



## **Administrator's Guide**

Linux-based HP Compaq t5125,  
t5515, t5525 Thin Clients

For the following image versions:

- L1ST3149 (t5125)
- L3ST3149 (t5515) - 128MB model only
- L4ST3149 (t5525)

Document Part Number: [395346-003](#)

**October 2005**

This guide provides network administrators with basic instructions for configuring Linux-based thin clients.

© Copyright 2005 Hewlett-Packard Development Company, L.P.  
The information contained herein is subject to change without notice.

Microsoft, MS-DOS, Windows, and Windows NT are trademarks of Microsoft Corporation in the U.S. and other countries.

Adobe, Acrobat, and Acrobat Reader are trademarks or registered trademarks of Adobe Systems Incorporated.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

This document contains proprietary information that is protected by copyright. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of Hewlett-Packard Company.



**WARNING:** Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

---



**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

---

## **Administrator's Guide**

Linux-based HP Compaq t5125, t5515, t5525 Thin Clients

- L1ST3149 (t5125)
- L3ST3149 (t5515) - 128MB model only
- L4ST3149 (t5525)

Third Edition (October 2005)

Document Part Number: [395346-003](#)

---

# Contents

## 1 Introduction

Thin client image . . . . .	1-2
Desktop . . . . .	1-2
t5125 Desktop . . . . .	1-2
t5515/t5525 Desktop . . . . .	1-3
Desktop Options . . . . .	1-3
Taskbar . . . . .	1-3
XFce Panel Bar - t5515 & t5525 only . . . . .	1-4
Desktop menu . . . . .	1-5
HP Compaq t5125 Thin Client . . . . .	1-5
HP Compaq t5515/t5525 Thin Client . . . . .	1-5
Programs . . . . .	1-6
Console . . . . .	1-6
Using shell commands . . . . .	1-6
Web browser . . . . .	1-7
Citrix . . . . .	1-7
HP Connection Administrator . . . . .	1-7
VNC viewer . . . . .	1-7
VNC server . . . . .	1-8
XFce Settings Manager . . . . .	1-8
HP Desktop Options . . . . .	1-8
Linux image . . . . .	1-10
Image location . . . . .	1-11

## 2 HP Connection Administrator

HP Connection Administrator window . . . . .	2-1
Advanced Configuration utility . . . . .	2-3
<b>Configuring available connections . . . . .</b>	<b>2-3</b>
Configuring user connections. . . . .	2-4
Configuring Global UI Kiosk settings . . . . .	2-8
Setting Citrix global settings . . . . .	2-9
Adding, editing, and deleting connections . . . . .	2-12
Connection types . . . . .	2-13

## 3 Citrix

Introduction . . . . .	3-1
Citrix (ICA) . . . . .	3-2
ICA Client Settings. . . . .	3-2
Preferences . . . . .	3-2
Connection View . . . . .	3-2
Program Neighborhood Agent (PNAgent). . . . .	3-2

## 4 XFce Settings Manager

Date/Time . . . . .	4-3
Enabling Network Time Protocol. . . . .	4-3
Configuring the system hardware clock from BIOS . . . . .	4-4
Desktop: backdrop. . . . .	4-4
Using an image for your background . . . . .	4-5
Changing background color . . . . .	4-5
HP Desktop Options . . . . .	4-5
VNC Shadow . . . . .	4-6
TouchScreen . . . . .	4-7
USB Storage . . . . .	4-7
FTP Updates . . . . .	4-8
Display. . . . .	4-9
Screen saver . . . . .	4-11
Keyboard. . . . .	4-12
Mouse . . . . .	4-13
Network Management. . . . .	4-14
Printer Manager. . . . .	4-15

Security .....	4-16
Sound .....	4-17
System .....	4-17
General tab .....	4-17
Network tab .....	4-18
Copyrights tab .....	4-19
About tab .....	4-19
Taskbar .....	4-19
User Management .....	4-20
Managing a user account .....	4-21
Add a user .....	4-21
Modify a user account .....	4-22
Delete a user .....	4-22
Permissions .....	4-23
User options .....	4-24
Managing a group .....	4-25
Adding a group .....	4-25
Modifying a group .....	4-26
Deleting a group .....	4-26
Adding a user to a group manually .....	4-27
Window Manager .....	4-27
Decoration style .....	4-28
Keyboard and focus .....	4-29
Advanced .....	4-30
XFce Panel .....	4-31

## 5 Support

Hardware warranty .....	5-1
Software warranty .....	5-1
Image updates and add-ons .....	5-2
Custom image requests .....	5-2
HP-developed images .....	5-2
Custom-developed images .....	5-2
Availability of Linux open source code .....	5-3
Additional Linux resources on the Web .....	5-3

## **6 Frequently Asked Questions**

Linux operating system .....	6-1
System Administrator .....	6-2
System Management .....	6-3
VNC .....	6-5
General .....	6-6
Manageability .....	6-8

## **7 Troubleshooting**

## **Index**

---

# Introduction

This guide provides the network administrator with instructions for local and remote configuration of the Linux-based thin client and explains the various configuration utilities. This guide provides instructions for both the HP Compaq t5125, t5515, and t5525 thin client.



Not all features described in this guide are available in all Linux-based terminal models.

---

Typically, you configure a terminal locally and then use it as a template for other terminals, which you can then configure using remote administration tools. You can create server and application connections through the XFce Settings Manager Network management interface.

Chapters in this guide are specific to the desktop interface and programs in the XFce Settings Manager, which is the control panel for the Linux-based image.



A default user account is pre-installed with the following settings:

**User name: root**

**Password: root**

This default account is also the Administrator “rights” account for Linux. Therefore, HP recommends that you change the password and create a new separate user account for non-administrator users.

---

## Thin client image

HP developed this Linux image especially for thin client use by integrating a comprehensive set of open source, commercial, and custom-developed components. You can use the Altiris client to provide remote management of the thin client and to upgrade the Linux image with feature enhancements, device drivers, and maintenance updates.

## Desktop

The desktop of the HP Compaq t5125 differs from that of the t5515 and the t5525, as shown in the following images.

### t5125 Desktop

The following image provides an example of the default t5125 desktop:

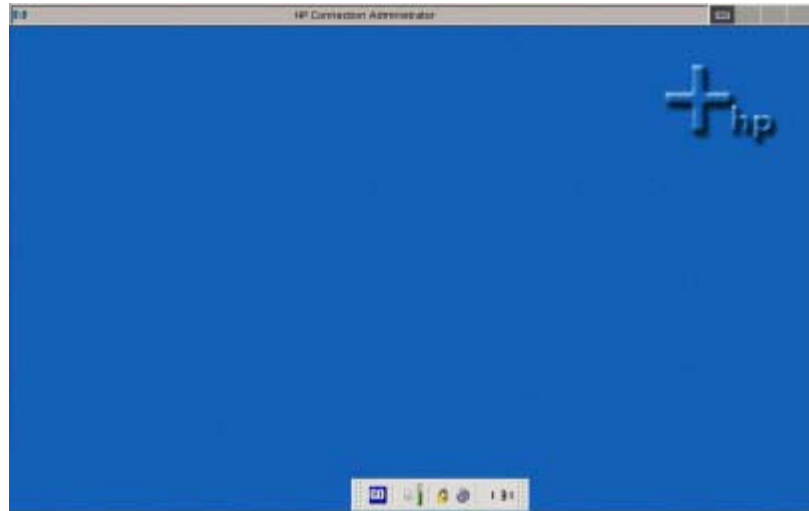


*t5125 desktop*



## t5515/t5525 Desktop

The following image provides an example of the default t5515 and a t5525 desktop:



*t5125 desktop*

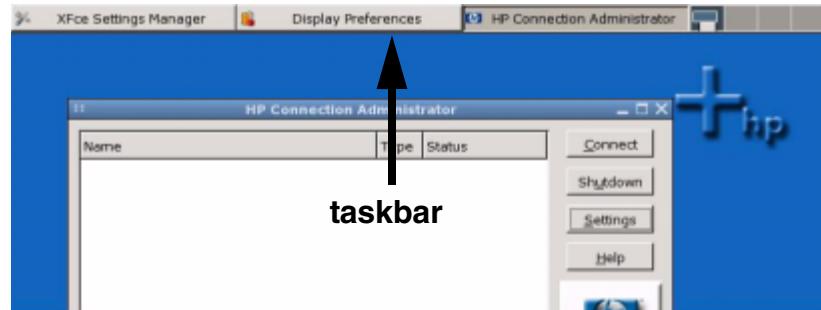
## Desktop Options

The following sections describe the function of the desktops of the HP Compaq t5125, t5515, and HP Compaq t5525 thin clients. The layout of the desktop, as well as connectivity options, are determined by the selection in HP Desktop Options. For more information, see [“HP Desktop Options” on page 1-8](#).

## Taskbar

You can work in multiple workspaces or applications on the thin client. As you open software, the taskbar indicates what is open in a workspace. The taskbar contains four separate workspace icons that you can use to toggle between sessions. Click an icon to open its workspace. Each workspace can have different programs running. By default, the taskbar automatically displays at the top of the screen.

The taskbar is shown in the following illustration:



*Taskbar*

For more information, see [“Taskbar” on page 4-19](#).



You can also access the XFce Settings Manager from the HP Connection Administrator, or by right-clicking on the desktop and selecting **Settings**.

---

## **XFce Panel Bar - t5515 & t5525 only**

By default, the XFce Panel Bar displays at the bottom of the screen.



*XFce Panel Bar*

The XFce Panel Bar includes the following default features:

- **GO** button - displays the GO menu.
- audio icons - allow you to adjust volume.
- lock icon - locks the screen.
- exit icon - allows you to quit the current session, reboot, or turn off the computer.
- clock - you can configure to display time, day, month, and year.

You can configure the appearance and behavior of the XFce Panel Bar. For more information, see [“XFce Panel” on page 4-31](#).

## Desktop menu

The programs available vary by thin client. For more information about these programs, see [“Programs” on page 1-6](#).

---



The Linux-based thin client does not support desktop icons.

---

## HP Compaq t5125 Thin Client

Right-click on the t5125 desktop to display the following software:

- Console
- VNCviewer
- Settings

## HP Compaq t5515/t5525 Thin Client

You can access software on the t5515/t5525 thin client using either of the following methods:

- Clicking the **GO** button on the XFce Panel bar.
- Right-clicking anywhere on the desktop.

The t5515/t5525 provides the following software and utilities:

- Console
- Web Browser
- Citrix
- HP Connection Administrator
- Vncviewer
- Vncserver
- Settings
- Shutdown

## Programs

The following sections describe the programs available on the desktop. Program access depends on your thin client. You can configure the thin client so that the user will have access to these programs through HP Connection Administrator or Citrix.

## Console

The Console provides a dialog box with a prompt **#** for entry of various shell commands. To start the Console, right-click anywhere on the desktop and select **Console**.

The suite of commands provided come from the BusyBox suite. You can determine the specific commands currently supported once you invoke the Console dialog box. For a list of supported commands, type **busybox** in the Console dialog box. You can find complete documentation on command syntax at [www.busybox.net](http://www.busybox.net).

BusyBox combines scaled down versions of many common UNIX utilities into a single executable. The utilities in BusyBox generally have fewer options than their full-featured GNU counterparts; however, the options that are included in BusyBox provide the expected functionality and behave very much like their GNU counterparts. Most BusyBox commands support the **-h** option to provide a terse runtime description of their behavior.

## Using shell commands

Shell commands provide for administration of user management. Use the Console dialog box for this purpose. User management shell commands include:

- **addgroup**
- **adduser**
- **chgrp**
- **delgroup**
- **deluser**
- **passwd**
- **chown**
- **su**

## Web browser

The HP Compaq t5515/t5525 thin client image includes the Firefox Web browser with JRE (Java Runtime Environment). For more information about creating a Firefox connection, see [“Firefox connection” on page 2-15](#).

HP also includes an integrated Adobe Acrobat reader for viewing PDF files on the t5515/t5525.

## Citrix

The Citrix (ICA) program allows you to set up and configure Citrix ICA client connections.

For more information about creating Citrix connections, see [Chapter 3, “Citrix.”](#)

## HP Connection Administrator

HP Connection Administrator allows you to manage server and application connections by setting up Web, RDP, XDM, ICA, and other types of connections, setting up user accounts, and assigning connections to users.

For information about setting up connections, see [Chapter 2, “HP Connection Administrator.”](#)

## VNC viewer

The VNC viewer dialog box provides connection to a VNC server. The VNC viewer allows control of the desktop environment of another thin client, PC, or server that has VNC service running. For information about allowing control of the thin client by another unit, see [“VNC Shadow” on page 4-6](#).

## VNC server



---

the VNC server is available only on the t5515 and t5525.

---

Virtual Network Computing (VNC) is a remote control program that allows you to view and interact with one computer (the “server”) using a simple program (the “viewer”) on another computer anywhere on the Internet. The VNC Server runs as a service and therefore is available even when the user is logged off the thin client.

The system stores the VNC server password in encrypted form in a hidden directory named “.vnc” in the user’s home directory. For example, the system stores the password for user “fred” at: `/home/fred/.vnc/passwd`.

If you delete the `passwd` file to reset the password, the system prompts the user for a new password the next time the VNC server is started. The password must be six to eight characters long.

Additional information about VNC server features is available at:

<http://www.tightvnc.org>

## XFce Settings Manager

The thin client includes a control panel called XFce Settings Manager. You can access a wide variety of utilities from the settings manager. For more information, see [Chapter 4, “XFce Settings Manager.”](#)

## HP Desktop Options

The thin client features different desktop interface options. These options provide different ways for you to manage your connections, and as well as determine the appearance of your desktop. Your selection in this utility determines what your thin client looks like and how it communicates.

Available desktop options include:

- HP Connection Administrator
- Citrix ICA Client
- xfce (t5515/t5525 only)



*HP Desktop Options*



The xfce option is only available on the t5515/t5525.

