CS PROFESSIONAL SUITE®
Terminal Server Best Practices

What is a terminal server?

A terminal server (also known as a remote desktop server) is a device that allows multiple users to connect to a Microsoft® Windows® Server from remote workstations. The remote user can run applications and access data within a local area network (LAN) or a wide area network (WAN). When running an application that is installed on the terminal server, the remote user sees a display of what occurs on the terminal server, and the user's mouse and keyboard commands are transmitted back to the server.

The advantages of a terminal server include the following:

▪ Supports centralized deployment of applications and administration as well as standardized setup.

▪ Allows remote access from anywhere with an appropriate connection.

▪ Provides service for a large number of users.

Due to the complexity of the Microsoft Remote Desktop Services role services, be sure that your firm relies only on a **qualified and certified terminal server professional** to handle the installation of CS

Professional Suite applications in a terminal server environment. For example, an appropriate certification would be one of the following:

- Microsoft Certified Professional (MCP) for Windows Server

- Microsoft Certified Systems Administrator (MCSA)

- Microsoft Certified Technology Specialist (MCTS)

- Microsoft Certified IT Professional (MCITP)

- Microsoft Certified Systems Engineer (MCSE)

- Citrix® Certified Administrator (CCA)

- Citrix Certified Enterprise Administrator (CCEA)

Licenses

A **terminal server license** is required for any CS Professional Suite application if want to you install that application on a server with Microsoft Terminal Services/Remote Desktop Services enabled. If you were to attempt to run a CS Professional Suite application on a terminal server without the proper license, you would see an alert message saying "Terminal Server detected, licenses not validated." (Details about this alert message are available from our Help & How-To Center.)

If you require a terminal server license, please contact your CS Sales representative.

Supported environments

The supported terminal server environments are these:

- Windows Server 2012 or higher

- 32-bit and 64-bit operating systems

- Citrix XenApp® version 7 and newer

Note: We do not support the use of CS Professional Suite applications through third-party remote desktop solutions or virtual private networks (VPN) unless using terminal services through the VPN connection.

Citrix

Citrix is not required for terminal services, but it offers additional capabilities — including management functions to effectively administer multiple terminal servers, additional printing functionality, and load balancing among farms of servers, and it supports the scalability of additional servers to increase capacity. Working with a Citrix environment requires a Citrix-certified IT professional. For more information, visit the Citrix website.

Hardware requirements

The hardware requirements for the CS Professional Suite applications in terminal server environments can vary based on the specific needs of each firm. As examples, we have listed in this section the

hardware specifications for our Virtual Office CS® and Software as a Service (SaaS) servers, which can serve as a frame of reference for terminal servers. When selecting hardware appropriate for your own firm's needs, be sure to consult a qualified IT professional. (Please note that our Virtual Office CS and SaaS servers run only CS Professional Suite and Microsoft Office 2016 applications.)

G7 Platform (60-user capacity)	G8 Platform (120-user capacity)
Windows Server 2012, or higher Enterprise edition, Citrix XenApp 7	Windows Server 2012, or higher Enterprise edition, Citrix XenApp 7
2 Processor 24 Core 2.67 GHz	2 Processor 32 Core 2.6 GHz
48 GB Memory	256 GB Memory
2 Local ISCSI Drives with 512 MB Cache in RAID 1 Configuration	2 Local ISCSI Drives with 1 GB Cache in RAID 1 Configuration
10 GB Network	10 GB Network

Notes

- **Windows Server 2012 and Server 2012 R2 Terminal Services.** Microsoft has identified an issue that may impact applications in a terminal services environment for users of Window Server 2012 or Windows Server 2012 R2. When running applications on a terminal server from a network location, the application could crash for all users when one user logs off the terminal server.

  For details if you are installing UltraTax CS,® Fixed Assets CS,® FileCabinet CS,® or Planner CS® on Windows Server 2012 or Server 2012 R2, see Installing software on Windows 2012 or 2012 R2 Terminal Server in our Help & How-To Center. Please note that this issue does not affect SQL-based CS Professional Suite applications such Accounting CS,® Practice CS,® or Workpapers CS.™

- **N+1 Rule.** Hardware best practices include following the N+1 Rule, also known as N+1 redundancy. It states that if your firm requires *N* number of servers to operate and support your firm's workload, your firm should have *N*+1 servers for resiliency and business continuance in the event of a server failure.

