

Windows  
Embedded  
Standard (WES)

# **Administration Guide**



# Notes, Cautions, and Warnings



**NOTE:** A NOTE indicates important information that helps you make better use of your computer.



**CAUTION:** A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.



**WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

---

**Information in this publication is subject to change without notice.**

**© 2011 Dell Inc. All rights reserved.**

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: Dell™, the DELL logo, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, KACE™, FlexAddress™ and Vostro™ are trademarks of Dell Inc. Microsoft®, Windows®, Windows Server®, MS-DOS® and Windows Vista® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter®, and vSphere® are registered trademarks or trademarks of VMWare, Inc. in the United States or other countries.

Other trademarks and trade names may be used in this publication to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

# Contents

<b>Introduction .....</b>	<b>6</b>
What is Windows Embedded Standard (WES)? .....	6
WES Features .....	6
WES Installation .....	7
<b>Understanding Your Thin Client .....</b>	<b>8</b>
Users and Groups .....	8
Creating New User Accounts.....	10
File-Based Write Filter (FBWF).....	12
Installing MUI Packs .....	16
Setting a Language .....	18
<b>Using Your Thin Client .....</b>	<b>27</b>
Customizing Your Thin Client .....	27
Thin Client Options .....	29

Echo Agent System Information .....	30
<b>Installing or Removing Peripherals.....</b>	<b>32</b>
Installing a Printer.....	32
Installing a Scanner or Camera .....	33
Installing a CD-ROM.....	35
Uninstalling Software.....	36
Uninstalling or Updating a Media Device .....	36
Freeing Hard Drive Space .....	37
Adding Dual Monitors .....	38
<b>Networking .....</b>	<b>39</b>
Setting Static/Dynamic IP .....	39
Naming Your Thin Client, Joining a Domain or Workgroup.....	40
<b>Using Connections .....</b>	<b>42</b>
Using Remote Desktop.....	42
Using Citrix ICA .....	43
Using VMware View .....	45

<b>OS Build Date, Echo Agent, and Re-Imaging .....</b>	<b>46</b>
Verifying OS Build Date .....	46
Verifying the Echo Agent Version and Status .....	47
Re-Imaging the Thin client .....	48
<b>Getting Help.....</b>	<b>49</b>
Contacting Dell .....	49

# Introduction

## What is Windows Embedded Standard (WES)?

Windows Embedded Standard (WES) is a fully componentized operating system that has the functionality of both Windows XP Professional and Windows XP Embedded. Windows Embedded Standard is the successor of Windows NT 4.0 Embedded. It also provides the full Win32 API interface and is available for x86 processors.

## WES Features

- **Multimedia Web Browsing**-WES comes equipped with Internet Explorer 7 with improved navigation and supports CSS styling and RSS feeds. Windows Media Player 11 is included to manage your digital music, photo, and video libraries. WES also comes with Microsoft Silverlight for running interactive applications right from your Thin Client, DirectX 9 for 3D and full-color video, and supports both digital and analog television for streaming your favorite shows or even video recording.
- **Modern Networking**-WES can connect to hosted desktops using the industry's best protocols: PCoIP, ICA, and RDP, and VMware View. WES also uses 802.11, 802.1X, and WPA2 for wireless connections and protection, Plug and Play support for intelligent devices, USB 2.0 support, and Internet Connection Sharing.
- **Third Party Clients**-Dell OptiPlex thin clients also include commonly used client server applications such as the Citrix Online Plug-in and VMware View.
- **File-Based Write Filter (FBWF)**-Allows the administrator to select individual files or folders to be protected from change while other files/folders on the same partition can be updated.

- **USB Flash Boot**-The Dell OptiPlex FX130 and FX170 can be re-imaged from a bootable USB Flash Device, booting from a network SAN or NFS server, or from resource media with the ISO image file on it.
- **Centralized Management**-Dell OptiPlex thin clients with WES can be managed with Devon IT Echo Management console Dell Edition. More information can be found at [support.dell.com](http://support.dell.com).

## WES Installation

Windows Embedded Standard operating system is preinstalled on WES/XPe based systems from Dell. A USB Re-Imaging Utility is available if you need to reinstall the operating system at any point in the future.

# Understanding Your Thin Client

## Users and Groups

### What is a User Account?

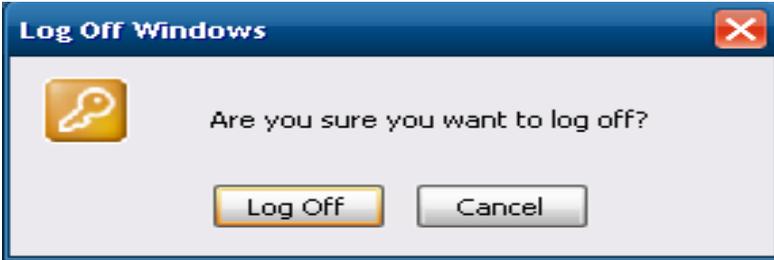
The term user account should not be confused with the actual user account that is the default account upon log-in. For each person using the terminal, the owner can create individual accounts per user. Each user account created can have certain rights or permissions as chosen by the administrator account. The administrator account can create, delete, and edit each of the users' settings whenever needed.

### User Account

The user account is the account that will automatically log-in at every boot. It is also the account that should be used for guests or any user that should be prohibited from modifying the thin client or its hard drive in any way. By default, this account does not require a password. The user account holder can change the account picture and create, delete, or change their account password. The user account cannot change their own account name or account type, nor can they install or uninstall any software. They may, however, use software installed by the administrator account.

## Administrator Account

By default, the user account is automatically logged in. To bypass this, you can hold <Shift> during the boot process or by clicking **Log Off** under the **Start** button option.



**NOTE:** The default password for the Administrator account is Administrator (case sensitive).

Logging in as an administrator should be very similar logging in to the user account, with some additional icons on the desktop. Unlike the user account(s), the administrator can:

- Install and uninstall hardware and software.
- Create and delete user accounts on the terminal.
- Create account passwords for user accounts on the terminal.
- Change names, pictures, and passwords.
- Change user's "account type" to administrator account.

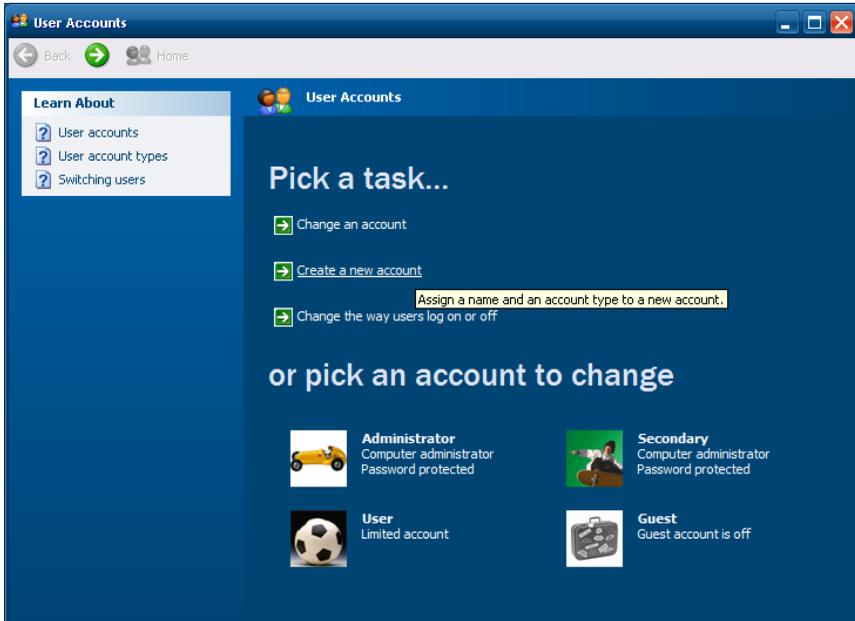


**NOTE:** The administrator account cannot change its own account type to a limited User account type unless there is at least one other account with administrator-privileges on the thin client. This ensures that there is always at least one administrator-level account on the thin client.

