

Administrator's Guide

Citrix Device Services for Windows 2000 Servers

Version 1.0

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Welcome



This document is a guide for Citrix Device Services for Windows 2000 Servers. It is written for system and network administrators responsible for installing Citrix Device Services on Windows 2000 Servers.

Citrix Device Services adds Independent Computing Architecture (ICA) connectivity over TCP/IP to Windows 2000 Servers. By using the ICA protocol to deliver Windows applications to your terminal devices, you gain the benefits of increased application performance and network efficiency associated with Citrix's industry-leading presentation protocol. In addition to basic application presentation services, ICA adds support for terminal device printer and COM port mapping. Printer and COM port mapping let terminal users print to local printers and connect a variety of peripheral devices to terminal COM ports.

Finding More Information

Your Citrix Device Services package includes the following documentation:

- The *Citrix Device Services for Windows 2000 Servers Administrator's Guide* (this document) describes how to install Citrix Device Services and how to install and activate Citrix Device Licenses.
- The Citrix Licensing Help gives procedural information for using the Citrix licensing utility. To view this Help, click **Start**, point to **Programs**, **Citrix Device Services Tools**, and then click **Citrix Licensing**. When Citrix Licensing appears, click **Help** and then click **Contents**.
- The Citrix License Activation Wizard Help describes how to use the Activation Wizard to obtain activation codes for Citrix Device Licenses. To view this Help, double-click **Activation Wizard** on your Windows desktop and then click **Help** from any screen of the wizard.

Important Please consult the Readme.txt file for any last-minute updates and corrections to the documentation. This file is located in the root directory of your Citrix Device Services CD-ROM and also on the Citrix Device Services maintenance upgrade download site.

Document Conventions

The following conventional terms, text formats, and symbols are used throughout the printed documentation:

Convention	Meaning
Bold	Indicates boxes and buttons, column headings, command-line commands and options, dialog box titles, lists, menu names, tabs, and menu commands.
<i>Italic</i>	Indicates a placeholder for information or parameters that you must provide. For example, if the procedure asks you to type a filename, you must type the actual name of a file. Italics also indicate new terms and the titles of other books.
ALL UPPERCASE	Represents keyboard keys (for example, CTRL, ENTER, F2).
[brackets]	Encloses optional items in syntax statements. For example, <i>[password]</i> indicates that you can choose to type a password with the command. Type only the information within the brackets, not the brackets themselves.
...(ellipsis)	Indicates a command element can be repeated.
Monospace	Represents examples of screen text or entries that you type at the command line or initialization files.
Code Sample	Example code appears in front of a gray background, as in the example below:
	<pre><html> <body></body> </html></pre>
➤	Indicates a procedure with sequential steps.
▪	Indicates a list of related information, not procedural steps.

Citrix Developer Network

The Citrix Developer Network (CDN) is a Citrix program that extends the reach of Citrix application server technology to independent software vendors, independent hardware vendors, system integrators, ICA licensees, and corporate IT developers who want to incorporate Citrix server-based computing solutions into their products.

The Citrix Developer Network is a membership program with open enrollment. Through the new CDN Web site, Citrix provides access to developer tool kits, technical information, and test programs needed to successfully “design in” or add Citrix server-based computing compatibility to hardware and software. Today, the CDN program includes several software development kits (SDKs) and test kits, with an emphasis on delivering enabling technologies that promote technical relationships with Citrix.

Register for the Citrix Developer Network at the CDN Web site:

<http://www.citrix.com/cdn>.

Citrix on the World Wide Web

Citrix offers online Technical Support Services at <http://www.citrix.com> that include the following:

- Downloadable Citrix ICA Clients, available at <http://download.citrix.com>
- A Frequently Asked Questions page with answers to the most common technical issues
- An FTP server containing the latest service packs and hotfixes for download
- An Online Knowledge Base containing an extensive collection of technical articles, troubleshooting tips, and white papers
- Interactive online support forums

Year 2000 Readiness

For a detailed description of the Year 2000 Readiness of Citrix products, see our Web site at <http://www.citrix.com>.

