



**TRADING
TECHNOLOGIES**

TT User Login and Risk Administration Guide

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TT User Login and Risk Administration

Introduction

Overview This document describes the different types of logins used in TT trading environments, as well as how those logins interact with each other when setting up new traders. In addition, this document describes how risk limits are calculated for traders when pre-execution risk is set up.

Related Documentation For additional information, please refer to the following TT Products' Online Help Systems:

- TT User Setup Help System
- X_TRADER Help System

TT User Logins

Overview	TT utilizes usernames to log into TT products, and Gateway Logins to log into TT Gateways or Strategy Engine servers. It is important to understand the differences between each, as well as when each must be created and used.
Usernames	<p>TT User Setup administrators assign users of TT products a unique username and password. This is used to log into TT applications as follows:</p> <ul style="list-style-type: none"> • For Trading Products - The username is used to identify individual traders or trade administrators. TT User Setup administrators define permissions for each username. TT User Setup administrators can assign multiple Gateway Logins to a username, which allows the user to access various exchanges or Strategy Engine server products. • For FIX Adapter Servers and Clients - The username is used to identify individual FIX Adapter clients and servers. TT User Setup administrators define permissions for each FOIX Adapter client username as well as properties for each FIX Adapter server username. FIX Adapter Client users are mapped to FIX Adapter Server users. • TT User Setup Administration - The username grants the user permission to view and/or manage users and settings within TT User Setup. There are various type of administrator logins (e.g., Group logins or View-only logins) that will be described later in this document.
Gateway Logins	<p>Gateway Logins are the Member/Group/Trader IDs (MGTs) that TT User Setup administrators assign to users so that they can log into TT Gateways and/or Strategy Engine servers. Each MGT can have its own account numbers and risk limits, and multiple Gateway Logins can be assigned to a single user. Gateway Logins include any of the following:</p> <ul style="list-style-type: none"> • Exchange Trader ID: A Gateway Login that may be wholly or partially assigned by the exchange (sometimes referred to as Direct Trader IDs); it indicates the user's membership with the exchange. Refer to Gateway Logins: Exchange Trader IDs. • TTORD ID: A Gateway Login that is defined by a TT User Setup administrator that maps to an exchange trader ID: Multiple TTORD IDs can map to a single exchange trader ID. TTORD IDs allow for more configurable order routing and risk limit setups. Refer to Gateway Logins: TTORD IDs. • Strategy Engine Login: A Gateway Login that is defined by a TT User Setup administrator that provides access to a TT Strategy Engine server product, for example Autospreader Strategy Engine. Refer to Gateway Logins: Strategy Engine Logins. • Administrator Gateway Login: A login that provides administrators with the ability to view and optionally delete working orders and fills for all traders on specified TT Gateways. Refer to Administrator Gateway Logins.

TT Usernames

Overview

Before a user can use TT software, a TT User Setup administrator must create a user profile for the user. The administrator assigns each user profile a username to uniquely identify the profile. Usernames may also be referred to as User IDs, User Names, or Universal Login IDs.

Note: Usernames may be up to 11 alphanumeric characters; special characters are allowed.

User Properties

Once the administrator creates the user, he can configure various user properties. The TT User setup administrator must also assign the user to one or more Gateway Logins before the user will be able to access TT Gateways with products such as X_TRADER or X_RISK. This provides the user with a single sign-on that allows him to access multiple exchanges via TT Gateways.

Usernames may also represent various server products or applications. For example, a TT FIX Adapter Server instance is also configured as a user in TT User Setup, with many of the same configuration options as a trader.

Additionally, TT User Setup administrators can grant users various levels of TT User Setup administrative access. For example, one user may be granted full access, while another can be given view only access to a subset of users.

Note: Certain user permissions only apply to certain TT products, yet all are configurable per user. A single user is not limited to a single product or role. For example, a single username can potentially represent a FIX Adapter Server and a user who trades with X_TRADER.

Gateway Logins: Exchange Trader IDs

Overview

Exchange trader IDs may be given (in whole or in part) by the exchange and typically represents a membership at a specific exchange (e.g., CME or EUREX). An exchange trader ID contains three parts: a Member ID, a Group ID, and a Trader ID. One or more of these components is typically defined by the exchange.

Exchange trader IDs may also be referred to as Direct Trader IDs, Registered Trader IDs, Direct Gateway Logins, or Exchange Gateway Logins.

Exchange Trader ID Components

The following table describes what each component may define:

Field	Description
Member	<ul style="list-style-type: none"> • Member is the broadest type of ID and my identify one of the following: <ul style="list-style-type: none"> • The exchange that the user is trading. • The firm with which the individual user is associated. • A branch office. • Member content depends on exchange-specific requirements, as described in the Trader Login Requirements table. For example, for CME Gateway Logins, Member represents an iLink session.
Group	<ul style="list-style-type: none"> • Group identifies the traders who want to share an order book. Traders with the same Member and Group will have access to the same orders and fills within TT software. This is commonly used for brokers who manage each other's customer accounts. • Traders who want to share an order book should not be assigned the same Member Group IDs.
Trader	<ul style="list-style-type: none"> • Trader typically identifies the individual trader who will be executing trades. • Exchange may have specific requirements regarding the Trader ID portion as well.

Table 1. Exchange Trader ID Components

Exchange Trader Login Requirements

The following table describes trader login ID requirements by exchange.

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
BrokerTec	Exchange-provided Customer ID MGT	User-Selected	Exchange-provided BTEC signature
	Customer Defaults	<ul style="list-style-type: none"> BTEC sends a BTEC Customer ID for the firm. This is the exchange trader's Member ID. Exchange may have specific requirements regarding the Trader ID portion as well. The firm may select the Group ID portion of the exchange trader's login. BrokerTec also sends unique signatures (user IDs) for each trader. Each trader is required to have a unique BTEC signature as the Trader ID component. For BrokerTec Gateway 7.17, the Trader ID must be configured as the Operator ID in TT User Setup. Password is exchange-provided; it may be changed once the user is set up. BrokerTec only allows proxy traders (TTORD) to trade on the exchange as one TTORD per one Direct trader. Additionally, one Direct trader should not use a different account to trade the same instrument. <p>Note: BrokerTec does not distinguish between TTORD and Direct traders; therefore, setting up traders in any other way can have serious adverse effects on your system.</p> <ul style="list-style-type: none"> Traders can use the FFT2 and FFT3 fields for account management. FFT2 and FFT3 data is not required to route orders to the exchange. When these fields are populated, the gateway forwards their content to the exchange. These values also return from the exchange in order acknowledgments and fills. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
BVMF	User-selected MGT	User-Selected	Exchange-provided for Desk Traders. User-selected for DMA traders.
		<ul style="list-style-type: none"> DMA Traders are assigned Trader IDs by their brokerage firm. Although DMA Trader IDs can be up to 25 characters in length, the 11-character limit in TT User Setup applies. The Desk Traders at these firms receive their IDs directly from the exchange. Password is user-selected. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
CFE	User-selected MGT	User-Selected	User-selected
	Customer Defaults	<ul style="list-style-type: none"> The Member ID value must match the <i>Member</i> parameter value set in the [OrderSession_#] section of the hostinfo.cfg file. The TraderId must be configured as the Operator ID in TT User Setup. FFT2 is used to populate ExecBroker value (Tag 76). This value is unique per executing, give up or clearing firm and composes part of the CIOrdId value. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
CME Group	Exchange-provided	User-Selected	Coordinate with CME to make sure each ID is unique across the whole firm.
	MGT	<ul style="list-style-type: none"> CME Group assigns a firm a <i>SessionId</i> and a <i>FirmId</i> for each login requested. The <i>SessionID</i> and <i>FirmId</i> together make up the exchange trader's Member ID. The Group ID and Trader ID are user-selected, however, all Trader IDs must be unique across the firm membership. This is a CME risk requirement. CME Group requires all individuals to be uniquely identified within a clearing firm by using iLink FIX tag 50 <i>SenderSubID</i>. By default, CME Gateway 7.15 maps FIX tag 50 to the Trader ID portion of the Direct Trader ID. On CME Gateway 7.16 and higher, FIX tag 50 is mapped to the TT Username (i.e., Universal Login ID). Password is user-selected, N/A when using Universal Login 	
	Customer Defaults	<ul style="list-style-type: none"> Traders can use FFT2 and FFT3 fields for account management. FFT2 and FFT3 data is not required to route orders to the exchange. On CME Gateway 7.15 and higher, FFT2 and FFT3 values are not sent to the exchange and do not appear in any acknowledgments or fills. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
ERIS	User-selected	User-Selected	User-selected
	MGT	The Member ID value must match the Member parameter value set in the [orders_session_trade#] section in the hostinfo.cfg file.	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
eSpeed	User-selected	User-Selected	User-selected
The	MGT	Operator ID must be configured in TT User Setup.	
	Customer Defaults	<ul style="list-style-type: none"> Traders can use FFT2 and FFT3 fields for account management. FFT2 and FFT3 data is not required to route orders to the exchange. FFT2 and FFT3 data is not forwarded to the exchange. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
Eurex	Exchange-provided	Exchange-provided	Exchange-provided
	User ID and MGT	<ul style="list-style-type: none"> The exchange provides all exchange traders with an additional credential (User ID) so that they can trade on the T7 architecture. The Eurex Gateway sends the User ID to the exchange instead of the MFGT for trader identification on ETI orders. Password is exchange-provided; it may be changed on the MISS device. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
	Operator IDs and Exchange Trader Passwords	<ul style="list-style-type: none"> The User ID is mapped to exchange trader and TTORD MGTs using the Operator ID field in TT User Setup 7.4.8 or higher. As part of the T7 architecture, you need to configure an Operator ID for each exchange trader and mapped TTORD trader in the TT system. Traders will not be able to route orders to Eurex T7 if Operator ID is not configured. <p>Note: Procedures for configuring the MGT Operator ID and doing a mass edit to automatically assign the same Operator ID to the mapped TTORDs and Users are found in the section titled, "Editing a User's Gateway Login Attributes" in the online TT User Setup Help Library.</p> <ul style="list-style-type: none"> Configure exchange trader passwords for ETI in TT User Setup. The gateway will reject the trader login if the password is missing or corrupt. 	
	Taiwan Futures Exchange (TAIFEX)	Configure Exchange3 (TAIFEX Member) and Exchange4 (TAIFEX Beneficiary Account) in the Edit User Gateway Login Attribute or New/Edit User Gateway Logins window in TT User Setup.	
	Korea Exchange (KRX)	Configure Exchange1 (KRX Member) and Exchange2 (KRX Beneficiary Account) in TT User Setup.	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
HKex	User-selected MGT	User-selected <ul style="list-style-type: none"> FFT2 is mapped FFT3 is mapped to the exchange-info_s OMNet API field. FFT2 is mapped to the customer_information_s OMNet API field. Account is not sent to the exchange. Account Type is mapped to the exchange_client_S OMNet API field. Give Up is mapped to the ex_customer_s OMNet API field. 	User-selected

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
ICE	User-selected MGT	User-selected <ul style="list-style-type: none"> The firm may select the Member ID and Group ID portions of the login. ICE distributes one user ID per trader. This user ID must match the Trader ID portion of the trader's exchange trader ID. The Trader ID must be configured as the Operator ID in TT User Setup. Password is exchange-provided and must be changed once the user is set up. 	Exchange-provided

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
LME	Exchange-provided; can be user-selected Customer Defaults	User-selected <ul style="list-style-type: none"> The exchange requires all customers to register their account codes with LME and to forward the registered account in FIX tag 58. To meet this requirement, TT LME Gateways map the FFT2 in Customer Defaults to FIX tag 58. FFT2 must be populated and cannot exceed 16 characters. The TT LME Gateway rejects an order attempt if FFT2 is blank. LME Gateways do not forward the contents of the Account # field to the exchange. 	User-selected

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
LSE	User-selected MGT	User-selected	Exchange-provided
	Customer Defaults	<ul style="list-style-type: none"> LSE provides a unique 8-character alphanumeric Trader ID that identifies the trader. The trader ID is sent to the exchange and needs to be configured as the Operator ID in TT User Setup (a password is not required). When creating gateway logins, the trader ID can be user-defined or the exchange-provided Trader ID. However, the exchange-provided trader ID must be configured as the Operator ID in TT User Setup. Multiple TTORDs can be mapped to one direct exchange trader. However, in TT User Setup, create separate TTORDs for LSE and IDEM direct trader gateway logins (i.e., the same TTORD cannot map to both LSE and IDEM direct traders). <p>Note: A single TTORD trader cannot map to two separate direct traders on the same gateway. Therefore, each trader must use two TTORD logins that are each uniquely mapped to two different direct traders for the same username. This configuration requires X_TRADER 7.17.x and TT User Setup 7.11.x.</p>	
		<ul style="list-style-type: none"> Traders can use the FFT2 and FFT3 fields for account management. FFT2 is mapped to the "OwnerData" field in the exchange SAIL API and sent to the exchange as part of all order messages. FFT3 is not required for order routing and its value is not sent to the exchange. Account # and Account Type fields are mapped to the SAIL protocol messages sent to the exchange. Account # is sent to the exchange as SAIL message Clearing Data. This 12-character account identifier is required. Account Type is sent to the exchange as SAIL message Account Type and is required. This is also required and supports the following values: A1 (Agent), P1 (Principal), M1 Market), and U1 (Unknown). 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
MEFF	Exchange-provided MGT	User-selected	User-selected
		<ul style="list-style-type: none"> MEFF distributes a SenderCompID to each firm. This is configured as the <i>GatewayCompany</i> parameter of the [OrderServerSession] of the hostinfo.cfg file. If the value is configured in the [OrderServerSession], its value will be used as the Member portion of the exchange trader ID 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
MX	User-selected	User-selected	Exchange-provided

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
	MGT	Password is user-selected; N/A when using Universal Login.	
	Customer Defaults	<ul style="list-style-type: none"> Traders can use the FFT2 and FFT3 fields for account management. FFT2 is mapped to the "Memo" field in the exchange SAIL API and sent to the exchange as part of all order messages. FFT3 is not required for order routing and its value is not sent to the exchange. Account # and Account Type fields are mapped to the SAIL protocol messages sent to the exchange. Account # is sent to the exchange as SAIL message Clearing Data. This 12-character account identifier is required. Account Type is sent to the exchange as SAIL message Account Type and is required. This is also required and supports the following values: A1 (Agent), P1 (Principal), M1 Market), and U1 (Unknown). 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
NASDAQ QMX EU	Exchange-provided	User-selected	Exchange-provided
	MGT	<ul style="list-style-type: none"> The Exchange trader ID is the exchange-provided Username mapped to tag 553. The exchange distributes a SenderCompID. This is configured as the GatewayCompany parameter in hostinfo.cfg and maps to tag 49. The exchange-provided SenderSubID must be configured as the Operator ID in TT User Setup and maps to tag 50. Password is exchange-provided and is configured in TT User Setup. Password is mapped to tag 554. 	
	Customer Defaults	<ul style="list-style-type: none"> FFT2 is mapped to the allocation id in FIX tag 70. By default, NASDAQ QMX Nordic FFT3 is mapped to Order Reference in FIX tag 20009. Account # is mapped to the exchange Clearing Account and is sent to the exchange in FIX tag 1. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
NYSE Liffe	User-selected	User-selected	User-selected
	MGT	Password is user selected; N/A when using Universal Login.	
	Customer Defaults	<ul style="list-style-type: none"> TT NYSE Liffe Gateways do not use the Individual Trader Mnemonic (ITM) as part of the direct trader login (MGT). The mapping between the ITM and Member ID is done in the hostinfo.cfg configuration file. Beginning with NYSE Liffe 7.17.x Gateways, the Member ITM must be configured as the Operator ID in TT User Setup. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
OSE	User-selected	User-selected	User-selected

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
	MGT	Password is user selected; N/A when using Universal Login.	
	Customer Defaults	<ul style="list-style-type: none"> • FFT2 is mapped to the allocation id in FIX tag 70. • The FFT2 populates the exchange_info_s API field and is used to enter the Account Type information for back office reconciliation. FFT2 data is not required to route orders to the exchange. • By default, OSE uses the FFT3 field to populate the customer_info_s APU field. This field is optional when entering most orders; however, for Give Up orders, the Customer Identification Number is required. • By Default, OSE uses the Account field to populate the ex_client_s API field. Account data is not required to route orders to the exchange. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
SFE	User-selected	User-selected	User-selected
	MGT	<ul style="list-style-type: none"> • Member must match <i>localcompany</i> or member parameter found in the [Order_Session] section of the SFE Gateway's hostinfo.cfg configuration file. • TTORD traders must be mapped to a direct trader whose Member ID matches the <i>localcompany</i> or member in the [Order_Session] section of the hostinfo.cfg file. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
SGX	User-selected	User-selected	User-selected
	MGT	<ul style="list-style-type: none"> • SGX allows all components to be defined by the customer; however, the Trader ID portion of the exchange trader ID must be unique across each membership within the firm. • Password is user-selected; N/A when using Universal Login. 	
	Customer Defaults	<ul style="list-style-type: none"> • By default, SGX uses the FFT2 field to populate the customer_info_s API field. For Give Up orders, it is mapped to ex_customer_s. • For SGX Gateway 7.16 and lower, when using Omnibus account handling, SGX uses the FFT2 field to populate the ex_client_s API field. To enable Omnibus handling, you must set AccountHandling=Omnibus in the hostinfo.cfg. <p>Warning: The SGX Risk Controls interface will reject any order submitted with lower case values in the ex_client_s field. Therefore, users must populate FFT2 with uppercase values when using Omnibus account handling.</p>	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
TFX 7.14	User-selected	User-selected	Exchange-provided

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
	MGT	Password is exchange-provided; N/A when using Universal Login.	
	Customer Defaults	<ul style="list-style-type: none"> Traders can use the FFT2 and FFT3 fields for data management; the TFX Gateway does not require these fields. Values entered into FFT2 are forwarded to the exchange as "User-Defined Data" and are present in all order and fill acknowledgments Account is not required to route orders to the exchange. Open/Close data is not required to route orders to the exchange. Account Type is required to route orders to the exchange. TFX Gateways support A1-A3 (Client-Agency Account (A)), and P1-P3 (House-Principal (P)). Give Up is required for Give Up orders only. 	