HP Connection Administrator is the default interface.

To determine which interface displays on the user's desktop:

1. Right-click on the desktop and select **Settings** to open the XFce Settings Manager.
2. From the XFce Settings Manager window, select **HP Desktop Options**.
3. Select the interface you want to use.
4. Click **OK**. The new interface will launch at reboot.

For instructions about configuring HP Connection Administrator, see [Chapter 2, “HP Connection Administrator.”](#) For instructions about configuring Citrix ICA Client, see [Chapter 3, “Citrix.”](#)

## Linux image

To locate the Linux image version:

1. Click **GO > Settings > System**.
2. Click the General tab.

The image version is displayed in the System area of the screen.



*Linux image version - System*

For more information, see [“System” on page 4-17](#).



## Image location

The image is stored in various formats. The bootup process decompresses and loads certain portions of the image in RAM. Some features and aspects of the image are not loaded until they are needed. The image is stored in three partitions as follows:

- /dev/hda1 - ext2 - boot loader
- /dev/hda2 - cramfs - majority of the image
- /dev/hda3 - ext2 - optional components and home directories



---

## HP Connection Administrator

HP Connection Administrator allows you to manage server and application connections by setting up Web, RDP, XDM, ICA, and other types of connections, setting up user accounts, and assigning connections to users.

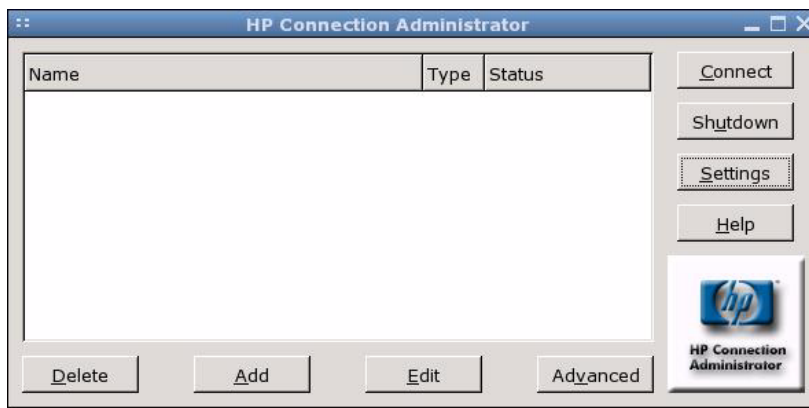


The Web browser is only available in the HP Compaq t5515 and t5525 thin client images.

To access all HP Connection Administrator functionality, you must log in with root permissions as a member of the root group.

### HP Connection Administrator window

Launching HP Connection Administrator allows you to start, add, edit, and delete connections.



*HP Connection Administrator*



You must log in with root permissions to access all components of the HP Connection Administrator window.

---

The HP Connection Administrator features the following:

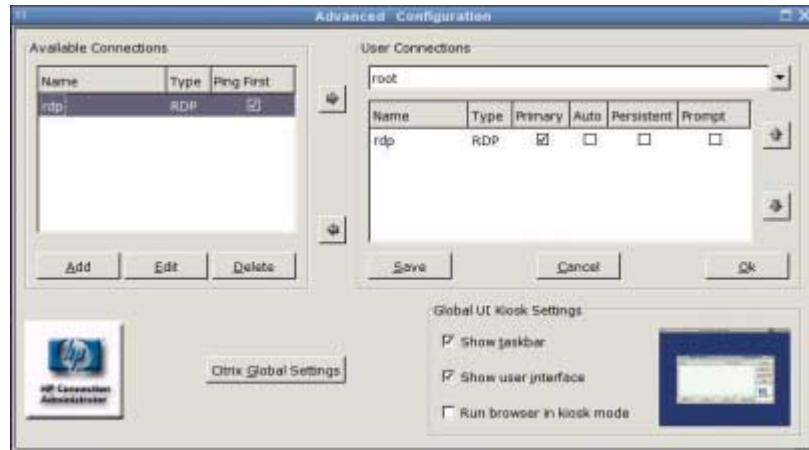
- **Connections Display:** Lists all server and/or application connections assigned to the user currently logged on to the terminal. For each connection, the display shows the name, type, and status of the connection.
- **Connect:** Click to activate a selected connection.
- **Shutdown:** Click to exit HP Connection Administrator if the terminal is not in Kiosk mode. If the terminal is in Kiosk mode, click this button to end the session. If you are a member of the turn off or reboot groups, the thin client displays options to turn off or reboot the terminal. For information about Kiosk mode, see [“Configuring Global UI Kiosk settings” on page 2-8](#).
- **Settings:** Click to access the XFce Settings Manager.
- **Delete:** Click to delete a selected connection. The connection is deleted from the list of connections available to all users, not just the user currently logged on to the terminal.
- **Add:** Click to create a new connection and add it to the list of connections assigned to the user currently logged on to the terminal. You can assign the new connection to other users in the Advanced Configuration utility. For more information, see [“Adding, editing, and deleting connections” on page 2-12](#).
- **Edit:** Click to edit the selected connection. For more information, see [“Adding, editing, and deleting connections” on page 2-12](#).
- **Advanced Configuration:** Click to access the Advanced Configuration utility, where you can configure and assign connections and configure the terminal user interface. For more information, see [“Advanced Configuration utility” on page 2-3](#).

## Advanced Configuration utility

You can configure and assign connections and configure the user interface for the terminal in the Advanced Configuration utility. To access the utility, click the **Advanced** button on the HP Connection Administrator window.



You must log in with root permissions to access the Advanced Configuration utility.



*Advanced Configuration utility*

## Configuring available connections

The **Available Connections** area lists all connections that you can assign to users. Use the following features to modify, add, or delete connections:

- **Ping First:** Allows you to enable Connection Administrator to ping the server before attempting a connection. If the server name fails to resolve or the server fails to respond to the ping, the thin client aborts the connection attempt.
- **Delete:** Click to delete a selected connection. The connection is deleted from the lists of connections assigned to all users. For more information, see [“Adding, editing, and deleting connections”](#) on page 2-12.

- **Add:** Click to create a new connection and add it to the list of available connections in the current user's connection list. For more information, see [“Adding, editing, and deleting connections”](#) on page 2-12.
- **Edit:** Click to edit a selected connection. For more information, see [“Adding, editing, and deleting connections”](#) on page 2-12.

## Configuring user connections

The **User Connections** area displays all connections currently assigned to the user selected from the drop-down list at the top of the window. Select a user from the list and use the following features to configure connections for the user:

- **Name:** Displays the name of the connection. You cannot change the connection name.
- **Type:** Displays the type of connection (Web, RDP, XDM, ICA, or other). You cannot change the connection type from this column.
- **Primary:** Select to designate a connection as primary. The thin client attempts secondary connections if the primary connection fails. If more than one secondary connection is associated with a primary connection, the thin client prioritizes the secondary connections starting with the first connection in the group.
- **Auto:** Select to designate whether a user is automatically logged on when HP Connection Administrator starts up. To prevent a user from being logged on that is set to auto logon, press the left **Shift** key as soon as the log in screen displays.
- **Persistent:** Select to designate whether the system will attempt to reconnect when a connection fails. You can only make primary connections persistent.
- **Prompt:** Select to configure the system to determine whether a user is still using the thin client after a group of connections fails. Clear this check box to allow the system to continue to cycle through the connections in the group.



The user must quit the current session to disable automatic connection.

---

- **>**: Click to add a selected Available Connection (left list box) to the selected user's connection list (right list box).
- **<**: Select a connection from the list of connections assigned to the user and click this button to remove the connection from the user's connections list.
- **Up arrow**: Click to move a selected user connection up in the list.
- **Down arrow**: Click to move a selected user connection down in the list.
- **Save**: Click to save changes made to user connections and user interface settings.
- **Cancel**: Click to cancel unsaved changes made to user connections and user interface settings and exit the Advanced Configuration utility.
- **OK**: Click to save changes made to user connections and user interface settings and exit the Advanced Configuration utility.

## Assigning connections to users

After creating a connection, you can assign it to users.

To assign a connection to users:

1. In the HP Connection Administrator, click the **Advanced** button to access the Advanced Configuration utility. For more information, see [“Advanced Configuration utility” on page 2-3](#).
2. Under **User Connections**, select the appropriate user.
3. Under **Available Connections**, select the connection in the list of available connections, and then click the **>** button to copy the connection to the list of connections for the user.
4. Click **Save** to save the updated list of connections for the user.

## Configuring connections as primary, secondary, or to auto connect

Use the following procedure to configure connections in the Advanced Configuration utility.

- You can designate connections as primary or secondary. A primary connection is the first attempted in a group of connections. Secondary connections are attempted if the primary connection fails, and attempt to connect in their listed order. You can assign several primary connections, each with several associated secondary connections.
- You can set primary connections to automatically connect when HP Connection Administrator starts up.
- You can set primary connections to automatically reconnect if the connection is lost.

To configure connections:

1. In the HP Connection Administrator, click the **Advanced** button to access the Advanced Configuration utility.
2. Under **User Connections**, select the appropriate user.
3. Select the connection in the user's connection list that you want to modify.
4. If you want to make a connection a primary connection:
  - a. In the **Primary** column, select the check box.
  - b. To assign a secondary connection to the primary connection, clear the check box in the **Primary** column that you want to be the secondary connection. The connection becomes a secondary connection to the first primary connection directly above the secondary connection in the list.
  - c. To arrange the connections in the order that you want them to connect, select a connection and click the **Up** and **Down** buttons to move the connection. Secondary connections are always associated with the first primary connection above them in the list.
  - d. Click **Save** to save your changes.





Since each secondary connection must have an associated primary connection listed above it, the connection at the top of the list must be a primary connection.

---

5. If you want to set automatic connections:

- a. In the **Auto** column, select the check box.
  - b. Click **Save** to save your changes.
- 



You can set only primary connections to automatically connect when HP Connection Administrator is launched.

---

6. If you want to set automatic reconnections:

- a. In the **Persistent** column, select the check box.
- 



You cannot disable automatic connection unless the user quits the current session.

---

- b. Click **Save** to save your changes.
- 

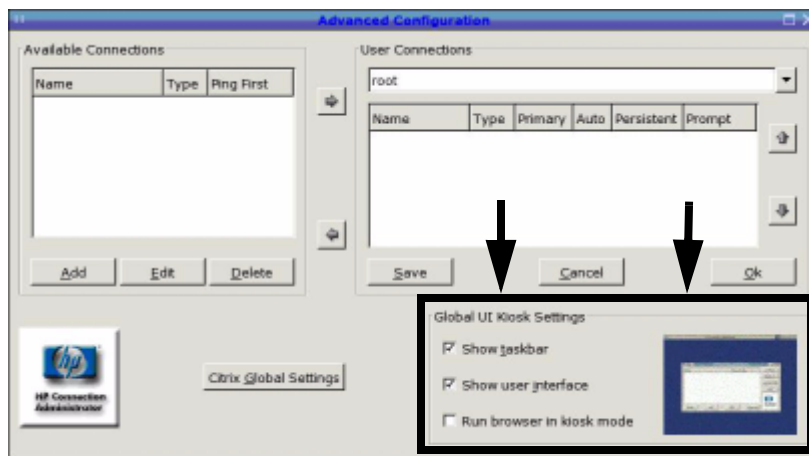


You can set only primary connections to automatically reconnect.

---

## Configuring Global UI Kiosk settings

Global UI Kiosk Settings allow you to change the way the user interface displays. The preview pane to the right of the check boxes indicates how the user interface will display based on which check boxes you select.



*Global UI Kiosk Settings for the t5515/t5525*

**Show Taskbar:** Select to display the taskbar at the top of the desktop.

**Show User Interface:** Select to display the HP Connection Administrator. Clear this box to further lock down the terminal by hiding the HP Connection Administrator window for users who are not in the root group. You can use this feature for connections set to automatically start at boot up where the HP Connection Administrator window is not needed.



The user interface is always shown for users in the root group.

**Run Browser In Kiosk Mode (t5515/t5525 only):** Select to remove the address, search, tool bar, menu bar, and status bar from the browser. Changing this setting does not affect the preview pane.



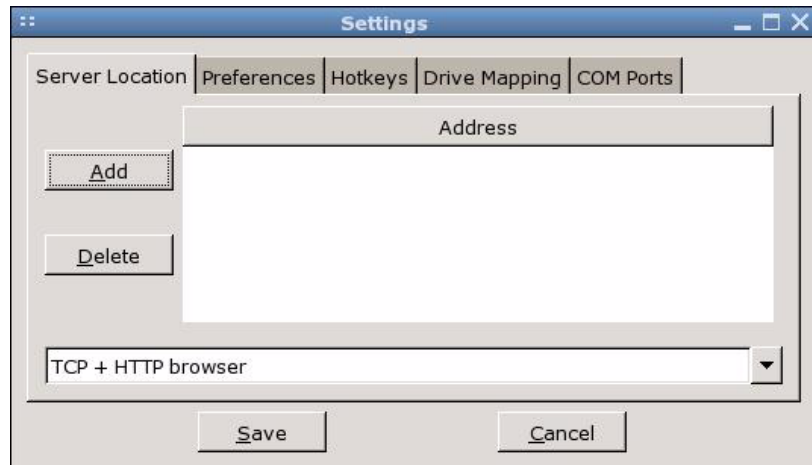
You must reboot the terminal for changes to take effect.

## Setting Citrix global settings

Click this button to configure global Citrix settings.

### Server Location

Use this tab to add or modify Citrix servers.