Reader Comments

It is our goal to provide you with accurate, clear, complete, and usable documentation for Citrix products. If you have any comments, corrections, or suggestions for improving our documentation, we would be happy to hear from you. You can email the authors at:

documentation@citrix.com

Please include in your email the name and version number of the product and the title of the document.

Installing Citrix Device Services



Overview

This chapter describes how to install Citrix Device Services. Topics in this chapter include:

- Citrix Device Services Requirements
- Citrix Device Services Installation Methods
- Adding a Citrix Device License
- Activating a Citrix Device License
- Uninstalling Citrix Device Services

Requirements

To install and run Citrix Device Services, you must have the following:

- A server running Windows 2000 Server (Advanced Server, Server, or Data Center). Terminal Services must be enabled on the server.
- Appropriate Microsoft licenses must be installed or available on the network.
- TCP/IP support installed on the server. Citrix Device Services supports ICA connectivity over TCP/IP only.
- Terminal device(s). Valid terminal devices contain an ICA Client program with an OEM ID that Citrix Device Services can check against installed Citrix Device Licenses on the server. If this check fails, a device cannot connect to Citrix Device Services.
- A terminal device manufacturer-provided serial number, called a Citrix Device License, installed on the server for each type of device you want to connect to the server.
- An Internet connection to connect to the Citrix License Activation servers during license activation.

Note Although Citrix Device Services is available as an English language product only, you can install it on English, Spanish, French, and German versions of Windows 2000 Servers.

This release supports upgrading installations of Citrix Device Services 1.0 running on Windows NT Server Terminal Server Edition servers that have been upgraded to Windows 2000 Server. See “Performing an Upgrade” on Page 10 for information about supported upgrade scenarios.

Citrix Device Services Installation Methods

This guide describes the following installation methods:

- CD-ROM installation
- Unattended installation
- Web installation
- Upgrades

Performing a CD-ROM Installation

- **To install Citrix Device Services from a CD-ROM**
 1. Exit all applications on your Windows 2000 Server system.
 2. Insert the CD-ROM into the CD-ROM drive.
 3. The autorun installation dialog box appears. Click **Citrix Device Services Setup**.
 4. Read the introductory information in the **Welcome** screen and then click **Next**. In the **Setting Up Citrix Device Services** screen, click **Next** to begin copying Citrix Device Services files to your Windows 2000 Server.
 5. The **Citrix Device Services Licensing** screen appears.

For your Device Services server to permit ICA connections by multiple users, it must have two Citrix licenses installed (in addition to any required Microsoft licenses):

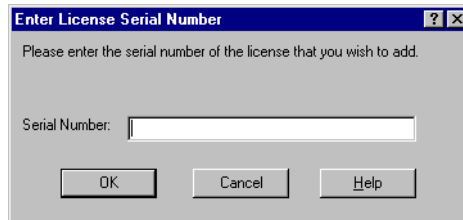
- **Base License.** The base license enables ICA support. The Setup program automatically installs and activates the base license. The base license requires no additional configuration and allows unlimited device connections by default.

- **Citrix Device License.** A Citrix Device License enables any terminal devices from a single manufacturer to connect to the server. To use a terminal device, you must first install and activate a Citrix Device License provided by the terminal manufacturer. Once you install and activate this license, the server allows unlimited connections for all terminals from the manufacturer. To connect additional terminals from a different terminal manufacturer, you must install an additional Citrix Device License.

To proceed without installing a Citrix Device License, click **Next**. You can add licenses at any time. See “Adding a Citrix Device License” on Page 10 for more information. Skip to Step 8.

Otherwise, click **Add Citrix Device Licenses** to add a Citrix Device License.

6. Citrix Licensing starts and displays the **Enter License Serial Number** dialog box:



Locate your terminal device manufacturer-provided Citrix Device License serial number. Type the serial number exactly as it appears. Click **OK**.

In the confirmation dialog box that appears, read the information and click **OK**.

7. Citrix Licensing prompts you to add another license. If you will use more than one type of terminal device to connect to your Citrix Device Services server, you can add the additional Citrix Device License(s) now. Click **Yes** and type the additional license in the dialog box.

If you will use only one terminal type, you do not have to add any additional licenses. Click **No**. The **Citrix Device Services Licensing** dialog box reappears. Click **Next**.