Exchange	Member (TT max of 7 characters)	Group (TT max of 3 characters)	Trader (TT max of 11 characters)
TOCOM	User-selected	User-selected	User-selected
	MGT	Password is N/A when using Universal Login.	
	Customer Defaults	<ul style="list-style-type: none"> The exchange requires all customers to register their exchange sub-account and forward the registered account in the ex_client_s API field. To meet this requirement, TT TOCOM Gateways map the FFT3 in Customer Defaults to ex_client_s. FFT3 must be populated and is mandatory for order routing. The TT TOCOM Gateway rejects an order if FFT3 is blank. TOCOM Gateways do not forward the contents of the Account # field to the exchange. 	

Example 1

For a trader registering with Eurex, the exchange assigns a Member ID, a Group ID, and a Trader ID. For a trader registering with CME, the exchange assigns a Member ID (which would be the CME iLink session), but the Risk/System Administrator creates the Group ID and Trader ID.

Gateway Logins: TTORD IDs

Overview	A TTORD ID is a TT-specific ID that may be given to users who do not typically have their own exchange credentials. TTORD IDs may also be referred to as TTORDs, non-registered trader IDs, or TTORD Gateway Logins.
TTORD Mappings	<p>A TTORD ID is then mapped to one or more exchange trader IDs. When the user places an order with TTORD ID, the order is routed using the exchange trader's ID for that particular TT Gateway/exchange. To the exchange, it appears as if the exchange trader placed the order, as some or all of the exchange trader ID is sent to the exchange with the order.</p> <p>TTORD IDs may also be assigned to traders with their own exchange trader IDs. The advantage of using TTORDs is that they are more customizable, and therefore, give you more flexibility in defining which orders traders and administrators can view, modify, and delete.</p>
Accounts	When connecting to FIX Adapter clients or pre-7.17 clients (e.g., 7.12 X_TRADER), each TTORD ID must be assigned at least one account and that account must be unique across all Gateway Logins. When connecting to clients 7.17 and later, accounts are no longer required and can be shared by multiple users.
TTORD ID Format	<p>TTORD IDs follow the same Member/Group/Trader format as exchange trader IDs. However, the Member ID will always start with TTORD. This is hard-coded into TT's software.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Note: You can create groups of traders by assigning different TTORD memberships, such as <i>TTORDAB</i> or <i>TTORDCD</i>. These examples will generically be referred to as <i>TTORDYY</i>.</p> </div>
Important TTORD Considerations	<p>When using TTORD IDs, keep the following in mind:</p> <ul style="list-style-type: none"> • When connecting to FIX Adapter clients or pre-7.17 clients (e.g., 7.12 X_TRADER), users with TTORD IDs in TT User Setup must use pre-configured account numbers that are defined by an administrator in TT User Setup. When connecting to clients 7.17 and later, accounts are not longer required. • When connecting to FIX Adapter clients or pre-7.17 clients, if a user with an exchange trader ID enters an order with an account number that is assigned to a TTORD ID, then a user using that TTORD ID (or anyone who shares an order book with that user) will see the order in their order book. When connecting to clients 7.17 and later, a direct trader must be enabled for "on-behalf-of (OBO) orders" before placing an order on behalf of another trader.



Warning: When connecting to FIX Adapter clients or pre-7.17 clients, if the account number used belongs to a TTORD ID that is not mapped to the exchange trader ID, or one with the same Member/Group that placed the order, then that order can become stale to the user of the exchange trader if the TTORD modifies it. TT User Setup includes diagnostics to detect this situation.

When connecting with clients 7.17 and later, TTORD users will be able to see all orders entered on their behalf, even if an account was entered incorrectly. However, if the exchange trader enters the order using an account that the TTORD is not permitted to use, the TTORD trader could be unable to manage the order. For more information about account permissions, refer to the Account/Account Group Level Risk Checking chapter.

Example 1

In figure 1, three separate TTORD IDs map to one exchange trader. This allows three users to have distinct sets of risk limits, while utilizing a single exchange trader ID. Users that will share an order book must be assigned the same member and group IDs. In Figure 1, the user using TTORD/AABC/001 and the user using TTORD/ABC/002 share an order book, while the user using TTORD/JOE/001 has his own order book. Users who share an order book can access each other's orders and fills.

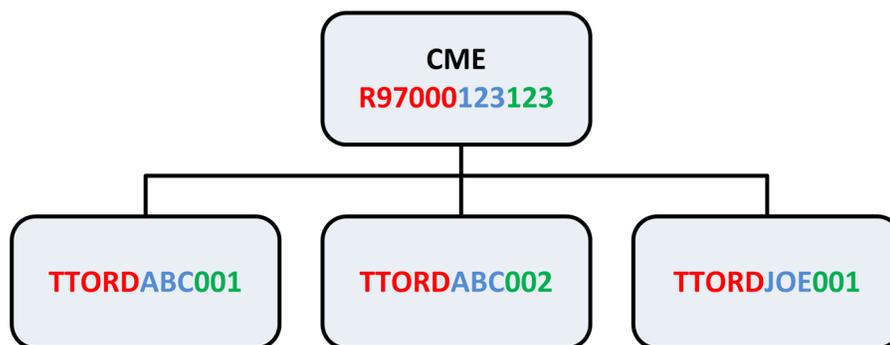


Figure 1: Multiple TTORD IDs Mapped to one Exchange Trader ID

Alternatively, if a user (e.g., an administrator or senior trader) logs in with the exchange trader ID (e.g., R97000/123/123), that user will see all orders and fills for all TTORD IDs mapped to the exchange ID, but the TTORD users cannot see any of the orders or fills from the user using the exchange trader ID. The exchange trader ID user can also place orders on behalf of any of the TTORDs. These orders will be seen by users that use those TTORDs.

For more information about order book sharing, refer to the Order Book Sharing section.

Example 2

Figure 2 shows that TTORD/JOE/001 from the previous example is also mapped to two additional exchanges with different exchange trader IDs. This allows an administrator to manage risk limits for a single ID (TTORD/JOE/001) rather than multiple IDs for each exchange connection.

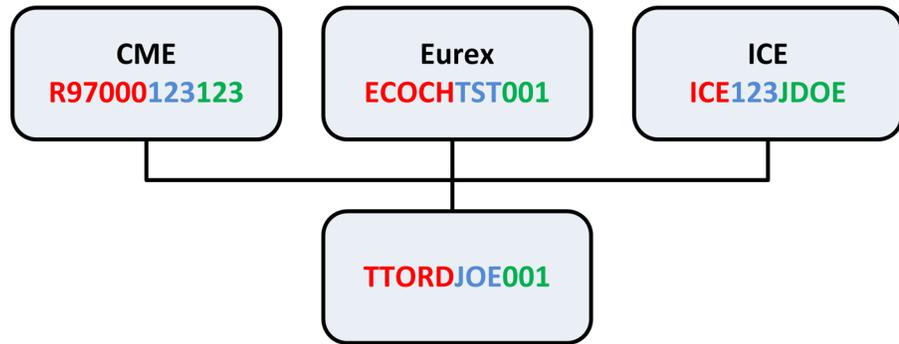


Figure 2: Exchange Trader trading on multiple exchanges using one TTORD

Example 3

Sam and Josh work for the same trading firm. Sam has a membership with ICE (with an exchange trader ID of X7H/ABC/123) and Josh is a junior trader who will be trading with the help of Sam.

If you want to enable Josh to trade products on ICE, you have two options:

- Option 1: If you give Josh a TTORD ID (e.g., TTORDAFB/AAA/JOSH) that is mapped to Sam's ICE exchange trader ID, Josh will also be able to trade products on ICE. All orders that Josh enters will be routed with Sam's ICE exchange trader ID (ICE is X7H/ABC/123). When Sam logs in, he will also see Josh's orders.
- Option 2: If you give both Sam and Josh TTORD IDs that are mapped to Sam's exchange trader ID, Sam and Josh will be able to trade products on ICE. If Sam does not want to see Josh's orders, make sure the TTORD IDs have different Group IDs.

For more information about order book sharing, refer to the Order Book Sharing section.

Gateway Logins: Strategy Engine Logins

Overview	<p>A Strategy Engine login is a TT-specific ID that may be given to users in order to access the Synthetic Strategy Engine, Autospreader Strategy Engine, or Algo Strategy Engine.</p> <p>You configure trader or administrator access to SE servers in the same way as you configure access to standard TT Gateways – through a Gateway Login. However, there are no exchange specific rules for configuring particular Member/Group/Trader IDs for the Gateway Logins for an SE Server. These values are always Risk/System Administrator-configured.</p>
Strategy Engine Login Considerations	<p>The following are some Strategy Engine Login considerations to keep in mind:</p> <ul style="list-style-type: none"> • TT recommends establishing a naming convention so that you can quickly differentiate between Gateway Logins assigned by the exchange and Strategy Engine logins which are Risk/System Administrator configured. <ul style="list-style-type: none"> - TTSSE/SE1/001 - TTSE/SE1/001 - TTASE/SE1/001 - TTALGSE/SE2/001 - TTSSE/SE2/002 - ---etc. • Traders that share an order book must have matching Member IDs and Group IDs for the gateways to which they connect and matching Member IDs and Group IDs for the Strategy Engine logins to which they connect. • If a trader logs into all TT Gateways with a TTORD ID (e.g., TTORDAB/001/001), you can map the TTORD ID to an Strategy Engine login (e.g., TTSE/SE1/001 - which is a risk/system administrator-configured Member/Group/Trader ID) for the Strategy Engine servers. • If a trader logs into TT Gateways with multiple exchange trader IDs, you can map the trader directly to a Strategy Engine login (e.g., TTSE/SE1/001 - which is a risk/system administrator-configured Member/Group/Trader ID) for the Strategy Engine servers.

Administrator Gateway Logins

Overview

An Administrator Gateway Login is a TT-specific ID that may be given to users in order to access TT Gateways and Strategy Engine Servers. Administrator Gateway Logins cannot be used for trading; they are used to connect to TT Gateways, monitor orders and fills, delete orders, publish manual fills and start-of-day records, and perform other administrative functions.

The most common Administrator Gateway Login is TTADM/XXX?MGR. A user with this login can view all orders and fills for one or more TT Gateways.

Administrator Gateway Login ID Format

There are no exchange specific rules for configuring particular Member/Group/Trader IDs for the Gateway Logins for Administrator Gateway Logins. These values are always Risk/System Administrator-configured. However, the values that you assign to the Member ID, Group ID, or Trader ID, do have significance within TT 7.x applications.

Value	Description
Member ID = TTADM	<ul style="list-style-type: none"> • TTADM can be used as a wildcard in the Member ID field. • A Gateway Login with TTADM in the Member ID field can see all orders and fills across all Member IDs.
Group = XXX	<ul style="list-style-type: none"> • XXX can be used as a wildcard in the Group ID field. • It is commonly used in conjunction with the Member ID TTADM in order to see all orders and fills. • It can also be used with a specific Member ID such as TTORDAB, in order to see all orders and fills submitted with a Member ID TTORDAB.
Trader = MGR	<ul style="list-style-type: none"> • MGR signifies an admin login (and therefore one that cannot be used for trading). When used in applications such as X_TRADER or X_RISK, it permits the user to delete orders. • It is commonly used in conjunction with the Member ID of TTADM and the Group ID XXX in order to see all orders and fills, delete them. • It can also be used with a specific Member ID such as TTORDAB, in order to see and delete orders and fills submitted with a Member ID of TTORDAB.

Value	Description
Trader = VIEW	<ul style="list-style-type: none"> VIEW signifies an admin login (and therefore one that cannot be used for trading). When used in applications such as X_TRADER or X_RISK, it permits the user to view orders, but not delete them. It is commonly used in conjunction with the Member ID of TTADM and the Group ID XXX in order to see all orders and fills, but not delete them. It can also be used with a specific Member ID such as TTORDAB, in order to see and delete orders and fills submitted with a Member ID of TTORDAB.

* A user logged into X_TRADER with a Master Administrator login must have the Trading allowed setting enabled within the *User-Level Risk* section of the TT User Setup **Edit User** window in order to delete trader's orders.

Group-Level Administrator Gateway Logins

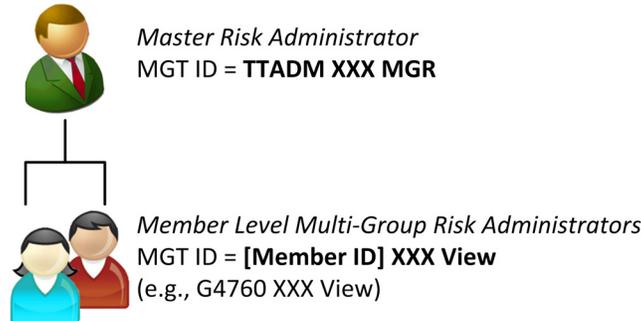
Overview

Multiple Risk Management IDs may be created to manage different subgroups - both at the Member level and the Group level. Member level and Group level Risk Administrators can be used to allow a parent firm to separate and manage risk for different individual customers.

Group level Risk Administrators can view trading activity and enter manual fills and Start-of-Day records for a subset of traders.