Installation guidelines

At a minimum, installing CS Professional Suite applications involves two steps, with **install mode** required for both:

1. Install the application files.

2. Download and apply the licenses via CS Connect.

Considerations for proper installation

- For a network installation of any application that is designed to run on a Microsoft Windows operating system, it is important that network access via universal naming convention (UNC) paths is consistent across all computers and servers that will access the application and its data.

- When installing applications on a terminal server, be certain that all users are completely logged out of all terminal server sessions. Rebooting the terminal server just prior to installing will ensure that no users or applications are open during the installation process. If you are prompted to restart your terminal server after the installation, be sure to do so.

- The installation procedures for CS Professional Suite applications varies slightly depending on your terminal server setup. Details are provided later in this document.

- When installing CS Professional Suite applications on a terminal server, **you must manually change to install mode**. This is important because it allows multi-user installation and proper access to writing user files and registry entries. We strongly recommend that you work from the terminal server console for the installation. We do not recommend installing applications remotely. To access **install mode** manually, do the following:

  a) [Start a command prompt as an administrator.](#)

  b) Enter the command: **change user /install**.

  After the installation is complete, you need to return to **application mode**. To do so, enter **change user /execute** from the command prompt.

- **SQL-based CS Professional Suite applications.** Accounting CS, Workpapers CS, and Practice CS use Microsoft SQL Server® to store data. In addition, FileCabinet CS users have the option to store their data in a SQL Server database. You must install these applications (or their database components) on a separate server that will act as the SQL Server **before** you set up your terminal server. (For best performance, we recommend a dedicated SQL Server; the terminal server should not also act as the SQL Server.) After you install the database component — and in some cases, the application files — on the SQL Server, you can proceed with a typical terminal server setup for your environment.

Terminal server setup examples and installation procedures

CS Professional Suite applications do not need to be installed on the remote workstations.

Standalone terminal server

In a standalone terminal server setup, each workstation connects remotely to a terminal server as depicted in the following illustration.
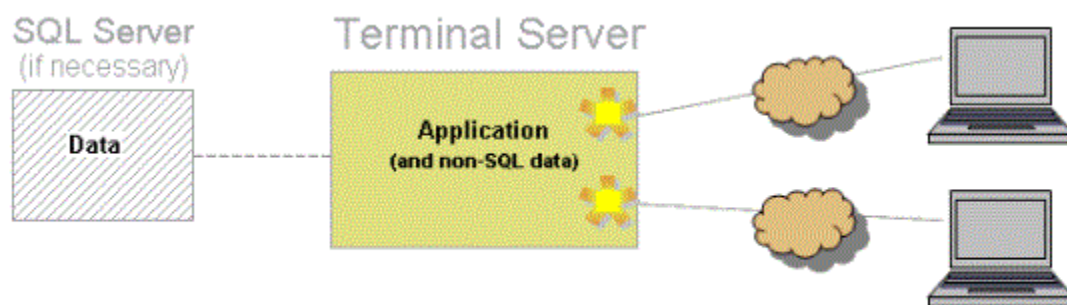
Typical configuration for a standalone terminal server

To install and set up CS applications in an environment with a standalone terminal server, do the following:
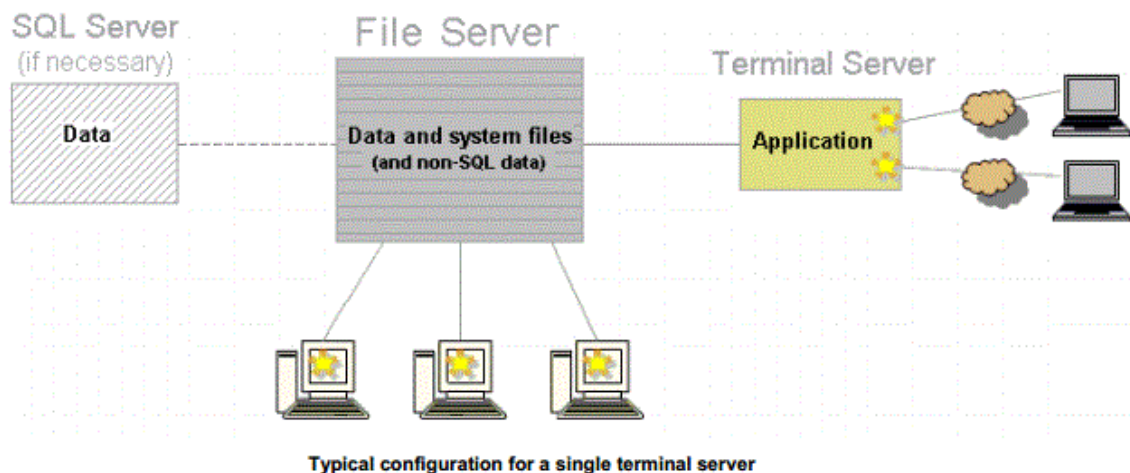
1. Work directly from the terminal server console.