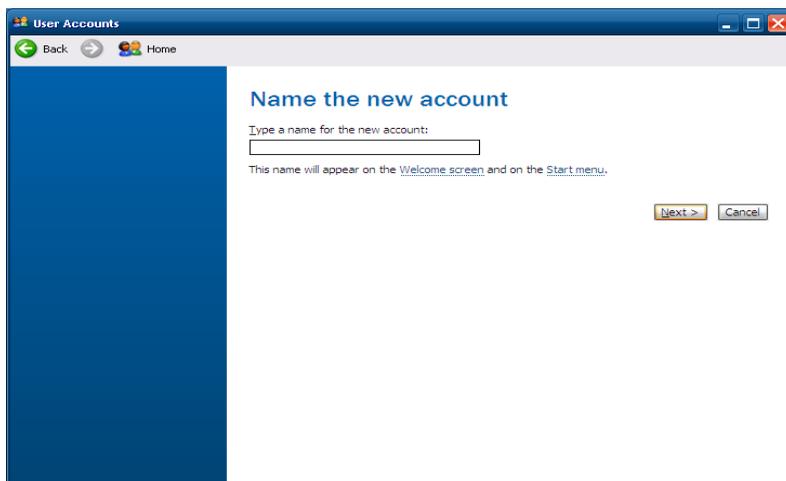
# Creating New User Accounts

This section details how to create new users. You must first log-in using the Administrator user or an account with administrator privileges.

- 1 Select **Start**→**Control Panel**.
- 2 Double-click **User Accounts**.
- 3 Click the arrow marked **Create a new account**.



- 4 Type a name for the new user account and click **Next**.



- 5 Select either **Thin Client Administrator** or **Limited** account type. Select **Create Account**.

## What is Devon IT Echo Management Console Dell Edition?

As more and more corporate networks switch to Thin Clients due to their low power consumption, low cost, and improved productivity, many developers have scrambled to create new and more efficient ways to centrally manage and reconfigure thin client terminals. Echo is the latest in thin client management software.

With the Echo virtual appliance, you can use broadcast and IP Range Walk to discover the thin clients, then remotely reboot, add connections and settings, add user profiles, shadow, clone settings, or even Re-Imaging some models.

# File-Based Write Filter (FBWF)

## What is Disk Management?

Disk Management is the management of your terminal's internal hard drive disk. It is quite literally the brain of your unit and taking care of the unit's disk is the best way to ensure the unit will perform for as long as possible. A carefully preserved hard drive will work more efficiently, last much longer, and perform better overall. In addition, proper security techniques will greatly reduce the chance of fatal error messages and/or accidental malicious software downloads.

Another definition of the word management literally refers to managing several thin clients from Administrator terminal. The Administrator terminal logs into a secure Echo server and can manage multiple thin clients simultaneously. Your terminal is designed with both management techniques in mind, and this chapter explains the steps required to manage your terminal correctly. The terminal's hard drive disk is protected by a "Write Filter", which acts like a barrier between the internet and your actual hard drive. The user can use this barrier to protect and manage the terminal's actual hard drive from unwanted changes. The terminals can also be managed remotely from another terminal using the Echo Thin Client Management Software. Both ideas are introduced in this section.

## Write Filters

A write filter allows the user to decide which files are saved to the local drive, and which files or changes are discarded. Use the write filter to configure which files are written to the disk permanently, and which files are only written to an overlay in the memory. The write filter, when turned on, will make disk changes like installing new hardware, upgrading internet browsers and plug-ins, or isolating a virus to the terminal's memory, in an overlay. The changes are not saved to the local hard drive. The next time the terminal is rebooted, the new hardware is not installed, your browser or plug-in is not upgraded, and the virus is gone. All of the changes are stored on the memory overlay and are erased on reboot. Once the memory overlay is wiped clean, the original underlying image remains unchanged, still in the state it was in since the last reboot. It is a good practice to leave the filter turned on unless you are upgrading or installing new hardware or software. After the installation is complete, it is recommended you re-enable the write filter.

All attacks on the terminal's security or unwanted changes can be thwarted by simply rebooting the machine if the filter is turned on. Operating the machine with the Filter turned off can be dangerous to the terminal and the important OS files inside it.

## Introduction to FBWF

The File-Based Write Filter (FBWF) is an intelligent filtering system that allows you to protect specific volumes of your hard drive from write access, while simultaneously keeping less important files like anti-virus databases or a user's **Documents and Settings** folder persistent. The FBWF allows users to decide which directories are persistent and which are transient. Persistent files are files that are not protected by the FBWF filter, and all changes, good or bad, will survive after rebooting. Transient files are files that are protected by the FBWF filter and all changes that are made to these files are neglected and forgotten upon rebooting the terminal.

## How Does FBWF Work?

When the FBWF is enabled, it makes your files secure from that instance. Rebooting the terminal will revert your system immediately back to the state it was in when you enabled it, like a restore point. As long as your FBWF is enabled, it is in a safe state. It stays safe because it writes all changes made on the system on an “overlay” in the RAM memory cache. An overlay can be thought of as a protective layer over the disk. All changes made to the disk are written on the transparent layer instead of the actual disk. When the terminal looks for information on the disk, all upgrades and new installs can be found and accessed because it is written on the overlay which is covering the disk.

However, once the terminal is rebooted, the memory cache is erased, and the overlay is wiped clean, with no changes made. The system automatically resumes from the same point it was at when you enabled the filter.

To install new hardware and software, or to upgrade any existing programs or applications on your system, you will have to disable the FBWF. It is important to re-enable the File-Based Write Filter as soon as the installation is complete so you can protect your terminal from unnecessary disk writes. As long as you are not installing or upgrading, it is necessary to leave the File-Based Write Filter in an enabled state for correct performance. As long as it is enabled, your terminal is safe from malicious network attacks or accidental uninstalls.

## Using the FBWF

The FBWF operates by providing a “shadow write” to the system RAM. When enabled, any writes that are normally written to the storage media, are instead redirected to the RAM overlay. During a reboot, this overlay is discarded so the operating system remains in its original state. As its name implies, FBWF is based on files. This means you can exclude certain files and directories from the protection of the write filter. Any files that are in this list are ignored by FBWF and subject to modification (or deletion) just as they normally would on any standard Windows XP environment. The OptiPlex thin clients include a management utility for configuring FBWF. The FBWF Manager utility can only be accessed by Administrators.

To open the FBWF Manager, log-in as the administrator.

- Click **Start** → **All Programs** → **FBWFGUI**.
- This will open the **FBWF Manager** window.

By default, FBWF is enabled with basic exclusions set for the **Persistent Registry** and **Documents and Settings** for all users. This means any changes made under the **C:\Documents and Settings** folder, such as desktop icons, start menu items, and browser favorites, are written directly to the flash device immediately and without overlay protection.

## What is Persistence?

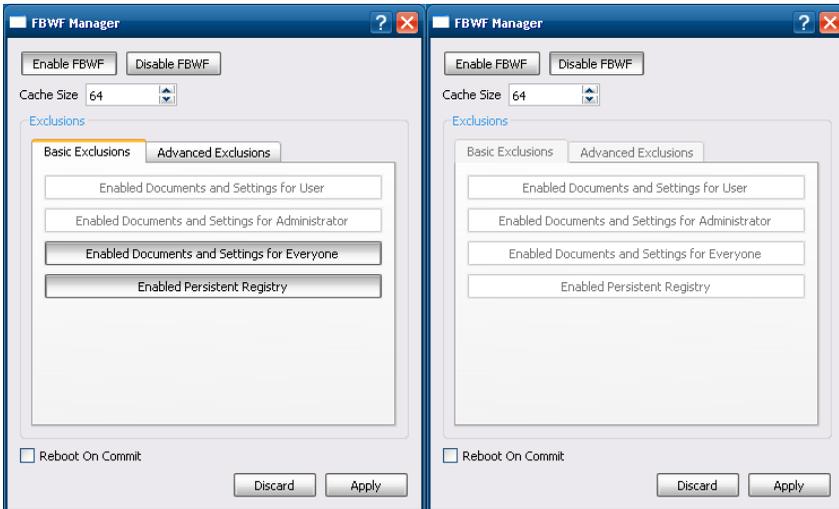
Persistence in its simplest definition is the term used to describe data on a hard drive or disk that exists and survives from session to session. Persistent data will be secure after every reboot and every change made will be applied until another user reconfigures your changes. If you do not have the File-Based Write Filter installed on your terminal for protection, your hard drive remains in a Persistent state. All changes made to the desktop, program files, user settings files, or important Windows system files are permanently stored on the drive or disk. In the unfortunate event of a malicious network attack or virus, your files may be harmed in the process if Persistence is left on. When the FBWF filter is enabled and files can be protected, all changes made, including accidental virus entries, are wiped upon reboot.

## Installing Additional Software

You may install third party licensed software as long as there is adequate space on the flash media.