Example 1

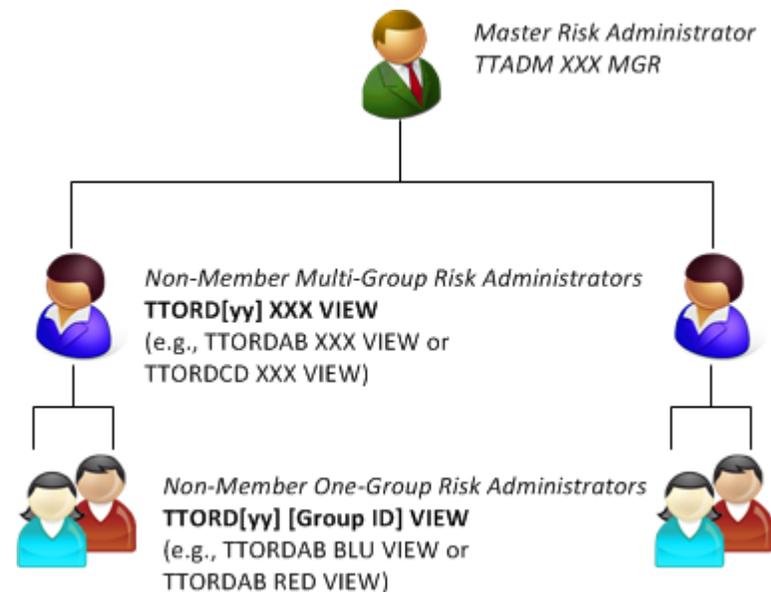
In this example, the Master Risk Administrator has permissions to view all trader's positions, P&L, etc. Member Level Multi-Group Risk Administrators will be able to view trade data for all traders with the same Member ID as their own. This could contain multiple groups of traders (based on the Group



Example 2

In this example, the following is assumed:

- The Master Risk Administrator has permissioned to view all traders' risk positions, P&L, etc.
- The Non-Member **Multi-Group** Risk Administrators will be able to view trade data for all traders with the same Member ID as their own. This could contain multiple groups of traders (based on the Group ID).
- The Non-Member **One-Group** Risk Administrators can only view trade data for traders that have the same Member and Group IDs as their own.



Order Book Sharing

Overview

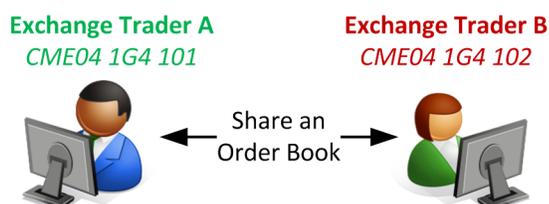
Traders who share the same Member ID and Group ID will be able to see and manipulate each other's orders in their share order book. This is true for exchange traders, as well as for TTORD traders who share Member ID and Group IDs.

Traders who share the same Member ID and Group ID will also see one another's fills. **Note:** Traders that share order books must connect to the same TT Gateways. If two users are not logged into the same TT Gateways, then they will not share an order book, even if they have the same Member ID and Group ID.

Both exchange traders and traders who use TTORD IDs can share an order book.

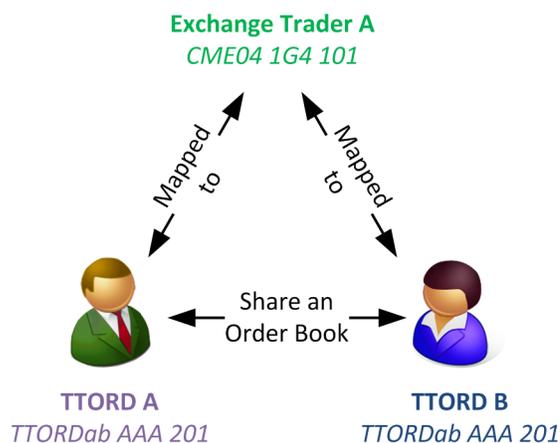
Exchange Trader Order Book Sharing

Figure 3 shows two traders that use exchange trader IDs sharing an order book.



TTORD Order Book Sharing

Figure 4 shows two traders that use TTORD IDs sharing an order book. All orders that a TTORD ID trader submits also appear in the order book of the exchange trader to which the TTORD ID is mapped. Therefore, an exchange trader may manipulate any orders routed through his or her exchange trader ID. IN Figure 3, if a user logs in with CME04/1G4/101, that user has access to the order books for both TTORD A and TTORD B.



Note: When users using TTORD IDs share an order book they should only be mapped to the same exchange trader ID or to exchange trader IDs that have the same Member IDs and Group IDs.

Users of those exchange trader IDs will see all orders and fills from the TTORD ID users.

TTORD Order Book Sharing Considerations

When sharing an order book across TTORD IDs, keep the following in mind:

- When connecting using FIX Adapter clients with multiple TTORDs or pre 7.17 clients (e.g., X_TRADER 7.12):

- TTORD IDs cannot share account numbers, even if they share an order book.
- Users using TTORD IDs must use pre-configured account numbers that are defined by an administrator in TT User Setup. See the Account Number Requirements section for more information regarding account number restrictions.
- If a user using an exchange trader ID enters an order with an account number that is assigned to a TTORD ID, then a user using that TTORD ID (or anyone who shares an order book with that user) will see the order in their order book.

WARNING: If the account number used belongs to a TTORD ID that is not mapped to the exchange trader ID, or one with the same Member/Group that placed the order, then that order can become stale to the user of the exchange trader ID if the TTORD modifies it. TT User Setup includes diagnostics to detect this situation.

- When connecting using clients 7.17 and later:
 - Accounts are not required for TTORD IDs.
 - A user using an exchange trader ID must be granted permission to place orders on behalf of users using TTORD trader IDs.
 - The user using an exchange trader ID can only enter orders on half of users with TTORDs mapped to his exchange trader ID, or another exchange trader ID that has the same Member and Group.

WARNING: If a user using an exchange trader ID places an order on behalf of an exchange trader using an account that the TTORD user does not have permission to use, the TTORD trader will be able to see but not manage the order.

Strategy Engine Servers and Order Book Sharing

Users who want to share, view, or modify synthetic orders must connect to the same Strategy Engine servers and to each of the related TT Gateways with Member/Group/Trader IDs that share Member IDs and Group IDs. For example, suppose a trader named Casey submits a synthetic trailing stop order for a CME contract that gets routed through Synthetic SE. Casey uses the following credentials:

- SSE: TTORDAB/001/001, which maps to direct trader ID TTSSE/SE1/001
- CME: TTORDAB/001/001, which maps to direct trader ID ABC/ABC/ABC

The following table illustrates whether other traders with different credentials can see Casey’s order.

Credentials	Visible?	Description
SSE: TTORDAB/001/002 CME: TTORDAB/001/002	Yes	The Synthetic Strategy Engine credentials have the same Member + Group values (TTORDAB + 001), and the CME credentials have the same Member + Group values (TTORDAB + 001).
SSE: TTSSE/SE1/002 CME: ABC/ABC/001	Yes	The Synthetic Strategy Engine credentials have the same Member + Group values (TTSSE + SE1) as the direct trader to which TTORDAB/001/001 is mapped, and the CME credentials have the same Member + Group values (ABC + ABC) as the direct trader to which TTORDAB/001/001 is mapped.

Credentials	Visible?	Description
SSE: TTSSE/SE1/001 CME: TTORDZZ/001/002	No	The Synthetic Strategy Engine credentials have the same Member + Group values (TTSSE + SE1) as the direct trader to which TTORDAB/001/001 is mapped, but the CME credentials have a different Member ID (TTORDZZ vs. TTORDAB).
SSE: TTSSE/SE2/002 CME: TTORDAB/001/002	No	The CME credentials have the same Member + Group values (TTORDAB + 001), but the Synthetic Strategy Engine credentials have a different Group ID than the direct trader to whom TTORDAB/001/001 is mapped (SE2 vs SE1). In this case, the trader can see the exchange-native child orders, but cannot see the parent synthetic orders.
SSE: TTORDAB/001/002 CME: ABC/ABC/002	Yes	The Synthetic Strategy Engine credentials have the same Member + Group values (TTORDAB + 001), and the CME credentials have the same Member + Group values (ABC + ABC) as the direct trader to whom TTORDAB/001/001 is mapped.

ADL has some additional permissions that can be configured for users who log into the same Synthetic Strategy Engine servers. For more information about these settings, refer to the TT User Setup Online Help System.

Placing Orders On Behalf of Other Traders

Overview

Historically, a user who logged in with a direct trader Gateway login was able to place an order for a TTORD user by placing it with that user's account number. When connecting with 7.17 clients (e.g., X_TRADER), exchange traders must be explicitly configured to place orders on behalf of other users by checking the user's **On behalf of orders** setting. Once configured, the exchange trader can enter orders on behalf of users with TTORDs mapped to his exchange trader ID, or another exchange trader ID that has the same Member and Group.

WARNING

WARNING: If a user using an exchange trader ID places an order on behalf of an exchange trader using an account that the TTORD user does not have permission to use, the TTORD trader will be able to see but not manage the order.

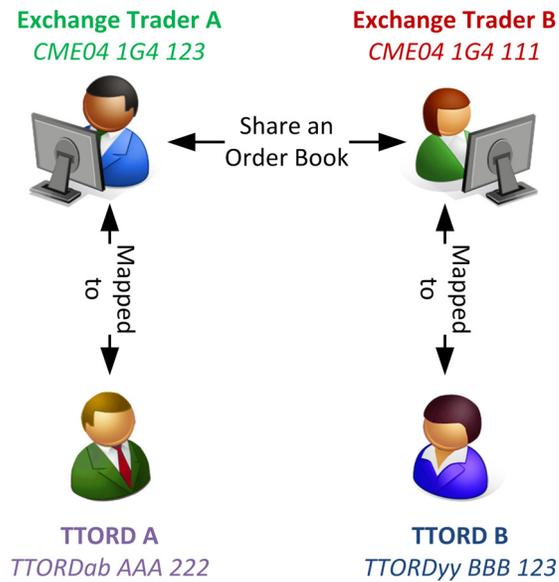
Account Number Requirements for Gateway Logins

Overview	<p>Exchange trader and administrator Gateway Logins do not require an account number.</p> <p>When connecting to order routing FIX Adapter clients that connect to multiple TTORDs or when connecting to pre-7.17 clients (e.g., X_TRADER 7.12), you must assign at least one unique account number for each TTORD ID. TTORD IDs may have multiple account numbers. When a TTORD trader places an order, it must match one of the accounts assigned to the TTORD ID or the order will be rejected.</p> <p>Accounts are case sensitive (an account number in upper case is treated as a different account than the same account number in lower case) and consist of 1-15 alphanumeric characters; special characters are not allowed.</p> <p>Accounts are not required when connecting to clients 7.17 and later.</p>
Account Permissions	<p>Account permissions can be configured per user from the Account Permissions tab, the Customer Defaults, and the user settings. Orders can now be restricted to the following accounts:</p> <ul style="list-style-type: none"> • Accounts listed in the user's Account Permissions tab (if Can only create, modify, and delete orders with the following accounts is checked) • Accounts listed in the user's Customer Defaults (if Restrict user from editing their local Customer Defaults is checked) • Accounts that have been created in TT User Setup (if the Submitting orders with undefined accounts option is unchecked). <p>Note: When using pre-7.17 clients or gateways, the order will continue to be restricted to accounts listed in the Accounts section of the TTORD's Gateway Login.</p>

Questions and Answers

Question 1

- 1 Whose orders can trader B manipulate?
- 2 Which traders can see TTORD B's orders?



Answers 1

- 1 Trader B can manipulate everyone's orders.
- 2 TTORD B, Exchange Trader A, and Exchange Trader B can see TTORD B's orders. Because TTORD A does not share an order book, TTORD A cannot see TTORD B's orders.

Gateway Login Level Risk Checking

Introduction

Overview	<p>Gateway Logins are Member/Group/Trader IDs (MGTs) that TT User Setup administrators assign to users so that they can log into TT Gateways and/or Strategy Engine servers. Each Exchange Trader ID and TTORD ID can have its own risk limits configured. When a user routes an order with a given MGT, the risk limits for that MGT are applied. Account and user based risk limits still apply.</p> <p>Note: Risk limits are not needed for Strategy Engine (SE) Logins or Administrator Gateway Logins.</p>
Edit Gateway Login Window	<p>Gateway Login Risk limits are set in the Edit Gateway Login window. Set trader limits as needed for the Gateway login, including...</p> <ul style="list-style-type: none"> • Risk check (On or Off) • Trading allowed (Yes or No) • Ignore P&L (Yes or No) • Credit (credit limit) and Currency (for credit limit) <p>Note: You can set a User-Level Risk limit from the Edit User window or an account/account group risk limit from the Edit Account or Edit Account Group windows.</p>
Enabling Risk Checking	<p>Note: If the Risk Check is unchecked, all pre-execution risk parameters for an MGT are ignored. However, user and account-based risk parameters will continue to be honored.</p>
Enabling Trading	<p>Trading allowed determines whether the trader is allowed to trade using the MGT. This setting defaults to No.</p> <ul style="list-style-type: none"> • The Yes option allows the trader to trade using the MGT. • The No option prevents the trader from trading with the MGT.

Credit

Credit Parameters

When checking risk limits by credit, TT 7.x software uses the following parameters to determine if an order should be accepted or rejected.

- **Credit:** This field is essentially the amount of money a trader can lose per session. More specifically...
 - Upon login, for a given MGT, a trader's available credit will be the full Credit Limit value assigned to his or her Trader ID in TT User Setup. Available credit is adjusted up or down based on fills received while the trader remains logged in.
 - Credit resets per gateway session, at gateway rollover time. However, if a trader remains logged into X_TRADER after session rollover, then his credit will include and gains or losses from the previous session. Once the trader logs out, his credit will be reset.
 - When setting a credit limit for a Gateway Login with multiple exchange connections (for example, a TTORD trader), the credit limits is the total amount the trader can lose across all exchanges he or she can trade with this MGT.
 - When multiple traders share an MGT, the credit limits is shared across all traders that use the MGT.

Note: A credit limits is also available at the *User Level*.

- **Ignore P&L:** This field specifies if you want to ignore P&L when risk checking. P&L, in this case includes *Realized P&L* and *Open P&L*, which adds to or decreases the trader's available credit.
 - *Realized P&L* is the P&L from completed trades.
 - **Open P&L** is the value of a trader's position as compared to the market price, which is typically last traded price, depending if the Use P&L Risk setting and the current state of the market.

Note: Ignore P&L may be set to Yes if the firm only wants to use margin to control credit risk (i.e., "buying power").

- **Ignore Margin:** This field specifies if you want to ignore margin when risk calculating. This allows you to disable margin checking for a single user (instead of setting additional margin to -100%).
- **Margin:** The margin required for each product is found in the **Product Margin** window, which is accessed from the **Server Admin** menu. For more information about how margin is calculated, see the next section "Calculating Margin".

Note: The TT User Setup API can be used to update margin programmatically based on the values from the exchange. For more information about the TT User Setup API, refer to the TT Developers Center:

(<https://developer.tradingtechnologies.com/tt-user-setup-api>).

- **Additional Margin (%):** This field specifies a percentage above or below the administrator-set margin requirements. It is set per product when configuring product limits. For information about how additional margin effects margin, see the next section "Calculating Margin".

Calculating Margin

TT User Setup uses the following formulas to calculate the total *Margin* for a product using intra-Product Spread Margining:

Worst Case Net Product Position * (Future Margin +/- Additional Future Margin Requirements) = Future Margin Required

Synthetic Spread Position * (Spread Margin +/- Additional Spread Margin Requirements) = Synthetic Spread Margin Required

Even-Legged Exchange Spreads * (Spread Margin +/- Additional Spread Margin Requirement) = Spread Margin Required

Note: This section discusses Future and Spread Margin, but the same is true for Options and Strategy Margins, Energy and Spread Margins.

Calculating Available Credit

TT software uses the following formula to calculate available credit for traders:

Credit +/- Overall P&L - Future Margin Required - Synthetic Spread Margin Required - Spread Margin = **Available Credit**

If a trader's available credit is **less than zero**, the trader is not allowed to place the trade.

Example 1

A trader has the following risk limits:

- Credit is 5,000 USD
- Ignore P&L is No
- Ignore Margin is No
- Product is ES
- Margin is 4,000 USD
- P&L is 7,500 USD
- No existing positions

Question: Can the trader buy **3 Futures** contracts?

- Worst Case Net Position * Future Margin = Future Margin Required
3 * 4,000 USD = 12,000 USD
- Credit Limit + P&L - Future Margin Required = Available Credit
5,000 USD + 7,500 USD - 12,000 USD = 500 USD Available Credit

Result: Available Credit is greater than zero (0), so the order is accepted.

