



US Options Risk Management Specification

Version 1.6.4

November 12, 2019

Contents

1	Introduction	3
1.1	Overview	3
1.2	Risk Type Levels	3
1.3	Risk Limit Types.....	4
1.3.1	Limit Execution Details	6
1.3.2	Supported Order Types.....	9
1.4	Risk Limits for Trading Sessions (EDGX, C1, and C2 only).....	9
1.5	Certification.....	9
1.6	Cancel, Rejects and Resets	9
1.6.1	Risk Reset Limits.....	10
1.7	Ports and Profiles	10
1.8	Self-imposed Order Lockout.....	11
1.9	Manual Firm-Level Risk Resets	11
2	Risk Management Profile	12
2.1	Customer Web Portal	12
2.2	File Format.....	13
2.3	Multiple Rules	14
2.4	Using the Risk Management Profile Tool	14
3	Contact Details	17

1 Introduction

1.1 Overview

Options Risk Management has been designed to assist BZX Options, Cboe Options (C1), C2 Options, and EDGX Options customers in managing the risk of over-executing. Customers can design a risk profile that defines execution limits as a function of time or absolute limits. These rules can be applied to unique EFID Group Level, EFID Level and Risk Root (“Symbol”) (see section 1.3 below). When these limits are reached, additional executions will be prevented, outstanding orders/quotes will be cancelled, new orders/quotes rejected, and customers can control when they are willing to trade again. Risk profiles will apply to both single leg and complex orders/quotes. For information on how risk will be applied on complex orders, see the [US Options Complex Book Process Specification](#). Risk Management will not be applied to floor-routed orders on the C1 Exchange.

Risk Controls do not affect an in-process series opening, including a SOQ series opening. If a Risk trip occurs in the middle of matching contracts within the context of a single series opening, additional contracts may be matched for the tripped member before the series is opened. Within the context of a given underlying, if a risk limit is tripped in the opening of one series, orders in the same underlying are cancelled prior to moving to the next series. This is true for appointed Market Maker quotes and SLOO orders during the SOQ Opening process, but does not hold true for orders and non-appointed Market Maker quotes. Risk will not be tripped for orders and non-appointed Market Maker quotes until all SOQ constituent series are open. If risk is tripped during the SOQ opening, non-appointed market maker quotes and non-SLOO orders in other non-opened series will be cancelled upon completion of their opening auctions.

1.2 Risk Type Levels

- Risk Root (“Symbol”) Level

All Risk Limit Types except *Rate Based Risk Trips and Absolute Risk Trips* are supported at the Risk Root level.

All symbol-level rules are based on the Risk Root. The Risk Root is defined as the underlying symbol.

For example, a corporate action can result in multiple OSI roots (XYZ, XYZ1, XYZ2), while sharing the same underlying symbol (XYZ). Only a single symbol-level rule for underlying XYZ would be necessary or allowed.

On **Cboe Options (C1) only**, SPX and SPXW are able to be configured with separate risk root limits even though they share the same underlying symbol (SPX). **Customers are to be advised that a limit in SPX will not apply to SPXW, and SPXW trading would be unprotected by any risk limits in that scenario.** Customers should upload separate risk settings for SPX and SPXW

US Options
Risk Management Specification (Version 1.6.4)

options, and should note that a trip on either a SPX or SPXW risk root level rule will result in a message being sent to trip the other symbol. For example, if a firm trips a rate_count limit on SPX a message will be sent from the SPX Matching Unit to the SPXW Matching Unit and all SPXW orders or quotes will be cancelled on a best efforts basis.

- EFID Level

A firm may set a maximum number of symbol level events that can occur for the EFID within a specified time frame. If that number of events by the EFID across all symbols occur within the set time frame, all orders for the EFID will be canceled in all symbols. This excludes risk trip events, which count both symbol level and EFID level risk trips.

- EFID Group Level

A firm may set a maximum number of risk trip events that can occur for the firm across all EFIDs in one or more arbitrary groups of EFIDs. If the number of risk trip events across a group of EFIDs meets or exceeds the limit set, all orders for all EFIDs in the group will be canceled. A risk trip event occurs when any of the Risk Limit Types at the Risk Root Level or EFID Level reach their defined limits.

1.3 Risk Limit Types

Risk limits are defined by EFID Group Level, EFID Level and Risk Root (“Symbol”) level. A collection of Risk Limit rules may be defined for each level. These rules work in conjunction until one of the limits is reached, at which point trading will stop, open orders/quotes will be cancelled, and any new orders/quotes received will be rejected. Both the cancel and the reject will carry a specific reason code that allows customers to identify whether an EFID Group Level, EFID Level or Risk Root (“Symbol”) level or a risk lockout by CustomGroupID has occurred.

