



**TRADING
TECHNOLOGIES**

Pre-Trade Risk Checking in X_TRADER® 7.8 Overview Guide

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Overview

Below is a list of pre-trade risk changes included in X_TRADER 7.8. Many of the enhancements are dependent upon the version of TT User Setup the trader is using to log into X_TRADER. The following pages describe some of the more complex enhancements in detail.

- If the trader logs into X_TRADER using TT User Setup version 7.2.0 or higher, a new risk component is performing the pre-trade risk check. Instead of receiving risk limits from Guardian, the component receives limits from TT User Setup. This new component includes the following enhancements:

- The speed of the pre-trade risk check has been improved by about 10 – 15%.
- An additional position limit called Max Long/Short has been added to better control spread trading. ([More info](#))
- Audit Trail Messages have been updated slightly to accommodate the new position limit. ([More Info](#))
- The risk check of Autospreader[®] orders has been updated to take into account the relationship between quoting orders and hedge orders when calculating worst case positions. This change has also been made in ASE version 7.0.1. ([More Info](#))
- Margin calculations have been updated to allow for intra-product spread margining. ([More Info](#))
- Positions for Calls and Puts are now calculated separately when performing position limit checks and margin calculations on Options products. ([More Info](#))
- Clicking the ‘Liquidate’ button in MD Trader will not allow a trader to liquidate the position if Allow Trading has been set to ‘No’.

- If the trader logs into X_TRADER using TT User Setup version 7.3.0 or higher, a Credit limit is available at the User level, in addition to the Credit limits for the gateway logins (Member/Group./Trader).
- The following pre-trade risk changes have been made regardless of whether the trader logs into X_TRADER using Trader Login or any TT User Setup version.

- P&L for gateways running in simulation mode will be summed separately from production gateway P&L when calculating Available Credit.
- P&L and margin for only the gateway login, as opposed to the whole User, will be included when calculating the gateway login’s Available Credit.

Max Long/Short Position Limit

An additional position limit called **Max Long/Short** has been added to the TT User Setup product limits. Max Long/Short allows a risk administrator to control the number of allowed spreads by limiting the sum of all the long contracts and the sum of all the short contracts on a given product.

In the current method of risk checking a trader can be limited by the number of outright in a product using the Maximum Future Position and limited by the position in each contract or expiration using the Maximum Spread Position. However there is not a way to allow a trader to only have a certain number of calendar spreads for a product across all expirations. Max Long/Short provides this limit.

For example, if you want to limit a trader to 30 GE Calendar spreads you can set the GE Max Long/Short to 30. Within the Max Long/Short of 30, if you want to allow an outright or unhedged position of 5 you can set the GE Maximum Future Position to 5. In addition, if you want to limit the position on any individual contract to 15 you can set the GE Maximum Spread Position to 15.

Gateway ▲1	Product ▲2	Product Type ▲3	Max Order Qty	Max Position	Max Long/Short
filter... ▼	filter... ▼	filter... ▼	filter... ▼	filter... ▼	filter... ▼
CME	GE	FUTURE	Unlimited	5	30
CME	GE	SPREAD	Unlimited	15	

If the trader has bought 15 Mar10-Jun10 spreads and sold 15 Sep10-Dec10 spreads he has reached his Max Long/Short position limit of 30. This is because for GE he is long 30 (15 Mar + 15 Dec) and also short 30 (15 Jun + 15 Sep). The trader cannot place any more GE trades until he reduces his position in one or more of the four contract months (i.e. he needs to sell Mar or Dec and buy Jun or Sep or a combination).