2. Log in as an administrator.

3. Change to **install mode** (by entering "change user /install" from a command prompt) and then install to a local drive (e.g., C:\Wincsi) on the terminal server.

4. Launch the application and install the application licenses while still in install mode.

5. Return the terminal server to **application mode** (by entering "change user /execute" from a command prompt).

Terminal server with a separate file server

In a terminal server with a separate file server setup, CS Professional Suite applications run on the terminal server while data and system files are stored on the file server. Workstations may connect remotely to the terminal server or directly to the file server to access CS Professional Suite applications.

▪ If your firm uses both a terminal server and a separate file server, we recommend that the complete installation of the CS Professional Suite applications be made from the terminal server console in **install mode** to a local drive on the terminal server, and then you can point the data and system files to the file server via a UNC path.

▪ It is critical that you use consistent UNC paths between the terminal server and the file server for the data and system files.

▪ If other LAN workstations will access the applications via a UNC path to the file server, a separate installation of the application needs to be run on the file server and a separate desktop setup installation is required for each local workstation. However, a separate installation is not required for workstations that access the terminal server remotely.

Typical configuration for a single terminal server

To install and set up CS Professional Suite applications in an environment with a terminal server and a separate file server, do the following:
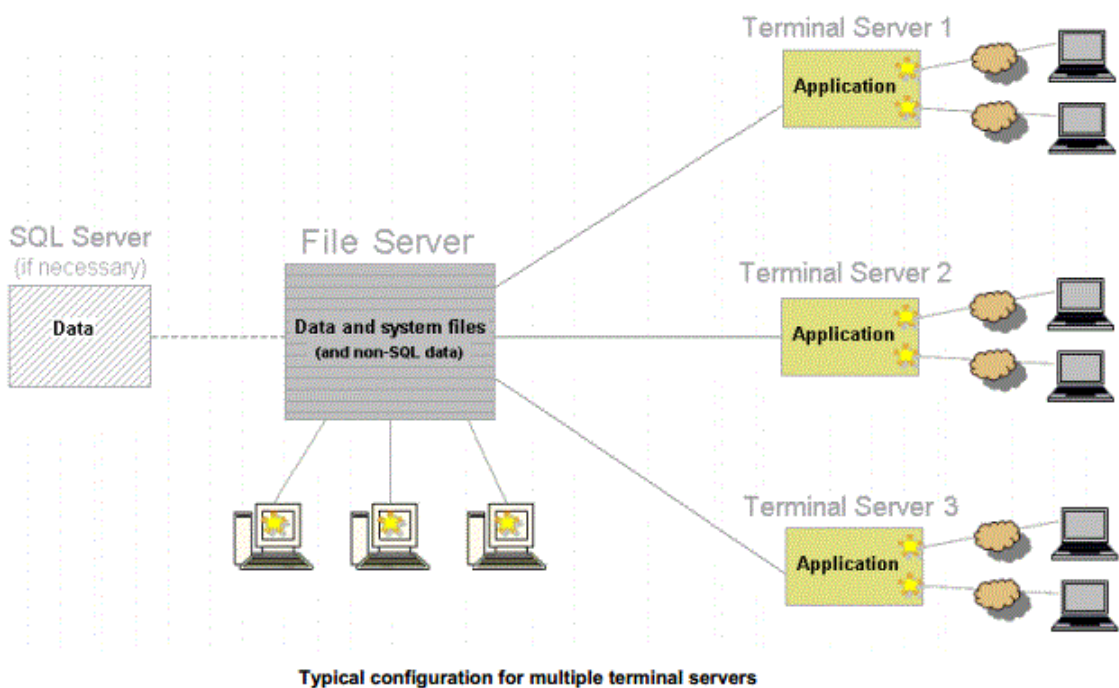
1. Work directly from the terminal server console.