Limit Type	Description
Rate Based Risk Trips	<i>Risk Trips</i> is computed as the sum of all Rate Based and Absolute Risk Limit Types for Notional, Volume, Count and Percentage of Quote risk trips. For example, if a customer specifies a limit of five Risk Trips per second across EFIDs ABCD and WXYZ, order/quote cancellation and rejection will occur following the fifth risk trip.
Rate Based Notional	<i>Notional</i> is computed as the sum of the products of premium multiplied by number of contracts. Full executions of all contracts for an order/quote will not be avoided to prevent exceeding notional rate limits. For example, if the customer’s notional rate limit is \$25 per second and 2 executions occur, one for 5 contracts at \$3, and one for 7 contracts at \$2, then the notional would be computed as: $(5 * \$3) + (7 * \$2) = \$29$ Both executions will occur, followed by cancellations of pending orders/quotes and rejects of new orders/quotes. Rate based notional limits are defined by the two parameters <i>notional value</i> and <i>number of milliseconds</i> . Any time the notional value executed exceeds the notional value specified within the specified number of milliseconds, the limit is triggered.

US Options
Risk Management Specification (Version 1.6.4)

Rate Based Volume	<p><i>Volume</i> is computed as the sum of the number of contracts executed. When the total number of contracts executed exceeds the specified value within the specified number of milliseconds, the limit is triggered. Full execution of all contracts for an order/quote will not be avoided to prevent exceeding volume rate limit. For example, if a customer specifies a limit of 20 contracts per second and receives an execution for 10 contracts followed by a second execution for 15 contracts (10 + 15 = 25 contracts) within a single second, both executions will occur followed by cancellations of pending orders/quotes and rejects of new orders/quotes.</p>																																			
Rate Based Count	<p><i>Count</i> is computed as the number of executions. Premium and number of contracts have no bearing on this computation. If a customer specified a limit of 10 executions per second, the 10th execution within a single second will trigger the rate limit and prevent additional executions. Cancellations will be issued and rejects of new orders/quotes will occur.</p>																																			
Rate Percentage of Quote	<p><i>Percentage of Quote</i> is computed as the sum of the overall percentage of executions as a percentage of order/quote volume outstanding for each order/quote in a particular OSI Risk Root during the specified time period. Note that executions resulting from IOC orders will be included in the Percentage of Quote calculation.</p> <p>For example: An Options Exchange customer specifies a Percentage of Quote limit of 200% with four resting quotes in two different series quoted in a given OSI Risk Root (XYZ) for 100 contracts. Executions are ordered by time and include the aggregated Percentage Of Quote after each execution: Sell 80 XYZ1 – Trades with Quote 1 (<i>Total POQ = 80%</i>) Buy 50 XYZ1 – Trades with Quote 2 (<i>Total POQ = 130%</i>) Sell 60 XYZ2 – Trades with Quote 3 (<i>Total POQ = 190%</i>) Buy 10 XYZ2 – Trades with Quote 4 (<i>Total POQ = 200%</i>)</p> <table border="1" data-bbox="678 1167 1365 1415"> <thead> <tr> <th>Series XYZ1</th> <th>Bid Size</th> <th>Offer Size</th> <th>Trade Size</th> <th>POQ</th> </tr> </thead> <tbody> <tr> <td>Order 1</td> <td>100</td> <td></td> <td>80</td> <td>80%</td> </tr> <tr> <td>Order 2</td> <td></td> <td>100</td> <td>50</td> <td>50%</td> </tr> <tr> <td colspan="5">Series XYZ2</td> </tr> <tr> <td>Order 1</td> <td>100</td> <td></td> <td>60</td> <td>60%</td> </tr> <tr> <td>Order 2</td> <td></td> <td>100</td> <td>10</td> <td>10%</td> </tr> <tr> <td colspan="4"></td> <td>200%</td> </tr> </tbody> </table> <p>The <i>Percentage of Quote</i> is computed as: $80\% + 50\% + 60\% + 10\% = 200\%$</p>	Series XYZ1	Bid Size	Offer Size	Trade Size	POQ	Order 1	100		80	80%	Order 2		100	50	50%	Series XYZ2					Order 1	100		60	60%	Order 2		100	10	10%					200%
Series XYZ1	Bid Size	Offer Size	Trade Size	POQ																																
Order 1	100		80	80%																																
Order 2		100	50	50%																																
Series XYZ2																																				
Order 1	100		60	60%																																
Order 2		100	10	10%																																
				200%																																
Absolute Risk Trips	<p>The absolute <i>Risk Trip</i> behaves similarly to the rate based <i>Risk Trip</i> with the exception that time is not considered. After <i>X</i> risk trips across effective EFIDs has been reached, cancellations will be issued and rejects of new orders/quotes will occur.</p>																																			
Absolute Notional	<p>The absolute <i>notional</i> behaves similarly to rate based <i>notional</i> limits with the exception that time is not considered. If <i>X</i> dollars in notional have been executed the limit is reached. Cancels are issued and new orders/quotes are rejected until the customer has a chance to assess and decides to reset.</p>																																			
Absolute Volume	<p>Similar to rate based <i>volume</i> with the exception that time is not considered. If <i>X</i> contracts have been executed, the limit is reached. Cancels are issued and new</p>																																			