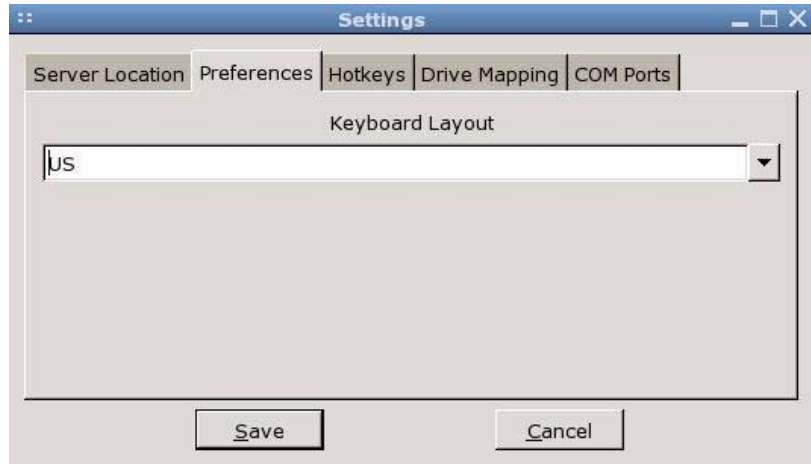
#### *Global Citrix Settings - Server Location tab*

To add a server:

1. Select the browser type from the list in the box at the bottom of the dialog box.
2. Click **Add**.
3. Type the server address and port number.
4. Click **OK**.

## Preferences

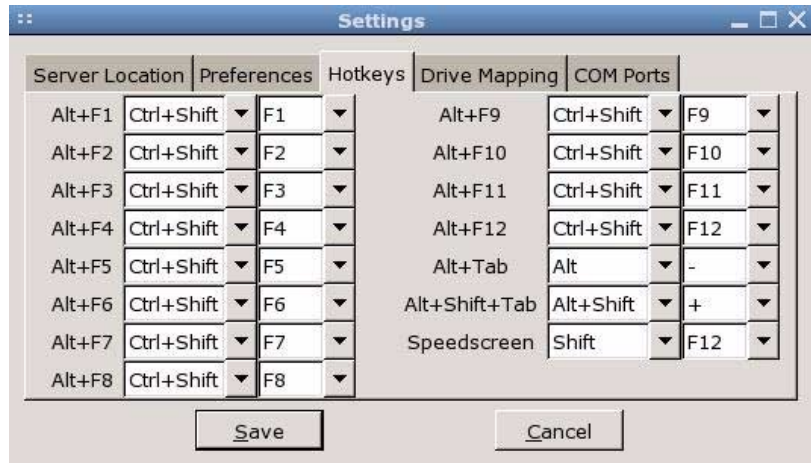
Use this tab to select the keyboard language.



*Global Citrix Settings - Preferences tab*

## Hotkeys

Use this tab to configure thin client hotkeys.



*Global Citrix Settings - Hotkeys tab*

## Drive Mapping

Use this tab to assign drive numbers to drives and configure whether the drive is enabled, readable, and writeable.



*Global Citrix Settings - Drive Mapping tab*

To configure a drive:

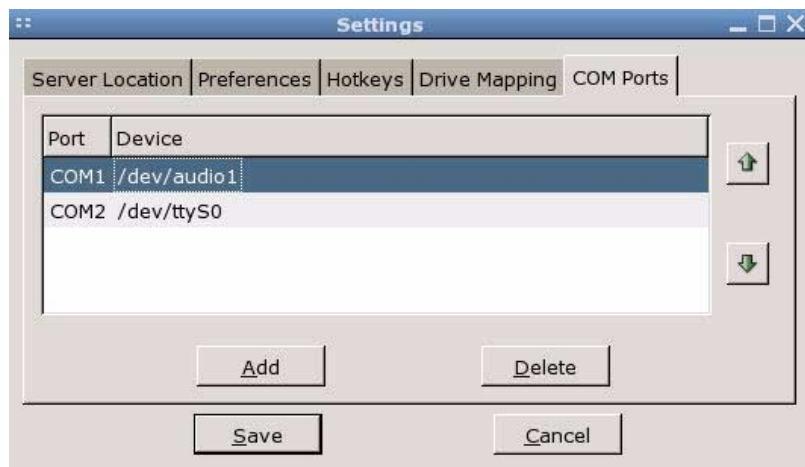
1. Click the drive letter to configure.
2. Select **Enable**, **Read**, or **Write** to assign those characteristics to the drive.
3. With the drive letter selected, click in the **Path** column.
4. Type the drive path.



The preferred method of forwarding in Citrix connections, with the HP Linux image, is to redirect from `/tmp/shared/` for HD and DOK. As devices are added and removed, links are automatically created in this location. For USB CD-ROM drives, redirect from `/mnt/cdrom/`. This setting will be in place for all Citrix connections from this unit.

## COM ports

Use this tab to map devices to communication ports.



Global Citrix Settings - COM Ports tab

To map devices:

1. Click **Add**.
2. Under **Folders**, select the location of the device.
3. Under **Files**, select the device.
4. Fill in the **Selection: /dev** box.

## Adding, editing, and deleting connections

You can add, edit, or delete connections in the HP Connection Administrator or in the Advanced Configuration utility. However, you need to note the important difference based on where you add connections, as follows:

- Adding a connection in the HP Connection Administrator adds it to the list of connections assigned to the user currently logged on to the terminal.
- Adding a connection in the Advanced Configuration utility automatically adds the connection to the currently selected user. The new connection will also be available in the Advanced Configuration utility for assignment to other users.

For more information about the different types of connections, see the related sections later in this chapter.

To add, edit, or delete a connection:

1. Click **Add**. The system displays the Add Connection dialog box, which lists the connection types registered with the system.



The Web browser is only available in the image for the t5515/t5525.

---

2. Select the type of connection you want to create and click **OK**. For more information, see [“Connection types” on page 2-13](#).
3. Follow the on-screen instructions to add the connection to the user's connections list and to the list of available connections that you can assign to other users in the Advanced Configuration utility.
4. To edit the connection, select the connection and click **Edit**.
5. To delete the connection, select the connection and click **Delete**. The connection is deleted from all user connection lists.



You can configure connections created in the HP Connection Administrator in the Advanced Configuration utility.

---

## Connection types

You can use the HP Connection Administrator to create the following types of connections:

- Citrix ICA
- Firefox (t5515/t5525 thin client only)
- rdesktop
- XDM
- Other

## Citrix ICA

Use the following tabs to configure a Citrix ICA connection:

- **Server:** Allows you to choose or add a server and to configure server location settings.
- **Applications:** Allows you to select applications by entering a command line.
- **Logon:** Allows you to specify logon information for connecting to a remote application.
- **Window:** Allows you to specify how the application window size and color.
- **Options:** Allows you to configure the following options:
  - Compress data stream
  - Use disk cache for bitmaps
  - Enable sound and adjust sound quality
  - Enable microphone input
  - Enable Speedscreen
  - Enable mouse click feedback
  - Local text echo
  - Configure encryption level
- **Firewall Settings:** Allows you to configure the proxy address and port.



## Firefox connection



### *Firefox Web connection*

The Firefox connection allows you to create a browser connection.



Web browser is available only for the HP Compaq t5515/t5525 thin client.

You must complete the following settings to configure this connection:

- **Name this connection:** Type a name to associate with this connection.
- **Start Page:** Enter the Web address to launch with this connection.

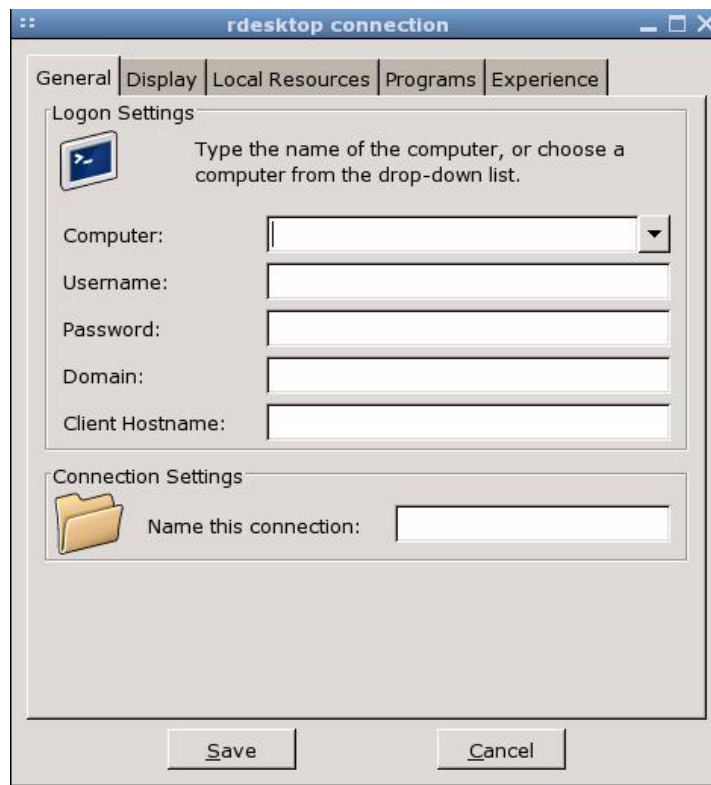
## rdesktop connection

This connection allows you to set up a remote desktop connection. rdesktop is an open source client capable of speaking Remote Desktop Protocol (RDP). Unlike Citrix ICA, rdesktop requires no server extensions.

You can configure the rdesktop connection using the following tabs:

## General

Allows you to select a remote computer and provide the logon credentials for accessing this computer.



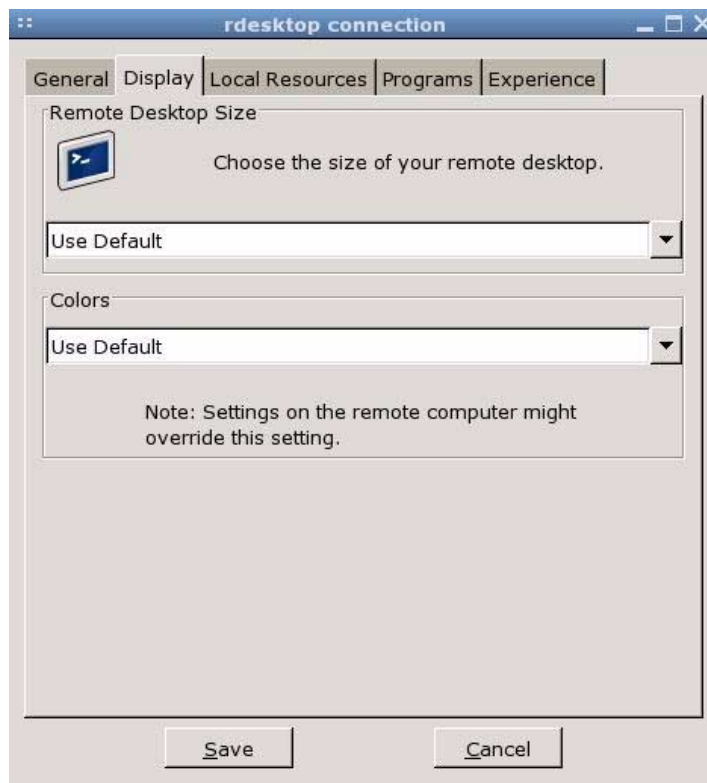
### General tab

To select a computer:

1. Type the computer name or select a computer from the drop-down menu.
2. Enter the username and password.
3. Enter the domain (optional).
4. In the **Client Hostname** box, type the hostname for the terminal services session. This entry allows you to dictate what is displayed when viewed shared resources.
5. In Connection Settings section, type a name for the connection.

## Display

Allows you to configure the size and color of the remote desktop.



Display tab

## Local Resources

Allows you to configure local devices.



### Local Resources tab

This window allows you to configure the following:

- Remote computer sound and the keyboard language. You can play the remote computer's sound on your thin client, play no sound at all, or leave the sound at the remote computer.
- The desired keyboard language.

- Connection to the following local devices:
  - disk drives - Type the path or symbolic link.
  - printers - Type the path to the printer.
  - parallel ports - Type the location of the physical device. The default is **/dev/lp0**.
  - serial ports - Type the location of the physical device. The default is **/dev/tty50**.

For more information, type the **rdesktop** command in the console.

---



To forward rdesktop connections, HP recommends redirecting from /tmp/shared/ for hard drives and disks-on-key. As you add and remove devices, the system automatically creates links in this location. This setting is valid only for the session during which it was created.

---

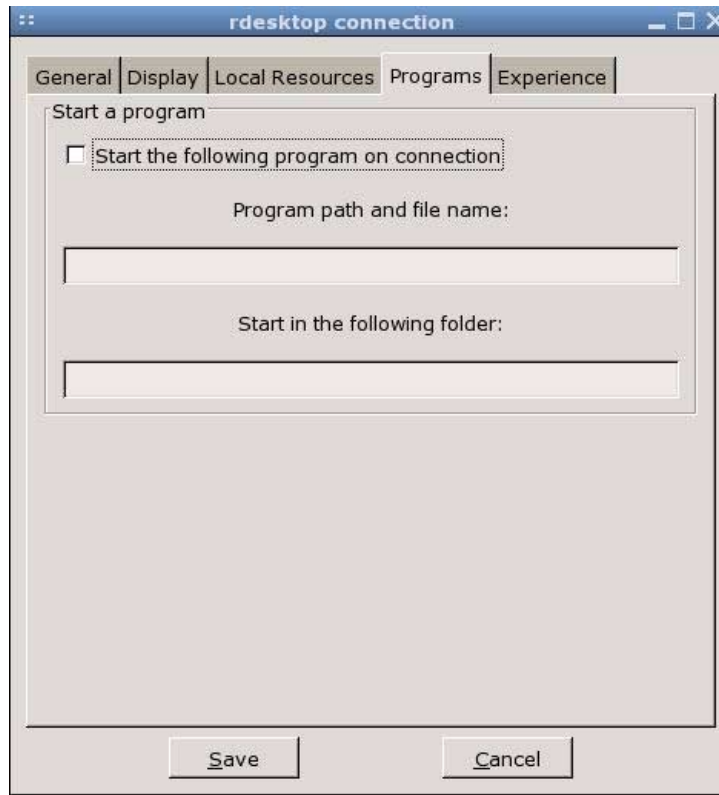


CD-ROM forwarding is not supported.

