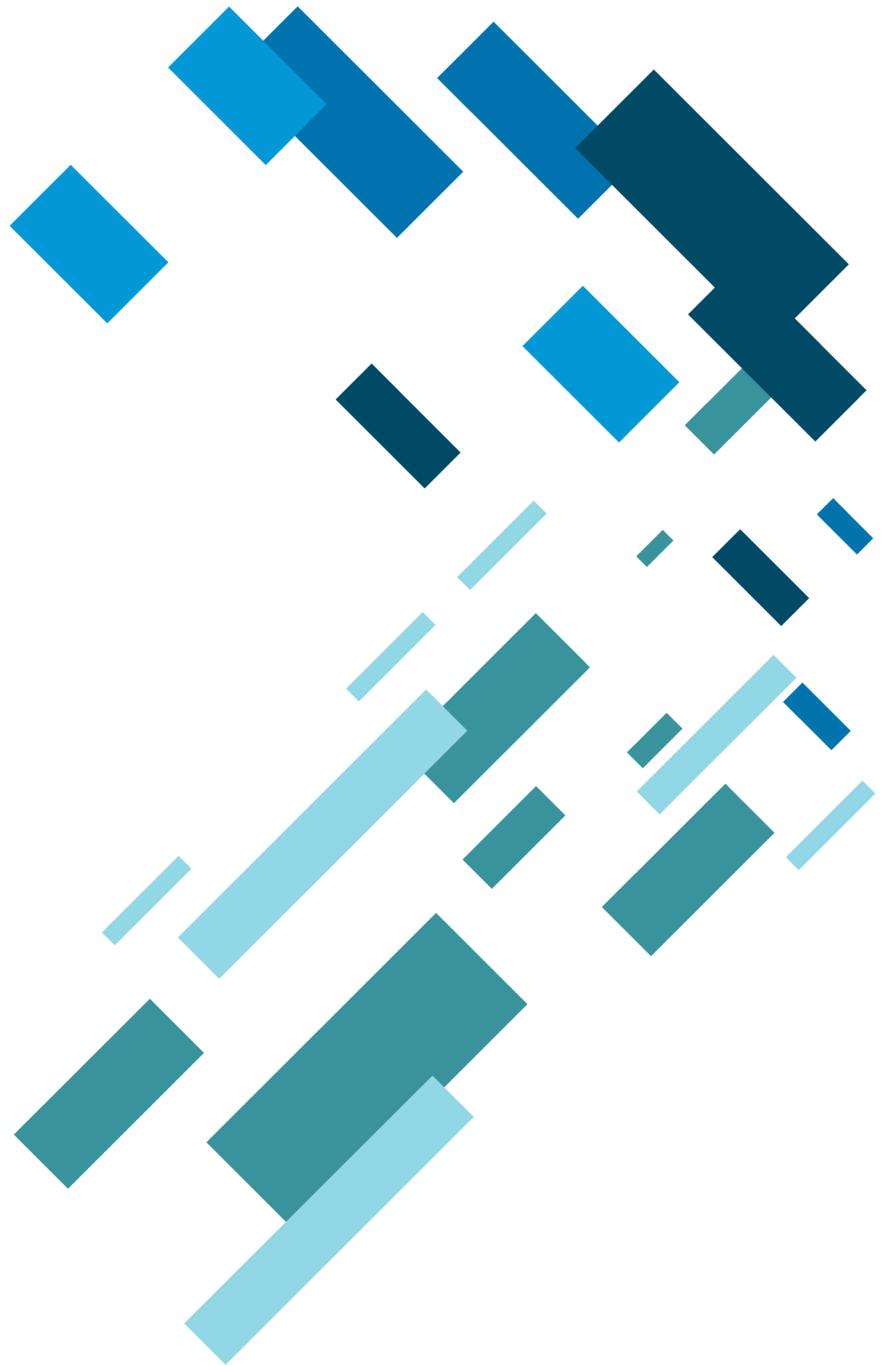




**TRADING
TECHNOLOGIES**

X_TRADER®
Version 7.X
Install Guide

VERSION 7.X
DOCUMENT VERSION 7.17.0.DV&)/2/1-



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Special Considerations: X_TRADER Installer ACL Change

X_TRADER installs several system services, such as Guardian, GuardianCtrl and TT Messaging (“TTM”). These system services run as `NT AUTHORITY\SYSTEM`, granting them local administration rights. However, the underlying executable files are writable by unprivileged users. Thus, someone with authenticated write access to the trading system’s file system can replace the executables with a malicious payload that will execute with local system privileges.