US Options
Risk Management Specification (Version 1.6.4)

	orders/quotes are rejected until the customer has a chance to assess and decides to reset.
Absolute Count	The absolute <i>count</i> behaves similarly to rate based <i>count</i> limits with the exception that time is not considered. If X' executions have been executed the limit is reached. Cancels are issued and new orders/quotes are rejected until the customer has a chance to assess and decides to reset.
Absolute Percentage of Quote	The absolute <i>percentage of quote</i> is similar to the rate based percentage of quote with the exception that time is not considered. If X' percentage has been executed, the limit is reached. Cancels are issued and new orders/quotes are rejected until the customer has a chance to assess and decides to reset.

1.3.1 Limit Execution Details

While these risk management tools are designed for and generally used for protection with regards to *posted* liquidity, the same risk configurations can impact the activity of remove and/or routed flow. All Risk Root level risk limits are checked in an atomic fashion inside each matching engine. As soon as a limit is breached, all resting orders and quotes in all series relating to that Risk Root will be cancelled immediately.

The table that follows describes the different scenarios that may be encountered and should help customers to understand what to expect in the context of risk violations.

Execution Type	
Matched	Routed
Rate Based & Absolute Count	
If a customer specifies a limit of 10 trades, the 11 th matched trade will not occur within the specified time interval.	If there are multiple outstanding orders <i>that have been routed away</i> ALL may execute. While Cboe will apply routed executions to your profile, your theoretical limit is equal to the number of matched executions plus open away orders. Example: Suppose your limit is 10 executions per second and you have 8 that have occurred plus 3 open orders that have been routed to an away exchange. If all three execute at the away exchanges, your risk limit will have been reached at 11 executions instead of 10.
Rate Based & Absolute Volume	

US Options
Risk Management Specification (Version 1.6.4)

<p>Incoming orders/quotes may execute through a resting order/quote's risk limit if the remaining limit is less than the total quantity of an order.</p> <p>Example: Suppose your limit is 10 contracts while displaying a single quote for 15 contracts on book. An incoming order for 12 contracts executes with 12 of your 15 contracts and the remaining 3 contracts are cancelled back.</p>	<p>Similar to the limits for counts, the theoretical limit is equal to the current execution volume plus open away aggregate order/quote size.</p>
Rate Based & Absolute Notional	
<p>Incoming orders/quotes may execute through your resting order/quote's risk limit if the remaining limit is less than the total notional value of the order.</p> <p>Example: Suppose your limit is \$1,000 per minute and you have currently executed \$980. You have a single quote on the book for 3 contracts at \$7. If this quote is hit, Cboe will execute all 3 contracts for a total notional executed of \$1,001.</p>	<p>Routed executions will always be open to the potential for exceeding your limit by orders that have been routed to an away exchange.</p> <p>Example: Suppose your limit is \$1,000 and you have executed \$950. Furthermore assume there is \$100 in notional open orders that have been routed to an away exchange. You may reach \$1,050 before your limit is triggered.</p>

US Options
Risk Management Specification (Version 1.6.4)

Rate Based & Absolute Percentage of Quote

Incoming orders/quotes may execute through your resting order/quote's risk limit if the remaining limit percentage is less than 100%.

