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Product Description

The HP Compaq Thin Client t5000 Series are Windows-based terminals that connect over a network to a server where all processing and storage occurs. Because of the nature of the products, troubleshooting is significantly simpler than on a standard PC and previous thin clients.

The Graphical User Interface (GUI) is English on all thin clients. If you are using a foreign language keyboard, you will need to set localized settings to perform the localization between a server-based application and the device, but interaction with the unit itself remains in English.

Network Firmware

PXE (Pre-boot Execution Environment) is supported on all HP Compaq Thin Client t5000 Series products.

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.
HP Compaq Thin Client t5000 Series

Front view - t5000 Series Models (left) and t5720 Model (right)

1. Power Button
2. Power LED
3. Flash activity LED
4. USB ports (2)

For information on differences between the t5300, t5500, and t5700 series models, refer to the Getting Started with the HP Compaq t5000 Series manual in the Reference Library at http://h18004.www1.hp.com/products/thinclients/software.html
Rear View of the Legacy-Free t5300 Model

Legacy-Free t5300 Model Connectors

1. Ethernet RJ-45 Connector
2. Kensington Lock Connector
3. USB Connectors
4. Line-in Audio Connector (Microphone)
5. Line-out Audio Connector (Headphone)
6. Power Connector
7. Monitor Connector

The t5300 model does not include a PCI expansion option connector on the system board.

⚠️ CAUTION: The t5000 Series power cord connector is for use only with the supplied power adaptor. Replace only with the same or equivalent type as recommended by the manufacturer.
**Product Description**

Rear View of the t5500 and t5700 Series Models

<table>
<thead>
<tr>
<th>t5500/t5700 Series Model Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Kensington Lock Connector*</td>
</tr>
<tr>
<td>3. Parallel Connector***</td>
</tr>
<tr>
<td>4. USB Connectors (4)</td>
</tr>
<tr>
<td>5. Line-in Audio Connector</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*When the PCI Expansion module is installed, use the connector located at the bottom of the unit.
**Not available on all models
***Not available on t5300 series models

⚠️ The t5500 and t5700 series models include a PCI expansion option connector on the system board.

**CAUTION:** The t5000 Series power cord connector is for use only with the supplied power adaptor. Replace with only the same or equivalent type as recommended by the manufacturer.
### t5720 Model Connectors

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kensington Lock Connectors*</td>
</tr>
<tr>
<td>2</td>
<td>Ethernet RJ-45 Connector</td>
</tr>
<tr>
<td>3</td>
<td>Line-out Audio (Headphone) connector</td>
</tr>
<tr>
<td>4</td>
<td>PS/2 Connectors (2)</td>
</tr>
<tr>
<td>5</td>
<td>Parallel Connector</td>
</tr>
<tr>
<td>6</td>
<td>USB Connectors (4)</td>
</tr>
<tr>
<td>7</td>
<td>Line-in Audio Connector (Microphone)</td>
</tr>
<tr>
<td>8</td>
<td>Monitor Connector</td>
</tr>
<tr>
<td>9</td>
<td>Serial Connector</td>
</tr>
<tr>
<td>10</td>
<td>Power Connector</td>
</tr>
</tbody>
</table>

*When the PCI Expansion module is installed, use the connector located at the bottom of the unit.

The t5720 model includes a PCI expansion option connector on the system board.
Product Description

Serial Number Location

The serial number is displayed on the side of the unit.

Connecting USB Equipment

USB mouse devices and keyboards do not require special drivers and are considered to be plug and play peripherals. Certain USB devices such as printers and modems, however, may require special drivers. For information on requirements for special drivers, refer to the documentation that is included with the USB device.
Locating Additional Information

The following documentation is available to support these products:

- Quick Setup
- Hardware Reference Guide
- Terminal Emulation Quick Reference Guide (Extended Emulation)
- Terminal Emulation Quick Reference Guide
- Customer and Service Notifications, Bulletins and Advisories
- Quickspecs

Documentation, white papers, and drivers are subject to change. For the latest HP thin client documentation, visit the following Web site: http://h18004.www1.hp.com/products/thinclients/software.html
Spare Parts Lists

**t5000 Series Spare Parts List**

The spare parts tables that follow provide a listing of the spare parts available for the Thin Client t5000 Series.