Example 2

Assume the previous order was filled and the current Jun ES position is long 3. Now the trader wants to buy one (1) JUN-SEP ES exchange-traded spread trader:

- Credit is 5,000 USD
- Ignore P&L is No
- Ignore Margin is No
- Product is ES
- Margin is 4,000 USD
- Spread Margin is 2,000 USD
- P&L is 7,500 USD
- Position is long 3

Question: Can the trader buy **1 JUN-SEP ES Spread**?

- Worst Case Net Position * Future Margin = Future Margin Required
3 * 4,000 USD = 12,000 USD
- Even-legged Exchange Spreads * Spread Margin = Spread Margin Required
1 * 2,000 USD = 2,000 USD
- Credit Limit + P&L - Future Margin Required - Spread Margin Required = Available Credit
5,000 USD + 7,500 USD - 12,000 USD - 2,000 USD = -1,500 USD Available

Credit

Result: Available Credit is less than zero (0), so the order is rejected.

Additional Margin

Margin is defined by the TT User Setup system administrator, and is typically based on exchange requirements. This is the amount of available credit that a buyer or seller must have to place an order. Additional margin allows risk managers to increase or decrease margin requirements when calculating risk limits for traders. For example, the margin for a particular product is 4,000 USD and a trader's additional margin has been increased/decreased by the following:

Additional Margin Percentage is...	Margin Calculation (Margin + (Additional Margin % * Margin) = Total Margin)
+50	$\$4,000 + 50\% (\$4,000) = \$4,000 + \$2,000 = \$6,000$ total margin required when placing a 1-lot order
-50	$\$4,000 - 50\% (\$4,000) = \$4,000 - \$2,000 = \$2,000$ total margin required when placing a 1-lot order
-100	$\$4,000 - 100\% (\$4,000) = \$4,000 - \$4,000 = 0$ total margin required when placing a 1-lot order
Note: When additional margin is 100%, margin always equates to zero (0) and only credit and P&L are used to calculate available credit.	

You can enter additional margin higher than 100% (e.g. double the margin requirement). However, you cannot enter additional margin less than -100%.

Note: Additional margin values can apply to all Product Types. For example, if a Future Additional Margin is specified, it will apply to the Future Margin and if Spread Additional Margin is specified, it will apply to the Spread Margin.

Example 1

A trader has the following risk limits:

- Credit is \$5,000 USD
- Ignore P&L is No
- Ignore Margin is No
- Product is ES
- Margin is 4,000 USD
- Additional Margin (%) is 30%
- P&L is 7,500 USD
- No existing positions

Question: Can the trader buy **3 Futures** contracts?

- Future Margin * Additional Margin % = Additional Margin Requirements
 $4,000 \text{ USD} * 30\% = 1,200 \text{ USD}$
- Worst Case Net Position * (Future Margin +/- Additional Future Margin Requirements) = Future Margin Required
 $3 * (4,000 \text{ USD} + 1,200 \text{ USD}) = 15,600 \text{ USD}$
- Credit Limit + P&L - Future Margin Required = Available Credit
 $5,000 \text{ USD} + 7,500 \text{ USD} - 15,600 \text{ USD} = -3,100 \text{ USD Available Credit}$

Result: Available Credit is less than zero (0), so the order is rejected.

Example 2

A trader has the following risk limits:

- Credit is \$5,000 USD
- Ignore P&L is No
- Ignore Margin is No
- Product is ES
- Margin is 4,000 USD
- Additional Margin (%) is -100%
- P&L is 7,500 USD
- No existing positions

Question: Can the trader sell **100 Futures** contracts?

- Future Margin Required = 0 USD (as additional margin is set to -100)
- Credit Limit + P&L - Future Margin Required = Available Credit
5,000 USD + 7,500 USD - 0 USD = 12,500 USD Available Credit

Result: Available Credit is greater than zero (0), so the order is accepted.

Example 3

A trader has the following risk limits and position:

- Credit is \$1,200 USD
- Ignore P&L is No
- Ignore Margin is No
- Product is NQ
- Spread Margin is 60 USD; Future Margin is 100 USD
- Additional Future Margin (%) is -50%
- Additional Spread Margin (%) is -25
- The trader has bought 5 MAR Futures, sold 12 JUN Futures, and bought 10 MAR - JUN exchange-traded spreads

	Long	Short	Position
MAR	15	0	
JUN	0	22	
Sum	15	22	7 Short

Question: Can the trader sell **1 JUN Future**?

- Future Margin Required + Additional Margin (%) = Additional Margin Requirement
100 USD * -50% = -50 USD
- Worst Case Net Product Position * (Future Margin +/- Additional Future Margin Requirements) = Future Margin Required
(7 + 1) USD * (100 USD - 50 USD) = 400 USD
- Synthetic Spread Position * Additional Spread Margin % = Additional Synthetic Spread Margin Requirements
60 USD * -25% = -15 USD
- Synthetic Spread Position * (Spread Margin +/- Additional Synthetic Spread Margin Requirements) = Synthetic Spread Margin Required
15 USD * (60 USD - 15 USD) = 675 USD
- Credit Limit + P&L - Future Margin Required - Synthetic Spread Margin Required = Available Credit
1,200 USD + 0 USD - 400 USD - 675 USD = 125 USD Available Credit

Result: Available Credit is greater than zero (0), so the order is accepted.

Credit Limits and Order Book Sharing

Keep in mind that it is possible for traders sharing an order book to have different credit limits (though this is not recommended). However, since these traders see and manipulate the same orders, they will all have the same P&L in their Fill windows.

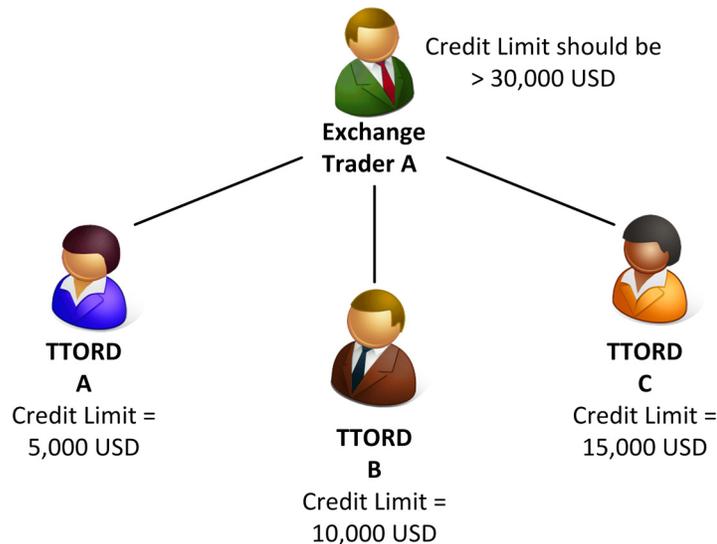
In some cases, risk managers wish to ensure that a group of traders together lose no more than a set amount (e.g., 250,000 USD). To accomplish this, first determine if the traders will share an order book or not.

- If traders will share an order book, give each trader the same maximum credit limit (e.g., each will have a credit limit of 250,000 USD).
- If traders will not share an order book, the recommended setup is to give each trader a portion of the total credit limit they can all lose (e.g., if you have five traders, give each a credit limit of 50,000 USD).

Credit Limits and Traders

When it comes to setting credit limits, it is also important to consider order book sharing between exchange traders and TTORD traders.

If several TTORD traders are mapped to an exchange trader who also trades (for instance, a senior trader wishes to supervise three junior traders), the exchange trader's credit limit should be higher than the sum of the TTORD traders' credit limits.



In this example, each TTORD trader may trade until he or she reaches his or her own set credit limit. However, if the exchange trader's credit limit is less than or equal to the sum of the three TTORD traders' credit limits (e.g., < 30,000 USD), then the exchange trader will no longer be able to trade if the TTORD traders each reach their own credit limit. To ensure that the exchange trader will be able to trade even if each TTORD reaches their credit limit, the exchange trader should have a credit limit that is greater than 30,000 USD.

Keep in mind that an exchange trader's P&L does not affect the trading of the TTORD traders mapped to the exchange trader ID.

Position Limits

Overview

When checking risk limits by position, TT software uses the following fields with the Gateway Login **Product Limit** window in TT User Setup to determine when a trader can place a trade: **Product Margin**, **Maximum Order Quantity**, **Maximum Position**, and **Maximum Long/Short**. To create a Gateway Login product limit, click the **New Product Limit** button on the **Edit Gateway Login** window.

Product Limit Settings

The following are settings found in the Product Limit window:

- **Product Type:** This field specifies whether this limit applies to an option, future, spread, etc. See the **Product Types** section for more information.
- **Product:** This field determines the (e.g., FGML, ODAX, etc.) to which the limits apply. An asterisk indicates that the limit applies to all products of the specified product type, unless an additional product limit exists with a specific product.

For example: Assume you have two product limits configured for the CME-A gateway: for one limit the product is * (all products) with a maximum position of 10, and for the other limit the product is ES with a maximum position of 5, and when trading all other products on the CME-A Gateway, the maximum position limit is 10.

- **Maximum Order Quantity:** This field determines the maximum individual order size that can be entered at a time for a specified product.
- **Maximum Position:** This field determines the position limit for a given product; maximum position can have various meanings depending on whether it's related to a Future, Option, Spread, or Strategy. For details, refer to the **Defining Maximum Position** section of this topic.
- **Max Long/Short:** This field limits the worst case total long or short contracts per product. (See the **Max Long/Short** topic for more information).
- **Trade Out allowed:** This field determines whether the trader can exceed maximum order quantity and/or available credit limits to reduce risk for the specified contract.

Position Types

Position limit calculations will depend upon the *Product Type* that is selected.

Product Limits: When you are trading the outright contract (i.e., Future is selected as the Product Type), position limits are calculated based on the *product* (i.e., Product-level position). This means that the formula used to calculate the WCP is based on *net position of the delivery months that make up that product*.

Contract Limits: When Spread is selected as the Product Type and the spread is a single product / intra-product spread (as opposed to a multi-product or inter-product spread), position limits are calculated based on the contract (i.e., Contract-level position) whether you are trading spreads or not. This means that the formula used to calculate Worst Case Position (WCP) is based on the specific contract you are trading. When trading spreads, you are trading at least two contracts and each contract must pass the position limit test.

Note: For Inter- Product Spreads, the Maximum Position field **is not used** for risk checking, even if a non-zero value is entered. In order to manage position risk on Inter- Product Spreads, you **MUST** enter both FUTURE and SPREAD type position limits for each of the products that comprise that Inter- Product Spread.

Calculating (Worst Case) Position

TT software uses the following formula to calculate a trader’s position, specifically a trade’s worst case position (WCP) (whether that’s the **Worst Case Net Product Position (WCNPP) or Worst Case Contract Position (WCCP)**) when determining if an order should be allowed to enter the market.

$$\text{Current Position} + \text{Working Orders on buy/sell side} + \text{Possible Fill from Current Order} = \text{Worst Case Position}$$

A trader’s worst case (long or short) position is compared against the trader’s Maximum Position limits. Long (buy) positions are considered positive and short (sell) positions are considered negative.

When thinking about position limits, ask yourself these questions:

- 1 Can you trade the product in question? (If no, reject order.)
- 2 Is the order quantity less than or equal to your maximum order quantity limit set for the product? (If no, reject order.)
- 3 Does the WCP exceed your maximum position limit? (If yes, reject order.)

If these three tests are passed, then the order is ready to be checked against any existing credit or account/account group-based limits before being sent to the market.

Limits	Problem
Long Side Example: Position is Long 5	What is the trader’s worst case long position? Current Position [+5]
Working Buys for a total of 4 contracts. Working Sells for a total of 3 contracts.	+ Working Orders [+4]
Trader enters an order to buy 7 contracts.	+ Possible Fill from current order [+7] Worst Case Position [+16]

Limits	Problem
Short Side Example: Position is Long 5	What is the trader’s worst case long position? Current Position [+5]
Working Buys for a total of 4 contracts. Working Sells for a total of 3 contracts.	+ Working Orders [-3]
Trader enters an order to buy 7 contracts.	+ Possible Fill from current order [-7] Worst Case Position [-5]

Question 1

A trader has the following risk limits:

- Product is ES
- Max Order Size is 5
- Max Position is 10
- Current position is zero (0)
- No working orders

Question: Can the trader buy a 3-lot?

Answer:

- Is order size < Max Order Size?
Is 3 less than 5? Yes
- Current Position + Working Buys + Possible Fill from Current Order =
Worst Case Net Position
 $0 + 0 + \text{long } 3 = \text{long } 3$
- Is Worst Case Position less than or equal to Max Position Limit?
 $3 < 10$

Result: The order is accepted.

Question 2

A trader has the following risk limits:

- Product is ES
- Max Order Size is 5
- Max Position is 10
- Current position is long 8
- No working orders

Question: Can the trader buy a 3-lot?

Answer:

- Is order size < Max Order Size?
Is 3 less than 5? Yes
- Current Position + Working Buys + Possible Fill from Current Order =
Worst Case Net Position
 $\text{long } 8 + 0 + \text{long } 3 = \text{long } 11$
- Is Worst Case Position less than or equal to Max Position Limit?
 $11 < 10$

Result: The order is rejected.

Trade Out

What if a trader is trying to flatten his or her position? Within the **Product Limit** window in TT User Setup, there is a field called **Trade Out allowed**. This Yes or No setting potentially allows a trader to exceed Maximum Order Quantity and available credit limits in order to reduce his or her risk for the specified contract. Typically, when an order is entered, it is checked against the above settings. If one of these tests fails, the order will not enter the market.

With **Trade out allowed** set to **Yes**, the trader is allowed to reduce potential risk exposure from his or her current position. Trade Out allows traders to get their position closer to zero for the contract (without crossing zero), even if it means exceeding their maximum order quantity and available credit limit.

Question 1

A trader has the following risk limits:

- Product is ES
- Max Order Size is 5
- Max Position is 20
- Trade Out allowed is set to No
- Current position is long 8
- No working orders

Question: Can the trader sell a 6-lot?

Answer:

- Is order size < Max Order Size?
Is 6 less than 5? No
- Is Trade Out allowed enabled? No

Result: The order is rejected.

Question 2

A trader has the following risk limits:

- Product is ES
- Max Order Size is 5
- Max Position is 20
- Trade Out allowed is set to Yes
- Current position is long 8
- Trader is working a 8-lot buy order

Question: Can the trader sell a 6-lot?

Answer:

- Is order size < Max Order Size?
Is 6 less than 5? No
- Is Trade Out allowed enabled? Yes
- Does this trade get the trader closer to a flat position? Yes
- Current Position + Working Sells + Possible Fill from Current Order = Worst Case Position
long 8 + 0 + short 6 = long 2
- Is Worst Case Position less than or equal to Max Position Limit?
long 2 < 20

Result: The order is accepted.