Example: Suppose your Percentage Of Quote limit is 200% per second. Four quotes are resting in a given Risk Root (XYZ) with the following quote sizes and executions. Executions are ordered by time along with the aggregated Percentage Of Quote after each execution:

- Sell 80 XYZ1 – Trades with Quote 1 (POQ = 80%)
- Buy 50 XYZ1 – Trades with Quote 2 (POQ = 130%)
- Sell 60 XYZ2 – Trades with Quote 3 (POQ = 190%)
- Buy 100 XYZ2 – Trades with Quote 4 (POQ = 290%)

Series XYZ1	Bid Size	Offer Size	Trade Size	POQ
Order 1	100		80	80%
Order 2		100	50	50%
Series XYZ2	Bid Size	Offer Size	Trade Size	POQ
Order 1	100		60	60%
Order 2		100	100	100%
				290%

The *Percentage of Quote* is computed as:

$$80 + 50\% + 60\% + 100\% = 290\%$$

All four trades in the given Risk Root (XYZ) will execute, triggering risk, followed by a cancellation of all open orders/quotes in the given Risk Root and rejecting new orders/quotes within the Risk Root.

If there are any order modifications to quantity (up or down) or price, percentage of quote calculations having resulted in executions on the original order/quote will be retained and the modified order/quote will be treated as a new order/quote.

Example: An Options Exchange customer specifies a Percentage of Quote limit of 200% with two (2) resting quotes in the given Risk Root (XYZ) for 100 contracts, followed by a modify to Quote 1 to refresh quote size following an execution. Executions are ordered by time and include the aggregated Percentage Of Quote after each execution:

- Sell 80 XYZ1 – Trades with Quote 1 (POQ = 80%)
- Buy 50 XYZ1 – Trades with Quote 2 (POQ = 130%)
- Modify Quote 1 – Increase size back to 100 (POQ = 130%)
- Sell 100 XYZ1 – Trades with Quote 1B (POQ = 230%)

Series XYZ1	Bids Size	Offer Size	Trade Size	POQ
Order 1	100		80	80%
Order 2		100	50	50%
Order 1B	100		100	100%
				230%

The *Percentage of Quote* is computed as:

$$80\% + 50\% + 100\% = 230\%$$

Routed executions will always be open to the potential for exceeding your limit by orders that have been routed to an away exchange.

Example: Suppose your limit is 200% and you have executed 190% of your percentage of quote. Furthermore assume there is an order for 50 contracts that has been routed to an away exchange. You may exceed your 200% limit if more than 5 out of 50 (10%) contracts are executed at the away exchange.

1.3.2 Supported Order Types

All order types are supported. Any order or quote of any kind submitted to a Cboe Options Exchange that has been executed either fully or partially will decrement remaining values in a particular risk rule.

1.4 Risk Limits for Trading Sessions (EDGX, C1, and C2 only)

Risk limits may be set differently for special trading sessions including, Global Trading Hours (“GTH”) and Special Opening Quotation (“SOQ”) (C1 only). **Effective 11/22/19, GTH sessions will be deprecated for EDGX and C2.** In order to set risk limits for GTH or SOQ limits must also be uploaded for the default session (all hours). These default rules will be applied during GTH and SOQ periods if explicit GTH or SOQ rules are not defined.

Rules setup specifically for the GTH or SOQ sessions will be effective for that session only. A trip in any session will cause all orders/quotes to be cancelled that match the risk level defined in the rule (risk root, EFID, or EFID Group).

1.5 Certification

Options Exchange customers must certify with the [Cboe Trade Desk](#) prior to using these Risk Management features.

1.6 Cancel, Rejects and Resets

When a resting order/quote or inbound order/quote is executed and a risk profile limit is reached or when a self-imposed lockout is received, resting orders/quotes are cancelled and inbound orders/quotes are rejected. In both cases the FIX and BOE *Text* field (58) will carry either a value of:

‘s: RiskMgmtSymLevel’

‘+: RiskMgmtGroupLevel’

‘f: RiskMgmtFirmLevel’

‘f: RiskMgmtCustomGroupIdLevel’

When this is seen by a customer, it indicates that any order/quote still in flight, and any new orders/quotes issued, will be rejected. Once a customer has analyzed the situation and decides to commence trading, they may clear the risk trigger or self-imposed lockout by either sending an order that has a special tag **OR**, if using BOE protocol, the customer may send the `Reset Risk` message. The tag is located in the BOE *RiskReset* field (7692). This field must be filled with one of the following values:

RiskReset Value	Risk Root Reset	EFID-Level Reset	EFID Group Level Reset	CustomGroupID Reset
‘S’	Y	N	N	N
‘F’	N	Y	N	N
‘SF’	Y	Y	N	N
‘C’	N	N	N	Y

US Options
Risk Management Specification (Version 1.6.4)

*'G'	N	N	Y	N
*'GS'	Y	N	Y	N
'CS'	Y	N	N	Y
'CSF'	Y	Y	N	Y

* EFID Group RiskReset='G'

When using the single characters the ordering of the characters does not matter. For example, a value of 'SF' is identical to a value of 'FS'. For more information on the *RiskReset* field, refer to the [US Options BOE Specification](#) or the [US Options FIX Specification](#).