To install additional software applications:

- 1 Log-in as an Administrator. Click **Start**→**All Programs**→**FBWFGUI**.
- 2 Temporarily disable the write filter by clicking the **Disable FBWF** button, and press the **Apply** button.
- 3 Reboot the terminal.
- 4 Log-in again as Administrator and install the new software.
- 5 After installation, verify the application is working as expected.
- 6 Launch the **FBWF Manager** and click the **Enable FBWF** button. Also, make sure to re-enable the Basic Exclusions. For default exclusions, this would mean selecting the buttons for **Enabled Documents and Settings for Everyone** and the **Enabled Persistent Registry** buttons.
- 7 Click **Apply** and Reboot the terminal.



# Installing MUI Packs

You may install MUI (Multilingual User Interface) packs to enable the operating system to support different languages and language settings on your terminal as needed. The MUI pack installation file can not be located on the DOM, it must be installed from an external drive or over the network due to disk size limitations.



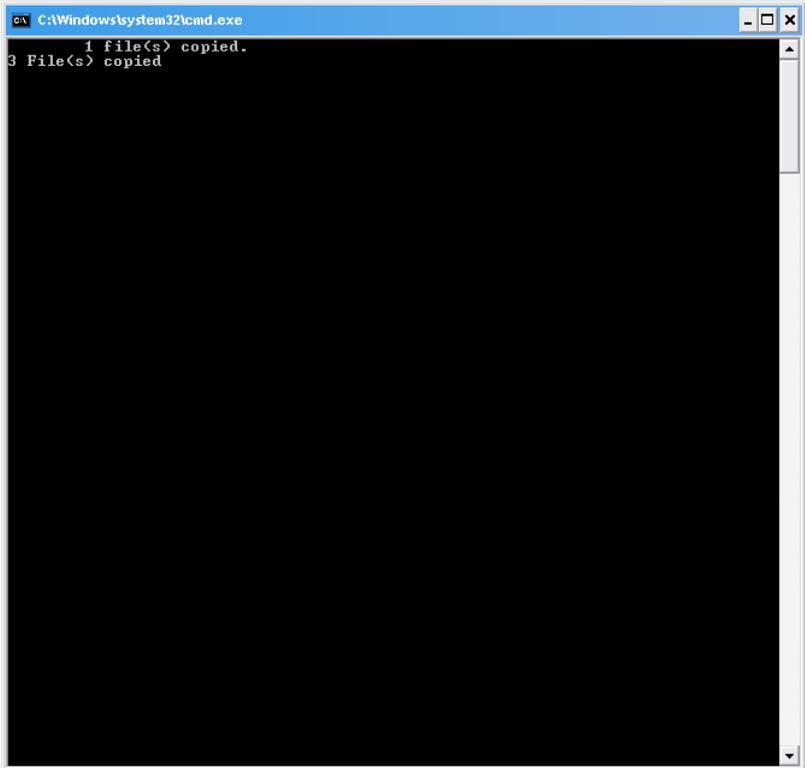
**NOTE:** Installing a MUI pack will reboot the system, so be sure to save and close all programs before starting the process to avoid losing your work.

To install a MUI pack:

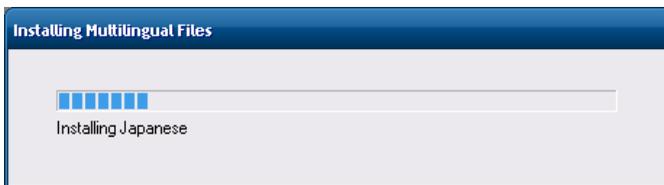
1. Log-in as an Administrator. Click **Start**→**All Programs**→**FBWFGUI**.
2. Temporarily disable the write filter by clicking the **Disable FBWF** button, and press the **Apply** button.
3. Reboot the terminal.
4. Log back in as an Administrator.
5. Launch the MUI installer for the desired language.
6. Click on **Run** in the security warning screen.



7. A command shell window will open noting the files being copied. Be sure to leave it open.



8. A dialog box will open and keep track of the files as they are installed.

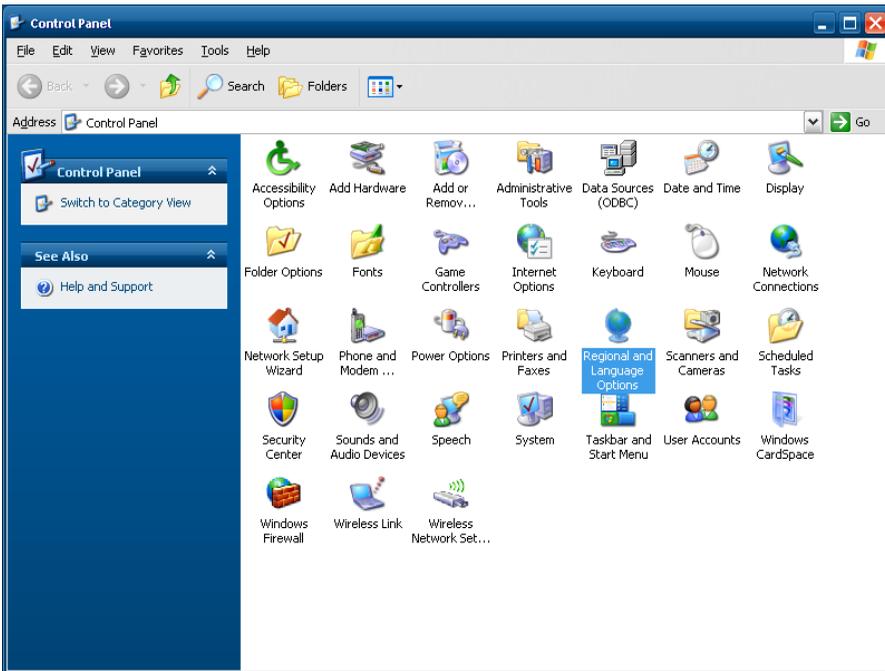


9. Once the installation is completed, the system will reboot. Make sure to let the system reboot itself without interruption or the installation process may be unsuccessful.

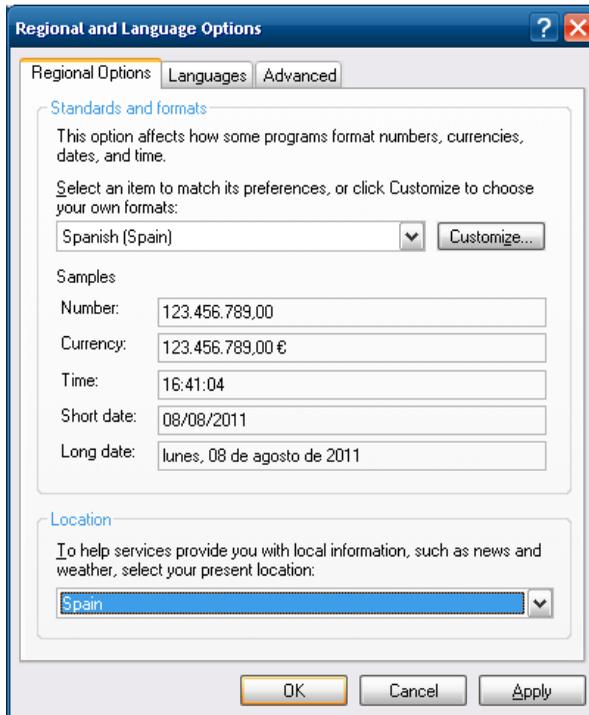
## Setting a Language

To change display language and input methods for WES 2009

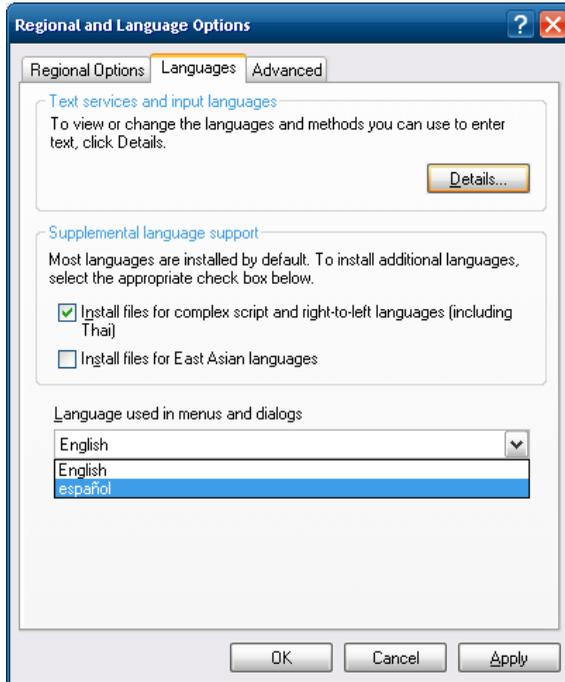
1. Launch Control Panel and open **Regional and Language Options**