For example, if you will use five terminals provided by a single terminal manufacturer, you must install a single Citrix Device License. If you will use five terminals provided by one terminal manufacturer plus an additional five terminals provided by another manufacturer, you must install two Citrix Device Licenses.

Important After installation completes, you must activate each Citrix Device License you install. Some licenses have a grace period that allows the Citrix server to function for a time with periodic reminder messages. If the license is not activated during the grace period, the license is automatically disabled at the end of the grace period. See “Activating a Citrix Device License” on Page 12 for instructions.

8. The **System Reboot** screen appears. Click **Finish** to reboot the system.

Performing an Unattended Installation

The Citrix Device Services CD-ROM installation method supports an unattended installation switch that automates the installation process. Unattended installation uses an answer file that lets you supply defaults for the following installation options:

- **License Installation.** Use this field to specify Citrix Device License(s). The Setup program enters each license in Citrix Licensing. After installation you must activate each license. See “Activating a Citrix Device License” on Page 12 for more information.
- **Automatic Reboot.** Use this field to control the system reboot at the end of installation. Specify **Yes** to cause the server to automatically reboot upon completion of the installation. Specify **No** if you do not want to reboot the server immediately.

You can also perform an unattended installation without specifying an answer file. If you specify no answer file, the installation proceeds without installing any licenses and automatically reboots upon completion.

➤ **To prepare the answer file**

1. Use Windows Explorer or a command prompt to browse the Citrix Device Services CD-ROM. Locate the I386 directory on the root of the CD-ROM.
2. Copy the file Unattend.txt to a directory on your hard drive.
3. Open Unattend.txt with a text editor. Specify your preference for system reboot and any Citrix Device Licenses that you want to install.
4. Save the file and exit the text editor.

➤ **To start an unattended installation**

1. Exit all applications on your Windows 2000 Server system.
2. At a command prompt, type the following:

`x:\I386\Setup.exe /u:filename`, where *x* is the drive letter of your CD-ROM drive and *filename* is the full path to your answer file.

For example, if your CD-ROM drive is drive E and you saved your answer file as Unattend.txt on the root of your drive D, specify:

`E:\I386\Setup.exe /u:d:\Unattend.txt`

Using the Web Installation File

You can use the Web installation file (also called a *maintenance upgrade* file) to install Citrix Device Services for the first time or to upgrade an existing installation (see “Performing an Upgrade” below for supported upgrade scenario information).

➤ **To use the Web installation file to install Citrix Device Services**

1. Download the Web installation file, Cds2k.exe, and save it in some directory on your server.
2. Exit all applications on your system.
3. Double-click Cds2k.exe. The Web file installation wizard requests that you specify a location on your server in which to extract the Citrix Device Services setup files. Specify a temporary directory and click **Continue**.
4. Cds2k.exe extracts the setup files in the specified directory and then automatically starts the Citrix Device Services installation wizard. For step-by-step instructions on using the installation wizard, see Steps 3-8 of the topic “Performing a CD-ROM Installation” on Page 6.

Performing an Upgrade

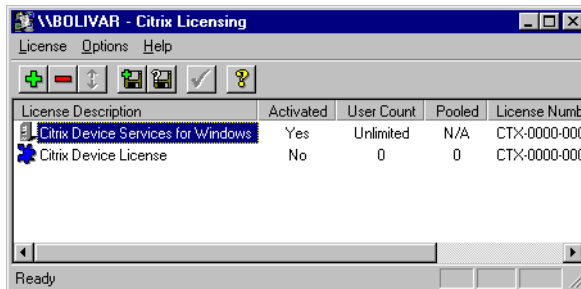
You can upgrade the Citrix Device Services software on a server that previously had Windows NT Server Terminal Server Edition/Citrix Device Services 1.0 and was upgraded to Windows 2000 Server. During a Citrix Device Services upgrade, existing installed licenses are retained and remain functional.

➤ To upgrade your server

1. Upgrade your Windows NT Server Terminal Server Edition server to Windows 2000 Server.
2. After completing Windows 2000 Server installation, upgrade your Citrix Device Services installation. You can use the CD-ROM installation or Web download installation to perform an upgrade. See “Performing a CD-ROM Installation” on Page 6 or “Using the Web Installation File” on Page 9 for installation instructions.