---

## Programs

Allows you to launch programs through the remote desktop connection.



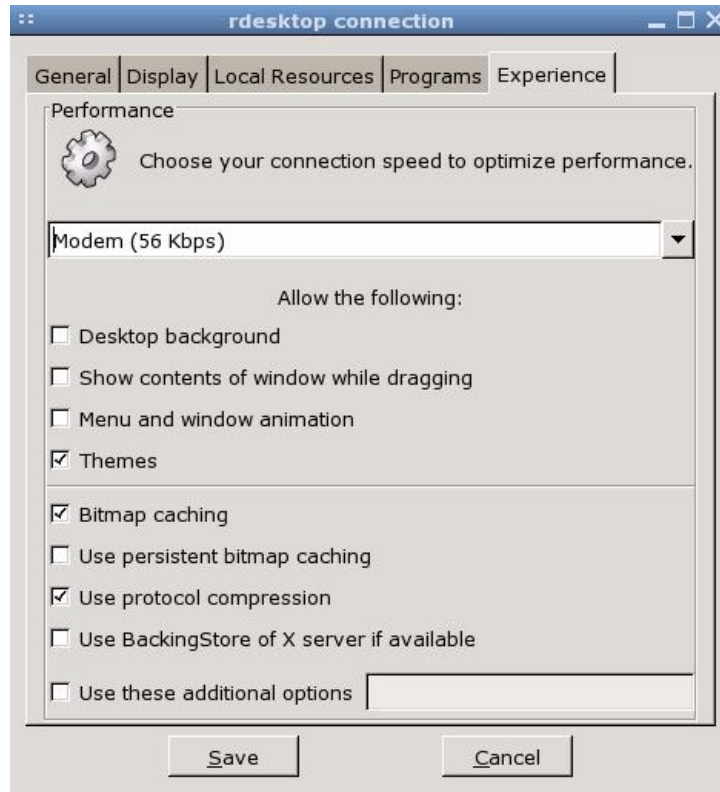
### Programs tab

To launch a program:

1. Select **Start the following program on connection**.
2. Type the program path and file name.
3. Type the folder from which you want the program to launch.
4. Click **Save**.

## Experience

Allows you to configure the thin client desktop and performance factors.



### Experience tab

You can configure the following:

- **Choose your connection speed:** Select the speed at which the thin client connects.
- **Desktop background:** Select to allow a desktop background to display.
- **Show contents of window while dragging:** Select to allow the contents of windows to display when you drag the window.

- **Menu and window animation:** Select to allow menu and window animation.
- **Themes:** Select to allow themes.
- **Bitmap caching:** Select to allow bitmap caching, which places commonly used bitmaps in a file on the thin client. This process improves performance by minimizing the amount of display information that must be passed over a connection.



---

Depending upon connection configuration, selecting **Bitmap caching** may or may not improve performance.

---

- **Use persistent bitmap caching:** Select to allow persistent bitmap caching, which stores bitmaps that are sent from the server on permanent media, such as a hard disk. Upon connection, the thin client informs the server of the bitmaps it has so that the server does not have to resend them.



---

Depending upon connection configuration, selecting **use persistent itmap caching** may or may not improve performance.

---

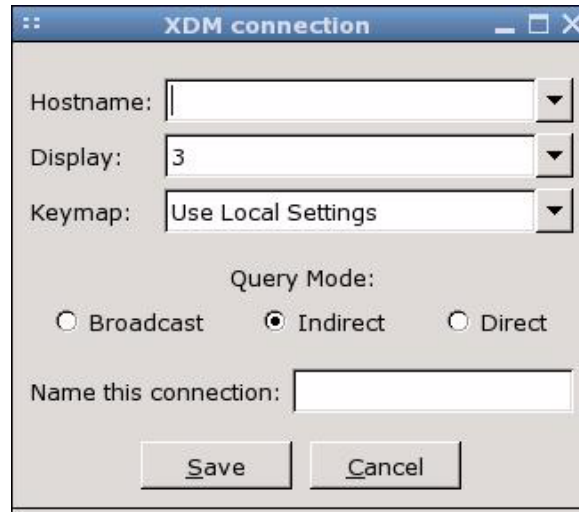
- **Use protocol compression:** Select to enable protocol compression, which makes communication between computers faster.
- **Use BackingStore of X server if available:** Select to enable BackingStore. A BackingStore contains the set of operations that can be performed on a JNDI Attributes. Java Naming and Directory Interface (JDNI) is a programming interface (API) that allows you to connect Java programs to naming and directory services such as DNS, LDAP, and NDS.
- **Use these additional options:** Select and populate to use additional rdesktop options.

For additional information, please visit the rdesktop Web site at:  
<http://www.rdesktop.org>



## XDM connection

The X Display Manager (XDM) connection window allows you to create and configure an XDM connection.



*XDM Connection window*

The following is a list of configuration options:

- **Hostname:** Type the XDM server name or server IP address. For example, **corp-suse** or **150.0.0.30**.
- **Display:** Select the Linux display setting for this XDM connection to utilize. The display number determines which display to use. To switch displays, press **Ctrl+Alt+Function key** for the desired display. For example, press **Ctrl+Alt+F3** for display 3.
- **Keymap:** Select whether to use the language based on the local thin client settings, the server settings, or select a specific language.

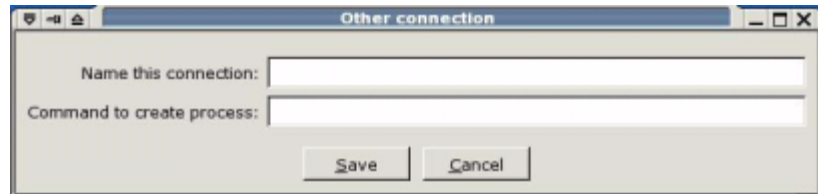
- **Query Mode:** Select the type of XDM connection:
  - Broadcast: Uses the first host that replies.
  - Indirect: Provides a list of available hosts.
  - Direct: Uses a single host.
- **Name this connection:** Type a name to associate with this XDM connection.

## Other

The Other connection dialog box allows you to run a command to create a connection.



If you are using HP Connection Administrator, you need to use a command such as **xterm -hold -e ls**, so the commands output is available in the xterm.



*Other connection window*

This chapter provides an overview of the Citrix (ICA) program. For more detailed help in configuring the Citrix client, see the *Clients for UNIX Administrator's Guide* at: <http://support.citrix.com/docs/>

## Introduction

The HP Linux thin client allows for the loading of different startup shells or user interfaces when the thin client boots. One of these shells is the Citrix ICA client.

You set the Citrix ICA client as the default shell for a variety of reasons. For example, you may require access to features, such as Citrix ICA PNAgent capability, that are not accessible from HP Connection Administrator.



*Citrix ICA Client for Linux window*

## Citrix (ICA)

The Citrix (ICA) program allows you to set up and configure Citrix ICA client connections.

### ICA Client Settings

To view or set the preferences for ICA, select **Tools > Settings**. From the Settings window, you can select keyboard layouts and types, enable or disable sounds, configure audio input, and allow automatic client updates.

### Preferences

From the Settings window, you can configure Window color and size, determine server location, configure hotkeys, configure or clear disk cache, map drives, add COM ports, configure firewall, enable auto reconnect, and configure PNA.

### Connection View

In Connection View, you can create, modify, or launch connections, and begin a session on a Citrix server. To access Connection View, click **View > Connection View**.

### Program Neighborhood Agent (PNAgent)

In PNAgent View, you can view and activate the applications that have been published in the “neighborhood” on a Citrix server or server farm. To access PNAgent View, click **View > PNAgent View**.

---

## XFce Settings Manager

This chapter provides an overview of the utilities in the XFce Settings Manager, which is the control panel for the Linux-based thin client image. You can use the utilities in the settings manager for local and remote administration.

You can open the XFce Settings Manager in any of the following ways:

- Click the **Settings** button on the HP Connection Administrator window.
- Click **GO**, and then select **Settings** (t5515/t5525 only).
- Right-click on the desktop and select **Settings**.



*XFce Settings Manager*

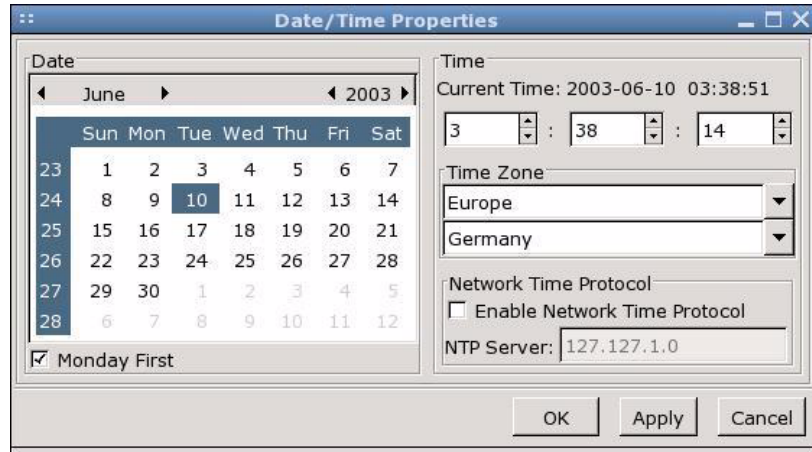


Icons in XFCE Settings Manager vary depending on whether the current user is logged in a root account. In addition, some icons require root user access.

---

## Date/Time

The Date/Time Properties utility allows you to set the date and current time, select the appropriate time zone, and enable NTP (Network Time Protocol).



*Date/Time Properties*

Use the values in the **Date**, **Time**, and **Time Zone** areas to select the appropriate date and time information. Select **Monday First** to configure the monthly calendar show Monday as the first day of the week.

## Enabling Network Time Protocol

NTP is a protocol designed to synchronize the clocks of computers over a network. There are numerous servers available on the Internet that are synchronized to Coordinated Universal Time (UTC).

To enable NTP:

1. Select **Enable Network Time Protocol**.
2. In the **NTP Server** box, type the IP address of the NTP server you want to use to set the time on the thin client. For NTP to function properly, the date on the thin client must match the date on the server.
3. Click **Apply**.

## Configuring the system hardware clock from BIOS

You can set the system hardware clock to your local date and time using the BIOS setup utility as follows:

1. Reboot the system and press **F10**.
2. After the Setup utility displays, press **Esc**.
3. Select the standard CMOS features option, and then press **Enter**.
4. Set the date and time using the **Page Up** and **Page Down** keys.
5. To save the changes, press **F10**, and then press **Enter**.

## Desktop: backdrop

You can use the Background Settings utility to change the backdrop color or to browse for an image to use as the desktop's backdrop.



---

You can change the background image to any .jpg or .png image.

---



*Background Settings*



## Using an image for your background

To change the background image:

1. From the XFce Settings Manager, click **Desktop: backdrop**.
2. Click **Browse**.
3. Locate and select a .jpg or .png image.
4. Click **OK**.

## Changing background color

To change the background color:

1. From the XFce Settings Manager, click **Desktop: backdrop**.
2. Click **Background color**.
3. Select the desired color, and then click **OK**.
4. Select **Use color only**.

## HP Desktop Options

The Linux-based image features the following desktop interface options:

- HP Connection Administrator
- Citrix ICA Client
- xfce (t5515/t5525 only)

HP Connection Administrator is the default interface. Desktop Options includes the features in the following sections.

## VNC Shadow

VNC Shadow allows the administrator to remotely observe or take control of the user's desktop.



### *HP Desktop Options*

- **VNC Shadow:** Select to enable remote access to the thin client.
- **Read Only Mode:** Select to prevent the remote access session from making changes to the unit.
- **Advise User of Monitoring:** Select to display a message that informs the logged on user that their session is about to be monitored. You can customize the message by typing text in the box. The user can click **okay** to allow monitoring, or close the dialog box to disallow monitoring.
- **Password Protect:** Select to require a password to remotely access the thin client.



The VNC Shadow password must be at least six characters long.

## TouchScreen

Select **Enable EloTouch** to enable support for an Elo touch screen.



*Touch Screen tab*

## USB Storage

Select **Enable USB Storage** to enable USB automounting and redirection on the thin client. USB automounting allows the thin client to automatically recognize USB devices plugged in to the USB port. USB redirection allows a remote session to access devices that you plug into your local thin client USB ports.

The thin client supports a maximum of five USB storage devices per session with the following mix:

Up to four simultaneous disk-on-key devices or hard drives and one CD-ROM. The thin client recognizes only the first partition of a USB hard drive. You can mount only one CD-ROM drive per session.



The thin client supports up to four USB devices; however, you can use a USB hub to access additional USB devices.

To view the files on the USB drive key, use the **ls** command.

To copy files to/from the USB drive key, use the **cp** command.

Examples:

- **cp /mnt/dok/printcap.txt /etc/printcap**
- **cp printcap /mnt/dok/printcap.1**

## FTP Updates

Use this window to enable automatic FTP updates as an alternative to Altiris Deployment Solution. Enabling this feature allows you to configure the thin client to check a specific ftp location for a newer image or package upon reboot.

If your network has an DHCP server that is configured to provide the following, then you only need to select **Enable Automatic FTP Update**:

- ftp server name
- path on server where the newer image is placed
- username and password that the unit can automatically log in to the ftp server to download the new image

If your network does not provide this information, along with selecting **Enable Automatic FTP Update**, you must fill in all the valid information in the FTP Updates dialog box.