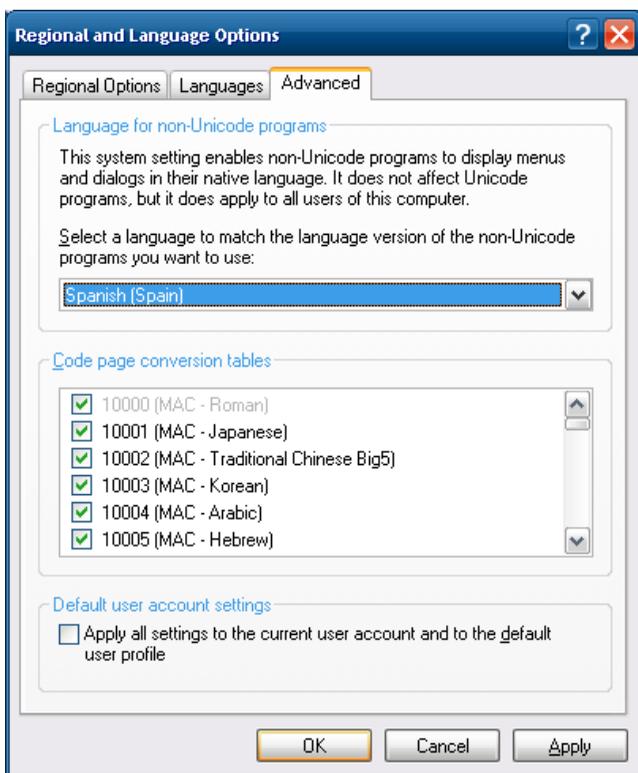
2. In the **Regional Options** tab, change both drop-down menus corresponding to the language and location you want to display. For our purposes, we will choose Spanish.



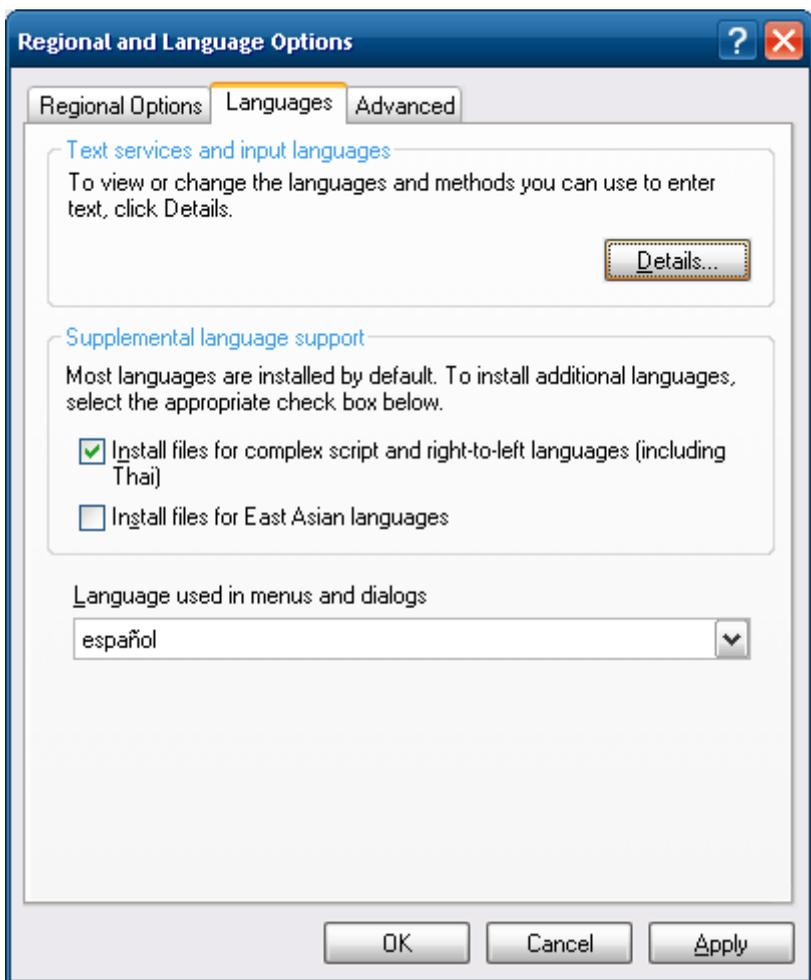
3. In the **Languages** tab, select the display language you want.



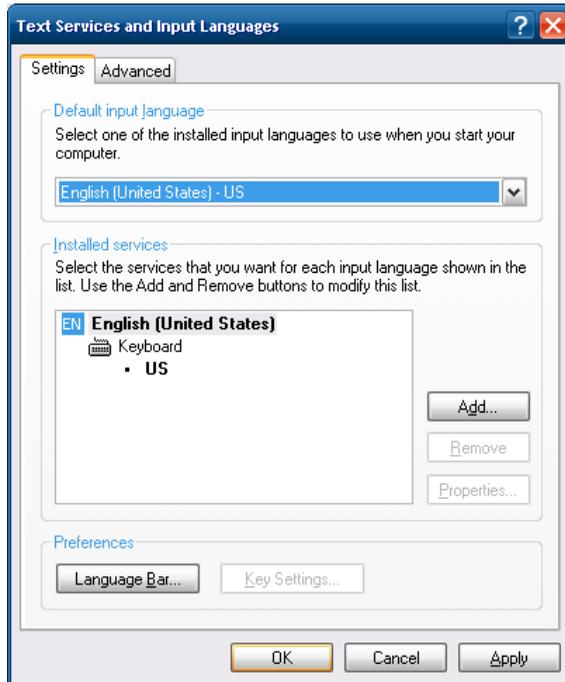
4. In the **Advanced** tab, select your desired language in the drop-down menu. If you want this language to apply to all users and the welcome screen, check the box for **Apply all settings...**



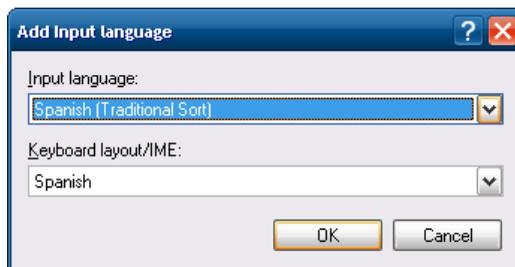
5. Go back to the **Languages** tab and click the **Details...** button at the top.



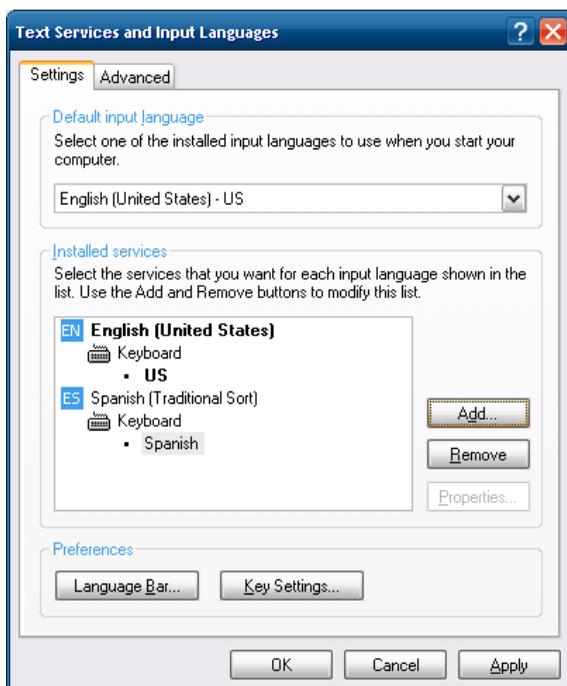
6. In the **Settings** tab, click the **Add** button to add a new keyboard layout/input method.



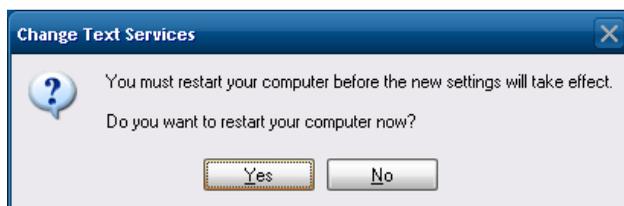
For our example, we chose Spanish (Traditional Sort). Then click **OK**.