Updated Audit Trail Messages

Message Type	Sample Old Message	Sample New Message	New Message Legend
Exceeds Order Qty Limit (OQLMT)	ORDQ6 > OQLMT5 P1 B6SoF-3WP3 X0609 B6SoF-3WP3	ORDQ6 > OQLMT5 P1 B6SoF-3NP3LP3SP3 X0609 B6SoF-3WP3	<p>Changes to messages are underlined</p> <p>Message Parts:</p> <p>Reject Reason/Approved</p> <p>Available Credit</p> <p>Future Pos (Product)</p> <p>Spread Pos (Contract)</p> <p>Abbreviations:</p> <p>LMT – Credit Limit</p> <p>PL – P&L</p> <p>M – Margin</p> <p>AV – Available Credit</p> <p>B - Working Buys</p> <p>S - Working Sells</p> <p>F – Filled Position</p> <p>NP - Worst Case Net Position (Product)</p> <p>LP - Worst Case Long Position (Product)</p> <p>SP - Worst Case Short Position (Product)</p> <p>WP - Worst Case Pos (Contract)</p>
Exceeds Max Contract Position (MxCP) i.e. Spread Position	WCP11L > PLMT10 EXP0609 P1 B1SoF10WP11 X0609 B1SoF10WP11	WCCP(11)L > MxCP(10) EXP0609 P1 B1SoF10NP11LP11SP0 X0609 B1SoF10WP11	
Exceeds Max Net Prod Position (MxNPP) i.e. Future Position	WCP11L > PLMT10 P1 B1SoF10WP11 X0609 B1SoF10WP11	WCNPP(11) > MxNPP(10) P1 B1SoF10NP11LP11SP0 X0609 B1SoF10WP11	
Exceeds Max Long Prod Position (LPP)	n/a	WCLPP(21) > MxL/SPP(20) P1 B1So F20NP21LP21SP0 X0609 B1SoF20WP21	
Exceeds Max Short Prod Position (SPP)	n/a	WCSPP(-21) > MxL/SPP(20) P1 BoS1 F-20NP21LPoSP21 X0609 BoS1F-20WP-21	
Normal Approval	Approved (LMT95000+PL-637.50- M1900.00=AV92462.50)USD P1 B1So F-19WP19 X0609 B1SoF-19WP-19	Approved (LMT95000+PL-637.50- M1900.00=AV92462.50)USD P1 B1So F-19NP19LPoSP19 X0609 B1SoF-19WP-19	
Trade-Out Approval (Appr-TO)	Appr-TO (LMT1000+PL-662.50-M1800.00=AV- 1461.50)USD P1 B1So F-18WP18 X0609 B1SoF-18WP-18	Appr-TO (LMT1000+PL-662.50- M1800.00=AV-1461.50)USD P1 B1So F-18NP18LPoSP18 X0609 B1SoF-18WP-18	
Exceeds Credit Limit	Exclds CrLmt (LMT1000+PL-662.50- M1900.00=AV-1562.50)USD P1 BoS1 F-18WP19 X0609 BoS1F-18WP-19	Exclds CrLmt (LMT1000+PL-662.50- M1900.00=AV-1562.50)USD P1 BoS1 F-18NP19LPoSP19 X0609 BoS1F-18WP-19	
Trading not allowed	Trading not allowed	No changes to Old Messages	
No currency conversion	Warning: No currency conversion value exists.		
Product Not Allowed	Product is not allowed		
Delete	Delete Approved (No Credit Check)		
Change	Change Approved (No Credit Check - order quantity was not increased)		

Autospreader Position Changes

Starting with X_TRADER 7.7 when an Autospreader order is entered all potential outright orders, including all quoting and all possible hedge orders, are position risk-checked before being submitted into the market.

The new pre-trade risk component and the logic in ASE 7.0.1 have been updated to take into account the relationship between Autospreader quoting orders and hedge orders when calculating the worst case net product position (WCNPP). The WCNPP is then compared to the Max Future position limit. More specifically the component assumes that a hedge order will not enter the market unless its corresponding quoting order has already been filled, as this is the logic imbedded into Autospreader. Considering this relationship will often result in a lower WCNPP than if all orders are considered independently (the current behavior in XT 7.7) because long hedge orders offset short quoting orders and vice versa. Anytime there is more than one leg of the same product in an Autospreader order, this logic is applied to each product.

The worst case contract position which is compared to the Max Spread position limit has also been updated. Similar offsetting logic is applied to Autospreader orders which have more than one leg with the same contract, for example if the Autospreader legs contain exchange-traded spreads.

The necessary position limits for several types of Autospreader orders are listed below per XT version.

Example 1 – Two-Legged Calendar Spread

You configure a two-legged spread with a 1 to -1 ratio and quoting in both legs. You enter a spread order to buy one spread.

	Max Future Position	Max Spread Position
X_TRADER 7.6*	1	1
X_TRADER 7.7.x	2	2
X_TRADER 7.8 (and higher)	1	2

Example 2 – Butterfly

You configure a three-legged spread with a 1, -2, 1 ratio and quoting in all three legs. You enter a buy order in Leg A, two sell orders in Leg B, and a buy order in Leg C.