2. Log in as an administrator.

3. Change to **install mode** (by entering "change user /install" from a command prompt) and then install to a local drive (e.g., C:\Wincsi) on the terminal server.

4. Launch the application and install licenses while in still install mode.

5. Return the terminal server to **application mode** (by entering "change user /execute" from a command prompt).

6. Within the application, point the data and system files to the file server via a UNC path. For details, see [Installing software on Windows Server 2012 or Windows Server 2012 R2](#) article in our Help & How-To Center.

Multiple terminal servers with a separate file server

If your firm uses multiple terminal servers and a separate file server, we recommend that the complete installation of the CS Professional Suite applications be made via **install mode** from the terminal server console to a local drive on each terminal server.

▪ Any application updates need to be performed on each terminal server where the application is installed. If other LAN workstations access the applications via a UNC path to the file server, a separate installation of the application needs to be run on the file server and a separate desktop setup installation is required for each local workstation. However, a separate installation is not required for workstations that access the terminal server remotely.

▪ It is critical that you use consistent UNC access between the terminal server and the file server for the data and system files.

Typical configuration for multiple terminal servers

To install and set up CS Professional Suite applications in an environment with multiple terminal servers and a separate file server, do the following:

1. Work directly from the terminal server console.

2. Log in as an administrator.

3. Change to **install mode** (by entering "change user /install" from a command prompt) and then install to a local drive (e.g., C:\Wincsi) on the terminal server.

4. Launch the application and install licenses while still in install mode.

5. Return the terminal server to **application mode** (by entering "change user /execute" from a command prompt).

6. Within the application, point the data and system files to the file server via a UNC path. For details, see Installing software on Windows Server 2012 or Windows Server 2012 R2 article in our Help & How-To Center.

7. Repeat steps 1 through 6 for each additional terminal server.

Printing, scanning, and display guidelines

Printing

When printing in a terminal server environment, we recommend using only Microsoft-approved print drivers or Citrix-certified drivers provided by your printer manufacturer.

Scanning

TS Scan is an application that enables you to use a locally installed, TWAIN-compliant scanner to scan documents directly into hosted CS Professional Suite applications. To download TS Scan, login to your account on the CS Professional Suite & Onvio website, and visit the My Product Downloads page.

For additional information, see Installing and Using TS Scan Terminal Server (PDF) in our Help & How-To Center.

Notes

▪ One alternative to using TS Scan is to scan the image using your scanning software, save the image as an acceptable image type (.bmp, .ico, .jfif, .jif, .jpeg, .jpg, .pbm, .pcd, .pcs, .pgm, .png, .ppm, .ras, .targa, .tga, .tif, .tiff), and then import the image into FileCabinet CS by choosing **Image > Copy from File**.

▪ Another alternative is to save the image as a PDF file and embed the PDF document in FileCabinet CS by choosing **Object > Create from File**.

▪ If your firm uses a terminal server with Citrix, consider enabling TWAIN redirection for scanning. For instructions and additional information, visit the following pages on the Citrix website (at **support.citrix.com**):

  ▪ Enabling TWAIN Redirection

  ▪ How to Troubleshoot TWAIN Redirection Functionality with XenApp

▪ RemoteScan and other third-party scanning applications are **not** supported for use with the CS Professional Suite.

Permissions settings for scanning

Refer to the application-specific permissions settings for FileCabinet CS and TS Scan that are required in terminal server environments.

Important! Before changing permissions in any operating environment, please consult your firm's qualified IT professional.

FileCabinet CS

Users of FileCabinet CS who run the application in a terminal server environment can also use the FileCabinet CS print driver for other applications that are hosted on the terminal server. However, the FileCabinet Document Names dialog (for selecting printed documents to send to FileCabinet CS) will appear in a terminal server session for a non-administrator **only** if certain permissions are set as follows:

- **C:\Windows\Temp** must have **ALLOW** rights for everything except *Write Attributes, Write Extended Attributes, Change Permissions*, and *Take Ownership*, which are not required for the FileCabinet CS print driver to work in a terminal server environment.

- **C:\Windows\SYSTEM32\SPOOL\PRINTERS** must have **ALLOW** rights for everything except *Delete Subfolders & Files, Change Permissions*, and *Take Ownership*, which are not required for the FileCabinet CS print driver to work in a terminal server environment.