These services genuinely need administrative rights. For example, TTM creates raw sockets for Pragmatic General Multicast (“PGM”), since Windows does not provide an OS-native PGM implementation. To open raw sockets, programs must have administrative rights. Because these services require administrative rights to function properly, it is not possible to change their service definitions to use a non-privileged account.

To address this potential privilege escalation vulnerability, TT has modified the X_TRADER installation to apply Access Control Lists (“ACLs”) to the Guardian and TTM executables. The ACLs prevent anyone from writing to, renaming, or deleting the executables. X_TRADER component installation now requires administrator privileges to perform on every install or update; *the TT Update tool is now deprecated*, because it runs in the context of the user, not an administrator.

The X_TRADER installers know about these ACL modifications, and work correctly when performing a re-install or update. However, they are unable to register these ACL changes with the Windows uninstaller framework. Thus, even running as an administrator, uninstalling X_TRADER will not delete the affected executable files. To assist in uninstalling, the installer now places an `UninstallHelper.exe` program in the root of the TT installation directory. This program requires administrator privileges to run, and will revert the ACL changes made by the installer. To uninstall X_TRADER, please run the helper program before attempting to uninstall X_TRADER itself.

TT understands that many of our customers re-package X_TRADER, or may have other frameworks in place to centralize ACL management. If an administrator wishes to manage the ACLs on these system service executables themselves, they may use group policy to add a new registry key that will prevent the installer from applying any ACL changes. Only administrators may modify this registry key; by default, normal users only have read access to the “Policies” section of the registry.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Policies\Trading Technologies]
"InstallWithNoPermissions"="1"
```

For administrators that script their X_TRADER installations and wish to disable the installer's ACL handling, the new TT installers also accept a "--noperms" command line option in addition to the group policy registry key.

To manually apply the ACL changes made by the installer, execute the following:

