thin clients

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instructions

# HP Compaq Thin Client Imaging Tool
## HP Compaq Thin Client t5000 Series

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## Abstract

This white paper provides an overview of the HP Compaq Thin Client Imaging Tool for HP Compaq Thin Client t5000 Series and instructions for obtaining and deploying the restore image.

## Introduction

The HP Compaq Thin Client Imaging Tool is part of the Package-for-the-Web deliverable that contains the original factory image for the HP Compaq t5000 Series Thin Client.

### System Requirements

**Software:**

- Microsoft Windows 2000 Professional or Microsoft Windows XP Professional

**Hardware:**

- A desktop PC and one or more HP Compaq Thin Client t5000 Series
- CD-R or CD-RW drive (if using the ISO Image option)
- USB flash device 256MB or larger (if using the USB Format option). Compatible USB flash devices are available from www.diskonkey.com.

  **This restore method will not work with all USB flash devices.** USB flash devices with multiple partitions generally do **not** support this restore method. The range of USB flash devices available on the market is constantly changing. Not all USB flash devices have been tested with the HP Compaq Thin Client Imaging Tool.

- USB CD-ROM drive for thin client (if using the ISO Image option)

Before using the utility, you must download the appropriate image from http://www.hp.com/products/thinclientsoftware.

It is recommended that you change the boot-order on all the thin clients on the network to PXE boot as the first device. This can be done locally through the BIOS setup or remotely by script execution of the HP Compaq Thin Client Boot Order Change Tool through the Altiris Deployment Server. The HP Compaq Thin Client Boot Order Change Tool may be downloaded from http://www.hp.com.

## Getting Started

There are three deployment options supported by this utility. You can choose to do one or more of the following:

- Generate an ISO image to use with CD creation software to create a bootable CD for deployment using a USB CD-ROM drive
- Create a bootable flash image on a USB flash device (such as a drive key)
- Unpack the components of the image to a directory for use in a custom deployment scenario or PXE image.

Download and run the Package-for-the-Web deliverable (an .exe file) that contains the original factory image for the thin client. The HP Compaq Thin Client Imaging Tool (CRStart.exe) runs automatically and will display the following dialog:

Choose one of the deployment options: ISO Image, USB Format, or Deployment. Each option is described below.
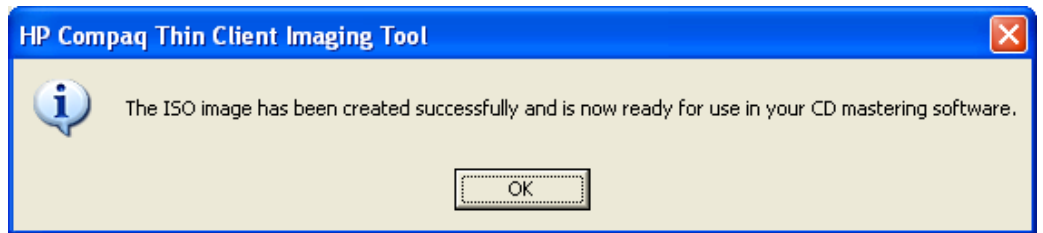
**During the restore process, the thin client flash drive will be reformatted and all data on it will be erased before the system image is copied to it. To prevent loss of data, be sure that you have saved any user-created data from the flash drive.**

**During the first restart of the thin client following the restore process, it may take approximately 5-10 minutes to unbundle the software before the Windows Desktop is displayed.**