Position Limits: Product Limits versus Contract Limits

Overview	<p>When risk administrators define product limits for traders in the Product Limits window within TT User Setup, they define the Product Type for each product the trader is allowed to trade. Product Types include Future, Option, Spread, Strategy, etc. Again, position limits are calculated differently depending on the Product Type specified.</p> <p>For Spread products, risk checking of position limits also differs based on whether the product is an <i>Intra-Product Spread</i> (e.g., a 6E calendar spread on CME) or an <i>Inter-Product Spread</i> (e.g., a Brent - WTI spread on ICE).</p>
Defining Max Order Quantity and Max Position	<p>The Product Type selected in TT User Setup determines how the Maximum Order Quantity and Maximum Position fields are used in risk checking.</p> <p>Note: To set the Maximum Order Quantity or Maximum Position value to Unlimited for a specific product, enter a value of zero (0).</p> <p>Maximum Order Quantity:</p> <p>For Spread products, risk checking of position limits also differs based on whether the product is an Intra-Product Spread (e.g., a 6E calendar spread on CME) or an Inter-Product Spread (e.g., a Brent - WTI spread on ICE).</p> <ul style="list-style-type: none"> • If Product Type is "FUTURE:" Limits the size of an order for an outright futures contract to the value in the Maximum Order Quantity field. • If Product Type is "SPREAD:" Limits the size of an order for any exchange-traded, intra-product spread to the value in the Maximum Order Quantity field, Intra-product and inter-product exchange-defined spreads are supported. <p>Maximum Position:</p> <ul style="list-style-type: none"> • If Product Type is "FUTURE:" Limits the maximum outright futures position to the value in the Maximum Position field. In other words, it limits the Maximum Position (long or short) that a trader may accumulate at the Product Level (the sum total all delivery months). Traders that only trade calendar spreads, for example, will never reach this limit because their positions in one contract offsets the position in another contract. • If Product Type is "SPREAD" and the product is an <i>Inter-Product Spread</i>: The Maximum Position field is not used for risk checking, even if a non-zero value is entered. In order to manage position risk on <i>Inter-Product Spreads</i>, you MUST enter both FUTURE and SPREAD type position limits for each of the products that comprise that <i>Inter-Product Spread</i>. Warning: If you do not enter position limits for the products that comprise an Inter-Product Spread, Maximum Position for the Spread is unlimited. • If Product Type is "SPREAD" and the product is an <i>Intra-product Spread</i>: The maximum contract-level position for each delivery month is limited to the value in the Maximum Position field. Note: This does not put a hard limit on the number of Intra-Product Spreads that a trader may enter. It only limits the maximum position for each delivery month.
Maximum Long/Short	<p>A position limit called <i>Max Long/Short</i> lets the administrator control the number of allowed spreads.</p>

Max Long/Short:

If Product Type is "FUTURE:" Limits the sum of all the long contracts and the sum of all the short contracts on a given product to the value in the **Max Long/Short** field.

Example:

If you want to limit a trader to 30 GE Calendar spreads, you can set the GE **Max Long/Short** field 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.

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Max Long/Short
	GE	Future	Unlimited	5	30
	GE	Spread	Unlimited	15	

If a trader has bought 15 Mar15-Jun15 spreads and sold 15 Sep15-Dec15 spreads, he has reached his Max Long/Short position limit of 30. This is because he is long 30 (15 Mar + 15 Dec) for the GE 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).

Scenario 1: Example 1

Let's review a few scenarios using intra-product spreads. A trader has the following risk parameters:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Trade Out allowed
	ZB	Future	5	10	Yes
	ZB	Spread	25	50	Yes

The trader has the following position:

Scenario 1	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	ZB
Current Position	0	0	0	0	0

Action: Trader attempts to buy 50 Sep14-Dec14 spreads.

Result: The order is rejected.

Explanation: Spread Order Quantity of 50 exceeds the Max Order Quantity for spreads of 25.

Scenario 1: Example 2

Action: Trader attempts to buy 25 Sep14-Dec14 spreads.

Result: The order is accepted.

Explanation: Spread Order Quantity of 25 does not exceed the Max Order Quantity for spreads of 25. The resulting Product-level position remains 0. The Contract-level position in all contracts is less than the Maximum Position of 50.

	Scenario 1					Product Level
	ZB Delivery Months					
	Sep14	Dec14	Mar15	Jun15	ZB	
Current Position	0	0	0	0	0	0
New Order	25	-25				
Resulting Position	25	-25				
Accept/Reject	Accept	Accept	Accept	Accept	Accept	Accept

Scenario 1: Example 3

Action: Assuming the resulting position from Example 2, the trader attempts to buy 10 Dec14 contracts.

Result: The order is rejected.

Explanation: The order quantity of 10 exceeds the Max Order Quantity for outrights of 5.

Scenario 2: Question 1

A trader has the following risk parameters:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Trade Out allowed
	GE	Future	50	100	Yes
	GE	Spread	500	1000	Yes

The trader has the following position:

	Scenario 2					Product Level
	ZB Delivery Months					
	Sep14	Dec14	Mar15	Jun15	GE	
Current Position	200	-200	0	0	0	0

Action: Trader attempts to buy 500 Sep14-Dec14-Mar15 spreads.

Result: The order is rejected.

Explanation: The order quantity of 500 is within the Max Order Quantity for spreads of 25. Since the middle leg of the butterfly sells 2x the quantity of the other legs, the resulting position in Dec14 is beyond the Max Position Limit of 1000.

	Scenario 1					Product Level
	ZB Delivery Months					
	Sep14	Dec14	Mar15	Jun15	GE	
Current Position	200	-200	0	0	0	0
New Order	500	-1000	500			

Scenario 1	ZB Delivery Months				Product Level
Resulting Position	700	-1200	500	0	0
Accept/Reject	Accept	Reject	Accept	Accept	Accept

Scenario 2: Question 2

Action: Trader attempts to buy 50 Sep14-Dec14-Mar15-Jun15 Eurodollar packs. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The order quantity of 50 is within the Max Order Quantity for spreads of 25. An order for a pack buys an equal number of contracts in four consecutive delivery month. It has the same effect at the product level as buying 4 outright contracts. The resulting product level position of long 200 exceeds the limit of 100.

Scenario 2	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	GE
Current Position	200	-200	0	0	0
New Order	50	50	50	50	
Resulting Position	250	-150	50	50	200
Accept/Reject	Accept	Accept	Accept	Accept	Reject

Scenario 2: Question 3

Action: Trader attempts to buy 50 Sep14-Dec14-Mar15exchange-traded butterfly spreads. Will the order be accepted or rejected?

Result: The order is accepted.

Explanation: The order passes all risk checks.

Scenario 2	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	GE
Current Position	200	-200	0	0	0
New Order	50	-100	50	0	
Resulting Position	250	-300	50	0	200
Accept/Reject	Accept	Accept	Accept	Accept	Accept

Scenario 3: Question 1

Inter-Product spreads work differently than Intra-Product spreads. For example, assume a trader has the following risk parameters and position:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Trade Out allowed
Note: xx indicates limits are not specified as they are ignored for Inter-Product spreads.	GLB	Future	xx	6	Yes
	GLB	Spread	xx	12	Yes
	GE	Future	xx	10	Yes
	GE	Spread	xx	20	Yes
	GLBGE	Spread	11	xx	Yes

The trader has the following position:

Scenario 3	GLB Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GLB
Current Position	0	0	0	0	0

Scenario 3	GE Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GE
Current Position	0	0	0	0	0

Action: Trader enters an order to buy 5 GLB Jun15- GE Jun15 spreads.

Result: The order is accepted.

Explanation: The order passes the Maximum Order Quantity check versus the GLBGE Spread limit of **11** in this case. It also passes the Maximum Position checks versus the Future and Spread Position limits for each leg. The limits highlighted in bold do not come into play when risk checking Inter-Product spreads.

Scenario 1	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	GE
Current Position	200	-200	0	0	0
New Order	500	-1000	500		
Resulting Position	700	-1200	500	0	0
Accept/Reject	Accept	Reject	Accept	Accept	Accept

Scenario 3: Question 2

Given only the risk parameters below and no initial positions:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Trade Out allowed
	GLBGE	Spread	11	xx	Yes

Action: Trader enters an order to buy 10 GLB Jun15- GE Jun15 spreads.

Result: The order is accepted.

Explanation: The order passes the Maximum Order Quantity check for the GLBGE spread. No Maximum Position checks are performed because not Future or Spread limits have been defined for the legs. The trader’s position in the GLBGE spread is unlimited.

Scenario 3: Question 3

Given the risk parameters in Scenario 3 - Question 1, but starting position as below:

Scenario 3	GLB Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GLB
Current Position	5	0	0	1	6

Scenario 3	GE Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GE
Current Position	-5	0	0	-1	-6

Action: Trader enters an order to buy 2 GLB Jun15- GE Jun15 spreads.

Result: The order is rejected.

Explanation: The order quantity check succeeds because the current order quantity is **2** and the Maximum Order Quantity for the GLBGE spread of **11**.

For the GE leg, the contract-level (i.e., Spread) Maximum Position check passes since the contract-level Worst Case Position (WCP) is **Short 7** and the GE spread position limit is **20**. The product-level (i.e., Future) check passes because the WCP for the product is **Short 8** and the GE Futures Maximum Position limit is **10**.

For the GLB leg, the contract-level Maximum Position check passes since the contract-level WCP is **Long 7** and the GLB spread position limit is **12**. However, the WCP for the product is **Long 8**, which exceeds the GLB product-level Maximum Position limit of **6**. Therefore, the order is rejected.

Scenario 4: Example 1

Given the risk parameters and positions below:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Max Long/Short	Trade Out allowed
	ES	Future	10	10	30	Yes
	ES	Spread	20	20	--	Yes

Scenario 4	ES Delivery Months				Product Level
	Mar15	Jun15	Sep15	Dec15	
Current Position	10	10	0	-10	ES

Action: Trader attempts to buy 15 Sep15-Dec15 spreads.

Result: The order is rejected.

Explanation: The maximum Long Product Position would be 35 (10 Mar15 + 10 Jun15 + 15 Sep15) and the Max Long/Short is 30.

Spreads

While calendar spreads and other spreads that have equal numbers of buys and sells are position neutral, those that do not equal numbers of buys and sells are treated as outrights to the extent that they have a new long or short impact at the Product-level.

- A Eurodollar Pack is a spread consisting of buys in four (4) different delivery months. Buying one (1) pack has the same impact at the Product-level as buying four (4) outrights.
- A 5 Year Eurodollar Bundle consists of buys in 20 different delivery months. Buying one (1) 5 Year Bundle has the same impact at the Product-level as buying 20 outrights.

Wholesale (Block) Trades

X_TRADER 7.17 and higher includes an updated Wholesale Order window that allows the entry of wholesale orders, which includes Over-the-Counter (OTC) and Cross orders on the various supported exchanges. Wholesale order risk checking is supported at the account level. Refer to the section in Chapter 4 for more information.

Note: Wholesale trades are only supported on a subset of exchanges, and support for specific wholesale trade order types is dependent on the particular exchange.

Position Limits Question

Answer the below question based on the following assumptions:

- John is a Eurodollar trader who has not exchange memberships, although the firm he trades with does have exchange memberships. Product is ES
- His trading account has 50,000 USD and he should not be able to lose more than half of it in any single trading day.
- John should be limited to trading only the Eurodollar on CME (product code = GE) and ICE (product code = ED) exchanges. He can trade both Futures and Spreads.
- For both products, John should not be able to exceed a position of five (5) in any contract month or a position of 10 across all contracts for each product. He should not be able to enter orders larger than a 3-lot. He should be allowed to exceed his maximum order quantity if it gets him to a less risky position. John should be charged half the exchange-required margin for his working orders.
- When John logs in each morning, he should log in with the name JOHN.

Question: What types of TT User Logins and risk limits should be set for John?

Answer: John should use a TTORD Gateway Login for CME and ICE for two reasons:

- 1 He has no exchange memberships.
- 2 He should be limited to a credit amount across multiple exchanges.
 - Is order size < Max Order Size?
Is 6 less than 5? No
 - Is Trade Out allowed enabled? No

These TTORD IDs should be mapped to a Universal Login username called JOHN and should also be mapped to the available exchange trader IDs for his firm. John should be given a credit limit of 25,000 USD. He should be give the following product limits on his TTORD ID:

Exchange	Product	Product Type	Additional Margin	Max Order Quantity	Maximum Position	Trade Out allowed
CME	GE	Future	-50	3	10	Yes
CME	GE	Spread	-50	3	5	Yes
ICE	ED	Future	-50	3	10	Yes
ICE	ED	Spread	-50	3	5	Yes

Position Limits: Options

Overview	<p>Options are treated like Futures in regards to risk-checking. Calls and Puts are treated as separate products when performing position limits 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.</p> <p>Maximum Strategy is applied to each individual contract.</p>
Defining Max Order Quantity and Maximum Position	<p>The Product Type selected determines how the Maximum Order Quantity and Maximum Position fields are taken into account.</p> <p>Note: To set the Max Order Quantity or Maximum Position value to Unlimited for a specific product, enter a value of 0.</p> <p>Maximum Order Quantity:</p> <ul style="list-style-type: none"> • If Product Type is "OPTION": Limits the size of an order for an options contract to the value in the Maximum Order Quantity field. • If Product Type is "STRATEGY": Limits the size of an order for any options strategy to the value in the Maximum Order Quantity field. <p>Maximum Position:</p> <ul style="list-style-type: none"> • If Product Type is "OPTION": Limits the maximum open position for the entire product to the value in the Maximum Position field. In other words, limits the Maximum Position (long or short) that a trader may accumulate at the Product-level (the sum total of all delivery months at all exercise prices) across both Calls and Puts. For the purposes of risk checking, calls and puts are treated as separate products. For example buying a call and selling a Put will not result in a flat position, but instead will result in two separate positions that do not offset each other. • If Product Type is "STRATEGY": Limits the maximum Contract-level Position for each call/put of a specific strike price and delivery month to the value in the Maximum Position field. It does not put a hard limit on the number of strategies a trader may enter; it limits the position for each contract of a product.
Example 1	<p>A trader has one position limit: an Option Maximum position limit of ten (10) for the GE product. The trader has already bought five (5) GE Jun15 Calls at a Strike Price of 9500. The trader could now do ONE of the following:</p> <ul style="list-style-type: none"> • Buy up to five (5) GE Calls (of any GE options contract) before reaching the GE Option Maximum Position limit of long 10 for Calls). • Buy up to ten (10) puts (of any GE options contract) before reaching the GE Option Maximum Position limit of long 10 for Puts. • Sell up to ten (10) puts (of any GE options contract) before reaching the GE Option Maximum Position limit of short 10 for Puts. • Sell up to 15 GE Calls (of any GE options contract) before reaching the GE Option Maximum Position limit of short 10 for Calls.

Example 2

A trader has one position limit: a Strategy Maximum position limit of five (5) for the GE product. The trader has already bought five (5) GE Jun15 Calls at a Strike Price of 9500. The trader could now...

- Buy up to five (5) GE Calls (except the GE Jun15 Call at 9500), or
- Sell up to five (5) GE Calls of any GE options contract before reaching the GE Strategy Maximum Position limit of five (5) on a particular product.

There is no interaction between position limits for Options and for Futures/Spreads. When you are trading Futures/Spreads, it does not offset options positions or vice versa.

Margin and Credit checking for Options works the same as for Futures. The margin value for Options and Strategies can be specified in the **Product Margins** window.

Position Limits: Energies

Overview	<p>Position Limits for all Energy contracts should be entered in Lots instead of Contracts. Risk administrators should enter both the Maximum Order Quantity and Maximum Position limits in Lots.</p> <p>This is because the actual deliverable quantity of products that specify delivery in flow can vary from contract to contract, even within the same product. This is due to the variation in the number of days in a given month. The relationship between contracts, lots and flow can be expressed as follows:</p> <ul style="list-style-type: none"> • Contracts: Represents the entire delivery amount. • Lots: Represents the number of delivery periods in a contract. • Flow: Represents the amount to be delivered in each delivery period.
Example 1	<p>All monthly ICE Brent futures contracts specify one delivery period consisting of 1000 barrels of crude oil.</p> <ul style="list-style-type: none"> • 1 contract = 1 lot = 1000 barrels / month (flow) • 5 contracts = 5 lots = 5000 barrels / month (flow)
Example 2	<p>The ICE US Henry Hub Natural Gas Jan15 contract specifies 31 delivery periods of 2500MNBtu per day.</p> <ul style="list-style-type: none"> • 1 contract = 31 lots = 2500MNBtu / day (flow) = 77,500MNBtu / contract • 3 contracts = 93 lots = 7500MNBtu / day (flow) = 232,500MNBtu
Example 3	<p>The ICE US PJM Power Jan15 contract specifies 21 delivery periods (weekdays only) of 800MWh per day (50MW hours for 16 hours).</p> <ul style="list-style-type: none"> • 1 contract = 21 lots = 800MWh / day (flow) = 16,800MWh / contract • 2 contracts = 42 lots = 1600MWh / day (flow) = 33,600MWh

Scenario 1: Question 1 Let's look at an Energy scenario. A trader has the following risk limits:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position	Trade Out allowed
	Henry Hub Natural Gas	Energy	100	500	Yes
	Henry Hub Natural Gas	Spread	250	750	Yes

The trader has the following positions:

Scenario 1	Henry Hub Natural Gas						Product Level
	Dec14	Jan15	Feb15	Mar15	Apr15	Q115	
Current Position (Flow)	-17500	57500	-20000	-5000	2500	5000	Henry Hub Natural Gas 22500
Current Position (Contracts)	-7	23	-8	-2	1	2	9

Scenario 1		Henry Hub Natural Gas					Product Level
Current Position (Lots)	-210	713	-248	-60	31	184	410
Lots\Contract	30	31	31	30	31	92	

Action: Trader attempts to sell 4 Dec14 contracts.