Note that a reset will reset all active rules within the profile for the given EFID Group Level, EFID Level and Risk Root ("Symbol") level. Individual rules cannot be reset on their own. The example that follows demonstrates this behavior.

Suppose that a customer has the following three rules in their profile for all contracts on MSFT:

1. 500 contracts per second Rate Based Volume limit
2. 20,000 contracts per minute Rate Based Volume limit
3. \$100,000 Absolute Notional limit

Suppose that at a particular instant in time the current state of the rules is as follows:

1. 400 contracts have been executed in the active second
2. 19,000 contracts have been executed in the active minute
3. \$25,000 of notional value has been executed.

Next, an inbound order from another customer is received that triggers an execution for 200 contracts against the customer owning the described risk profile. The customer owning the risk profile receives cancels for all remaining resting orders/quotes in MSFT and their order handler will receive a cancel with a *Text* field reason of '**s: RiskMgmtSymLevel**'.

The customer owning the risk profile issues a reset. At this point in time, all rules are reset. This means that the active state for all three rules is set back to ZERO, including the Absolute Notional rule. The absolute value executed of \$25,000 is lost and \$100,000 is again available for execution.

1.6.1 Risk Reset Limits

Only one unique risk reset of a given type (EFID Group, EFID, Risk Root, or CustomGroupID) is allowed per second. Additional resets will be ignored. For example, a customer may reset risk for CustomGroupID = 1 and may not reset risk again for CustomGroupID = 1 until one second has elapsed. This restriction is designed to safeguard the trading platform from excessive risk messaging.

1.7 Ports and Profiles

US Options
Risk Management Specification (Version 1.6.4)

Risk management profiles are associated with Executing Firm IDs (EFIDs) assigned by Cboe. If a customer desires a specific profile for a subset of ports, then it is up to that customer to use the proper value in FIX Tag 115 or BOE *ClearingFirm* field of their order.

That being said, the flexibility exists to allow for a customer to have two different profiles on a single port, multiple ports on a single profile, or one profile per port. Customers will have to design their profiles and work with the Cboe Trade Desk to activate the proper Executing Firm IDs on the desired ports.

1.8 Self-imposed Order Lockout

Customers may initiate a self-imposed order/quote lockout in conjunction with a mass cancel or purge request for all resting and in-flight orders. Customers who issue mass cancel or purge requests using the *MassCancelInst* field (7700) may optionally configure a Lockout condition as part of the cancel operation. Alternately, customers can use a legacy method of issuing mass cancel or purge requests using the *MassCancel* field (7693) and optionally the *MassCancelLockOut* (7697) to configure a lockout. Customers are encouraged to use the *MassCancelInst* method as the legacy *MassCancel* method will be deprecated in the future with notice (see [US Options BOE Specification](#) or [US Options FIX Specification](#) for an overview on the two methods of specifying mass cancel operations with lockouts).

A self-imposed order lockout may be issued on a BOE/FIX port at either the EFID (Firm) level or the Risk Root level. Purge Ports support both of these and add the ability to impose a lockout for a *CustomGroupID* (7699). The self-imposed lockout can be released using the existing *RiskReset* field in BOE (7692).

1.9 Manual Firm-Level Risk Resets

Customers can optionally configure whether an EFID Group level or EFID level risk trigger can be reset automatically. When Manual Resets are **disabled**, a customer will not be able to reset EFID Group level or EFID level risk via their FIX or BOE order entry sessions. Attempts to reset EFID Group level or EFID level risk over a FIX or BOE order entry session when sending *RiskReset* field (7692) containing “F” or “G” will result in a reject with a *Text* field reason of "A: AutomaticRiskResetsDisabled".

Default behavior will be **disabled** which will require a customer to manually reset all EFID Group level or EFID level risk trips by contacting the Cboe Trade Desk (913-815-7001). Changes to the default configuration can be submitted through the [Logical Port Request Form](#).

Risk Root-level risk and *CustomGroupID* resets will be unaffected by this configuration.