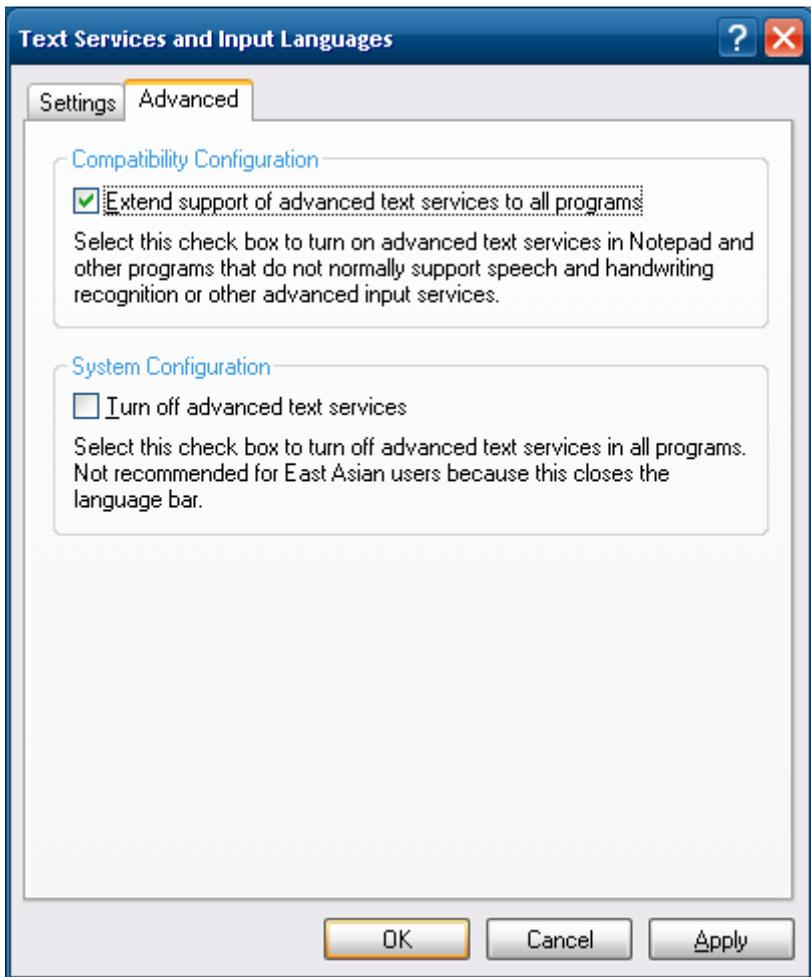
- Now we have a Spanish keyboard setting installed. If you wish to make this the new default setting, select it from the drop-down menu at the top. This will make Spanish (Traditional Sort) appear in bold.



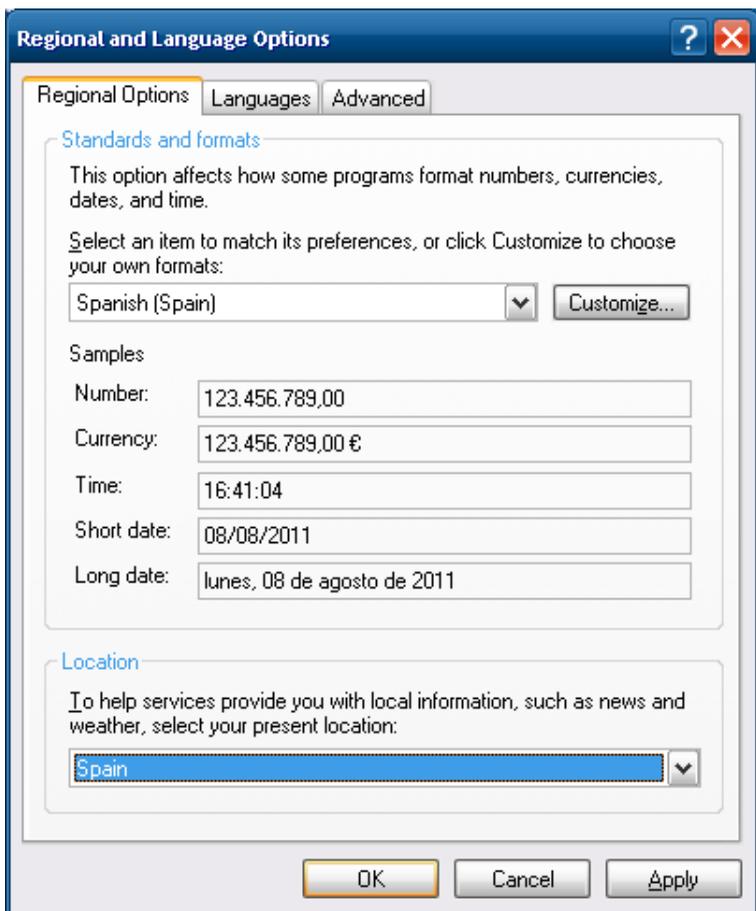
At this dialog, do not restart your computer yet. Click **No**.



8. In the **Advanced** tab, select the first check box and click **OK**. Again, do not restart yet.



- The final step is to commit your settings. At this point, you may click **OK** and then restart your machine. When it reboots, everything will be in Spanish.



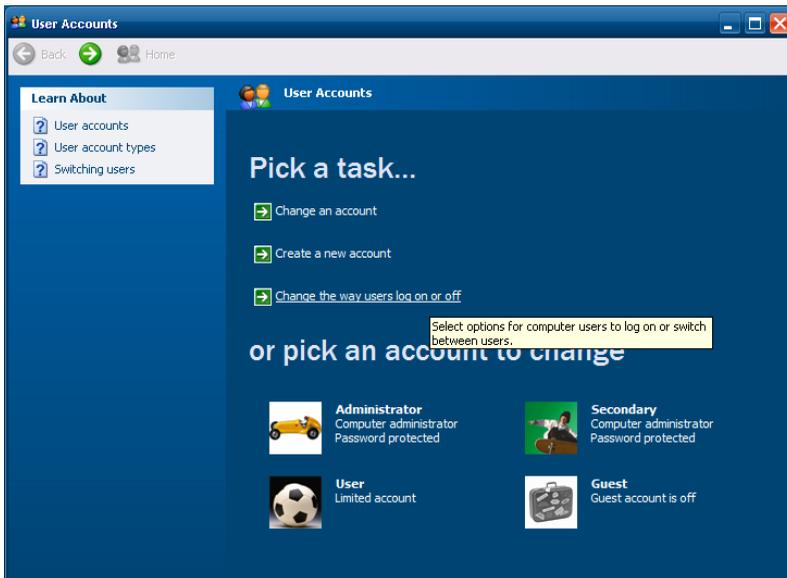
# Using Your Thin Client

## Customizing Your Thin Client

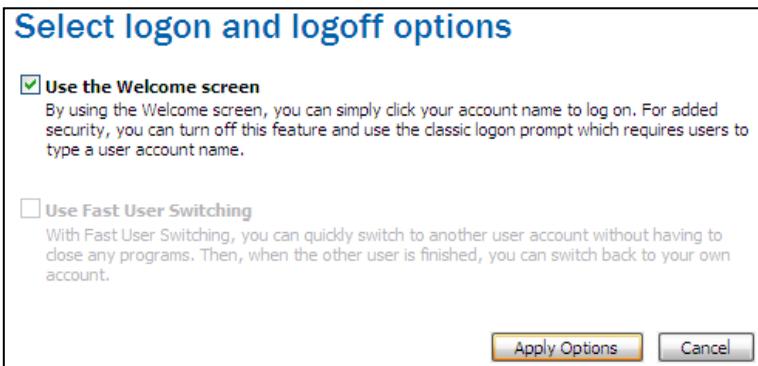
This section details how to change some of the options on your thin client to fit the needs of your business or your home.

### Disabling the Automatic Log-In

- 1 Select **Start**→**Control Panel**→**Change the way users log off**.



- 2 Check the box that says **Use the Welcome screen**. Click the **Apply Options** to save all changes.



After the initial boot up, or when booting up after using the re-imaging utility, your thin client will display the Windows Embedded Standard desktop, taskbar, and system tray.

The *desktop* should resemble that of a physical desktop, with pencils, folders, agendas, clocks, and calendars. The user can add icons to the desktop that provide shortcuts to frequently used notes, programs, files, or folders and avoid having to search for items on their drive.