```
cd <X_TRADER installation root>
cd Guardian
REM Due to icacls' handling of implicit "S" permission, deny write
REM options explicitly instead of using the generic "W", as generic "W"
REM also implicitly removes "S", which makes the file non-readable/executable.
REM Note: when ACLs are subsequently viewed, it will show as generic "W"
REM since the state of "S" is hidden.
icacls *.exe /deny *S-1-5-7:(wd,wa,wea,ad,de) /deny *S-1-1-0:(wd,wa,wea,ad,de)
icacls *.dll /deny *S-1-5-7:(wd,wa,wea,ad,de) /deny *S-1-1-0:(wd,wa,wea,ad,de)
REM Windows still allows users to delete files if they have the DC
REM permission on the containing folder. So we remove DC. Additionally,
REM remove DE on the containing folder to prevent users from simply renaming
REM the files out of the way.
icacls . /deny *S-1-5-7:(dc,de) /deny *S-1-1-0:(dc,de)
REM Config subdirectory now inherits the -DC,-DE flag from its parent, which
REM breaks the product tables maintained by Guardian. Explicitly add DC/DE
REM back to the Config subdirectory.
icacls Config /grant *S-1-1-0:(dc,de)
cd ../ttm
icacls *.exe /deny *S-1-5-7:(wd,wa,wea,ad,de) /deny *S-1-1-0:(wd,wa,wea,ad,de)
icacls *.dll /deny *S-1-5-7:(wd,wa,wea,ad,de) /deny *S-1-1-0:(wd,wa,wea,ad,de)
icacls . /deny *S-1-5-7:(dc,de) /deny *S-1-1-0:(dc,de)
```

Installing X_TRADER

This document lists the minimum steps necessary to begin using X_TRADER. In addition, your particular trading environment (e.g., back office requirements or quoting) may require you to perform additional installation steps.

Note: For additional documentation on X_TRADER, refer to the Related Documentation section within this document.

Installation Checklist

	Task	Comments
<input type="checkbox"/>	Review Special Considerations	
<input type="checkbox"/>	Pre-Installation or Upgrade <ul style="list-style-type: none"> • Verify the workstation software and hardware match X_TRADER requirements • Obtain trader login information • Verify license file • Read Release Notes • Close all applications 	If the X_TRADER workstation is on a network segment separate from the TT Gateway, refer to the <i>TT Trading Systems - Network Administration Manual</i> for detailed information on setting up WAN Routing
<input type="checkbox"/>	Install X_TRADER	Install X_TRADER using the Installation Wizard or Command-Line.
<input type="checkbox"/>	Reboot Workstation	
<input type="checkbox"/>	Review Additional Setup Tasks	Verify Guardian Settings

Pre-Installation Tasks

Follow these pre-installation points to ensure your workstation is ready to install or upgrade X_TRADER.

- Determine if you are installing or upgrading.

Note: If installing X_TRADER on multiple workstations, verify whether you need a new client license. If loading a license file, verify that all components are listed accurately.

- Obtain the administrator login information for the workstation you are installing X_TRADER on.
- Ensure the workstation hardware and software match X_TRADER requirements.
- Identify WAN Routing requirements.

Note: Refer to the TT Trading Systems - Network Administration Manual for detailed information on setting up WAN Routing.

- Obtain an X_TRADER universal login username and password from your system administrator.
- Read the release notes included with the setup as this may contain additional instructions that supersede the following procedures.
- Close any open or running applications on the workstation.
- For Window 7 and Vista you will need to disable User Account Control (UAC) and Base Filtering Engine (BFE).

Hardware and Software Requirements

Refer to *TT Trading Systems - Hardware and Software Requirements* document for the latest X_TRADER requirements.

To use the Guardian account lockout alert feature, you must install an MAPI enabled email client onto the X_TRADER workstation.

Special Considerations

When using this document take the following points into consideration:

- This document does not include network configuration information. If you need to configure the trading network, refer to the *TT Trading Systems - Network Administration Manual*.
- Installing X_TRADER also automatically installs the following:

- Guardian

Note: For new installations and upgrades the Guardian mode is set to **Production**.

- X_TRADER® API

Note: You must have an X_TRADER® Pro License to use X_TRADER API

- TT Messaging
- X_STUDY
- The install script creates a series of installation log files in the `<installroot>\tt\logfiles` directory. Installation log files begin with `ins_`.

Installing X_TRADER Using The Installation Wizard

To install X_TRADER, follow these steps:

1. Double-click `X_TRADER_r7*.exe`, where * is the current release, build, and package number of X_TRADER.

Example: `X_TRADER_r7.9.1p130.exe`

The **License Agreement** dialog box displays.

2. Read the license agreement. To agree to the license, click **I accept the terms in the license agreement**, and then click **Next**.
 - If the system already contains TT software, the script automatically installs the software into the same root directory as the existing TT software. Skip to **Step 5**.
 - If you have not previously installed TT software onto the machine, the **Setup Type** dialog box displays. Continue to the next step.
3. Do one of the following:
 - To install X_TRADER in the default location (`C:\tt`), click **Install Now**. Skip to **Step 5**.
 - Otherwise, to install X_TRADER in another location, click **Customize**.

The **Destination Folder** dialog appears.

- For each destination, select the alternative path and then click **Next**.

Note: All TT program files must be installed in the same root directory. Any TT software you subsequently install automatically installs in this directory. You can, however, specify alternate locations for configuration, log, user data, and system data files.