2 Risk Management Profile

Customers are provided the ability to upload risk profiles through the Customer Web Portal. The Web Portal is accessed through the public website at <http://markets.cboe.com>. To be applicable for the current trading day, profile files must be uploaded 30 minutes prior to the start of each session. GTH profile files must be uploaded by 2:30AM ET (C1 Only) and RTH/SOQ profile files must be uploaded by 9:00AM ET prior to 9AM ET. Profiles, for RTH/SOQ, uploaded too late will not be applied until the next trading day. Optionally, for GTH profile rules uploaded between 2:30AM ET and 9AM ET (C1 Only), users can choose whether the new rules will have immediate effect or will be activated at the start of the next trading day. **Effective 11/22/19, GTH sessions will be deprecated for EDGX and C2.**

2.1 Customer Web Portal

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 Exchange Tools in the lower left menu of their account page.

CBOE EXCHANGE TOOLS	
CEE/Obvious Error Form	✓
Current Activity	✓
Invoices and Files	✓
Market Maker	✓
Marketing Fee Distribution	✓
Mutual Adjust/Bust	✓
Order Lookup	✓
Port Controls	✓
Risk Management	←
Stats and Ranking	✓

Selecting this link will take the user to the tool defined in Section “[Using the Risk Management Profile Tool](#)”.

2.2 File Format

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. The fields are described in the example that follows:

```
executing_firm_id,    limit_type,    risk_root,    limit_value,    time_limit,
efid_level_limit, risk_group_type
```

- `executing_firm_id` - This field specifies the EFID (or EFIDs) to which the risk setting applies. Specifying more than one EFID per record is only compatible with a Limit Type of `rate_trips` or `abs_trips`, and all EFIDs must be included in a single rule using a pipe(`|`) delimited list. As discussed in the Ports and Profiles section, the EFID value is assigned by Cboe that is passed through on every order in the 'onBehalfOf' field. The EFID controls the designated clearing relationship as well as the risk management profile that applies to this order.
- `limit_type` - The limit type is one of the following ten values:
 1. `rate_trips` - A rate based risk trip count limit.
 2. `rate_ntnl` - A rate based notional limit.
 3. `rate_vol` - A rate based volume limit.
 4. `rate_count` - A rate based count limit.
 5. `rate_pctqt` - A rate based percentage of quote limit.
 6. `abs_trips` - An absolute risk trip count limit.
 7. `abs_ntnl` - An absolute notional limit.
 8. `abs_vol` - An absolute volume limit.
 9. `abs_count` - An absolute count limit.
 10. `abs_pctqt` - An absolute percentage of quote limit.
- `risk_root` - The Risk Root for the series, such as 'MSFT'. Customers may optionally define default controls where explicit Risk Root controls are not specified and an asterisk "*" is input in the place of a Risk Root symbol. If a Risk Root has one or more non-default risk rules of any type, then all specified default risk rules will not apply to that Risk Root, even if the defined non-default rule type is different than the default rule type. For example, if the following risk rules are defined:

	A	B	C	D	E	F
1	BATS	rate_count *		10	1000	F
2	BATS	rate_vol	ABC	100	1000	F
3	BATS	rate_pctqt	XYZ	500	500	F

The default `rate_count` rule will not apply to Risk Roots ABC or XYZ because they have a Risk Root level rule defined. In order for a `rate_count` risk rule to be applied to ABC or XYZ you would need to add explicit, non-default rows for each. Risk Root is not compatible with a Limit Type of `rate_trips` or `abs_trips` and Risk Root should be left blank if either is specified.

- `limit_value` - 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. When the limit type is a

US Options
Risk Management Specification (Version 1.6.4)

volume type, this represents cumulative contracts traded in a Risk Root. When the limit is a count type, this represents an execution count.

- `time_limit` – This field is ignored when the limit type is an absolute type. For rate types, this represents the number of milliseconds in the window. Values of less than 100 milliseconds will be treated as 100 milliseconds. In other words, the minimum time frame is 1/10th of a second.
- `efid_level_limit` – (Formerly known as `firm_level_limit`. **Will be deprecated at a future date.**) This field is optional. If present and the value is ‘T’ then it is assumed that you are requesting a EFID level rule. The Risk Root column should be blank in this case. If this column is present and has a value of ‘T’, and a Risk Root is specified, the rule will be rejected. Conversely, if a Risk Root is left blank and this field is not present or has a value other than ‘T’, the EFID level rule will be rejected. Please note that the `rate_pctqt` and `abs_pctqt` types are not valid at the Firm level.
- `risk_group_type` – The trading session to which the rule will be applied. (EDGX, C1, and C2 only)
 1. `default` – Rule applies to all trading sessions.
 2. `gth` – Rule applies to GTH trading session only.
 3. `soq` – Rule applies to Special Opening Quotation opening only (C1 only).