Result: The order is rejected.

Explanation: The quantity of 4 contracts in Dec14 is equivalent to 120 lots, which exceeds the Maximum Order Quantity of 100 lots.

Scenario 1: Question 2

Action: Trader attempts to buy two (2) Jan15 contracts. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: Although the Product-level position passes the risk checks, the resulting position in Jan15 ($713 + 31 * 2 = 775$) exceeds the Contract-level position limit of 750.

Scenario 1: Question 3

Action: Trader attempts to buy three (3) Apr15 contracts. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The order for 3 Apr15 contracts is the same as adding 93 lots to the existing lot total of 410. This exceeds the Product-level position limit of 500 lots.

Scenario 1: Question 4

Action: Trader attempts to buy three (3) Mar15 contracts. Will the order be accepted or rejected?

Result: The order is accepted.

Explanation: Since the lots for a Mar15 contract are less than for an Apr15 contract (30 vs. 31) this order is accepted, whereas the order in the previous example failed. The resulting position at the Product-level does not exceed the limit of 500 lots.

Scenario 1: Question 5

Action: Assume the resulting position after the previous example: Mar15 = 30 lots; Product = 500. The trader attempts to sell two (2) Q115 contracts. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: This contract is made up of each of Jan15, Feb15, and Mar15 contracts; therefore, the lots associated with it are much higher than a single month contract. However, TT does handle strips on ICE as spreads on other exchanges are handled (e.g., CME and ICE). With ICE, a strip is not broken down into its components with each leg getting checked individually. Instead, the strip is treated as an individual contract that has a much different lot quantity. In this example, the Maximum Order Quantity of 100 lots is exceeded.

Position Limits: Autospreader

Overview

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

The pre-trade risk component in X_TRADER and the logic in Autospreader Strategy Engine (Autospreader SE) 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 embedded into Autospreader.

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.

Example 1: Calendar Spread Quoting Both Legs

Let's look at a few examples assuming the following risk limits for a trader:

Risk Settings	Product	Product Type	Maximum Position
	GE	Future	40
	GE	Spread	20

Assume a trader has configured a two-legged GE Sep-Dec calendar spread with a 1 to -1 ratio and active quoting in both legs. The trader enters a spread order to buy 10 spreads. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
10	20	Accept

Product A	Quoting	Hedges
Sep	+10	+10
Dec	-10	-10

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (10 + 10 - 10, 10) = MAX (10, 10) = Long 10

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (10 + 10 - 10, 10) = MAX (10, 10) = Short 10

Note: The 20 Worst Case Position per Contract is if both quotes are filled, but only one of the hedges is filled.

Example 2: Calendar Spread Quoting One Leg

Assume a trader has configured a two-legged GE Sep-Dec calendar spread with a 1 to -1 ratio and active quoting in one leg. The trader enters a spread order to buy 10 spreads. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
10	10	Accept

Product A	Quoting	Hedges
Sep	+10	
Dec		-10

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (10 + 0 - 0, 10) = MAX (10, 10) = Long 10

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (0 + 10 - 10, 0) = MAX (0, 10) = Short 10

Example 3: Butterfly Spreads All Legs Quoting

A trader configures a three-legged spread with a 1, -2, 1 ratio and quoting in all three legs. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
40	30	Reject (on Contract)

Product A	Quoting	Hedges
Sep	+10	+20
Dec	-20	-40
Jan	+10	+20

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (20 + 40 - 20, 20) = MAX (40, 40) = Long 40

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (20 + 40 - 20, 20) = MAX (40, 40) = Short 40

Note: The 30 Worst Case Position per Contract is if all quotes are filled, but only the Sep and/or Jan hedges are filled.

User Level Risk Checking

Introduction

Overview	<p>You can configure risk settings on a per-user basis in addition to the risk settings configured for individual Gateway Logins. This allows you to set overall credit and currency settings that apply to all the user's trades using any or all of the Gateway Logins. The Gateway Login's risk settings still apply, but the trader will have an additional overall credit restriction.</p> <p>Note: At the user-level there is no "Risk Check" setting to enable or disable. However, you can assign a credit limit and configure other risk settings as described in this chapter.</p>
Credit Limit - User Level	<p>A single user can be assigned a user-level credit limit as well. For example, a user may be mapped to 10 different Gateway Logins. As such, an administrator could set up the user with credit limits - one for each Gateway Login. Instead of doing that, the administrator could set a single user-level limit that would apply across all markets.</p> <p>Tip: Whether using a user-level credit limit, an MGT-level credit limit, or both, all credit checks still apply. Neither type of credit limit supersedes the other. It is possible to exceed a user-level limit on one TT Gateway, but since the user-level limit is across TT Gateways, you still may be able to trade so long as you still have available credit overall (across markets).</p> <ul style="list-style-type: none"> • Example 1: A trader with a user-level credit limit could lose 10,000 USD on one MGT/Gateway, and gain 10,000 USD on another MGT/Gateway. At the user level, the trader still has 100% of his or her credit. • Example 2: At a user level, an administrator could specify that a user, Sam has 10,000 USD credit limit, But the administrator could also specify that he has a 1,000 USD credit limit on his TOCOM Gateway Login. It is possible that Sam will use up his money on TOCOMM but still be able to trade other markets. Or, if he uses up his 10,000 USD, then he cannot trade at all.
Ignore P&L	<p>By default, the Ignore P&L option is unchecked and a user's P&L is checked before attempting to send an order to the market. When the Ignore P&L option is checked, the user's P&L is not checked before the order is sent to the market and the user's credit limit is ignored.</p>
Ignore Margin	<p>By default, the Ignore Margin option is unchecked and a product margin is considered before attempting to send an order to the market. When the Ignore Margin option is checked, product margin is not checked before the order is sent to the market and any additional margin % required on a Gateway Login product limit is ignored.</p>
Use P&L Risk Algorithm	<p>When the Use P&L risk algorithm option is unchecked, the Last Traded Price is used for risk checking. However, if your user trades in a market with little liquidity, or where the Last Traded Price changes infrequently despite numerous bids and asks being entered, you can check the Use P&L risk algorithm option to use the P&L risk algorithm to risk check this user. This also sets the P/L based on setting in X_TRADER to Risk Algorithm.</p>

This risk algorithm uses the last traded price to calculate open P&L, as long as the last traded price falls between the bid and ask. Otherwise, the risk algorithm uses the midpoint of the bid and ask. If the bid and ask are not both available, then the risk algorithm will use the first available price from the ask, bid, settlement, or close, in that order.

Note: The bid and ask include exchange-provided implied prices.

Price Controls

Overview	<p>To configure how far from the market price a user may enter an order (in ticks), check the Prevent orders that are more than X ticks from the market price checkbox and enter the number of ticks away from the market allowed. The administrator can set the number of ticks to a static range or a directional range by checking or unchecking the Only enforce a maximum price on buy orders and minimum price on sell orders checkbox:</p> <ul style="list-style-type: none"> • Static range (uncheck the enforce option): Buy and sell orders must be within the configured price band. Orders submitted outside the defined price band will be rejected in all TT order routing applications. • Directional range (check the enforce option): Buy orders must be below the maximum price, and sell orders must be above the minimum price. Orders submitted outside the defined band will be rejected in all TT order routing applications.
Price Reasonability Overview	<p>The price check uses the last trade price as the market price, as long as it false between the bid and the ask. Otherwise, the price check uses the midpoint of the bid and the ask. If both the bid and the ask are not both available, then the price check will use the first available price from the ask, bid, settlement, or close, in that order.</p> <p>Note: Price reasonability can also be set per product or contract when using account-based risk. When both the user and product/contract limits are set, the user level settings are used.</p> <p>The price check is performed as follows:</p> <ul style="list-style-type: none"> • The price check is performed on all real orders, both new and changed, at the time the orders are executed. • The price check is not performed on synthetic or parent orders. • For exchange-traded spreads and/or strategy orders, the price check is applied based on the spread/strategy price. If the order contains multiple legs, the check is applied to each individual leg. • The price check does not apply to ICE Block orders sent via X_Block. • The price check applies to exchange prices only, not implied functionality.

Order Throughput Controls

Overview

To order throughput control feature allows an administrator to configure the number of orders per second that a trader may send to a given TT Gateway. The TT Gateway will reject orders submitted in excess of the configured limit per second. To prevent more than a specific number of orders per second, check **Per TT Gateway, prevent more than X orders per second** checkbox and enter the number of orders per second.

The TT Gateway calculates the number of orders per second as follows:

- Each add, change, and delete message to the exchange counts as an individual message.
- All the orders in a batch order (e.g., 4, 16, or 32 orders in one batch) counts as one message.
- Cancel/replace actions count as two messages (a delete and an add).
- Cross/Intention to Cross (ITX)/Wholesale/Over-the-counter (OTC)/Inquire/series create RFQs do not count towards the number of orders per second limitation.
- Any sell orders must be within the configured price band. Orders submitted outside the defined price band will be rejected in all TT order routing applications.
- **Directional range (check the enforce option):** Buy orders must be below the maximum price, and sell orders must be above the minimum price. Orders submitted outside the defined band will be rejected in all TT order routing applications.

Order Rejection

The TT Gateway accepts orders while the number of orders in a one-second time frame remains at or below the configured maximum. When the maximum number of orders allowed in a second is exceeded, the TT Gateway rejects all new add orders. When one or both messages in a cancel/replace action exceeds the limits, the TT Gateway rejects both the delete and the add portion of the cancel/replace action, and the order remains working. The TT Gateway counts, but will never reject standalone delete orders.

Overriding the Order Throughput per Gateway

Instead of having a single user level order throughput that applies to all gateways, you can set throughput for each TT Gateway assigned to a users. To do this, open the User's Gateway Login Attributes window, edit a user's Gateway Login attributes, and override the user setting per TT Gateway.

Changing Accounts on Fills

Overview

The **Account changes on fills allowed** option determines if the user will be prevented from updating the account number on a fill. When the **Account changes on fills allowed** option is checked, users with X_TRADER 7.17 or later can modify the account on a fill, and this update will be processed as a part of account-based risk on the gateways. Note that no risk check actually takes place on the modification; therefore change the account could cause an account to go over its limits. However, any subsequent orders will be risk checked based on the modified fills.

Note

When applying account-based risk checking, TT does not recommend checking the Account changes on fills allowed option until this user is using X_TRADER 7.17 or later. If a user with a pre-7.17 version of X_TRADER is allowed to change an account on a fill, the account number on the fill will not be updated in all TT products (including the gateways where account-based risk checking is done). This could lead to discrepancies between what is displayed in client applications and how risk is actually calculated.

Account/Account Group Level Risk Checking

Introduction

Overview	You can product-specific position limits, product-specific order size limits, and TT Gateway-specific limits, per account or account group. The user and Gateway Login's risk settings still apply, but orders submitted with an account will also be checked against limits of the account, or if the account is in an account group, based on the combined positions and working orders of all accounts in the group.
Enabling Risk Checking	<p>Configured product-limits for an account or account group are not active until you check the account or account group's Apply product limits option.</p> <p>When setting up risk limits for accounts, there are two settings that must first be enabled in order to ensure risk checking is used. These include Apply product limits and Trading allowed.</p> <ul style="list-style-type: none">• Trading allowed determines whether this account or account group is allowed to trade. By default, trading is allowed. Note: Trading can also be enabled or disabled per contract using the contract-specific overrides.• Enable product limits determines whether the configured product limits for this account or account group are active. By default, Apply product limits is disabled.

Margin Limits

Overview	<p>Margin limits allow you to configure credit limits per account or account group that apply to individual TT Gateways. Because P&L per account can span all exchanges, account-based margin limits ignore P&L. Additionally, margin limits apply, even if product limits are not applied. This allows you to create margin limits without creating product limits.</p> <p>A margin limit is the amount of money an account or account group can have working in the market for a specified gateway. If the account belongs to an account group, then the margin limit applies cumulatively to all accounts in the account group.</p>
Calculating Margin	<p>TT software uses the following formulas to calculate the total <i>Margin</i> for a product when using account-based risk:</p> <p>Worst Case Net Product Position * (Margin Limit +/- Additional Outright Margin Requirements) = Outright Margin Required</p> <p>Worst Case Net Product Position * (Margin Limit +/- Additional Spread/Strategy Margin Requirements) = Spread/Strategy Margin Required</p>
Calculating Available Gateway Margin	<p>TT software uses the following formula to calculate the available gateway margin for an account.</p> <p>Margin Limit - Future Margin Required - Synthetic Spread Margin Required - Spread/Strategy Margin Required = Available Gateway Margin</p> <p>If an account's available gateway margin for this TT Gateway is less than zero, the trader is not allowed to place a trade for the account.</p>
Example 1	<p>An account has the following risk limits:</p> <ul style="list-style-type: none"> • Product is ES • Product Margin on ES Futures is 3,500 USD • Margin Limit on the CME-A Gateway is 20,000 USD • No additional margin is required for the ES Future on the CME-A Gateway • No existing positions <p>Question: Can the trader buy 2 Futures contracts on CME-A?</p> <ul style="list-style-type: none"> • Worst Case Net Product Position * Margin Limit = Outright Margin Required 2 * 3,500 USD = 7,000 USD • Gateway Margin Limit - Outright Margin Required = Available Gateway Margin 20,000 USD - 7,000 USD = 13,000 USD Available Gateway Margin <p>Result: Available Gateway Margin is greater than zero (0), so the order is accepted.</p>
Example 2	<p>An account has the following risk limits:</p> <ul style="list-style-type: none"> • Position is long 2 ES Futures on CME-A (7,000 USD from Example 1) • Product is GE • Product Margin on GE Futures is 4,000 USD • 50% additional margin is required for the ES Outright on the CME-A Gateway • Margin Limit on the CME-A Gateway is 20,000 USD

Question: Can the trader buy **3 GE Futures** contracts?

- Future Margin * Additional Outright Margin % = Additional Outright Margin Requirements
 $4,000 \text{ USD} * .50 = 2,000 \text{ USD}$
- Worst Case Net Product Position * (Future Margin + Additional Outright Margin Requirements) = Outright Margin Required
 $3 * (4,000 \text{ USD} + 2,000 \text{ USD}) = 18,000 \text{ USD}$
- Gateway Margin Limit - Outright Margin Required (GE) - Outright Margin Required (ES) = Available Gateway Margin
 $20,000 \text{ USD} - 18,000 \text{ USD} - 7,000 \text{ USD} = -5,000 \text{ USD}$ Available Gateway Margin

Result: Available Gateway Margin is less than zero (0), so the order is rejected.