To access permissions settings, right-click the relevant folder and choose Properties. In the Security tab, click the Advanced button. Highlight the user group (usually the **Power Users** group) and choose **View > Edit**.

Note: On rare occasions, we have also noticed that if firms have not set correct permissions to the \Wincsi\FcabData folder, the driver will not work (although this issue usually manifests itself in many other ways as well). Verify that your terminal server users are set up with Full Control of the FileCabinet CS data locations.

TS Scan

When using TS Scan in a terminal services environment, make sure the proper permissions are set for both the local workstation and the server.

On the local workstation, make sure the user's permissions settings enable access to the following folder locations:

- C:\Program Files\TSScan (for 32-bit operating systems)

- C:\Program Files (x86)\TSScan (for 64-bit operating systems)

Also be sure that permissions are set properly for the following folders (where **X** represents the drive of your firm's server):

Windows Server 2008 and higher

- X:\Windows

- X:\Users\[user]\Windows

- X:\Users\[user]\Windows\Twain_32

- X:\Users\[user]\Windows\Twain_32\TSScan

Windows Server 2003

- X:\Windows

- X:\Documents and Settings\[user]\Windows

- X:\Documents and Settings\[user]\Windows\Twain_32

- X:\Documents and Settings\[user]\Windows\Twain_32\TSScan

Display settings

When using multiple monitors in a terminal server environment, you may experience issues such as display settings in UltraTax CS not recognizing one of your monitors; overlapping toolbar buttons; or input and form screens being shrunk to fill only a portion of the screen on your monitor.

To resolve display and monitor issues, do the following:

1. Determine each monitor's actual resolution setting in Windows.

2. In UltraTax CS, choose **Window > Display Settings** and select **VO/TS Resolutions**.

3. Enter the correct screen resolutions for each monitor, and then click **OK** and **OK** again.

4. Close and reopen the application.

Considerations for optimal performance

Antivirus and firewall configuration

Real-time scanning by antivirus software, as well as certain firewall configurations, may potentially degrade performance within a terminal server environment. We recommend making certain exclusions to your security solutions to ensure CS Professional Suite applications are running optimally.

For antivirus and firewall configuration settings, see Antivirus guidelines for CS Professional Suite applications and Firewall guidelines for CS Professional Suite applications in our Help & How-To Center.

Troubleshooting performance issues in virtual environments

Important! CS Professional Suite applications can be installed and run in a virtual environment. However, due to the complexity of virtualization, Thomson Reuters cannot be responsible for configuring your virtual environment. When configuring or working in a virtual environment, please consult your firm's qualified IT professional.

Virtualization software allows multiple operating system instances to run at the same time on a single computer or server. ('Virtualization' is also referred to as virtual environment, virtual machine, or VM.)

When troubleshooting performance issues in virtual environments, keep the following in mind:

- **Sharing of resources.** The host system shares memory and processor resources with the guest operating system. Workstations that run our CS Professional Suite applications have a **minimum** of 2 GB of RAM installed. However, to ensure that both the guest and host operating system have enough resources to share, we recommend that you have 4 GB of RAM or more installed on each workstation. If you plan to allot half of your installed RAM to the guest operating system and also plan to do heavy multi-tasking, you should increase the installed RAM to the 6-8 GB range.

- **Processes in the host system could affect performance in the guest system.** Be aware that when you look at the memory and processor resources used by the guest operating system, you do not see the whole picture. For example, the guest might show a CPU utilization of 20 percent, but the CPU in the host could be running at 80 percent, which would affect the performance of the guest as well.

- **Supported host OS.** The host operating system should be a supported system.

If you experience performance issues when running a CS Professional Suite application in a virtual environment, to test whether freeing up the system resources would solve the performance problems, you should install the application in the host operating system while the guest operating system is shut down.

For additional information, see Microsoft's support policy (at **microsoft.com**) regarding virtualization:

- Microsoft Virtual Server support policy

- Support policy for Microsoft software that runs on non-Microsoft hardware virtualization software

- Windows Server System software not supported within a Microsoft Virtual Server environment

Troubleshooting guidelines

For tips about troubleshooting issues that your firm might encounter when running applications on your firm's terminal server, see Terminal server troubleshooting guidelines.