The *taskbar* is the focus point of the Windows operating systems since Windows 95. It is the bar located at the very bottom of the desktop, and it houses the **Start** button, system tray, and the current time. The taskbar also shows all of the currently running programs. If the user is running Internet Explorer, Microsoft Word, and the **Control Panel**, there would be at least three shortcuts in the taskbar representing the three programs running. If the user clicks a shortcut, the selected program becomes the active program and shows up in front of all other programs. If the user minimizes a program, the program minimizes into the task bar, in the corresponding window tab.

The system tray, or *systray*, is located to the right of the taskbar; it is a collection of icons opposite of the Start button. Some default icons include the clock and volume control, but other programs may put their own icon and shortcut in the system tray after they are installed. Double-clicking an icon in the systray allows quick and easy access to programs or control settings.

## Thin Client Options

**Connections**-Your terminal can connect to remote servers utilizing several types of protocols. The Remote Desktop client uses the RDP protocol and allows you to connect to Microsoft Windows Terminal Servers. The Citrix ICA client is used to establish connections to the Citrix Xen servers via the Citrix Online Plug-in. The VMware View client allows you to connect to a VMware View server, which in turn, provides the end-user with their own virtual desktop session. Lastly, you may connect with Internet Explorer to surf the web. This can be used for several purposes:

- Connect to web applications; e.g., a webmail server.
- Connect to a connection broker web interface; e.g., Citrix Online Plug-in.

**System Settings**-These are the display, sound, keyboard, mouse, printer and date/time configurations for your terminal. Also under the **System** section you have the ability to set an administrative password for the control panel and change the local storage mode.

# Echo Agent System Information

**Echo Management-** Displays the current status and information of the Echo Management server to which your thin client is connected.

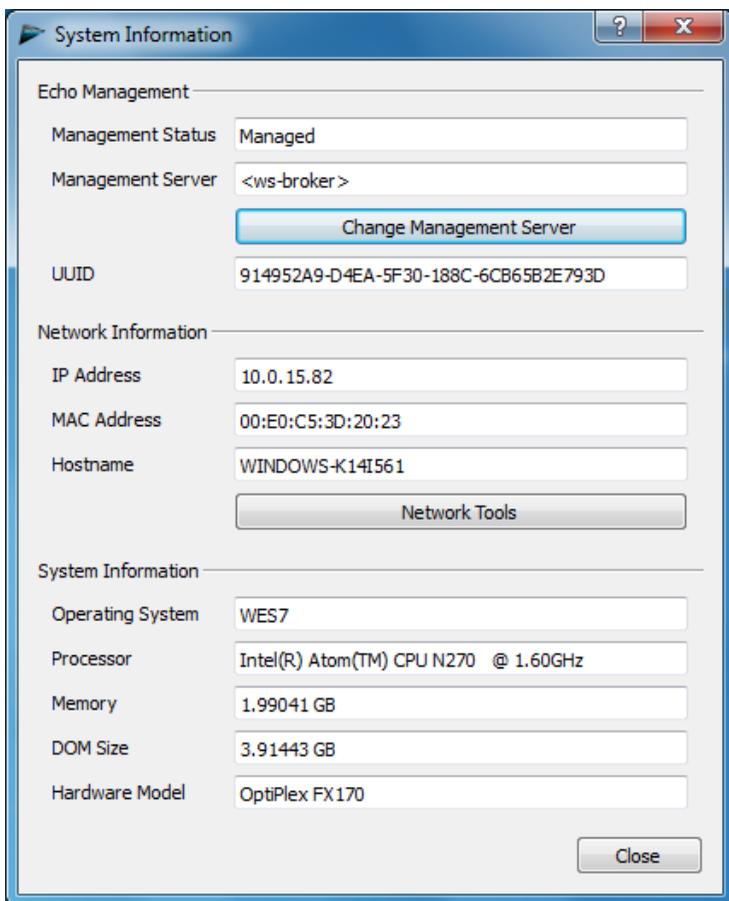
- **Management Status-**Displays when the thin client is being managed by an Echo server.
- **Management Server-**Displays the current address of the Echo server.
- **Change Management Server-**Allows you to change the Echo server.
- **UUID-**Displays the current UUID assigned to the terminal.

**Network Information-**This displays information about the current network connection.

- **IP Address-**Displays the current IP address assigned to the thin client.
- **MAC Address-**Displays the current MAC address assigned to the thin client.
- **Hostname-**Displays the name assigned to the thin client.
- **Network Tools-**Allows you to run diagnostics test with the network connection and to check on the current status of the network connection.

**System Information-**Displays information about the operating system and the thin client.

- **Operating System-**Displays the name of the image or operating system that is in use.
- **Processor-**Displays the processor that the thin client is using.
- **Memory-**Displays the total internal memory of the thin client.
- **DOM Size-**Displays the total storage capacity size of the thin client.
- **Hardware Model-**Displays the name of the thin client in use.



# Installing or Removing Peripherals

This section describes the correct way to install add-on hardware or software. Always make sure that the terminal is logged into the Administrator account and that the FBWF is disabled.

## Installing a Printer



**NOTE:** The Administrator account is the only account that can disable or enable the File-Based Write Filter (FBWF). It is important to disable it before you install third party software, and re-enable it when the installation is complete.

If the printer is a Plug and Play printer that connects with a USB, there is no need for installation of any sort. Simply plug in the printer to the terminal using the USB and follow the on screen instructions. If the printer does not automatically install itself you will have to manually install the drivers.

- 1 You can insert a USB flash drive or a CD on an external drive that contains the printers drivers into the terminal. If you do not have drivers available on a media device, search the manufacturer's website and download the correct driver that is compatible with your printer model and the operating system.
- 2 Select **Start**→**Control Panel**→**Printers and Faxes**.



**NOTE:** If you are unable to find **Printers and Faxes** in the **Control Panel**, click **Switch to Classic View** on the left.

- 3 Select **Next**. The wizard will begin. Decide if the printer will be local or a network printer. Depending on the printer, you may have to deselect the Plug and Play check box to continue.
- 4 Pick the connection type and click **Next**. The printer should be listed in the box. Click the printer and then click **Have Disk**. Browse through your terminal and select the correct driver for your printer. After it is highlighted, click **OK** to install the driver.



**NOTE:** When you install drivers for any hardware connected to your thin client, make sure you use the correct and most recent drivers. Older drivers may not be compatible with the software.

# Installing a Scanner or Camera

Power the scanner or camera on and plug the USB cord into the photo device and into the terminal. Depending on the model, your device may install automatically.

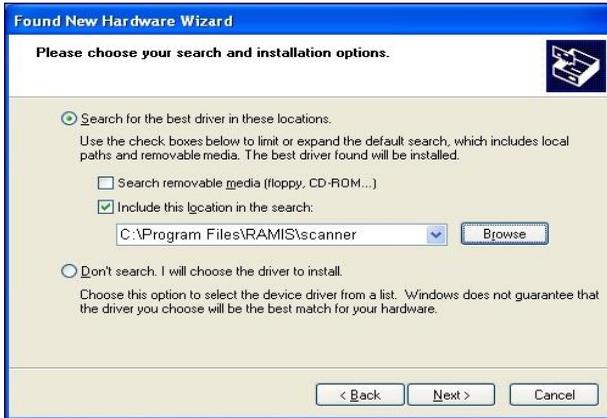
If the device is not Plug and Play ready, you may have to install the drivers manually. You can insert a USB flash drive or a CD on an external drive that contains the device's drivers into the terminal. If you do not have the drivers available on a media device, search the manufacturer's website and download the correct driver that is compatible with your scanner or camera model and the operating system.

1. Connect your scanner or camera to the terminal using a USB cord. Your operating system should recognize the new hardware. If not, select **Start**→**Control Panel**→**Add Hardware**. A wizard will guide you through the installation process.

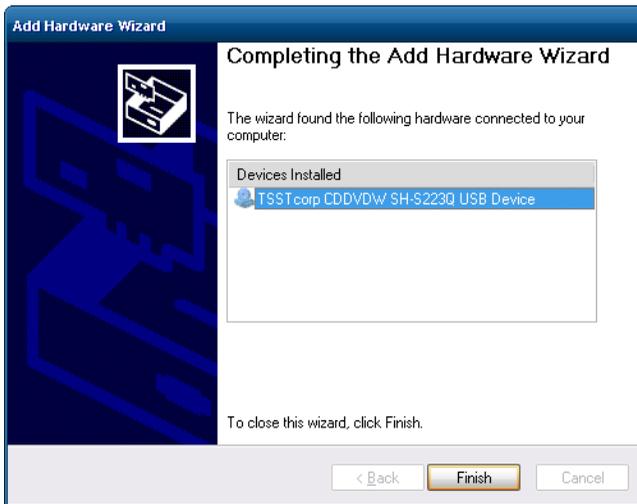


**NOTE:** If the device comes with its installation files on a CD, there are ways you can install them onto your terminal. The easiest way is to use a Plug and Play CD-ROM. Another way is to use a second thin client and copy the entire installation folder from the CD onto a USB storage device. You can then use this USB device in the terminal. Also, you can search the manufacturer's website for the correct drivers for your device.