**Creating An ISO Image**

1. Click **ISO Image**.

2. When prompted, enter a file name for the generated ISO file.
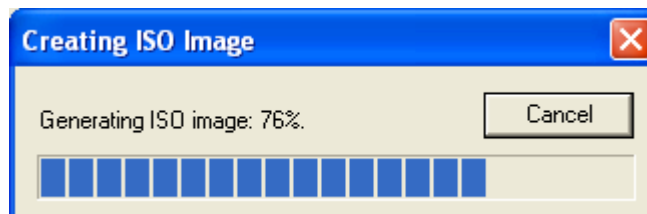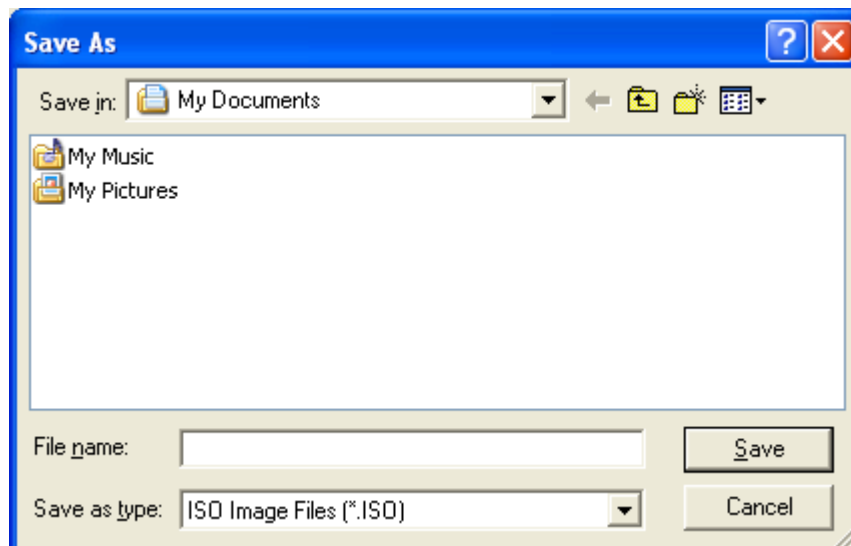
3. Once this process is complete, use the generated ISO file to create a bootable restore CD with your CD creation software.

4. Connect a USB CD-ROM drive to the thin client. **Only one bootable USB device may be attached to the thin client during this process.**

5. Insert the bootable restore CD into the CD-ROM drive.

6. Restart the thin client.

7. When prompted **Do you want to continue? [Y/N]** click **Y** to begin the image restore process on the thin client.

**Formatting a USB Flash Device**

1. Connect your USB flash device (drive key). Ensure that only **one** USB flash device is connected to the system.

2. Click USB Format.

3. Select the USB drive from the list, using the up and down arrows to display the correct drive letter. (If the USB drive does not appear in the list, click Update Drives, then scroll through the list again.)

   **During the next step, the USB drive will be reformatted and all data on it will be erased before the bootable image is copied to it. To prevent loss of data, be sure that you have saved any data from the USB drive to another drive.**
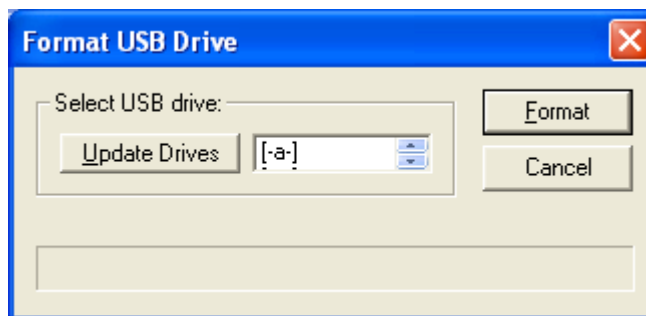


4. Click **Format**.
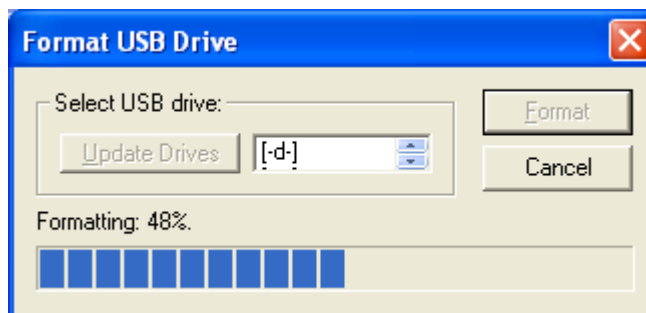
5. Connect the bootable USB flash device to the thin client. **Only one bootable USB device may be attached to the thin client during this process.**