- When the installation is complete, click **Finish**.
- The installation program adds the following icons on your desktop:

Icon...	Double click to...
 Start Guardian (Green)	Launch Guardian.
 Stop Guardian (Red)	Stop Guardian.
 X_TRADER	Start X_TRADER.

- Reboot the workstation.
You have successfully installed X_TRADER.

Note: When starting X_TRADER for the first time, you are prompted with a license agreement. Read the license agreement, and click **Accept**. Another prompt displays verifying your acceptance of the license agreement, click **I Accept**.

Post-Installation Tasks

Perform the following tasks after installing X_TRADER.

Note: For further documentation on each of these items, refer to the Related Documentation section.

1. Verify TT Gateways are listed within the Guardian exchange tree.
 - Double-click the Guardian icon  in the lower-right corner of the system tray.
 - Click the + to the left of Exchanges to list all TT Gateways available.
 - Verify that all required TT Gateways are listed.

Note: If TT Gateways do not display you will need to verify that the Mode and Daemon Setup are correct.

2. Verify Guardian Mode.
 - Double-click the Guardian icon  in the lower-right corner of the system tray.
 - From the Mode menu, click the mode in which you want to run X_TRADER (i.e., Production or Simulation).
3. Verify Daemon Settings.
 - Double-click the Guardian icon  in the lower-right corner of the system tray.
 - Select **Config | Daemon Setup**.
 - Verify the Daemon Setup settings match the settings given to you by your system administrator.

Upgrading X_TRADER

Note: Uninstall the previous version of X_TRADER if you need to install X_TRADER to a new location on the workstation. By default the software will install into the same root directory as the existing TT software.

Verify that the compatibility options on the X_TRADER installation executable are all disabled.

1. Right-click the X_TRADER executable file and select **Properties** from the menu.
2. Click the **Compatibility** tab and verify that none of the checkboxes are checked.
3. Click **OK**.

To upgrade X_TRADER, follow these steps:

1. Backup the following folder(s):
 - <rootdrive>:\TT
 - My Documents\Trading Technologies
2. To begin the X_TRADER installation, double-click **X_TRADER_R7*.exe**, where * is the current release, build, and package number of X_TRADER.

Example: X_TRADER_r7.9.1p130.exe

The **Upgrade** dialog box displays.

3. Click **Yes** to continue with the upgrade.
4. Read the license agreement. To agree to the license, click **I accept the terms in the license agreement**, and then click **Next**. X_TRADER and its associated programs install with the settings selected during the previous installation.

Note: Associated products (XTAPI, X_STUDY, TT Messaging, and Guardian) may require upgrading during this process. When prompted to upgrade these products click **Yes**.

5. When the installation is complete, click **Finish**.
6. Reboot the workstation.
You have successfully upgraded X_TRADER.

Uninstalling X_TRADER

The X_TRADER installers know about the ACL modifications, and work correctly when performing a re-install or update. However, they are unable to register these ACL changes with the Windows uninstaller framework. Thus, even running as an administrator, uninstalling X_TRADER will not delete the affected executable files.

To assist in uninstalling, the installer now places an `UninstallHelper.exe` program in the root of the TT installation directory. This program requires administrator privileges to run, and will revert the ACL changes made by the installer. To uninstall X_TRADER, please run the helper program *before* attempting to uninstall X_TRADER itself.

Uninstalling X_TRADER

To uninstall X_TRADER, follow these steps:

1. Access the **Add or Remove Programs** or **Uninstall or Change Program** window.
 - Windows XP: Select **Start | Control Panel | Add or Remove Programs**.
 - Windows 7/Vista: Select **Start Globe | Control Panel | Uninstall a Program**.
2. Uninstall TT Messaging, TT X_STUDY®, TT XTAPI, Guardian, TT Trader, and X_TRADER.
 - Windows XP: Select the program and click **Remove**.
 - Windows 7/Vista: Select the program and click **Uninstall**.
3. Remove the following folder(s) from the workstation:
 - <rootdrive>:\TT
 - **My Documents\Trading Technologies**
4. Access the Registry Editor.
 - Windows XP: Select **Start | Run**, type **REGEDIT**, and click **OK**.
 - Windows 7/Vista: Select Start Globe, type **REGEDIT**, and press **Enter**.
 - Navigate to the **HKEY_CURRENT_USER | Software key** and delete the **Trading Technologies** subkey.
 - Navigate to the **HKEY_LOCAL_MACHINE | SOFTWARE key** and delete the **Trading Technologies** subkey.
5. Reboot the workstation.
You have successfully uninstalled X_TRADER.

Related Documentation

Refer to list below for documentation on particular subjects relevant to setting up your trading system:

- **Requirements:** *TT Trading Systems - Hardware and Software Requirements*
- **Installation Notes:** *Release Notes*
- **License Files:** *TT Gateways Architecture System Administration Manual*
- **Login information:** *TT Gateways Architecture System Administration Manual and the System Administration Manuals specific to the type of TT Gateways you use.*
- **Network setup:** *TT Trading Systems - Network Administration Manual*
- **Product Tables:** *TT Gateways Architecture System Administration Manual*
- **Risk Parameters:** *Guardian Help*
- **Software Requirements:** *TT Trading Systems - Hardware and Software Requirements*
- **Switching Modes:** *TT Gateways Architecture System Administration Manual*
- **Tuning Recommendations:** *TT Trading Systems - Systems Tuning*
- **WAN Routing:** *TT Trading Systems - Network Administration Manual*
- **Sales Setup:** *X_TRADER® Version 7.9.X Setup Guide*