2. During the installation process, you are prompted to find the driver file for the device. Click **Browse** and locate the driver file from Step 2. Once the installation is complete, your thin client will recognize the device.



3. Click the **Finish** button to exit the **New Hardware Wizard** and complete installation. A restart may be required.



# Installing a CD-ROM

Inserting a Plug and Play CD-ROM into your Dell OptiPlex thin client is the easiest way to utilize software and driver installation disks; however, not every external USB CD-ROM is Plug and Play compatible. If your device does not automatically recognize your CD-ROM upon insertion, follow the procedure below:

- 1 If the drivers are not currently available on a separate flash drive or media storage device, search the manufacturer's website and download the correct drivers that are compatible with both the CD-ROM model and the operating system that are being used into the separate device. You may also access a second system with a functional CD-ROM, and copy the installation CD's driver files into a portable storage or flash device. Once the files are downloaded or copied, plug the storage or flash device into the thin client.
- 2 Select **Start**→**Control Panel**→**Add Hardware**. A wizard guides you through the installation process.
- 3 At some point, the wizard will ask you to select the specific driver file for your CD-ROM. Click **Browse** to locate the directory that stores the driver files from the manufacturer.
- 4 Highlight the correct driver file and install it. Your terminal should now recognize your CD-ROM. You may have to reboot your terminal for the changes to be made.



**NOTE:** Sometimes when installing some peripherals or certain software, you may be prompted to install files from the Windows XP Install CD. If you do not have a CD or an external CD-ROM handy, try browsing the **i386** folder. The **i386** folder is located at **C:\Windows\Driver Cache\i386**. This folder holds the important files that can install, modify, update, or repair Windows. It is recommended you do not delete these files or modify them in any way.

# Uninstalling Software

To uninstall any software from the terminal, use the following procedure:

- 1 Access the **Add or Remove Programs** window by using the following path. Select **Start→Control Panel**.
- 2 Select **Add or Remove Programs**. If you are unable to find it, click **Switch to Classic View** on the left sidebar.
- 3 Highlight the program you would like to uninstall and click the **Remove** box to start uninstalling.
- 4 After you confirm the uninstall process of the software, a progress bar will appear showing the status of the update. After the bar reaches completion, the program should be removed from your terminal.

# Uninstalling or Updating a Media Device

To uninstall or upgrade any device drivers from the terminal, use the following procedure:

- 1 Access the **Add or Remove Programs** window by using the following path. Select **Start→Control Panel**.
- 2 Select **System** to open up the **System Properties** window. Under the **Hardware** tab, click the **Device Manager** to open another window.
- 3 The **Device Manager** will list all of the hardware and media devices currently recognized by the thin client. Clicking the plus [+] sign will drilldown each category and list specific devices related to that topic.
- 4 After drilling down and finding the device you want to uninstall or upgrade, right click it to open a context menu that will allow you to Uninstall, Update Driver, or Scan for any hardware changes.

# Freeing Hard Drive Space

You may need to free up memory space on your local drive to make room for other software, applications, or programs. You can free up space by uninstalling some of the programs that you rarely use, and/or use Disk Cleanup.

## Uninstalling Programs

Much like uninstalling media devices, you can uninstall programs to free up hard drive space.

- 1 Select **Start**→**Control Panel**.
- 2 Select **Add or Remove Programs**. If you can't find it, try clicking **Switch to Classic View** on the left sidebar.
- 3 Highlight the program you wish to remove. Click **Remove** to begin the uninstall process.
- 4 There may be a few confirmation clicks to confirm the uninstall process. There should be a progress bar detailing the amount of time left on the process, and upon uninstall, another window should confirm the process is complete. Depending on the program or application uninstalled, it may require you to restart your terminal.

## Using Disk Cleanup

Disk Cleanup is a utility that finds temporary files, old compressed files, or other non important files and sorts them into those categories, allowing you to decide which categories to delete and which to keep. To use Disk Cleanup:

- 1 Select **Start**. Select **All Programs**→**Accessories**→**System Tools**→**Disk Cleanup**.
- 2 By default, your terminal should be the **C:** drive. Select your terminal's drive and click **OK**.
- 3 Disk Cleanup may take a few minutes to gather your temporary or disposable files.
- 4 Click the all check boxes of the files you wish to delete. Click **OK** when finished. Click **OK** again to confirm.

# Adding Dual Monitors

You can attach two monitors to the OptiPlex thin clients by using the supplied DVI Video Splitter Cable.

- 1 With the unit turned off, attach the splitter to the DVI port of the terminal. Connect the monitors to the other ends of the cable and then power on the terminal.
- 2 Use the Intel Graphics Media Accelerator utility to choose extended desktop. This can be found by right-clicking the mouse anywhere on the **Windows Desktop** and then selecting **Graphics Properties**.
- 3 Make sure that the two displays selected are **Digital Display** and **Monitor**. Ignore the third option called, **Notebook**, if it should appear.
- 4 On the left-hand side of the window, select **Display Settings** to change the resolution, color depth, rotation, and power settings for the attached monitors.

# Networking

## Setting Static/Dynamic IP

By default, your Dell OptiPlex thin client has its IP assigned automatically by DHCP, making it dynamic. If you want your IP to be a static number on your network, follow these steps:

- 1 Select **Start**→**Control Panel**→**Network Connections**.
- 2 Right-click your connection and click **Properties**.
- 3 A **Local Area Connection Properties** window appears. Scroll to the bottom of the dialogue and highlight the **Internet Protocol (TCP/IP)** option.
- 4 Once the (TCP/IP) option is highlighted, click **Properties**. This will bring up your IP properties window.
- 5 Choose **Use the following IP address**: Complete the information boxes with your desired static IP, subnet mask, default gateway, and DNS server(s).
- 6 Click **OK** when all fields are entered correctly. Closing the menus will reconfigure your IP address immediately.



**NOTE:** Some problems can occur if you attempt to change your IP addresses to an IP address already in use. Ping the IP to make sure it is not in use before changing it. Ask your network administrator for the subnet mask, default gateway, and DNS servers if you are unsure.

# Naming Your Thin Client, Joining a Domain or Workgroup

## Naming Your Thin Client

- 1 To access an Active Directory Domain, you should rename your thin client. Begin by selecting **Start**→**Control Panel**→**System**. If you can't find it, try clicking **Switch to Classic View** on the left sidebar.
- 2 Click the **Thin client Name** tab then click the **Change** button to enter the name.
- 3 Type in a name that will identify your terminal on the network neighborhood. If you rename a terminal while it is not connected to the network, duplicate names could occur. Always check with your network administrator before renaming a terminal.
- 4 After naming your terminal, click the **OK** button to confirm your rename. In most cases, your terminal will require a reboot.

## Joining a Domain or Workgroup

- 1 Select **Start**→**Control Panel**→**System**. If you can't find it, try clicking **Switch to Classic View** on the left sidebar.
- 2 Click the **Thin Client Name** tab and then click the **Change** button to bring up the **Thin Client Name Changes** window.
- 3 Enter the domain or workgroup name you want to join and click the **OK** button. You will receive notification if you have, or have not, successfully joined the specified domain or workgroup.
- 4 Reboot your terminal to apply the changes you have made.

## Using the Network ID Wizard

The Network ID Wizard may also be used to join a domain or workgroup. It presents a series of questions and information boxes about your network and configures the system accordingly.

- 1 Select **Start**→**Control Panel**→**System**. If you can't find it, try clicking **Switch to Classic View** on the left sidebar.
- 2 Click the **Thin client Name** tab and then click the **Network ID** button to open the wizard.
- 3 Answer the questions and keep clicking **Next** to continue. When you are finished, click **Finish**.
- 4 Reboot your terminal to apply the changes you have made.

# Using Connections

This section describes how to configure your WES-based terminal to connect to server-based services utilizing several different connection protocols.

## Using Remote Desktop

Remote Desktop Protocol (RDP) is a secure communication method based on Microsoft Terminal Services. It provides connection to Windows-based machines and is efficient enough to run on high-latency networks.