6. Restart the thin client.

7. When prompted **Do you want to continue? [Y/N]** click **Y** to begin the image restore process on the thin client.

**Unpacking the Image and Tools for Deployment**

1. Click **Deployment**.

2. When prompted, select the destination directory for the imaging tools and image.

   The components that comprise DSKIMG.BIN are then unpacked to the specified directory. When this process is complete, there will be three new files in the specified folder: IBR.EXE (the image restoration utility), FLASH.IMG (the OS image), and README.TXT.
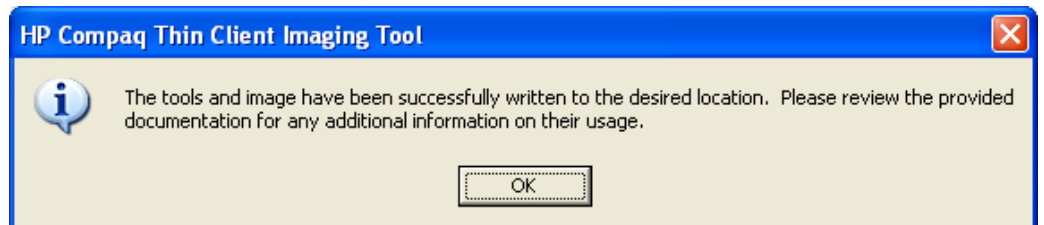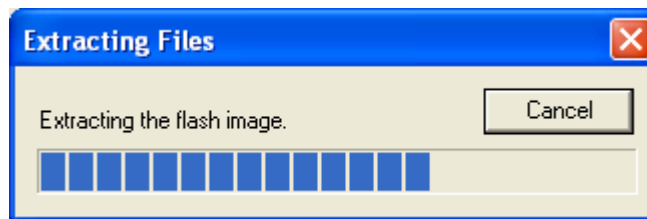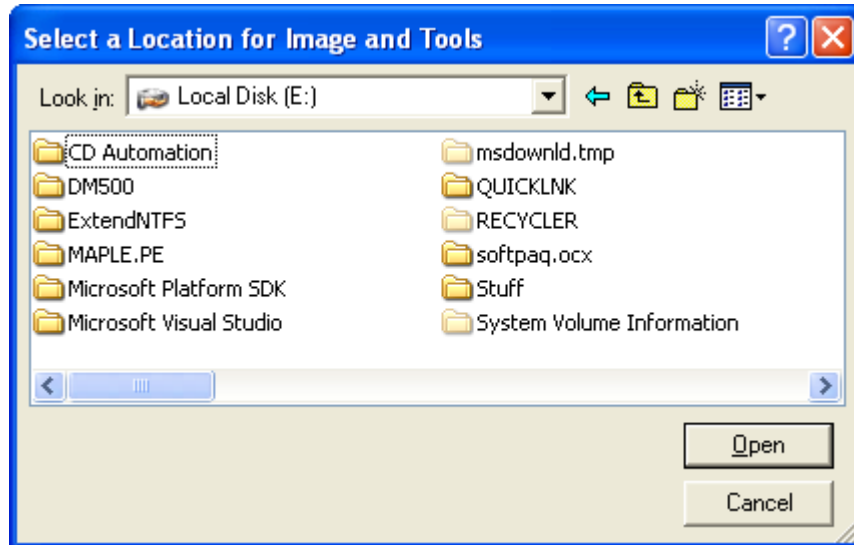






**Deploying with PXE**

1. Ensure that IBR.exe and Flash.img are stored in the same directory on the server.

2. Add *[full path]*\**IBR.exe –y** *[full path]*\**Flash.img hd0** to the PXE command file, and run it.

To view the IBR command line options:

At the command prompt, type **IBR.EXE /?** and press **Enter**.

Refer to "Appendix B: Configuring a PXE Server" for instructions on setting up a PXE Server using Microsoft RIS. See your documentation if using a different PXE server, such as Altiris Deployment Solution.

## Appendix A: Adding IBR to a Job Using Altiris Deployment Solution

In order to restore an image, the client(s) need to be booted to the express network share in DOS. This can be achieved using either Altiris Bootworks partition or by changing the thin client boot order using the HP Compaq Thin Client Boot Order Change Tool provided at www.hp.com. A PXE server must be set up with the Altiris Deployment Server console for the latter to work.

1. Ensure that IBR.exe and Flash.img are stored in the same directory on the server (e.g., c:\program files\altiris\express\deployment server\tcimage).

2. From the Altiris Deployment Server Console, click **File** > **New** > **Job**.

3. Enter a unique name for the job that you will use to deploy the original thin client image.

4. Click the name of the new job.

5. Near the upper right side of the screen, click **Add>>**.

6. Select **Run Script...** from the pop-up menu.

7. Enter *[full path]*\**IBR.exe –y** *[full path]*\**Flash.img hd0**

8. Under **In which OS would you like to run this script?** Click **DOS**.

9. Click **Finish**.

10. You can now drag and drop the job onto the appropriate machine(s) or schedule it to run later, depending on your needs. Refer to the documentation for Altiris Deployment Solution for more detailed information.

## Appendix B: Configuring a PXE Server Under Microsoft RIS

PXE (Pre-boot Execution Environment) is supported on the HP Compaq t5000 Thin Client Series products with XPe/IE. PXE allows a client to boot from a server on a network prior to booting the embedded Operating System (OS) from the local Flash module. As long as the system is connected to AC power, the Network Interface Controller (NIC) on a PXE-enabled client remains powered even when the system is turned off. This allows a network administrator to remotely wake up the unit and perform various management tasks, including loading the operating system and other software onto the device from a server over the network.