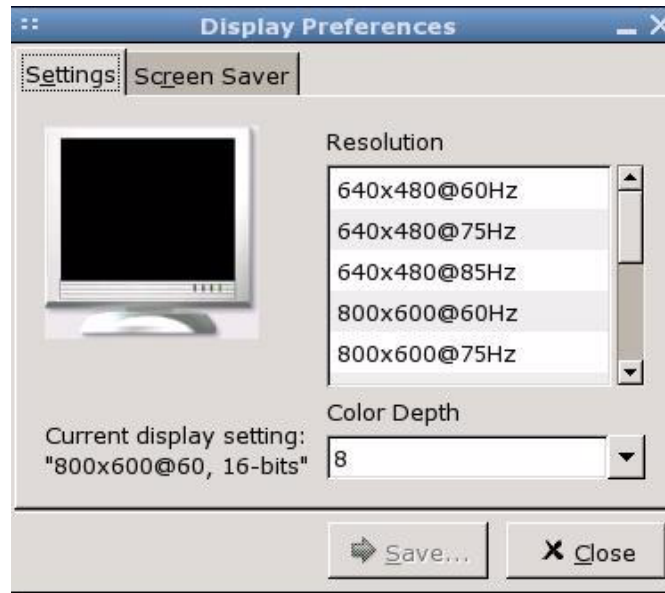


The screenshot shows a window titled "HP Desktop Options" with several tabs: "Shell", "VNC Shadow", "Touch Screen", "USB Storage", and "FTP Updates". The "FTP Updates" tab is active. It contains a checkbox labeled "Enable Automatic FTP Update". Below this are four text input fields: "FTP server", "Username", "Path on server", and "Password". At the bottom right, there are two buttons: "Cancel" (with a red X icon) and "OK" (with a green checkmark icon).

*FTP Updates tab*

# Display

The Display Preferences utility allows you to configure the monitor's screen resolution, color quality, and refresh frequency.



## *Display Preferences*

You must reboot the terminal or restart the session for the changes to take effect.

After you change display settings, the thin client allows you to test the settings. If the settings do not provide the desired results, you can cancel them to revert to the previous settings.

The default resolution is 800x600x16@60Hz.

The following table provides all available screen resolutions:

<b>Mode</b>	<b>Refresh Rate</b>	<b>Color Depth</b>
640 x 480	60, 75, or 85 Hz	8-, 16-, or 24-bit
800 x 600	60, 75, or 85 Hz	8-, 16-, or 24-bit
1024 x 768	60, 75, or 85 Hz	8-, 16-, or 24-bit
1280 x 1024	60, 75, or 85 Hz	8-, 16-, or 24-bit



---

If you select 32-bit resolution, the setting defaults to 24-bit.

---



---

If you configure the display settings out of range, you can reset to factory defaults by right-clicking the desktop, selecting **Settings > System**, and clicking the **Reset** button. This resets all configuration settings and connections.

---

## Screen saver

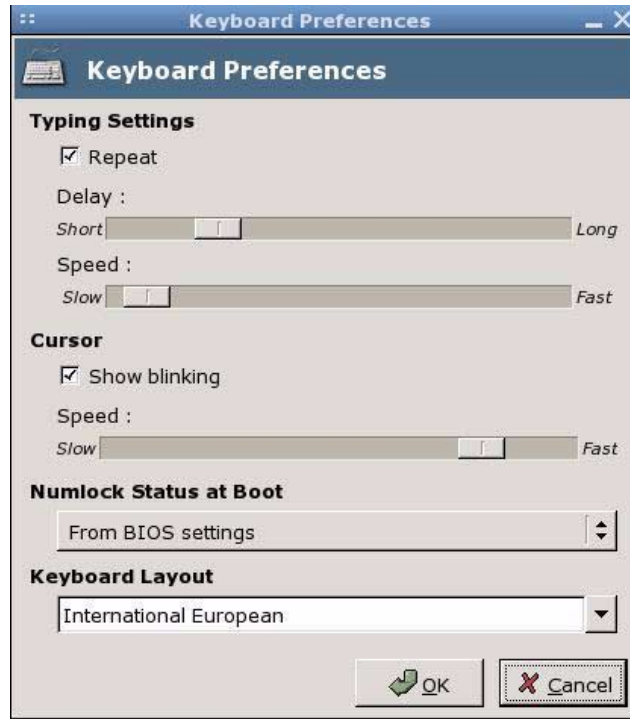
Select **Screen Saver** to enable and configure the screen saver. If you select **Password Protected**, the thin client uses your logon password as the screen saver password.



Screen saver

# Keyboard

The Keyboard Preferences utility allows you to select a keyboard language, keyboard character repeat parameters, and the Numlock setting.



## *Keyboard Preferences*

Changes to the keyboard language apply locally as well as on the remote computer.



Drivers for the various languages do not transfer to the remote computer; therefore, you must also install the drivers for the selected language on the remote computer.



## Mouse

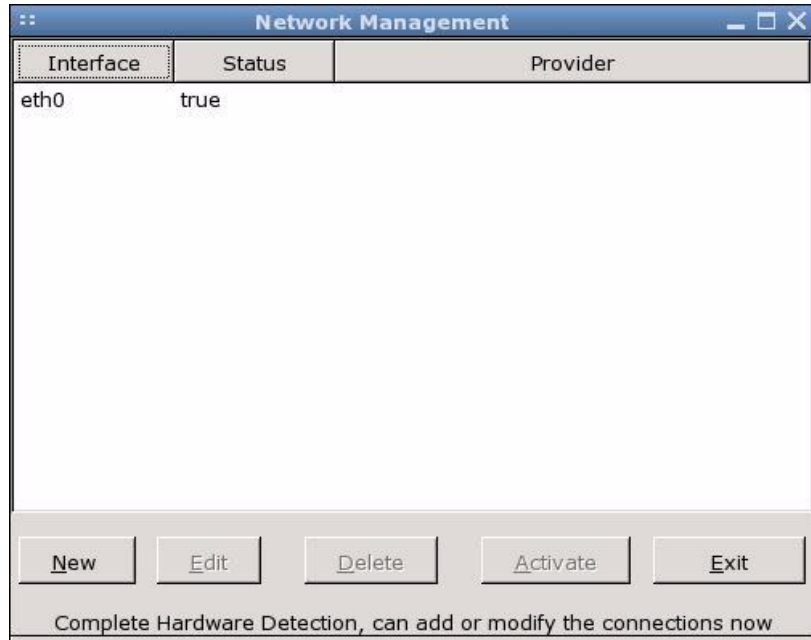
The Mouse Preferences utility allows you to set the mouse double-click sensitivity, speed, and drag and drop setting. You can also configure the mouse buttons for right-handed or left-handed users.



*Mouse Preferences*

## Network Management

The Network Management utility allows you to configure connectivity between the terminal and the Internet, a network, or a computer.



### *Network Management utility*

You can configure the following items in the Network Management utility:

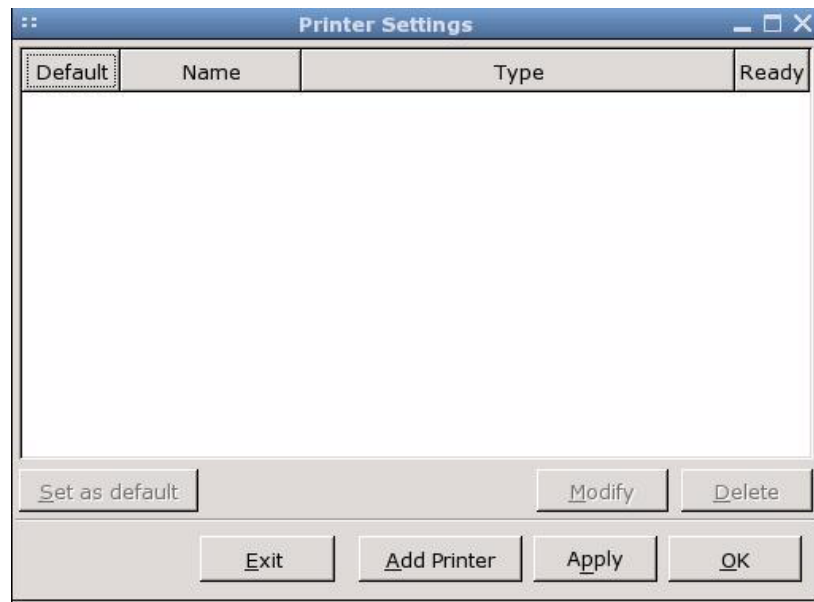
- Ethernet
- Token Ring
- Modem

## Printer Manager

The Printer Manager allows you to add a new printer and modify printer settings.



The pre-installed image includes only a generic printer device driver. You can add other printer device drivers. The Linux image provides for generic text support and postscript support. Other printers may be compatible and should be tested for initial compatibility prior to usage. For full printer feature support, you must install the appropriate printer device driver.



*Printer Settings window*

To add a printer:

1. Select Printer Manager from XFce Settings Manager.
2. Click **Add Printer**.
3. Select the printer type, and then click **Next**.
4. Type the printer location, and then click **Next**.

5. Configure the printer using the dialog box specific to the chosen printer type, and then click **Next**.
6. Type the printer name, alias, and description. All three fields provide different names you can use for the same printer.
7. Select **Do Local Filtering** and type the location of the local filter to convert files to the appropriate format for the printer.
8. At your discretion, click **Test Printing** to send a sample job to the printer.
9. Click **OK** to save changes.

## Security

The Security utility allows you to set a user to automatically log on at reboot.



### *Security utility*

To enable automatic logon for a user:

1. Select **Automatic Log On**.
2. In the **User Name** box, type the user name for which to set automatic log on at reboot.



To halt the automatic logon process so that you can enter a new username, repeatedly press the left **Shift** key at the beginning of the logon process.

---

## Sound

The Sound dialog box allows you to set the volume and microphone input volume for the thin client.

## System

The System utility allows you to view thin client manufacturer and product information, network settings, and copyright information. You can also reset the terminal to the default factory settings, adjust the memory allocated for storage and running programs, and enter a device name for network identification purposes.

## General tab

The General tab provides basic information about the client.



System window

You can reset to factory defaults by clicking **Reset** under Terminal Settings. Restoring factory defaults restores only the system level default settings. It does not reset any user account settings. You can manually reset user account settings using Console shell commands to clear user files in the “/home” folder.

## Network tab

The Network tab provides network identification and settings information.

System

General Network Copyrights About

Network Identification

These settings are used to identify your Linux device to other computers. Please type a name (without any space) and a short description.

Device Name: HP001438BBB65F

Device Description:

Network Settings

Network Card: eth0

MAC Address: 00:14:38:BB:B6:5F DHCP: Enable

IP Address: 192.168.0.2 Lease: 4294967295

Gateway: 192.168.0.1

Subnet Mask: 255.255.255.0

Default Domain: -

DNS Server(s): 192.168.0.1

Cancel OK

### Network tab

You can add a description for the thin client in the **Device Description** field. To add a description, type the description and click **OK**.

## Copyrights tab

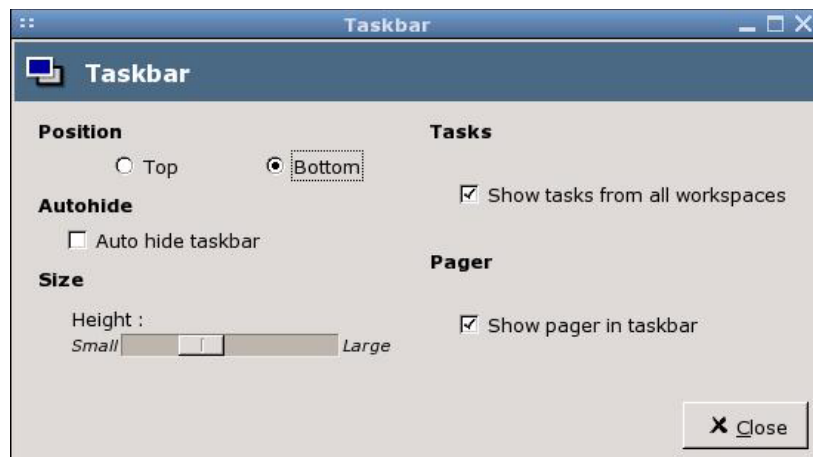
The Copyrights tab provides HP and Altiris copyright information.

## About tab

The About tab provides information on open source software package licenses.

## Taskbar

The taskbar contains the four separate workspace icons. each workspace can have different programs running. Click one of these icons to open a workspace (or session). The Taskbar utility allows you to change the position and size of the taskbar.



*Taskbar window*

You can configure the taskbar as follows:

- To display on either the top or the bottom of the screen, select the appropriate radio button under **Position**.
- To display all open tasks in the taskbar, select **Show tasks from all workspaces**.
- To display an icon that allows you to click each workspace (session), select **Show pager in taskbar**.

- To change the width of the taskbar, drag the bar left or right under **Size**.
- To hide the taskbar, select **Auto hide taskbar**. To display a hidden taskbar, move the mouse to the area of the screen where the taskbar is configured to display.

You can add or remove workspace icons from the taskbar by pressing the middle mouse button (scroll wheel) anywhere on the desktop. If you do not have a middle mouse button, you can add a workspace by pressing **Alt+Insert** or remove a workspace by pressing **Alt+Delete**.



When the taskbar is hidden, you can press the middle mouse button anywhere on the desktop to see the list of tasks that are running.

## User Management

The User Management utility allows you to create and modify user accounts and groups.