Position Limits

Overview	When configuring account/account group-based product limits, limits are configured for the overall product, the outright, and the intra-product spreads or strategies (e.g., a 6E calendar spread on CME) from the same screen.
Product Limit Settings	<p>When checking account-based risk limits, TT software uses the following fields within the Product Limit window in TT User Setup to determine when a trader can place a trade:</p> <ul style="list-style-type: none"> • Product Type: This field specifies whether this limit applies to an Future, Option, Energy, Stocks, Bonds, Inter-Product spread (which is a spread with legs in different products or product types - e.g., Brent - WTI spread on ICE), or Inter-Product spread (which is a strategy with legs in different products or product types). • Product: This field determines the (e.g., FGML, ODAX, etc.) to which the limits apply. An asterisk indicates that the limit applies to all products of the specified product type, unless an additional product limit exists with a specific product. For example: Assume you have two product limits configured for the CME-A gateway: for one limit the product is * (all products) with a maximum position of 10, and for the other limit the product is ES with a maximum position of 5. When trading ES, the account is limited to 5, and when trading all other products on the CME-A Gateway, the maximum position limit is 10. • Maximum Position (net): This field limits an account to an overall maximum long or short position per product. For example, if this limit is set to 5, and account is long 2 GE March contracts and short 4 GE contracts, then a sell order greater than 3 or a buy order greater than 7 in any contract month would be rejected as it could potentially result in a long or short position greater than 5. Note: Traders that can only trade calendar spreads will never reach this limit because their position in one contract offset the positions in another contract. • Maximum Position per contract: This field limits an account to an overall maximum long or short position per contract per product. Note: This value can only be overridden, per contract, using the contract-specific overrides. • Max Long/Short (gross): This field limits the worst case total long or short contracts per product. The sum of the long positions in all contracts cannot exceed this limit; nor can the sum of all short positions. For example, if the limit is two, and there is a long position of one in one contract and a working buy of one in a different contract, then no more buy orders can be placed. • Trading allowed: When checked for an outright, intra-product spread or strategy, intra-product spread or strategy, this field allows a trader to trade an outright, intra-product spread or strategy, or intra-product spread or strategy. Note: This value can only be overridden, per contract (using the contract-specific overrides), and it can be overridden for wholesale orders (using the wholesale order overrides). • Maximum order size: This field determines the maximum individual order size that can be entered at a time for a specified outright, intra-product spread or strategy, or intra-product spread or strategy. Note: This value can only be overridden, per contract (using the contract-

specific overrides), and it can be overridden for wholesale orders (using the wholesale order overrides).

- **Price Reasonability:** This field determines how far from the market price a user may enter an order (in ticks) that a trader for the specified outright, intra-product spread or strategy, or intra-product spread or strategy.

Note: This value can only be overridden, per contract (using the contract-specific overrides), and it can be overridden for wholesale orders (using the wholesale order overrides).

- **Additional Margin Requirements:** This field specifies a percentage above or below the margin that a trader must have to trade the outright, or spread respectively.

Calculating (Worst Case) Position

TT software uses the following formula to calculate an account's position, specifically an account's worst case position (WCP) (whether that's the **Worst Case Net Product Position (WCNPP)** or **Worst Case Contract Position (WCCP)**) when determining if an order should be allowed to enter the market.

Current Position + Working Orders on buy/sell side + Possible Fill from Current Order = Worst Case Position

An account's worst case (long or short) position is compared against the account's Maximum Position limits. Long (buy) positions are considered positive and short (sell) positions are considered negative.

When thinking about position limits, ask yourself these questions:

- 1 Can the account be used to trade the product in question? (If no, reject order.)
- 2 Is trading for this contract allowed? (If there is a contract-level override for the contract being traded, is trading allowed? If there is not an override, is trading allowed for the product?)
- 3 Is the order quantity less than or equal to the account/account group's maximum order quantity limit set for the product? (If no, reject order.)
- 4 Does the WCP exceed the account/account group's maximum position limit? (If yes, reject order.)

If these three tests are passed, the approved order will be sent to the market. If user or Gateway Login limits are configured, the order will also need to pass those risk checks.

Limits	Problem
Long Side Example:	What is the account's worst case long position?
Position is Long 5 in account ABC (which does not belong to an account group)	Current Position [+5]
Working Buys for a total of 4 contracts in account ABC.	+ Working Orders [+4]
Working Sells for a total of 3 contracts in account ABC.	
Trader enters an order to buy 7 contracts in account ABC.	+ Possible Fill from current order [+7]
	Worst Case Position [+16]

Limits	Problem
Short Side Example:	What is the account's worst case long position?
Position is Long 5 in account ABC (which does not belong to an account group)	Current Position [+5]
Working Buys for a total of 4 contracts in account ABC.	+ Working Orders [-3]
Working Sells for a total of 3 contracts in account ABC.	
Trader enters an order to buy 7 contracts in account ABC.	+ Possible Fill from current order [-7]
	Worst Case Position [-5]

Example 1	Account ABC has a maximum product position of 5 configured for ES. Trader_1 buys 4 ES contracts using account ABC. Trader_2 attempts to buy 2 ES contracts using account ABC. He is rejected because the Worst Case Net Product position for ES would be 6, and the account limit is 5.
Example 2	A max position limit of 5 ES contracts is configured for account ABC. A trader buys 3 ES contracts using account ABC. Now, no other trader can place a buy order for more than 2 ES contracts in account ABC.
Example 3	Account group A is created. Accounts 1, 2, and 3 are created and placed into account group A. A max position limit of 5 ES contracts is configured for account group A. Limits cannot be configured for Accounts 1, 2, and 3, because these accounts belong to an account group. One ES contract is bought in each account. The ES position of account group A is now 3. If someone tries to buy more than 2 ES contracts in accounts 1, 2, or 3, then they will be rejected because they would exceed the limit of the account group.
Question 1	<p>A trader uses account ABC, which does not belong to an account group, and has the following risk limits:</p> <ul style="list-style-type: none"> • Product is ES • Max Order Size is 5 • Max Position is 10 • Current position is zero (0) • No working orders <p>Question: Can the trader buy a 3-lot?</p> <p>Answer:</p> <ul style="list-style-type: none"> • Is order size < Max Order Size? Is 3 less than 5? Yes • Current Position + Working Buys + Possible Fill from Current Order = Worst Case Net Position 0 + 0 + long 3 = long 3 • Is Worst Case Position less than or equal to Max Position Limit? 3 < 10 <p>Result: The order is accepted.</p>

Question 2

A trader uses account ABC, which belongs to account group 123. Account group 123 has the following risk limits:

- Product is ES
- Max Order Size is 5
- Max Position is 10
- Account ABC has a current position of long 1
- Account XYZ which is also part of account group 123 has a current position of long 8
- No working orders

Question: Can the trader buy a 3-lot?

Answer:

- Is order size < Max Order Size?
Is 3 less than 5? Yes
- Current Position (cumulative position for all accounts in the account group) + Working Buys + Possible Fill from Current Order = Worst Case Net Position
long 9 + 0 + long 3 = long 12
- Is Worst Case Position less than or equal to Max Position Limit?
12 < 10

Result: The order is rejected.

Trade Out

Account-based product limits do not have a **Trade Out allowed** option like Gateway Login-based product limits. Traders can always trade out of account positions.

Position Limits Examples: Maximum Position (net) vs Maximum Position per Contract vs Maximum Long/Short

Overview If you want to limit an account/account group to 30 GE calendar spreads, you can set the GE **Maximum Long/Short (gross)** field to **30**. Withing the Maximum Long/Short of 30, if you want to allow an outright or unhedged position of 5, you can set the GE **Maximum Position (net)** to **5**. In addition, if you want to limit the position in any individual contract to 15, you can set the **Maximum Position per contract** to **15**.

Product	Type	Max Order Quantity (Outrights)	Max Order Quantity (Spread/Strategy)	Maximum Position (Net)	Maximum Position per contract	Max Long/Short
GE	Future	Unlimited	Unlimited	5	15	30

if an account has been used to buy 15 Mar15-Jun15 spreads and sell 15 Sep15-Dec15 spreads, it has reached its Maximum Long/Short (gross) position limit of 30. This is because the account is long 30 (15 Mar + 15 Dec) for the GE and also short 30 (15 June + 15 Sep). Traders cannot place any more GE trades using this account until this account's position has been reduced in one or more of the four contract months (i.e., a trader needs to sell Mar or Dec, and buy Jun or Sep, or a combination using this account).

Scenario 1: Example 1 Let's review a few scenarios using intra-product spreads. An account that does not belong to an account group has the following risk parameters:

Product	Type	Max Order Quantity (Outrights)	Max Order Quantity (Spread/Strategy)	Maximum Position (Net)	Maximum Position per contract
ZB	Future	5	25	10	50

The account has the following position:

	Scenario 1 ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	
Current Position	0	0	0	0	ZB 0

Action: Trader attempts to buy 50 Sep14-Dec14 spreads using this account.

Result: The order is rejected.

Explanation: Spread Order Quantity of 50 exceeds the Max Order Quantity for spreads of 25.

Scenario 1: Example 2 **Action:** Trader attempts to buy 25 Sep14-Dec14 spreads using this account.

Result: The order is accepted.

Explanation: Spread Order Quantity of 25 does not exceed the Max Order Quantity for spreads of 25. The resulting Product-level position remains 0. The

Contract-level position in all contracts is less than the Maximum Position (net) of 50.

Scenario 1	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	
Current Position	0	0	0	0	ZB
New Order	25	-25			
Resulting Position	25	-25	0	0	0
Accept/Reject	Accept	Accept	Accept	Accept	Accept

Scenario 1: Example 3

Action: Assuming the resulting position from Example 2, the trader attempts to buy 10 Dec14 contracts using this account.

Result: The order is rejected.

Explanation: The order quantity of 10 exceeds the Max Order Quantity for outrights of 5.

Scenario 2: Question 1

An account that does not belong to an account group has the following risk parameters:

Product	Product Type	Max Order Quantity (Outrights)	Max Order Quantity (Spreads/Strategy)	Maximum Position (Net)	Maximum Position per Contract
GE	Future	50	500	100	1000

The account has the following position:

Scenario 2	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	
Current Position	200	-200	0	0	GE

Action: Trader attempts to buy 500 Sep14-Dec14-Mar15 exchange-traded butterfly using the account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The order quantity of 500 is within the Max Order Quantity for spreads of 25. Since the middle leg of the butterfly sells 2x the quantity of the other legs, the resulting position in Dec14 is beyond the Max Position Limit per contract of 1000.

Scenario 1	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	
Current Position	200	-200	0	0	GE
New Order	500	-1000	500		

Scenario 1	ZB Delivery Months				Product Level
Resulting Position	700	-1200	500	0	0
Accept/Reject	Accept	Reject	Accept	Accept	Accept

Scenario 2: Question 2

Action: Trader attempts to buy 50 Sep14-Dec14-Mar15-Jun15 Eurodollar packs using this account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The order quantity of 50 is within the Max Order Quantity for spreads of 25. An order for a pack buys an equal number of contracts in four consecutive delivery months. It has the same effect at the product level as buying 4 outright contracts. The resulting product level position of long 200 exceeds the Maximum Position (net) limit of 100.

Scenario 2	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	GE
Current Position	200	-200	0	0	0
New Order	50	50	50	50	
Resulting Position	250	-150	50	50	200
Accept/Reject	Accept	Accept	Accept	Accept	Reject

Scenario 2: Question 3

Action: Trader attempts to buy 50 Sep14-Dec14-Mar15 exchange-traded butterfly spreads using the account. Will the order be accepted or rejected?

Result: The order is accepted.

Explanation: The order passes all risk checks.

Scenario 2	ZB Delivery Months				Product Level
	Sep14	Dec14	Mar15	Jun15	GE
Current Position	200	-200	0	0	0
New Order	50	-100	50	0	
Resulting Position	250	-300	50	0	200
Accept/Reject	Accept	Accept	Accept	Accept	Accept

Scenario 3: Question 1

Inter-Product spreads work differently than Intra-Product spreads. For example, assume that an account that does not belong to an account group has the following risk parameters and position:

Risk Settings	Product	Product Type	Max Order Quantity (Outrights)	Maximum Position (Net)	Maximum Position per Contract
Note: xx indicates limits are not specified as they are ignored for Inter-Product spreads.	GLB	Future	xx	6	12
	GE	Future	xx	10	20
	GLBGE	Spread	11	xx	

The account has the following position:

Scenario 3	GLB Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GLB
Current Position	0	0	0	0	0

Scenario 3	GE Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GE
Current Position	0	0	0	0	0

Action: Trader enters an order to buy 5 GLB Jun15- GE Jun15 spreads.

Result: The order is accepted.

Explanation: The order passes the Maximum Order Quantity check versus the GLBGE Spread limit of **11** in this case. It also passes the Maximum Position checks versus the Future and Spread Position limits for each leg. The limits highlighted in bold do not come into play when risk checking Inter-Product spreads.

Scenario 3: Question 2

Given only the risk parameters below and no initial positions:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position
	GLBGE	Spread	11	xx

Action: Trader enters an order to buy 10 GLB Jun15- GE Jun15 spreads.

Result: The order is accepted.

Explanation: The order passes the Maximum Order Quantity check for the GLBGE spread. No Maximum Position checks are performed because not Future or Spread limits have been defined for the legs. The account's position in the GLBGE spread is unlimited.

Scenario 3: Question 3

Given the risk parameters:

Risk Settings	Product	Product Type	Max Order Quantity	Maximum Position (Net)	Maximum Position per Contract
Note: xx indicates limits are not specified as they are ignored for Inter-Product spreads.	GLB	Future	xx	6	12
	GE	Future	xx	10	20
	GLBGE	Spread	11	xx	

The account has the following position:

Scenario 3	GLB Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GLB
Current Position	5	0	0	1	6

Scenario 3	GE Delivery Months				Product Level
	Jun15	Jul15	Aug15	Sep15	GLB
Current Position	-5	0	0	-1	-6

Action: Trader enters an order to buy 2 GLB Jun15- GE Jun15 spreads using the account.

Result: The order is rejected.

Explanation: The order quantity check succeeds because the current order quantity is **2** and the Maximum Order Quantity for the GLBGE spread of **11**.

For the GE leg, the contract-level (i.e., Spread) Maximum Position check passes since the contract-level Worst Case Position (WCP) is **Short 7** and the GE spread position limit is **20**. The product-level (i.e., Future) check passes because the WCP for the product is **Short 8** and the GE Futures Maximum Position limit is **10**.

For the GLB leg, the Maximum Position per contract check passes since the contract-level WCP is **Long 7** and the GLB Maximum Position per contract is **12**. However, the WCP for the product is **Long 8**, which exceeds the GLB Maximum Position (net) limit of **6**. Therefore, the order is rejected.

Scenario 4: Example 1

Given the risk parameters and positions below:

Product	Product Type	Max Order Quantity (Outrights)	Maximum Position (Spread/Strategy)	Maximum Position (Net)	Max Position per Contract	Maximum Long/Short
ES	Future	10	20	10	20	30

Scenario 4	ES Delivery Months				Product Level
	Mar15	Jun15	Sep15	Dec15	ES
Current Position	10	10	0	-10	-6

Action: Trader attempts to buy 15 Sep15-Dec15 spreads using the account.

Result: The order is rejected.

Explanation: The maximum Long Product Position would be 35 (10 Mar15 + 10 Jun15 + 15 Sep15) and the Max Long/Short is 30.

Spreads

While calendar spreads and other spreads that have equal numbers of buys and sells are position neutral, those that do not equal numbers of buys and sells are treated as outright to the extent that they have a new long or short impact at the Product-level.

- A Eurodollar Pack is a spread consisting of buys in four (4) different delivery months. Buying one (1) pack has the same impact at the Product-level as buying four (4) outright.
- A 5 Year Eurodollar Bundle consists of buys in 20 different delivery months. Buying one (1) 5 Year Bundle has the same impact at the Product-level as buying 20 outright.

Wholesale (Block) Trades

X_TRADER 7.17 and higher includes an updated Wholesale Order window that allows the entry of wholesale orders, which includes Over-the-Counter (OTC) and Cross orders on the various supported exchanges. Wholesale order risk checking is supported at the account level, too.

Note: Wholesale trades are only supported on a subset of exchanges, and support for specific wholesale trade order types is dependent on the particular exchange.

In TT User Setup, you can set whether a user is allowed to place wholesale trades at all using the Wholesale Trades option, you can set whether wholesale trades should be subject to the account's product limits, and you can configure account-based product limit overrides for maximum order quantity and price reasonability settings for wholesale orders.