### Prerequisites

The services listed below must be running, and they may be running on different servers:

1. Domain Name Service (DNS)

2. Active Directory

3. DHCP

4. Remote Installation Services (RIS) on Microsoft Windows 2000 Server

This documentation covers RIS setup, and assumes that servers 1, 2, and 3 (above) are already set up.

The RIS PXE Server must be equipped with two or more hard drives. Remote Installation Services and Windows 2000 Server cannot be installed on the same drive; nor will RIS work on a double partition of Window 2000 Server.

The drive on which RIS is installed must be first be formatted using NTFS.

### Installing Remote Installation Services (RIS PXE Server)

1. From the Windows 2000 Server, log on to the domain using an account that has Administrator privileges on the server.

2. From the Windows Control Panel, double-click on **Add/Remove Programs**.

3. Double-click **Add/Remove Windows Components**.

4. Select **Remote Installation Services**, then click **Next.** (Insert Window 2000 Server CD into the CD-ROM drive, if prompted.)

5. Restart the computer after the wizard had finished installing the service.

### Authorizing Remote Installation Services (RIS PXE Server)

If you have installed RIS on a server **other than** the server running DHCP, authorize PXE with DHCP as follows:

1. Record the IP address of the RIS PXE Server.

2. Log on to the DHCP Server as administrator.

3. From the Control Panel, double-click **Administrative Tools**.

4. Double-click **DHCP**.

5. Right-click DHCP (just above the domain name) and select **Manage Authorized Servers**.

6. Click **Authorize**.

7. Type the IP address of your RIS PXE server and click **OK**.

8. Click **OK**.

9. Log off from the DHCP Server.

### Configuring Remote Installation Services

Use the default option to have RIS install on second hard drive (D:\ or E:\).

1. Click **Start** > **Run**.

2. Type **Risetup.exe** and click **Next**.

3. Click Next.

4. Click the checkbox labeled **Respond to client computers requesting service**.

5. Click **Next**.

6. Insert the Windows 2000 Professional CD into the CD-ROM drive and enter the path to the CD-ROM drive (usually drive D:\ or E:\).

7. Click **Next**.

8. Click **Next**.

9. Click **Next**.

10. When installation is complete, click **Finish**.

### Set User Permissions on the Active Directory Server

On the active directory server,

1. Click **Start** > **Programs** > **Administrative Tools.**
2. Click **Active Directory Users and Computers**.
3. Right-click on the appropriate domain name.
4. Click **Delegate Control**.
5. Click **Next**.
6. Click **Add** to add users.
7. Highlight **Everyone** and click **Add**.
8. Click **OK**.
9. Click **Next**.
10. Select **Join a Computer to the Domain**.
11. Click **Next**.
12. Click **Finish**.

### RIS Menu

1. Install the RIS menu of your choice.
2. Configure the RIS menu.
3. Refer to the help provided by the RIS menu for instructions on creating a network bootable diskette and RIS menu for PXE.

### Creating Network Bootable Disk to Map Drives

Create a network boot disk to map drives. (Refer to Microsoft Web site for instructions on creating a network bootable diskette.)

## Appendix C: Changing Boot Order

The default boot order is a BIOS configuration setting that can be changed to always attempt to PXE boot first. The HP Compaq Thin Client Boot Order Change Tool enables you to remotely change the boot order on a thin client.

Download the tool from http://www.hp.com.

Run **bootorder.exe** *<options>*.

Command line options for bootorder.exe are as follows:

**-o***[parameters]*

Set Boot Order: **N**=Network; **H**=ATA Flash; **U**=USB device

Example: **bootorder.exe –onhu**

This command sets the boot order to network 1st, ATA Flash 2nd, USB device (such as drive key) 3rd. (Unspecified devices will be placed at the end, in their original default order.)

**-w***[parameters]*

Set Wake-on-LAN boot device: **N**=network; **H**=ATA Flash

**-v**

Verbose: Used for testing purposes, this option will return the current IPL table priority of the system, return codes, and the order of the system IPL table priority array after a setting is attempted if the **–o** option is used. The **–v** option must be used on the

command line prior to any option about which you want to display additional information.

**-p**

Print: Prints the current IPL priority table settings to the command line.

## For More Information

HP Compaq t5000 Series Documentation (including white papers discussing software deployment methods):
http://www.hp.com/products/thinclientsoftware

Altiris Deployment Solution Documentation:
http://www.altiris.com/support/documentation/