing price.
June 29, 2023	3.5	Risk Entities: - Optional Order Entry Gateway Restrictions - added Bulk Cancel Restriction to Direct Market Access sessions - Symbol Level Risk Entities - clarified options market support for Underlying Symbol + MPID + SubID Upcoming Enhancements: - Targeted September 2023 - Introduction - added options market support for additional pre-trade risk controls - Targeted September 2023 - Activity-based Rolling Transaction/Volume/Percentage controls - enhanced IOCAttribution option to exclude GTX orders from calculation and cancellation upon breach - Targeted Q3 2023 - FAQ - updated #21 to send a single alert message upon Gross Credit or Activity-based limit breach instead of multiple messages
March 3, 2023	3.4	Symbol Restriction - for Reject Sell Short/Sell Short Exempt, added configuration support at MPID/MPID + SubID level across all symbols. Maximum Duplicative Orders - clarified mapping of an order to MPID vs. MPID + SubID level counters/limits and handling of Symbol as duplicative order criteria. Risk Entities - for equities markets, added details regarding daily maximum

		number of added/removed symbol level Risk Entities and clearing of risk limits upon removal. NYSE Pillar Binary Gateway - added reference to message throttling.
January 9, 2023	3.3	Added section “Risk Management is the Firm’s Responsibility.” Single Order Maximum Quantity as Percentage of Symbol Average Daily Volume (Equities Markets) - added RiskRangeID = 0 and details regarding configuration of the Minimum ADV to Apply Check. Limit Order Price Protection - clarified when Closing Only Multiplier (equities markets) is configured, price check is applied to closing only order types on order arrival. FAQ - updated #21.
October 25, 2022	3.2	Single Order Max Qty as Percentage of Symbol ADV - Reference Data - added details on rounding and default ADV for symbol first day of trading - Configuration - added details regarding configuration by ADV Range vs. Individual Symbol Order Restriction: - Reject Market Orders (except MOO & MOC) - updated name and clarified order types to which this restriction applies - Require LocateBroker on Sell Short & Sell Short Exempt orders - added guidance regarding NYSE Pillar Binary Gateway when used for order entry Maximum Duplicative Orders - updated details of duplicative order criteria and counters. Updated time window as rolling (previously fixed). Added new section - Exclusions. FAQ: - #21 - updated - #15 - added reason code R007; updated text for reason code R313
July 25, 2022	3.1	Order Restriction & Symbol Restriction - clarified that restrictions on sell short and sell short exempt also apply to cross short and cross short exempt, respectively.
June 30, 2022	3.0	Added support for - NYSE Pillar Binary Gateway for equities markets; Single Order Max Qty as Percentage Symbol ADV; Order Restriction; Symbol Restriction; Limit Order Price Protection; Max Duplicative Orders. Activity-based Controls (Rolling Transaction/Volume/Percentage & GRMP) - for Breach Action Cancel Non-Auction Orders & Block, removed GTX from list

		of orders excluded from cancellation. GTX will be cancelled.
February 17, 2022	2.4	FAQ - updated #22. Gross Credit email notifications for the Cancel & Block and Block Only breach actions are being streamlined to eliminate the duplicative "Notify" email message. For a Gross Credit limit configured with a breach action of Cancel & Block, two emails will be sent (one for cancel and one for block) instead of three emails. For Block Only, one email will be sent instead of two.
December 16, 2021	2.3	Risk Entities section - Market Maker Quotes and Market Maker orders (identified as CustomerOrFirm = Market Maker) that are entered with the same MMID are aggregated together. NYSE Pillar Binary Gateway section - added support for risk controls via Options Market Maker session. FAQ - updated #7, 15, 18.
November 3, 2021	2.2	Screenshots: NYSE Pillar Trade Ops Portal - added images for options markets.
September 24, 2021	2.1	Clarified "Breach Action" for all Risk Controls - breach is triggered when calculation > limit. Added detail to FAQ #7 regarding Options Market Maker risk entities and associated entitlements. Added detail to FAQ #22 regarding the number of threshold/breach notifications that will be sent for each risk control type.
May 19, 2021	2.0	Added support for NYSE Group options markets: - Updated Single Order Max Quantity and Single Order Max Notional Value with options market details - Activity-based Risk Controls - Risk Controls API - NYSE Pillar Binary Gateway Risk Admin session - Risk Users and their associated Risk Entities - Entering Firm, Options Market Maker
May 11, 2020	1.0	Initial version of the document, covering Pillar Pre-trade Risk Controls for NYSE Group equities markets: - Single Order Maximum Quantity - Single Order Maximum Notional Value - Gross Credit (Open + Executed)