User Name	UID	Full Name	Primary Group
root	0	root	root
bin	1	bin	bin
daemon	2	daemon	daemon
adm	3	adm	adm
lp	4	lp	lp
sync	5	sync	root
shutdown	6	shutdown	operator
halt	7	halt	root
uucp	10	uucp	uucp
operator	11	Operator	root
nobody	65534	nobody	nobody
a	500	a	a
b	500	b	users

*User Management*



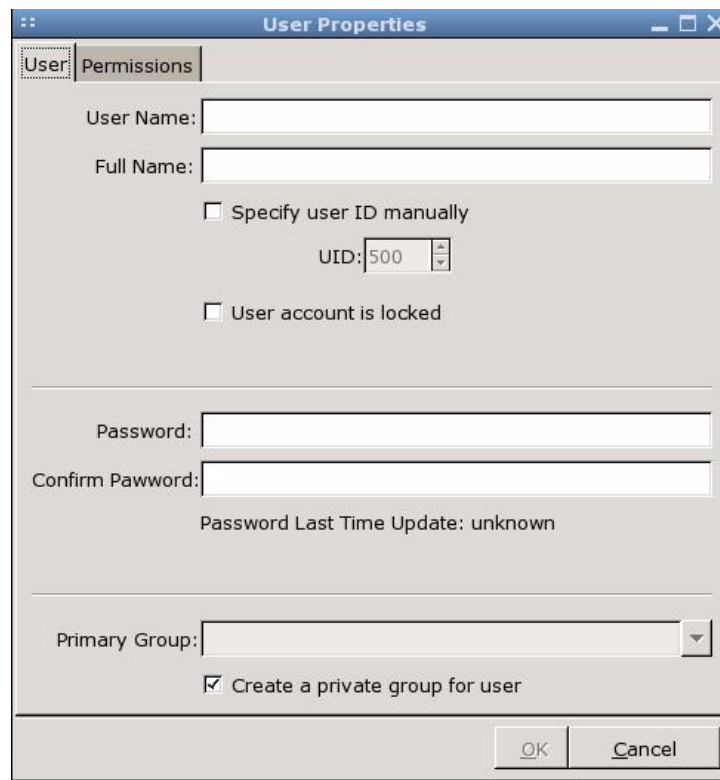
## Managing a user account

The following sections include instructions for adding, modifying, and deleting a user account.

### Add a user

To add a new user:

1. In the User Management window, click **User**.
2. Click **Add**, and then click the User tab.



The screenshot shows the 'User Properties' dialog box. The 'User' tab is active. The 'User Name' and 'Full Name' fields are empty. The 'Specify user ID manually' checkbox is unchecked, and the 'UID' spinner box is set to 500. The 'User account is locked' checkbox is also unchecked. The 'Password' and 'Confirm Password' fields are empty. The 'Password Last Time Update' is shown as 'unknown'. The 'Primary Group' dropdown is empty. The 'Create a private group for user' checkbox is checked. The 'OK' and 'Cancel' buttons are at the bottom right.

*User Properties window*

3. Type a user name and the associated user's full name.
4. If you want to manually specify a user ID, select **Specify user ID manually** and type or select the user ID in the **UID** box.

5. If you want the system to automatically assign a user ID, clear **Specify user ID manually**.
6. To lock the account, select **User account is locked**.
7. Type a password for the account in the **Password** and **Confirm Password** boxes.
8. To add the user to an existing group, type or select a group name in the **Primary Group** box.
9. Select **Create a private group for user** to place the user in a individual group specific to that user. Private groups provide an easy way to manage user settings.
10. Click **OK** to save changes.

## Modify a user account

To change user access:

1. In the User Management screen, select a user.
2. Click **Modify**. The User Properties dialog box opens. You may lock the user account, enable an account expiration date, or set a password.
3. Click **OK** to save changes.

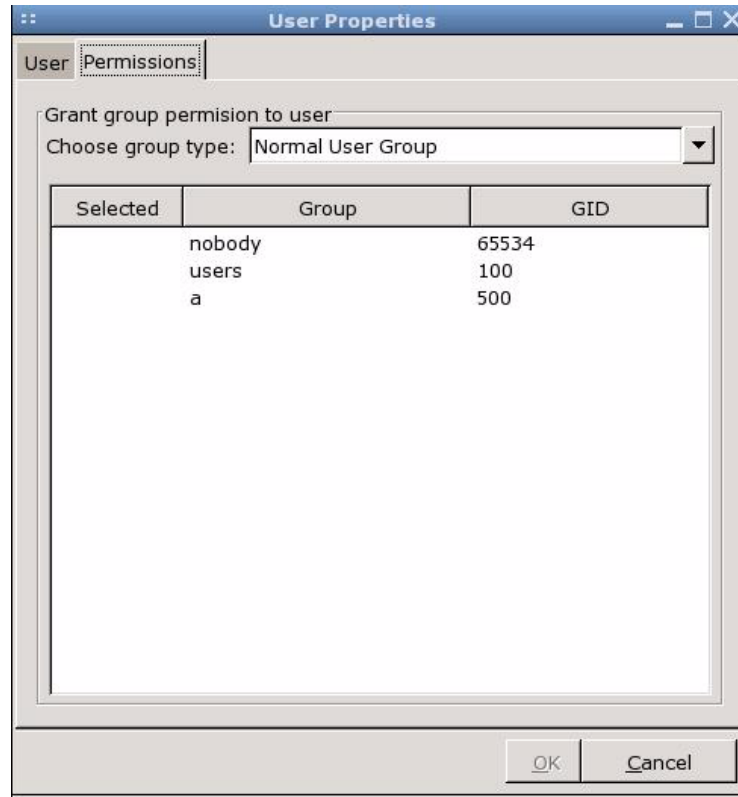
## Delete a user

To delete a user:

1. In the User Management screen, select a user.
2. Click **Delete**, and then click **OK** to save changes.

## Permissions

Click the Permissions tab to grant permissions to users.



### *Permissions window*

To grant permissions to a user:

1. In User Management, click the User tab.
2. Select the user to modify.
3. Click **Modify**.
4. Click the Permissions tab.

5. In **Choose group type**, select the group that includes the permission you want to add to the user.
6. Click the permission. **Yes** displays in the **Selected** column to indicate the user has that permission.
7. Click **OK**.

## User options

The “/etc” directory and the “passwd” file contain a list of defined users. You can use the **adduser** command to perform the following:

**adduser** [*OPTIONS*] **user\_name**

Option	Definition
"-h DIR	Assign home directory DIR
"-g GECOS	Assign gecos field GECOS
"-s SHELL	Assign login shell SHELL
"-G	Add the user to existing group GROUP
"-S	Create a system user (ignored)
"-D	Do not assign a password (logins still possible using ssh)
"-H	Do not create the home directory

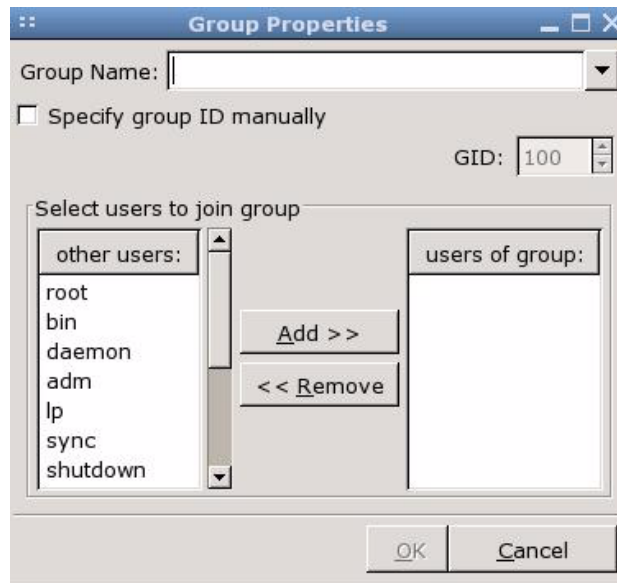
## Managing a group

The following sections include instructions for adding, modifying, and deleting a group.

### Adding a group

To add a new group:

1. In the User Management screen, click the Group tab.
2. Click **Add**.



*User Properties window*

3. In the **Group Name** box, type a group name.
4. If you want to manually specify a group ID, select **Specify group ID manually** and type or select the group ID in the **GID** box.
5. If you want the system to automatically assign a group ID, clear **Specify group ID manually**.

6. To add users to this group, select a user from the other users list, and then click **Add >>**.
7. To remove users from the group, select the user from the users of group list, and then click << **Remove**.
8. Click **OK** to save changes.

## Modifying a group

To change user access:

1. In the User Management screen, click the Group tab.
2. Type or select a group, and then click **Modify**.
3. To change the group ID, type or select a new ID in the **GID** box.
4. To add users to this group, select a user from the other users list, and then click **Add >>**.
5. To remove users from the group, select the user from the users of group list, and then click << **Remove**.
6. Click **OK** to save changes

## Deleting a group



---

You must delete all users from a group before you can delete the group.

---

To delete a group:

1. From the User Management screen, click the Group tab.
2. Select the group to delete, and then click **Delete**.
3. Click **Yes** to confirm.

## Adding a user to a group manually

BusyBox does not include a utility similar to `usermod`. As a result, you must edit the “`passwd`” file and correct the user's group id, as shown in the following steps:

1. Execute the **id** command using the user name.
2. Note the user id and group id displayed by the **id** command.
3. Change the directory to **/etc cd /etc**.
4. Open the group file using the editor **vi group**.
5. Find the group in the list and note its id number.
6. Close the editor using **:q!**.
7. Open the `passwd` file using the editor **vi passwd**.
8. Find the user id and changes its group id to match the desired group.
9. Save the edited file by using **:w**.
10. Close the edited file using **:q**.

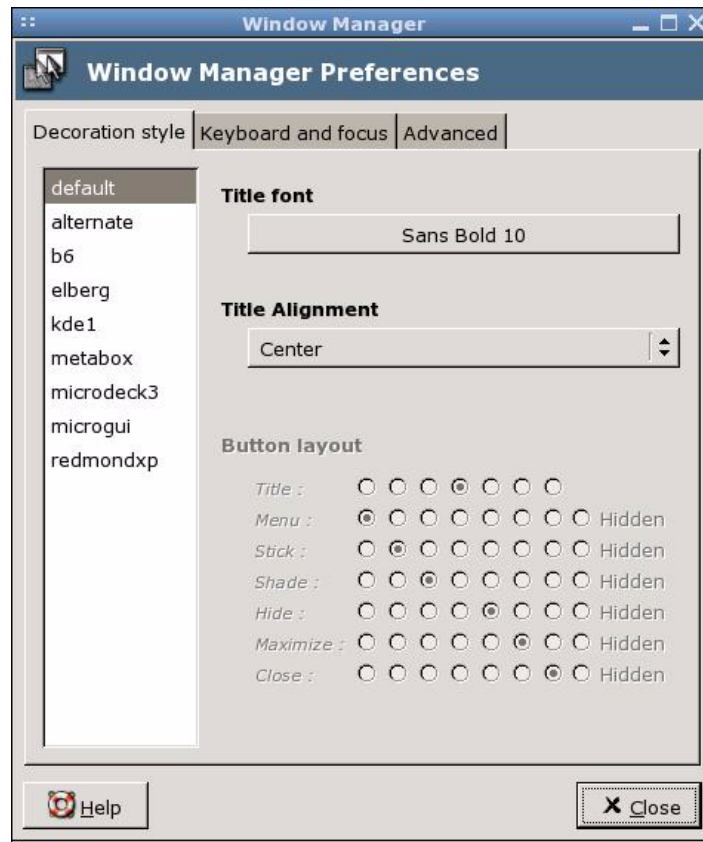
## Window Manager

The Window Manager Preferences utility allows you to configure preferences for windows that are opened on the desktop. The dialog box has three tabs:

- Decoration style
- Keyboard and focus
- Advanced

## Decoration style

The Decoration style tab allows you to configure title font, title alignment, application skin, and button layout.



*Decoration Style tab*

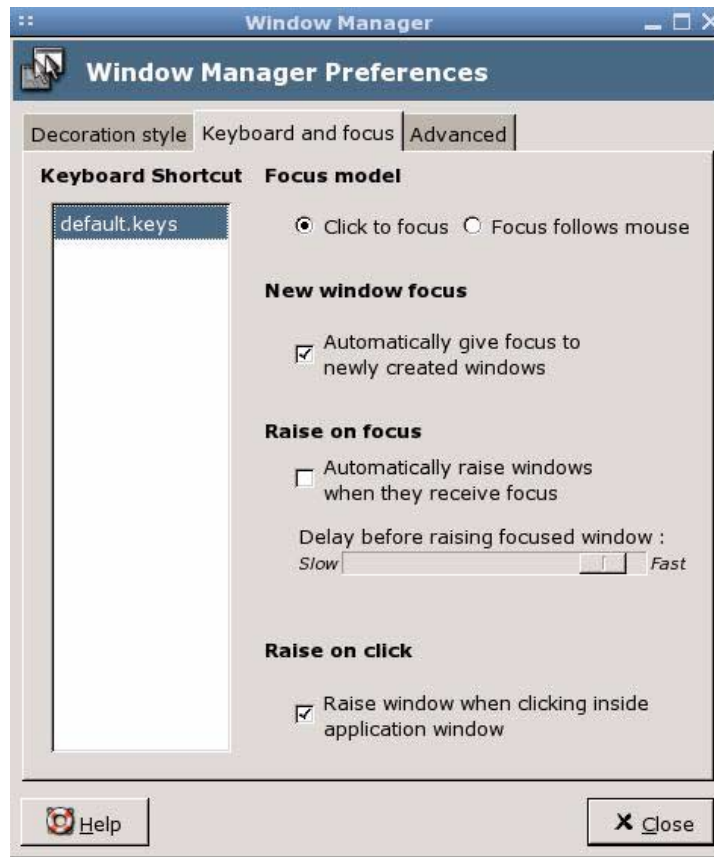


Do not select all items as hidden.