Position Limit Examples: Options

Overview	Options are treated like Futures in regards to risk-checking. Calls and Puts are treated as separate products when performing position limits 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.
Example 1	An account that does not belong to an account group has one position limit: an Option Maximum Position (net) limit of ten (10) for the GE product. The account has already bought five (5) GE Jun15 Calls at a Strike Price of 9500. The account could now be used to: <ul data-bbox="532 598 1466 724" style="list-style-type: none">• Buy up to five (5) GE Calls or Puts (of any GE options contract) before reaching the GE Option Maximum Position limit (net) of long 10.• Sell up to 15 GE Calls or Puts (of any GE options contract) before reaching the GE Option Maximum Position limit (net) of short 10.
Example 2	An account that does not belong to an account group has one position limit: a Maximum Position per contract limit of five (5) for the GE product. The account has already been used to buy five (5) GE Jun15 Calls at a Strike Price of 9500. The account can now be used to: <ul data-bbox="532 1035 1466 1140" style="list-style-type: none">• Buy up to five (5) GE Calls (except the GE Jun15 Call at 9500), or• Sell up to five (5) GE Calls of any GE options contract before reaching the GE Strategy Maximum Position limit of five (5) on a particular contract. There is no interaction between position limits for Options and for Futures/Spreads. When you are trading Futures/Spreads, it does not offset options positions or vice versa.

Position Limit Examples: Energies

Overview	<p>Position Limits for all Energy contracts should be entered in Lots instead of Contracts. Risk administrators should enter both the Maximum Order Quantity and Maximum Position limits in Lots.</p> <p>This is because the actual deliverable quantity of products that specify delivery in flow can vary from contract to contract, even within the same product. This is due to the variation in the number of days in a given month. The relationship between contracts, lots and flow can be expressed as follows:</p> <ul style="list-style-type: none"> • Contracts: Represents the entire delivery amount. • Lots: Represents the number of delivery periods in a contract. • Flow: Represents the amount to be delivered in each delivery period.
Example 1	<p>All monthly ICE Brent futures contracts specify one delivery period consisting of 1000 barrels of crude oil.</p> <ul style="list-style-type: none"> • 1 contract = 1 lot = 1000 barrels / month (flow) • 5 contracts = 5 lots = 5000 barrels / month (flow)
Example 2	<p>The ICE US Henry Hub Natural Gas Jan15 contract specifies 31 delivery periods of 2500MNBtu per day.</p> <ul style="list-style-type: none"> • 1 contract = 31 lots = 2500MNBtu / day (flow) = 77,500MNBtu / contract • 3 contracts = 93 lots = 7500MNBtu / day (flow) = 232,500MNBtu
Example 3	<p>The ICE US PJM Power Jan15 contract specifies 21 delivery periods (weekdays only) of 800MWh per day (50MW hours for 16 hours).</p> <ul style="list-style-type: none"> • 1 contract = 21 lots = 800MWh / day (flow) = 16,800MWh / contract • 2 contracts = 42 lots = 1600MWh / day (flow) = 33,600MWh

Scenario 1: Question 1 Let's look at an Energy scenario. An account that does not belong to an account group has the following risk limits:

Product	Product Type	Max Order Quantity (Outrights)	Max Order Quantity (Spread/Strategy)	Maximum Position (Net)	Maximum Position per Contract
Henry Natural Gas	Energy	100	250	500	750

The account has the following positions:

Scenario 1	Henry Hub Natural Gas						Product Level
	Dec14	Jan15	Feb15	Mar15	Apr15	Q115	
Current Position (Flow)	-17500	57500	-20000	-5000	2500	5000	Henry Natural Gas 22500
Current Position (Contracts)	-7	23	-8	-2	1	2	9
Current Position (Lots)	-210	713	-248	-60	31	184	410

Action: Trader attempts to sell 4 Dec14 contracts using the account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The quantity of 4 contracts in Dec14 is equivalent to 120 lots, which exceeds the Maximum Order Quantity of 100 lots.

Scenario 1: Question 2

Action: Trader attempts to buy two (2) Jan15 contracts using the account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: Although the Maximum Position (net) passes the risk checks, the resulting position in Jan15 ($713 + 31 * 2 = 775$) exceeds the Maximum Position per contract limit of 750.

Scenario 1: Question 3

Action: Trader attempts to buy three (3) Apr15 contracts using the account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: The order for 3 Apr15 contracts is the same as adding 93 lots to the existing lot total of 410. This exceeds the Maximum Position (Net) limit of 500 lots.

Scenario 1: Question 4

Action: Trader attempts to buy three (3) Mar15 contracts using the account. Will the order be accepted or rejected?

Result: The order is accepted.

Explanation: Since the lots for a Mar15 contract are less than for an Apr15 contract (30 vs. 31) this order is accepted, whereas the order in the previous example failed. The resulting position of the Maximum Position (net) does not exceed the limit of 500 lots.

Scenario 1: Question 5

Action: Assume the resulting position after the previous example: Mar15 = 30 lots; Product = 500. The trader attempts to sell two (2) Q115 contracts using the account. Will the order be accepted or rejected?

Result: The order is rejected.

Explanation: This contract is made up of each of Jan15, Feb15, and Mar15 contracts; therefore, the lots associated with it are much higher than a single month contract. However, TT does handle strips on ICE as spreads on other exchanges are handled (e.g., CME and ICE). With ICE, a strip is not broken down into its components with each leg getting checked individually. Instead, the strip is treated as an individual contract that has a much different lot quantity. In this example, the Maximum Order Quantity of 100 lots is exceeded.

Position Limit Examples: Autospreader

Overview

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

The pre-trade risk component in X_TRADER and the logic in Autospreader Strategy Engine (Autospreader SE) 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 embedded into Autospreader.

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.

Example 1: Calendar Spread Quoting Both Legs

Let's look at a few examples assuming the following risk limits for a trader:

Product	Product Type	Maximum Position (Net)	Maximum Position per Contract
GE	Future	40	20

Assume a trader has configured a two-legged GE Sep-Dec calendar spread with a 1 to -1 ratio and active quoting in both legs. The trader enters a spread order to buy 10 spreads. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
10	20	Accept

Product A	Quoting	Hedges
Sep	+10	+10
Dec	-10	-10

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (10 + 10 - 10, 10) = MAX (10, 10) = Long 10

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (10 + 10 - 10, 10) = MAX (10, 10) = Short 10

Note: The 20 Worst Case Position per Contract is if both quotes are filled, but only one of the hedges is filled.

Example 2: Calendar Spread Quoting One Leg

Assume a trader has configured a two-legged GE Sep-Dec calendar spread with a 1 to -1 ratio and active quoting in one leg. The trader enters a spread order to buy 10 spreads. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
10	10	Accept

Product A	Quoting	Hedges
Sep	+10	
Dec		-10

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (10 + 0 - 0, 10) = MAX (10, 10) = Long 10

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (0 + 10 - 10, 0) = MAX (0, 10) = Short 10

Example 3: Butterfly Spreads All Legs Quoting

A trader configures a three-legged spread with a 1, -2, 1 ratio and quoting in all three legs. Below are the positions calculated from the order:

Worst Case Position per Product	Worst Case Position per Contract	Accept/Reject
40	30	Reject (on Contract)

Product A	Quoting	Hedges
Sep	+10	+20
Dec	-20	-40
Jan	+10	+20

LWCNPP = MAX (Long Quoting Quantity + Long Hedge Quantity - Short Quoting Quantity, Long Quoting Quantity) = MAX (20 + 40 - 20, 20) = MAX (40, 40) = Long 40

SWCNPP = MAX (Short Quoting Quantity + Short Hedge Quantity - Long Quoting Quantity, Short Quoting Quantity) = MAX (20 + 40 - 20, 20) = MAX (40, 40) = Short 40

Note: The 30 Worst Case Position per Contract is if all quotes are filled, but only the Sep and/or Jan hedges are filled.

Account Permissions

Overview TT User Setup includes several options to restrict users to specific accounts. The restrictions range from only allowing the trader to use accounts that exist in TT User Setup, to only allowing the trader to use specific accounts.

Settings Use the following settings to limit which accounts a user can use when creating, modifying, and deleting orders:

Option	Location	Description
Submitting orders with undefined accounts	Trade Permissions	If unchecked (which is the default), the TT Gateway rejects orders and order changes with accounts that are not defined in TT User Setup. This prevents traders from bypassing TT User Setup account risk checking.
Submitting wholesale orders with undefined accounts	Trade Permissions	If unchecked (which is the default) the TT Gateway rejects wholesale orders and order changes with accounts that are not defined in TT User Setup. This prevents the trader from bypassing TT User Setup account risk checking.
Restrict user from editing their local customer defaults	Customer Defaults	When checked, the trader can only use customer defaults that have been configured in TT User Setup. This prevents the trader from creating an order using any other accounts than the ones you have specified in a customer default. This setting is unchecked by default.
Can only create, modify, and delete orders with the following accounts	Account Permissions	When checked, the Gateway will reject any order or order modification that does not use the specified accounts. This setting is unchecked by default.
Order Routing	Account Permissions	When the "Can only create, modify, and delete orders with the following accounts" option is checked, if "Order Routing" is unchecked the TT Gateway will reject all orders or order modification from this account.
ADL Order Routing	Account Permissions	When the "Can only create, modify, and delete orders with the following accounts" option is checked, if "ADL Order Routing" is unchecked the TT Gateway will reject all orders or order modification from this account through an ADL Algo.

In addition, you can make an account untradeable for all users by checking the "Trading Allowed" option on the Account window.

Note: When connecting to a pre-7.17 client (e.g., X_TRADER 7.12), TTORD ID users can only place orders with the accounts listed on the Gateway Login. When connecting to clients 7.17 and later, this restriction is removed and you must use one of the above options to restrict users to specified accounts.

Product Administration

Introduction

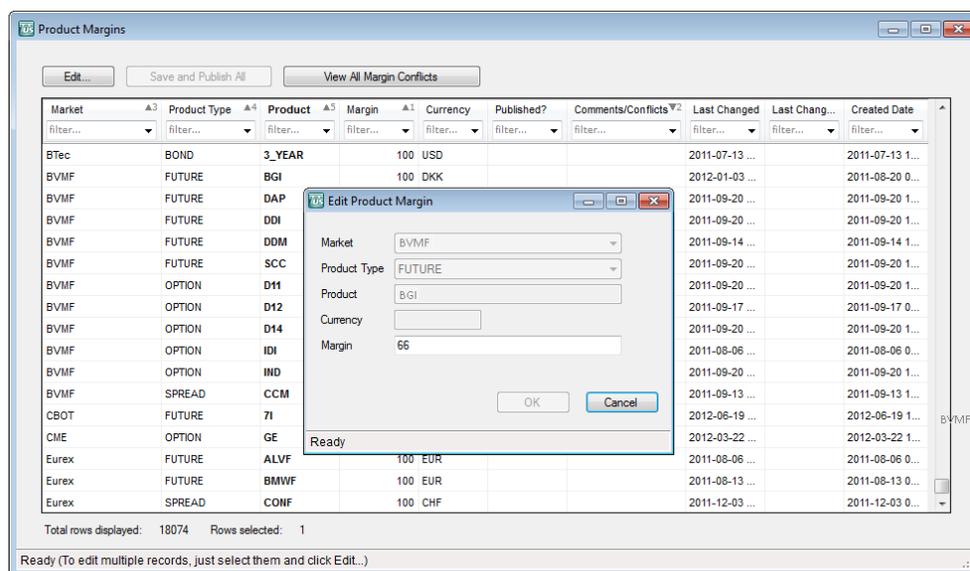
Overview

It is important to understand that data within the **Product Margins**, **Currencies**, and **Currency Exchange Rates** windows impact risk calculations for traders.

Product Margins

The **Product Margins** reflect exchange-defined parameters for each product (e.g., Product Symbol, Product Type, Description, Point Value, Price Format, etc.).

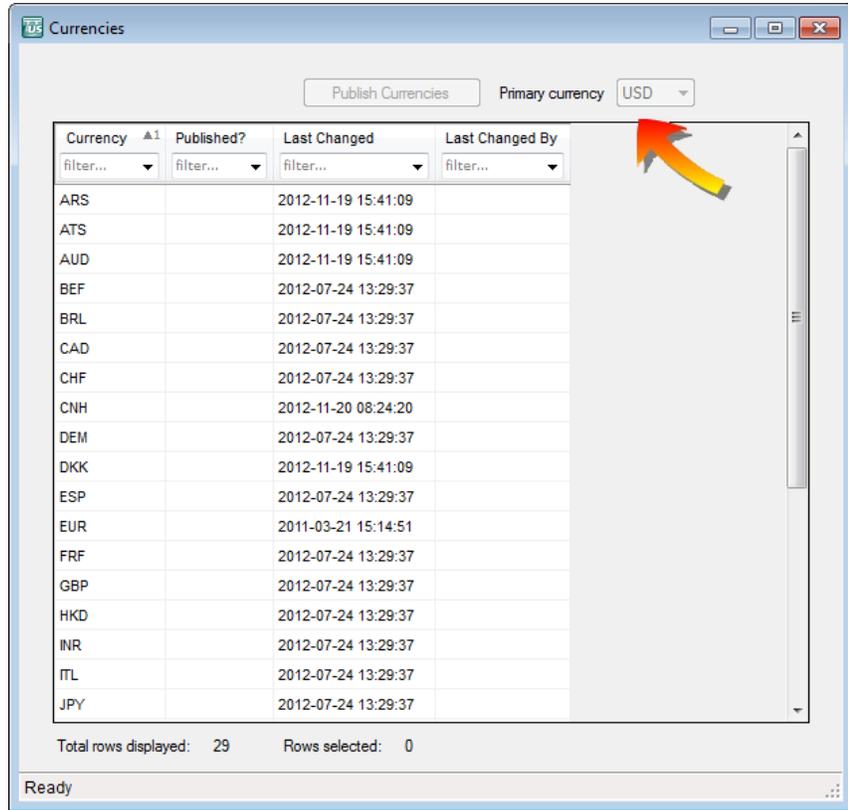
To edit a product margin, select a product margin and click **Edit**. Margin is controlled by the customer and defaults to zero for each product. Refer to each exchange's website for information regarding margin values for products. Remember that Margin must be set in order to factor into risk limits calculations.



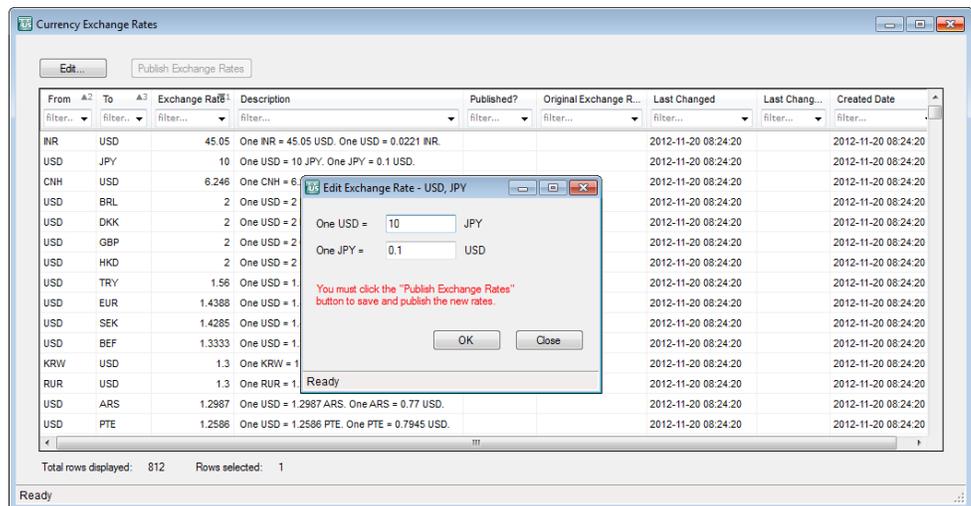
Currency Exchange Rates

When traders trade multiple products in different currencies, there need to be a way to aggregate the traders P&L into one currency as well as a way to calculate the trader's available credit in one currency.

Risk administrators use the **Currencies** window to set a primary currency in order to accurately display P&L and available credit.



Risk administrators manage exchange rates from the **Currency Exchange Rates** window. It is important to note that this window is manually updated by the risk administrator and must be updated as frequently as needed to ensure accuracy of exchange rates. This may be done daily, weekly, or monthly.



Note: If a firm only trades products in one currency, then there is not need to enter exchange rates within this table. The currency displayed in the **Primary** field is the primary currency for the trading environment. This is the currency P&L will display in within the **Fill** window.