2.3 Multiple Rules

Multiple Firm rules and multiple rules per Risk Root are allowed. There is a limit of eight rules per Risk Root per EFID, and one Firm level rule per Risk Limit Type per EFID. An example use of multiple rules is shown below.

A customer may decide that they are comfortable with a notional value of \$100 per second. However, they are not comfortable with this rate as a sustainable long term rate. The five minute value that a customer is comfortable with may be \$5,000 per five minutes. This rate is substantially slower than \$100 per second. This combination of rules would allow for a maximum burst execution rate limit while maintaining a longer term control at a much lower rate. Finally, a customer may decide that in addition to these two rules, they never want a sum total of more than 10,000 executions without having a chance to analyze what’s happening. A third rule, an absolute count rule, may also be introduced.

2.4 Using the Risk Management Profile Tool

Profiles uploaded **less than 30 minutes** prior to the start of a GTH or RTH trading session will not be applied until the next trading day. Optionally, for GTH profile rules uploaded between 2:30AM ET and 9AM ET (C1 Only), users can choose whether the new rules will have immediate effect or will be activated at the start of the next trading day. If uploads are not activated immediately, rules are uploaded according to scenarios defined in the **Rule Application in Trading Session** table below. A download of your active rules will always be available. The screen below shows a sample of this configuration screen that is available through the Customer Web Portal.

Risk Management | Cboe BZX Options Exchange

Download Risk File

Use these links to download the risk rules for your firm.

| [Current Trading Session](#) | [Next Trading Session](#)
 Include CSV Headers

Upload Risk File

Use this form to upload risk rules for your firm.

No file selected.

Risk settings uploaded after 9:00 AM ET will be applied to the next trading day.

[Upload Specification](#) | [Example Upload CSV](#) | [Executing Firms](#)

Clear Risk Rules

Use this form to expire the risk rules for the selected efid(s).

Executing Firm:

Prior to the cutoff time the upload section will apply to current day. Uploads after the cutoff time will be applied to the next trading day. Optionally, for GTH profile rules uploaded between 2:30AM ET and 9AM ET (**C1 Only**), users can choose whether the new rules will have immediate effect or will be activated at the start of the next trading day. Note that no dates are contained in the file and you cannot stage future profiles beyond the next trading session. You can only replace the active profile with a new one for the next trading session. Once a profile is activated, it stays active permanently until a new profile is loaded.

US Options
Risk Management Specification (Version 1.6.4)

Rule Application in Trading Session

GTH Cutoff Cboe Options = 2:30 AM ET

GTH Cutoff EDGX/C2 = 8:00 AM ET (**Effective 11/22/19, GTH sessions will be deprecated for EDGX and C2.**)

RTH Cutoff (all markets) = 9:00 AM ET

Market	Time of Upload	Type of Rule	How Uploaded Rule is Applied
BZX Options	Before RTH Cutoff	Default Rule	Applies same date
	After RTH Cutoff (or on a non-trading date)		Applies next trading date
EDGX Options C2 Options	Before GTH Cutoff	GTH Rule	Applies same date during GTH
		Default Rule	Applies same date during GTH and RTH
	After GTH Cutoff but before RTH Cutoff	GTH Rule	Applies next trading date
		Default Rule	Applies same date during RTH
	After RTH Cutoff (or on a non-trading date)	GTH Rule	Applies next trading date
		Default Rule	Applies next trading date
Cboe Options	Before GTH Cutoff	GTH Rule	Applies same date during GTH
		Default Rule	Applies same date during GTH and RTH
		SOQ Rule	Applies same date during SOQ
	After GTH Cutoff but before RTH Cutoff	GTH Rule	Applies next trading date
		Default Rule	Applies same date during RTH
		SOQ Rule	Applies same date during SOQ
	After RTH Cutoff (or on a non-trading date)	GTH Rule	Applies next trading date
		Default Rule	Applies next trading date
		SOQ Rule	Applies next trading date

3 Contact Details

If you have any questions or would like to begin using Risk Management, please contact your account manager or any of the teams below:

Sales

sales@cboe.com

Phone: 212.378.8560

Cboe Trade Desk

tradedesk@cboe.com

Phone: 913.815.7001

US Options
Risk Management Specification (Version 1.6.4)