## Keyboard and focus

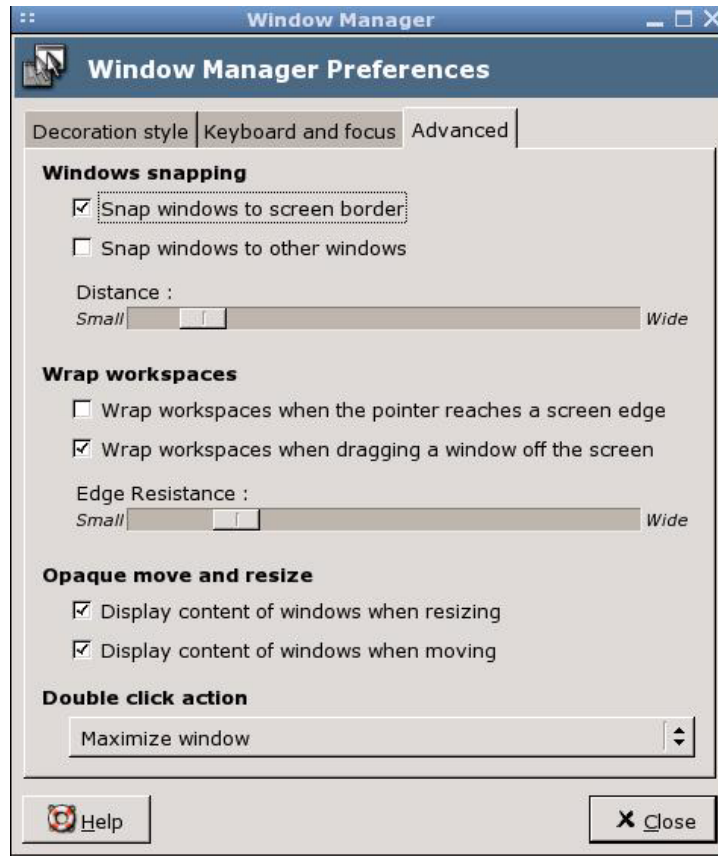
The Keyboard and focus tab allows you to set the focus for new windows. Focus refers to the component currently receiving input. For example, if focus follows the mouse, then if you move the mouse pointer over a window, the window receives the input.



*Keyboard and Focus tab*

## Advanced

The Advanced tab allows you to configure windows snapping and workspace wrapping.



*Window Manager Advanced tab*

## XFce Panel

The XFce Panel utility allows you to configure the appearance of the XFce Panel Bar, which is the desktop controller.

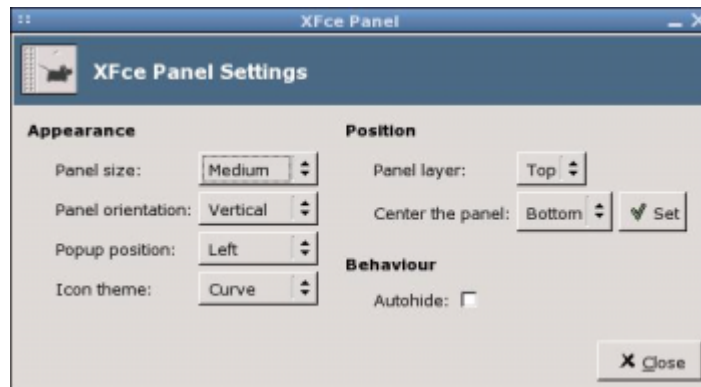


*XFce Panel Bar*



### Panel bar item configuration

You can add and remove items from the panel bar, as well as configure the items displayed. Use the right mouse button to access the menus that allow you to configure menu bar items.



*XFce Panel Settings window*

To remove an item from the panel bar:

» To remove an item, right-click the item and select **Remove**.

To add an item to the panel bar:

1. Right-click in the location on the panel bar in which you want to add the item, and then click **Add new item**.
2. Select the item to add to the panel bar.
3. Configure the item in the displayed configuration screen.



If the **Autohide** check box is selected, move the pointer to the bottom of the screen to display the XFce Panel Bar.



If you require support for your Linux-based thin client, contact your region's HP Technical Support Center. While HP provides support for Linux-based thin clients, HP does not provide technical support for the Linux operating system or application components that are obtained from the open source community.

Support contact information is available at the [Contact HP](#) link on the HP homepage or at:

[http://welcome.hp.com/country/us/en/contact\\_us.html](http://welcome.hp.com/country/us/en/contact_us.html)

## Hardware warranty

The hardware warranty is three years limited coverage and is upgradeable through the purchase of an optional HP Care Pack.

## Software warranty

The software warranty covers several features, including:

- Altiris Remote Management Client
- Citrix Client
- Network Management Applet

Note that Altiris is supported directly by Altiris, Inc. All other services and features are from open source community packages and are not supported by HP.

## Image updates and add-ons

HP provides periodic updates to the image, as well as add-ons. Check the HP support site for important documentation that provides specific information for your image version and for installing add-ons. You can find support documentation at:

[www.hp.com/support/](http://www.hp.com/support/)

To search for support documentation, enter your country and product name, and then click **Manuals**.

## Custom image requests

There are two methods for obtaining a custom image. You can use a custom image from HP, or you can develop your own image using a tool kit.

## HP-developed images

Contact your HP Account Team, which will work through the HP Specials Process to understand the opportunity, image requirements, schedule, and costs involved.

## Custom-developed images

HP has a partnership with Metrowerks, which uses an industry-recognized tool kit Platform Creation Suite (PCS) to develop and build images. PCS is a fee-based licensed product that you can obtain directly from the following Metrowerks Web site:

<http://www.metrowerks.com/MW/Develop/Embedded/Linux/hpthinclient.htm>

To assist you with starting a baseline code set, HP provides a Board Support Package (BSP) that contains all code packages that comprise the Linux image. The majority of the code packages are provided as open source, while a few of the packages are in object form due to their proprietary licensed nature. You can also get the HPBSP directly from the Metrowerks Web site upon registration. PCS tool kit sales, fulfillment, support, and maintenance is provided by Metrowerks.

---

## Availability of Linux open source code

If your HP thin client shipped with Linux, you can get the source code using one of the following methods:

- Internet download at:  
<http://www.metrowerks.com/MW/Develop/Embedded/Linux/hpthinclient.htm>



You must register prior to downloading the source code.

---

- On media by mail:

Source code is available only on recordable media. To obtain the media, contact your local HP Customer Support Center. HP may charge a nominal fee for the media.

## Additional Linux resources on the Web

Busy Box: [www.busybox.net](http://www.busybox.net)

Linux Online: [www.linux.org](http://www.linux.org)

Linux.com: [www.linux.com](http://www.linux.com)

Linux on Laptops: [www.linux-laptop.net](http://www.linux-laptop.net)

Linux Security: [www.linuxsecurity.com](http://www.linuxsecurity.com)

Linux Journal: [www.linuxjournal.com](http://www.linuxjournal.com)

Linux Gazette: [www.linuxgazette.com](http://www.linuxgazette.com)

XFCE: [www.xfce.org](http://www.xfce.org)

HP white papers: [www.hp.com/support/](http://www.hp.com/support/). To search for white papers, enter your country, product name, and click **Manuals**.





---

## Frequently Asked Questions

### Linux operating system

#### How do I tell what the Linux image version/build number is?

To obtain the Linux image version, click **GO > Settings > System > General** or right-click on the desktop and select **Settings > System/General**. The General dialog box provides system information, including the image version. The image designation format is as follows:

- L4ST31xx : is the 256MB flash memory image and includes the Firefox browser.
- L3ST31xx : is the 128MB flash memory image and includes the Firefox browser.
- L1ST31xx : is the 32 MB flash memory image on the t5125.

where xx represents the image build number. The original factory image is L1ST3138.

#### How and where is the Linux image stored in flash memory?

The image is stored in various formats. The boot up process decompresses and loads certain portions of the image in RAM. Some features and aspects of the image are not loaded until they are needed. The image is stored in the following three partitions:

/dev/hda1 - ext2 - boot loader

/dev/hda2 - cramfs - majority of the image

/dev/hda3 - ext2 - optional components and home directories

## System Administrator

### How are users managed?

A System Administrator creates new user accounts and assigns users to groups. The image provides the System Administrator with two different methods to manage users:

- The User management utility, accessible by clicking **Settings > User management**.
- Standard command-line tools to manage users - all from the Console command shell's BusyBox. Letter case matters when using command line names and option switches.

### How do you prevent a user account that is set to auto logon from being logged in?

Press the left **Shift** key as soon as the login screen displays.

### How are groups created using BusyBox?

The System Administrator uses the **addgroup** command to create a new group on the t5525.

The /etc directory and the "group" file contain a list of defined groups. The **addgroup** command overview follows:

**addgroup [-g GID] group\_name [user\_name]**  
**"-g GID specify Group ID (gid)**

### How are file permissions handled using BusyBox?

The Linux operating system uses file permissions as its basis for security. A Linux operating system considers all resources and directories as files within the security structure. File permissions determine each file's read, write, and execute permissions for all users and groups on the system. Under Linux permissions, these are in three groups - owner, group, and others. Each group has three permission options - read, write, and execute.

## How do you change file permissions using BusyBox?

To change the permission options the System Administrator uses the **chmod** command. An overview of the **chmod** command follows.

**chmod [-R] MODE[,MODE]... FILE...**

Each **MODE** is one or more of the letters **ugo**, one of the symbols + or -=, and one or more of the letters **rxwst**="= . You can also set the permissions using an octal numeric based code, where 4 equals *read*, 2 equals *write*, and 1 equals *execute permissions*.

### Options:

-R Changes files and directories recursively.

## How is changing ownership handled using BusyBox?

The system administrator uses the **chgrp** command to assign group ownership to a file or resource. An overview of the **chgrp** command follows.

**chgrp [OPTION]... GROUP FILE...**

Change the group membership of each *file* to *group*.

### Options:

-R Changes files and directories recursively.

# System Management

## How do you configure the system hardware clock?

Set the system hardware clock using the BIOS setup utility:

1. Reboot the system and press **F10**.
2. After the Setup utility displays, press **Esc**.
3. Select the standard CMOS features option and press **Enter**.
4. Set the date and time using **Page Up** and **Page Down**.
5. To save the changes, press **F10** and **Enter**.

## How do you configure the date and time?

The Date and Time management GUI applet provides an easy method for managing the date and time. You can configure the date, time, time zone, and network time protocol (NTP). The Applet is launched by clicking **GO > Settings > Date/Time**.

## How do you change the boot order?

Run the BootOrder utility to alter the order of the boot up device. The utility is installed with the standard image.

To run the BootOrder utility, perform the following steps:

1. Right click on the desktop and select **Console**.
2. To use the BootOrder utility, execute **cd /opt/hp/**, then type **./hpbootorder** (without parameters) and follow the listed options. To use the RepSet utility, execute **./hprepset** (without parameters) and follow the listed options.

## How do you synchronize the BIOS and system time?

To synchronize the BIOS and system time, use the **hwclock** command. This command allows you to either synchronize the BIOS time to the system time, or synchronize from system time to BIOS time. This command without any parameters displays the current date and time.

**hwclock [-r|--show] [-s|--hctosys] [-w|--systemhct] [-l|--localtime] [-u|--utc]**

Query and set the hardware clock (RTC).

**Options:**

<b>Options</b>	<b>Description</b>
-r	Read hardware clock and print result
-s	Set the system time from the hardware clock
-w	Set the hardware clock to the current system time
-u	The hardware clock is kept in coordinated universal time
-l	The hardware clock is kept in local time

## VNC

### How is the VNC password reset?

The system stores the VNC server password in encrypted form in a hidden directory named “.vnc” in the user’s home directory. For example, the system stores the password for user “fred” at: `/home/fred/.vnc/passwd`.

If you delete the `passwd` file to reset the password, the system prompts the user for a new password the next time the VNC server is started. The password must be six to eight characters long.

## General

### Are there any hotkeys?

Yes, see the following table:

Key Combination	Action
Ctrl+Alt+Backspace	Logs off the current session and displays the login dialog. If the client is set to auto logon, the auto logon completes.
Ctrl+Alt+Delete	Locks the screen. Entering any character displays the locked screen dialog and requests the password for the user that locked the screen.
Ctrl+Alt+Home	Switches virtual desktop workspace. The desktop focus is moved through the four workspaces. Clicking on an open area of the desktop and using the wheel on a wheel mouse causes the same action.
Alt+Tab	Switches the active application focus.
Alt+F1	Launches the Firefox browser for HP Help. (Available only for the L3ST20xx 128MB flash memory image)
Alt+F2	Launches the Run program dialog. This dialog is similar to the Run dialog in Windows. Enter the desired command line and click <b>Run</b> . (Requires models with browser.)
Alt+F4	Terminates the current application.
Alt+F5	Toggles an application between full screen display and standard display modes.
Alt+F6	Maximizes vertical on screen.
Alt+F7	Maximizes horizontal on screen.
Alt+F8	Minimizes panel on screen.

## Are the Function keys operational?

Yes, they are operational during the pre-boot process as follows:

Ctrl+Alt+Backspace	Logs off the current session and displays the login dialog. If the client is set to auto logon, the auto logon completes.
Ctrl+Alt+Delete	Locks the screen. Entering any character displays the locked screen dialog and requests the password for the user that locked the screen.
Ctrl+Alt+Home	Switches virtual desktop workspace. The desktop focus is moved through the four workspaces. Clicking on an open area of the desktop and using the wheel on a wheel mouse causes the same action.
F1	No action
F2	No action
F3	<p>Three separate results dependent on when in the boot process <b>F3</b> is pressed:</p> <p><b>Break out of auto logon:</b> Press <b>F3</b> within 1-2 second after the logon prompt displays to break out of an automatic logon during boot. The logon process stops and the dialog waits for a user name and password.</p> <p><b>Full screen X Terminal:</b> Press and hold <b>F3</b> during the boot process to prevent the launch of the Linux desktop GUI and display a full screen xterm window. Use <b>F3</b> during the boot when you want to launch a dedicated X terminal session.</p> <p><b>Display boot process messages:</b> Press <b>F3</b> after the splash screen displays to escape out of the splash screen. The boot messages and progress indicators display.</p>
F4	No action
F5	No action
F6	No action
F7	No action
F8	No action
F9	No action

---

Ctrl+Alt+Backspace	Logs off the current session and displays the login dialog. If the client is set to auto logon, the auto logon completes.
F10	Invokes the BIOS Setup utility during the boot process.
F11	No action
Ctrl+Alt+Backspace	Logs off the current session and displays the login dialog. If the client is set to auto logon, the auto logon completes.