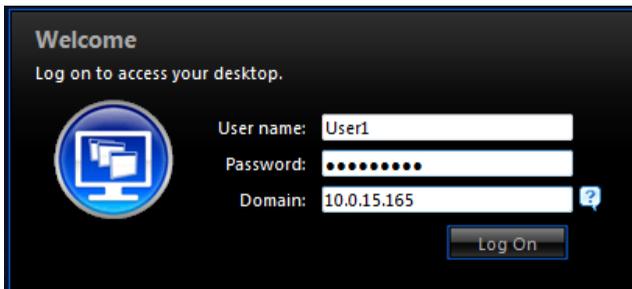
- 1 To open Remote Desktop and launch an RDP session, you can usually double-click the icon on your desktop called **Remote Desktop Connection**. If your desktop does not have an RDP icon, you can also use the following path: **Start**→**All Programs**→**Accessories**→**Communications**→**Desktop Connection**.
- 2 In the **Thin Client** box type in the IP address of your RDP server, and your user name. If your user name requires a domain you can type your name in the format `DOMAIN\username`.
- 3 Clicking the options arrow at the bottom of the RDP window will allow you to set custom options available for your RDP session. Resolution and color options, printer and USB redirection, and several other performance options are available from the drop down menu in various tabs.
- 4 After typing in your credentials, click **Connect** at the bottom of the menu. It may ask you to confirm your connection, and once you type in your password and hit Enter you will launch your RDP session.

# Using Citrix ICA

Citrix is one of the leaders in infrastructure solutions. It specializes in network access, VPN capabilities, remote control, and remote support applications. Citrix solutions, like the Citrix Online Plug-in, utilize the Citrix ICA protocol. ICA (Independent Computing Architecture) allows non-Windows systems (Macintosh, X terminals, UNIX workstations, etc.) to access Windows-based applications.

## Using the Citrix Online Plug-in

1. To launch the Citrix Online Plug-in, open Internet Explorer and enter the IP address of your XenServer in the address bar.
2. Enter in the **Username**, **Password**, and **Domain**.



3. Left-click the desktop you wish to use to complete the process.





**NOTE:** If this is your first time loading the Citrix Online Plug-in, you will be taken to a screen that asks you to **Click Download to Access Your Desktop**. Along the right-hand side of the page, click on **Already Installed** to be taken to step 3.

The screenshot shows a web interface for downloading the Citrix Online Plug-in. On the left, under the heading "Click Download to Access Your Desktop", there is a checkbox with the text "By selecting the check box, you confirm that you have read, understand, and accept the [Citrix license agreement](#)". Below this is a "Download" button with a downward arrow icon. At the bottom left, there is a warning icon and the text "Clicking Download will install software on your computer. [More information on security...](#)". On the right side, there is a "Other Options" menu with three items: "Already installed", "Try later", and "Log off".

# Using VMware View

VMware View utilizes VMware's hypervisor technology to efficiently provide multiple instances of an operating system to remote users using the RDP or PCoIP (PC-over-IP) protocol.

- 1 To connect to a VMware View server, double-click the icon on your desktop called **VMware View Client**. Another way is using the path: **Start**→**All Programs**→**VMware**→**VMware View Client**.
- 2 In the bar that says **Connection Server**. Type the IP address of your VMware server and hit <Enter>.
- 3 Click the **Options** tab to configure more advanced options like auto-connections and specifying which ports to use. After you are finished, hit the **Connect** button to access the log-in screen.



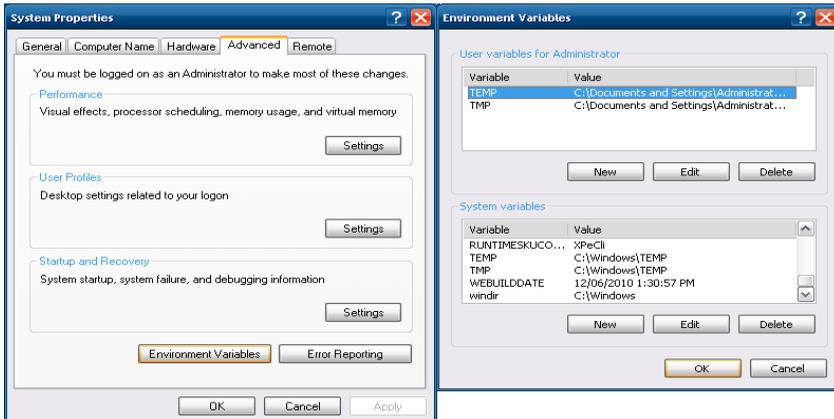
- 4 Type your User name and Password and select a Domain. After clicking on **Login**, it may require you to select a **Desktop** before opening the session.
- 5 Highlight the **Desktop** you want to use and then select **Connect** to complete the process.

# OS Build Date, Echo Agent, and Re-Imaging

## Verifying OS Build Date

To verify the OS Build Date:

1. Power-on and boot-up the thin client.
2. After the boot process has been completed log-in to the Administrator account.
3. Select **Start**→**Log Off**. Hold the <Shift> key and select **Log Off** again.
4. Enter the Administrator credentials. By default the User name is **Administrator** and the password is **Administrator** (case sensitive).
5. Right-click and select **My Thin client**→**Properties**. Select the **Advanced** tab.

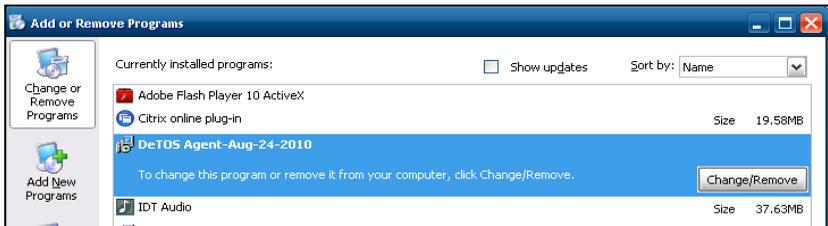


6. Select **Environment Variables**.
7. Scroll down to the bottom of the window. The build date will be listed (example) **WEBBUILDDATE 12/06/2010 1:30:57PM**.

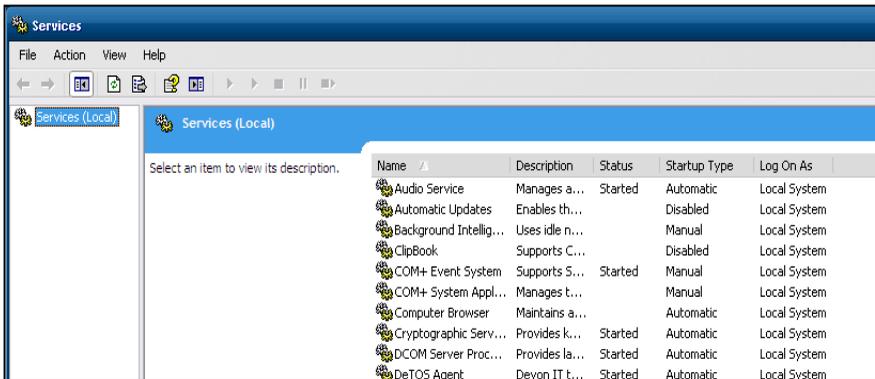
## Verifying the Echo Agent Version and Status

To verify the Echo Agent version and status, power-on and boot-up the thin client.

1. After the boot process has been completed log-in to the Administrator account. Select **Start**→**Log Off**. Hold the <Shift> key and Select **Log Off** again.
2. Enter the Administrator credentials. By default the User name is **Administrator** and the password is **Administrator** (case sensitive).
3. Select **Start**→**Control Panel**→**Add or Remove Programs** .



- 4 The Echo agent will be one of the installed programs as shown above.
- 5 To verify the Status of the Echo Agent select **Control Panel**→**Administrative Tools**→**Services**.
- 6 Scroll down to the Echo Agent Service. The status will be Echo Agent **Started Automatic** as shown below.



## Re-Imaging the Thin client

For information about re-imaging your thin client, please consult the Re-Imaging guide which can be found at [support.dell.com](http://support.dell.com).

# Getting Help

## Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

- 1 Visit **support.dell.com**.



**NOTE:** If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, or Dell product catalog

- 2 Click your country/region at the bottom of the page. For a full listing of country/region click **All**.
- 3 Click **All Support** from **Support** menu.
- 4 Select the appropriate service or support link based on your need.
- 5 Choose the method of contacting Dell that is convenient for you.