Revision History

Document Version	Date	Description
1.0.0	10/08/10	Initial Version 1.0.0.
1.1.0	06/28/11	Added support for Firm level risk checks. Added Limit Netting.
1.1.1	08/30/11	Updated limit type definitions under File Format section for Limit Netting. Updated number of OSI and Firm rules allowed.
1.1.2	11/16/11	Removed support for Limit Netting. Added support for call/put and front/trailing month options to the Risk Management Profile File Format.
1.1.3	01/18/12	Cleaned up the ordering of Section File Format .
1.1.4	03/05/12	Clarification added to <code>osi_root</code> definition in Section 2.2 File Format.
1.1.5	05/08/12	Corrected cut-off time for Profile uploads to note uploads after 7AM ET will not be applied until the next trading day. Removed references indicating profiles could not be uploaded between 9AM – 4PM ET. Upload support during this timeframe will be made available <i>(effective 5/11/12)</i> .
1.1.6	05/14/12	Profile uploads will be applicable to current day if received by 9AM ET <i>effective 5/18/12</i> .
1.1.7	06/06/12	Specification updated to reflect that limits will be applied on a best efforts basis vs. a precise basis <i>(effective 6/22/12)</i> . Various formatting updates.
1.1.8	10/21/13	Added support for <i>Percentage of Quote and Self-imposed Order LockOut</i> functionality. Updated to reflect that symbol-level rules are atomic per unit rather than best efforts.
1.1.9	12/15/15	Removed OSI Root spilt over 4 matching units along with call/put and front/trailing level limits. Updated <i>Percentage of Quote</i> functionality. Added support for Manual Firm Level Risk Resets <i>(Effective 01/28/16 in EDGX and 02/04/16 in BZX)</i>
1.2.0	02/19/16	Bats branding/logo changes.
1.2.1	06/07/16	Added functionality for default OSI Root rules effective 06/17/16.
1.2.2	08/17/16	Bats branding/formatting updates.

US Options
Risk Management Specification (Version 1.6.4)

1.3.0	01/27/17	Added single character <i>RiskReset</i> values and ability to reset by <i>CustomGroupID</i> .
1.3.1	07/21/17	Updated Self-Imposed Lockout section to present the <i>MassCancelInst</i> method of specifying mass cancel operations with lockout.
1.4.0	09/01/17	Added support for C2's transition onto Bats Technology platform. Added Risk Root definition.
1.4.1	10/17/17	Cboe branding/logo changes.
1.4.2	01/17/18	Added default risk rule example.
1.4.3	03/21/18	Updated OSI Root to Underlying symbology for BZX Options (effective 6/25/18) and EDGX (effective 6/11/18) Options.
1.4.4	06/06/18	Updated number of Firm Level rules allowed per EFID. Clarified that IOC order executions will count towards Percentage of Quote calculations.
1.4.5	08/21/18	Updated Risk Root section to indicate that all markets use underlying as the risk root. Updated images to reflect C2 migration to Bats technology.
1.4.6	10/8/18	New method for resetting risk and releasing self-imposed lockout on BOE using <i>ResetRisk</i> message that corresponds with C1 Feature Pack 2 (effective in Certification on 11/9/18, EDGX Production on 1/10/19, and BZX/C2 Production on 1/18/19)
1.4.7	10/19/18	Added support for C1 Feature Pack 1. Available in Certification effective 11/2/18 and in Production effective 11/29/18.
1.5.0	11/16/18	Clarification of Feature Pack 1 items pertaining to EFID Level and EFID Group Level Risk Types.
1.5.1	01/15/19	Clarified risk reset limits.
1.6.0	05/02/19	Corrected Risk Management Profile file format example of fields. Added <i>risk_group_type</i> to allow for risk to be set separately for different trading sessions. Effective on C2 and EDGX with C1 Feature Pack 7 Clarifications added to demonstrate that quotes and orders are treated the same with respect to risk calculations and trips.
1.6.1	05/14/19	Clarified <i>efid_level_limit</i> and added table to Using the Risk Management Profile Tool section. Added Rule Application in Trading Session table.

US Options
Risk Management Specification (Version 1.6.4)

1.6.2	08/14/19	Format and pagination updates. Removal of effective date notes that have already been implemented.
1.6.3	09/17/19	Described how risk root level limits will work for SPX and SPXW on Cboe Options (C1). Moved Risk Type Levels section to be in front of the Risk Limit Types section.
1.6.4	11/12/19	Added note indicating GTH will be sunset 11/22/19 for C2 and EDGX. Added clarity around SOQ risk rules.