---

### **The wrong characters display when I use the keyboard?**

Click **GO > Settings > Keyboard**. Make sure the correct keyboard is selected under **Keyboard Layout**.

## **Manageability**

### **Are there any updates necessary for Altiris Deployment Server to work on an HP Compaq t5125/t5515/t5525 thin client?**

Yes. There is a hotfix available from Altiris which includes updates to the imaging process and the DOS agent Bootwork.exe. This hotfix includes a sample script that allows capture and deployment of images using Rdeployt.exe, as well as a new Bootwork.exe file that recognizes the bootloader in the image. This hotfix is available from the Altiris Web site support page.



## What are the steps to capture and deploy an image on an HP Compaq t5125/t5515/t5525 thin client?

The t5525 supports the Linux version of the Altiris Remote Management Client. Altiris management software allows you to remotely capture and deploy Linux images. You can use the Altiris Rdeploy tool, a text-base utility, to perform this function.

### Capturing an Image:

#### HP Compaq Thin Client Actions (Required)

1. Reboot the client and launch the **F10** System Configuration Setup Screen.
2. Select the **Advanced BIOS Features** option and press **Enter**.
3. Select the **First Boot Device** option and press **Enter**.
4. Select the **Network** option and press **Enter**.
5. Press **F10** to save the configuration.
6. Press **Enter** to save and exit.

#### Altiris Deployment Server Console Actions

1. Double-click the **Deployment Server Console** icon from the desktop to open the Deployment Server Console.
2. Right-click on the lower left window and select **New Job**.
3. In the empty box, type Image Capture and press **Enter**.
4. From the upper right window, click **Add**.
5. From the drop-down menu, select **Run Script**.
6. In the Run this Script window, type the following command:  
**rdeployt -mu -raw -f.\images\test.img**



---

**test.img** is used for this example. You may select any name for the .img file.

---

7. Select the **DOS** radio button from **In which OS would you like to run this script?**

8. Click **Finish**.

You can drag and drop this job to any Linux unit to capture its image.

## How is an image deployed using Altiris?

An image can be deployed by performing the following steps:

### HP Compaq Thin Client Actions (Required)

1. Reboot the client and launch the F10 System Configuration Setup Screen.
2. Select the **Advanced BIOS Features** option and press **Enter**.
3. Select the **First Boot Device** option and press **Enter**.
4. Press **F10** to save your configuration
5. Press **Enter** to save and exit.

### Altiris Deployment Server Console Actions

1. Double-click the **Deployment Server Console** icon from the desktop to open the Deployment Server Console.
2. Right-click the lower left window and select **New Job**.
3. From the empty box, type Image Deployment and press **Enter**.
4. From the upper right window, click **Add**.
5. From the drop-down menu, select **Run Script**.
6. From the **Run this Script** window, type the following command:  
**rdeployt -md -raw -f.\images\test.img**



**test.img** is used for this example. You may select any name for the .img file.

---

7. Select the **DOS** radio button from **In which OS would you like to run this script?**
8. Click **Finish**.
9. To deploy an image, you can drag and drop this job to any HP Compaq Linux thin client.

### **How can a factory image be restored locally?**

A factory image can be restored locally using USB drive key or USB CD-ROM. Instructions for this procedure are available on the HP Compaq Thin Client Linux Image SoftPaq.

### **Can you capture and deploy settings separately from an image?**

Yes. HP has developed custom scripts for Altiris that capture system settings and defined HP Connection Administrator connections from a source HP Compaq Linux thin client system through the Altiris deployment console. You can then deploy these captured system settings and connections out to a target HP Compaq Linux thin client system through the Altiris deployment console. For more information, see the white paper entitled, "Altiris Manageability Scripts for HP Compaq Linux Thin Clients" at <http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00448511/c00448511.pdf>

### **Are there other management methods available from HP to manage HP Linux thin clients?**

Yes. Beginning with Linux image version L1ST3149, L3ST3149, L4ST3149, you may update images using new HP FTP image update and DHCP image update for HP Linux thin clients. For more information, see the white paper entitled, "FTP/DHCP Image Update for HP Linux Thin Clients" available on the [www.hp.com](http://www.hp.com) product support site.



---

## Troubleshooting

Review the solutions to the following issues that may arise on the thin client.

### *Issue*

You add a rdesktop connection with the default settings, and then change the video size to 200 percent or to full screen on Media Player, and no video displays.

### *Solution*

1. In HP Connection Administrator, select the connection, and then click Edit.
2. Click the Experience tab.
3. Clear **Bitmap caching** and **Use persistent bitmap caching**.

### *Issue*

You cannot print a large job to local printers in rdesktop sessions.

### *Solution*

This issue may occur if a large volume of documents or an individually large document is sent to the local printer. Try to send large documents to a printer that is not connected locally to the thin client. If you want to print multiple documents, allow the print queue to clear before submitting the documents.

*Issue*

You cannot print large jobs to local printers from an ICA session.

*Solution*

This issue may occur if a large volume of documents or an individually large document is sent to the local printer. Try to send large documents to a printer that is not connected locally to the thin client. If you want to print multiple documents, allow the print queue to clear before submitting the documents.

---

# Index

## A

- adding
  - connections 2–12
  - groups 4–25
  - groups using BusyBox 6–2
  - printer 4–15
  - users 4–21
  - users to a group manually 4–27
- Advanced Configuration utility 2–3
- Altiris
  - deploying images 6–10
  - FTP alternative 4–8
  - hotfix 6–8
  - remote image capture 6–9
  - remote image deployment 6–9
  - remote management 1–2
  - warranty 5–1
- animation, menu and window 2–22
- assigning connections to users 2–5
- Auto check box 2–4
- automatic connections 2–4, 2–6
- automatic logon 4–16
- automounting 4–7

## B

- backdrop 4–4
- background
  - color 4–5
  - desktop 2–21
  - image 4–5
  - settings 4–4

- BackingStore 2–22
- BIOS version 4–17
- bitmap caching 2–22
- Board Support Package 5–2
- boot order
  - changing 6–4
- BSP 5–2
- BusyBox 1–6
  - changing file permissions 6–3
  - changing ownership 6–3
  - file permissions handling 6–2
  - Web site 5–3

## C

- capturing images 6–9
- changing
  - boot order 6–4
  - ownership 6–3
- Citrix 1–7, 2–9, 2–14, 3–1
- Citrix settings
  - COM ports 2–12
  - drive mapping 2–11
  - firewall settings 2–14
  - hotkeys 2–10
  - keyboard 2–10
  - server location 2–9
- COM ports 2–12
- configuring
  - automatic connections 2–6
  - automatic logon 4–16
  - available connections 2–3

- Citrix connections 2–14
- Citrix settings 2–9
- COM ports 2–12
- connections 2–1, 2–6
- date and time 6–4
- disk drives 2–19
- display 4–9
- drives 2–11
- Firefox 2–15
- global UI Kiosk settings 2–8
- groups 4–20
- hotkeys 2–10
- keyboard 4–12
- keyboard preferences 2–10
- mouse 4–13
- network 4–14
- other connection types 2–24
- parallel ports 2–19
- primary connections 2–6
- printer manager 4–15
- printers 2–19
- rdesktop connections 2–15
- secondary connections 2–6
- serial ports 2–19
- sound 4–17
- system hardware clock 4–4, 6–3
- taskbar 4–19
- USB storage 4–7
- user accounts 4–20
- user connections 2–4
- Window Manager 4–27
- XDM 2–23
- XFce panel 4–31
- connection types 2–13
  - Citrix ICA 2–14
  - Firefox 2–15
  - other 2–24
  - rdesktop 2–15

- XDM 2–23
- connections
  - adding, editing, deleting 2–12
  - assigning to users 2–5
  - automatic 2–6
  - configuring available 2–3
  - configuring user 2–4
  - primary 2–6
  - secondary 2–6
- Console 1–6
- CPU speed 4–17
- custom-developed images 5–2

## **D**

- date and time 4–3
  - configuring 6–4
  - Network Time Protocol 4–3
- decoration style 4–28
- default
  - domain 4–18
  - password 1–1
  - user account 1–1
- deleting
  - connections 2–12
  - groups 4–26
  - users 4–22
- deploying images 6–9
  - Altiris 6–10
- desktop 4–4
- device name 4–18
- DHCP 4–18
- disk drive configuration 2–19
- display 4–9
- DNS server 4–18
- drive mapping 2–11

## **E**

- EloTouch 4–7
- enabling USB 4–7



**F**

- FAQs 6–1
  - general 6–6
  - Linux operating system 6–1
  - manageability 6–8
  - system administrator 6–2
  - system management 6–3
  - VNC 6–5
- file permissions 6–2, 6–3
- filtering 4–16
- Firefox 1–7, 2–15
- flash memory 4–17
- focus 4–29
- forwarding rdesktop connections 2–19
- frequently asked questions 6–1
- FTP updates 4–8
- function keys 6–7

**G**

- gateway 4–18
- general FAQs 6–6
- global Citrix settings 2–9
- global UI Kiosk settings 2–8
- GO button 1–4
- granting user permissions 4–23
- group ID 4–25
- groups 4–25
  - adding 4–25
  - adding users 4–27
  - adding using BusyBox 6–2
  - deleting 4–26
  - modifying 4–26

**H**

- hardware warranty 5–1
- hotkeys 2–10, 6–6
- HP Connection Administrator 1–7, 2–1
- HP Desktop Options 1–8, 4–5
- HP-developed images 5–2

**I**

- ICA 1–7
- ICA Client Settings 3–2
- image 1–10
  - capturing 6–9
  - custom-developed 5–2
  - deploying 6–9
  - HP-developed 5–2
  - location 1–10, 1–11
  - restoring locally 6–11
  - version 4–17
- input volume 4–17
- IP address 4–18

**K**

- keyboard 4–12, 4–29
- keyboard preferences 2–10
- keymap 2–23
- Kiosk 2–8

**L**

- launching programs thru rdesktop 2–20
- Linux
  - image 1–10
  - image location 6–1
  - kernal 4–17
  - operating system FAQs 6–1
  - source code 5–3
  - version/build number 6–1
  - Web sites 5–3
- list of
  - available connections 2–3
  - connections for user 2–2
  - rdesktop commands 2–19
  - user connections 2–4
- locking user accounts 4–22

**M**

MAC address 4–18  
manageability FAQs 6–8  
managing 4–25

- groups 4–25
- users 6–2

memory 4–17  
Metrowerks 5–2  
microphone volume 4–17  
modifying

- background color 4–5
- connections 2–12
- groups 4–26
- users 4–22

monitoring, VNC 4–6  
mouse 4–13

**N**

network management 4–14  
network settings and information 4–18  
Network Time Protocol 4–3  
NTP 4–3

**O**

opening Settings Manager 4–1  
ownership

- changing 6–3

**P**

parallel port configuration 2–19  
password

- default 1–1
- resetting VNC 6–5
- screen saver 4–11

PCS 5–2  
persistent bitmap caching 2–22  
Persistent check box 2–4  
Ping First check box 2–3  
Platform Creation Suite 5–2  
PNAgent 3–2

Primary check box 2–4  
primary connections 2–6  
printer

- filtering 4–16

printer configuration 2–19  
printer manager 4–15  
printer, adding 4–15  
printing large jobs 7–1  
processor type 4–17  
Program Neighborhood Agent 3–2  
Prompt check box 2–4  
protocol compression 2–22

**Q**

Query Mode check box 2–24

**R**

rdesktop 2–15

- connection settings 2–21
- display settings 2–21
- launching programs 2–20
- list of commands 2–19
- Web site 2–22

redirection 4–7  
release date 4–17  
resetting VNC password 6–5  
restoring factory image 6–11  
Run Browser In Kiosk Mode check box 2–8

**S**

screen resolutions 4–10  
screen saver 4–11  
secondary connections 2–6  
security

- configuring security 4–16
- Linux Web site 5–3

serial number 4–17  
serial port configuration 2–19  
Settings Manager 4–1  
shell commands 1–6

---

- Show Taskbar check box 2–8
- Show User Interface check box 2–8
- software warranty 5–1
- sound 4–17
- source code 5–3
- subnet mask 4–18
- support 5–1
- synchronizing BIOS and system time 6–4
- system administrator FAQs 6–2
- system hardware clock, configuring 6–3
- system management FAQs 6–3
- system utility 4–17

## T

- taskbar 1–3, 4–19
- themes 2–22
- time 4–3
  - setting 4–3
  - synchronizing with BIOS 6–4
- touchscreen 4–7
- troubleshooting 7–1

## U

- USB
  - storage 4–7
- user connection list 2–2
- user ID 4–22
- user management 4–20
- user permissions 4–23
- users
  - adding 4–21
  - deleting 4–22
  - locking 4–22
  - modifying 4–22
  - options 4–24
  - permissions 4–23

## V

### VNC

- FAQs 6–5
- monitoring text box 4–6
- password reset 6–5
- server 1–8
- shadow 4–6
- shadow password 4–6
- viewer 1–7

VNC shadow check box 4–6

## W

- warranty
  - hardware 5–1
  - software 5–1
- Web browser 1–7
- Window Manager 4–27
- workspace icons 1–3

## X

- XDM 2–23
- XFce panel 4–31
- XFce Panel Bar 1–4
- XFce Settings Manager 1–8, 4–1
  - opening 4–1
- XFCE Web site 5–3