	Max Future Position	Max Spread Position
X_TRADER 7.6*	2	2
X_TRADER 7.7.x	6	6
X_TRADER 7.8 (and higher)	4	6

* The required limits to enter the initial Autospreader order, not including any subsequent hedges which are risk checked separately in X_TRADER 7.6

Autospreader Position Changes (continued)

Example 3 – Two-Legged Calendar Spread with Queue Holder

You configure a two-legged spread with a 1 to -1 ratio, quoting in both legs, and a Queue Holder setting of two. You enter a buy order in the spread: three buy orders in Leg A and three sell order in Leg B, resulting in a total of six working orders at six different price levels per spread order.

	Max Future Position	Max Spread Position
X_TRADER 7.6*	3	3
X_TRADER 7.7.x	6	6
X_TRADER 7.8 (and higher)	3	6

Example 4 – Pack

You configure a four-legged spread with a 1, 1, 1, 1 ratio and quoting in three legs. You enter a buy order in the spread with the following quoting orders: a buy order in Leg A, a buy order in Leg B, and a buy order in Leg C.

	Max Future Position	Max Spread Position
X_TRADER 7.6*	3	1
X_TRADER 7.7.x	12	3
X_TRADER 7.8 (and higher)	12	3

* The required limits to enter the initial Autospreader order, not including any subsequent hedges which are risk checked separately in X_TRADER 7.6

Intra-Product Spread Margining

The margin calculation in X_TRADER has been updated to allow margin to be charged for spread positions. The previous margining method in XT only accounted for the outright position on a product which is the worst case net product position (WCNPP) and charged no margin for spreads. The margin calculation now creates synthetic calendar spreads by matching buy and sell fills of the same product into pairs.

The formula for the total Margin for a Product using Intra-Product Spread Margining equals...

$$\text{(Worst Case Net Product Position * Future Margin)} + \text{(Synthetic Spread Position * Spread Margin)} + \text{(Even-legged Exchange Spreads * Spread Margin)}$$

Since the previous margining method only charged margin based on the overall Worst Case Net Product Position, the Intra-Product Spread Margining method will always result in an equal or higher margin requirement for the same position. If there is no margin value entered for a Spread in the Guardian Product table, margin will only be charged for the outright position as it was in previous X_TRADER versions.

Any Additional Margin values should be taken from the appropriate Product Type (i.e. Future Additional Margin is applied to the Future Margin and Spread Additional Margin to the Spread Margin).

The Available Credit calculation is identical whether or not Intra-product spread margining is used, the margin value is simply used in that calculation.

Example: Spread Margin = 500, Future Margin = 1000

Filled Positions	Long	Short
MAR	1	0
JUN	0	2
SEP	3	0
DEC	0	4
Sum	4	6

$$\text{Product Margin} = \text{(WCNPP * Future Margin)} + \text{(Synth Spread Position * Spread Margin)}$$

$$= 2 * 1000 + 4 * 500 = 4000$$

Note: Using the old margining method the Product Margin = $2 * 1000 = 2000$

Options Calls and Puts

Call and Puts are now treated as separate products when performing position limit checks and margin calculations. This means that on a given Option contract buying a Call and selling a Put will not offset each other at the Product level. The Maximum Option Position and Max Long/Short are tracked and applied separately to Calls and to Puts for a product. Max Strategy is applied to each individual contract as it worked previously.

For example, if you are trading GE Options, the GE Call is treated as one product (including all expirys/strikes) and the GE Put is treated as a different product.

GE Call	Long	Short
Sep11 C8975	2	0
Sep11 C9000	1	0
Dec11 C9225	1	0

If you have the following positions and risk limits, see below for some actions that will be accepted (consider each of the trades independently and in conjunction with the position limits in the tables).

GE Put	Long	Short
Sep11 P8975	0	6
Sep11 P9000	5	0
Sep11 P9025	0	0

Rejected:

- Buy 1 Sep11 C8975, because the Worst Case Net Product Position (WCNPP) for the Call would be 5 (2 + 1 + 1 + 1) and the Max Option Position is 4.
- Buy 2 Sep11 P9000, because the Worst Case Contract Position (WCCP) for P9000 would be 7 (5 + 2) and the Max Strategy is 6.
- Sell 3 Sep11 P9025, because the Worst Case Short Product Position (WCSPP) would be 9 (6 + 3) and the Max Long/Short is 8

GE	Limit
Max Option	4
Max Strategy	6
Max Long/Short (on the Option)	8

Accepted:

- Sell 7 Dec11 C9000
- Buy 3 Sep11 P9025