Adding a Citrix Device License

Use the Citrix Licensing utility to add, remove, and activate Citrix Device Licenses.



To use Citrix Device Services, you must have the following Citrix licenses installed on each of your servers:

- **Base License.** The base license enables ICA support. The Citrix Device Services Setup program automatically installs and activates the base license. The base license requires no additional configuration and allows unlimited device connections by default.
- **Citrix Device License.** A Citrix Device License enables any terminal devices from a single manufacturer to connect to the server. To use a terminal device, you must first install and activate a Citrix Device License provided by the terminal manufacturer. Once you install and activate this license, the server allows unlimited connections for all terminals from the manufacturer. To connect additional terminals from a different terminal manufacturer, you must install an additional Citrix Device License.

For example, if you will use five terminals provided by a single terminal manufacturer, you must install a single Citrix Device License. If you will use five terminals provided by one terminal manufacturer plus an additional five terminals provided by another manufacturer, you must install two Citrix Device Licenses.

The following procedures describe how to use Citrix Licensing to install Citrix Device Licenses. Perform these procedures if:

- You did not install a Citrix Device License for your terminal type during Citrix Device Services installation
- You want to add an additional terminal type

Adding a Citrix Device License involves three steps:

1. Use Citrix Licensing to add the OEM-supplied serial number.
2. Obtain an activation code for the license.
3. Use Citrix Licensing to enter the activation code for the license.

For information about obtaining activation codes, see “Activating a Citrix Device License” on Page 12.

➤ **To add a Citrix Device License**

1. Start Citrix Licensing. Click the **Start** button. Point to **Programs**. Point to **Citrix Device Services Tools**. Click **Citrix Licensing**.
2. From the **License** menu, click **Add**. The **Enter License Serial Number** dialog box appears.
3. Type the OEM-supplied serial number **exactly** as it appears. Click **OK**. If you type the serial number incorrectly, an error message appears.
4. A message box containing important information about your license appears, including the grace period before activation is required. Read the information in this box carefully and click **OK** when done.
5. The license number, which is the OEM-supplied number with an 8-character code appended to make it unique to this server, now appears in the license list.

After installing the license, you must activate it. See “Activating a Citrix Device License” below for instructions.

Activating a Citrix Device License

The following instructions assume that you have Internet access configured on your server.

➤ **To activate a license**

1. Log on as an administrator.
2. From the **Start** button, point to **Programs, Citrix Device Services Tools**, and then click **Citrix Licensing**. Citrix Licensing displays the license numbers for the base server license and any additional Citrix Device Licenses.
3. Select the license to activate and then click **License, Activate License**. The **Activate License** dialog box appears. Using the mouse, select the license number and copy it to the clipboard.
4. From the Windows **Start** menu, point to **Programs, Citrix Device Services Tools**, and then click **Activation Wizard**. The Citrix Activation Wizard window appears.
5. Select **Activate with Web Browser** and click **Next**.
6. Click **Finish** to connect to the Citrix Activation Server. When the Citrix Activation System window appears, follow the directions to register your license. You can paste your Citrix Device License from the Citrix Licensing program into the activation site to retrieve your activation codes. Record your activation code exactly as it appears and exit.

Depending on the licenses, you may be able to obtain activation codes for more than one license at a time.

7. Switch to Citrix Licensing by pressing ALT+TAB.
8. In the **Activate License** dialog box, enter your activation code from Step 6 above and click **OK**.
9. Repeat Steps 6 through 8 for other licenses, if necessary. Your Citrix software is now activated.

Uninstalling Citrix Device Services

Use the Add/Remove Programs applet in the Windows Control Panel to uninstall Citrix Device Services.

➤ **To uninstall Citrix Device Services**

1. On the Windows desktop, click **Start**, point to **Settings**, and then click **Control Panel**.
2. Click **Add/Remove Programs**.
3. In the **Add/Remove Programs** dialog box, click **Change or Remove Programs** if it is not already selected. In the application list, locate the entry for Citrix Device Services and click **Change/Remove**. The Citrix Device Services Uninstall wizard appears and guides you through uninstallation.