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>t5300 CE .NET/IE 533MHz 32F/64R Unit</td>
<td>325712-001</td>
</tr>
<tr>
<td>t5300 Diskless, 533 MHz 0/64 Unit</td>
<td>353340-001</td>
</tr>
<tr>
<td>t5500 CE .NET/IE 733MHz 32F/128R Unit</td>
<td>325698-001</td>
</tr>
<tr>
<td>t5500 Diskless, 733 MHz 0/128</td>
<td>353341-004</td>
</tr>
<tr>
<td>t5700 XP Embedded/IE 733MHz 192/256R Unit</td>
<td>350982-001</td>
</tr>
<tr>
<td>t5515 800MHz 32/64 Unit</td>
<td>370450-001</td>
</tr>
<tr>
<td>t5515 800MHz 128/128 Unit</td>
<td>370450-002</td>
</tr>
<tr>
<td>t5700 XP Embedded/IE 1GHz 192F/256R Unit</td>
<td>325707-001</td>
</tr>
<tr>
<td>t5700 XP Embedded/IE 1GHz 256F/256R Unit</td>
<td>325708-001</td>
</tr>
<tr>
<td>t5700 Diskless, 1GHz 0/256</td>
<td>353338-001</td>
</tr>
<tr>
<td>t5700 Diskless, 733MHz 0/256</td>
<td>353339-001</td>
</tr>
<tr>
<td>t5700, 1 GHz 192/256, XPE, IE</td>
<td>325707-001</td>
</tr>
<tr>
<td>AC Adapter, 12V, 40W, AC to DC</td>
<td>325709-001</td>
</tr>
</tbody>
</table>
### t5000 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse, USB, Carbon, 2 button scroll</td>
<td>323615-001</td>
</tr>
<tr>
<td>Foot Stand w/screws</td>
<td>336604-001</td>
</tr>
<tr>
<td>Foot, Rubber, t5000</td>
<td>348438-001</td>
</tr>
<tr>
<td>Battery, Internal, CR 2032, 3V</td>
<td>153099-001</td>
</tr>
<tr>
<td>Speaker w/screws</td>
<td>349326-001</td>
</tr>
<tr>
<td>Screw Kit, Miscellaneous</td>
<td>349327-001</td>
</tr>
</tbody>
</table>

### Power Cords

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Cord, AC-Europe</td>
<td>198292-021</td>
</tr>
<tr>
<td>Power Cord, AC-Danish</td>
<td>198292-081</td>
</tr>
<tr>
<td>Power Cord, International</td>
<td>345751-002</td>
</tr>
<tr>
<td>Power Cord, AC-Italian</td>
<td>198292-061</td>
</tr>
<tr>
<td>Power Cord, AC</td>
<td>142766-001</td>
</tr>
<tr>
<td>Power Cord, AC-PRC</td>
<td>292657-AA1</td>
</tr>
<tr>
<td>Power Cord AC-Japanese</td>
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</tr>
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</table>

### Enhanced USB Keyboards

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic, Carbon/Silver</td>
<td>326227-171</td>
</tr>
<tr>
<td>Belgian, Carbon/Silver</td>
<td>326227-181</td>
</tr>
<tr>
<td>Belgian, Carbonite/Silver</td>
<td>326228-181</td>
</tr>
<tr>
<td>Brazilian, Carbon/Silver</td>
<td>326227-201</td>
</tr>
<tr>
<td>Chinese (PRC), Carbon/Silver</td>
<td>326227-AA1</td>
</tr>
<tr>
<td>Czech, Carbon/Silver</td>
<td>326227-221</td>
</tr>
<tr>
<td>Danish, Carbon/Silver</td>
<td>326227-081</td>
</tr>
<tr>
<td>Danish, Carbonite/Silver</td>
<td>326228-081</td>
</tr>
<tr>
<td>Finnish, Carbon/Silver</td>
<td>326227-351</td>
</tr>
<tr>
<td>French, Carbon/Silver</td>
<td>326227-051</td>
</tr>
</tbody>
</table>
### t5000 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhanced USB Keyboards</strong> (Continued)</td>
<td></td>
</tr>
<tr>
<td>French, Carbonite/Silver</td>
<td>326228-051</td>
</tr>
<tr>
<td>German, Carbon/Silver</td>
<td>326227-041</td>
</tr>
<tr>
<td>German, Carbonite/Silver</td>
<td>326228-041</td>
</tr>
<tr>
<td>Greek, Carbon/Silver</td>
<td>326227-151</td>
</tr>
<tr>
<td>Hebrew, Carbon/Silver</td>
<td>326227-BB1</td>
</tr>
<tr>
<td>Hungarian, Carbon/Silver</td>
<td>326227-211</td>
</tr>
<tr>
<td>International, Carbon/Silver</td>
<td>326227-B31</td>
</tr>
<tr>
<td>International, Carbonite/Silver</td>
<td>326228-B31</td>
</tr>
<tr>
<td>Italian, Carbon/Silver</td>
<td>326227-061</td>
</tr>
<tr>
<td>Italian, Carbonite/Silver</td>
<td>326228-061</td>
</tr>
<tr>
<td>Swiss, Carbon/Silver</td>
<td>326227-111</td>
</tr>
<tr>
<td>Japanese, Carbon/Silver</td>
<td>326227-291</td>
</tr>
<tr>
<td>Korean, Carbon/Silver</td>
<td>326227-AD1</td>
</tr>
<tr>
<td>LA Spanish, Carbon/Silver</td>
<td>326227-161</td>
</tr>
<tr>
<td>Norwegian, Carbon/Silver</td>
<td>326227-091</td>
</tr>
<tr>
<td>Portuguese, Carbon/Silver</td>
<td>326227-131</td>
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<tr>
<td>Russian, Carbon/Silver</td>
<td>326227-251</td>
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<tr>
<td>Slovakian, Carbon/Silver</td>
<td>326227-231</td>
</tr>
<tr>
<td>Spanish, Carbon/Silver</td>
<td>326227-071</td>
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<tr>
<td>Swedish, Carbonite/Silver</td>
<td>326228-101</td>
</tr>
<tr>
<td>Swiss, Carbonite/Silver</td>
<td>326228-111</td>
</tr>
<tr>
<td>Taiwan, Carbon/Silver</td>
<td>326227-AB1</td>
</tr>
<tr>
<td>Thailand, Carbon/Silver</td>
<td>326227-281</td>
</tr>
<tr>
<td>Turkey, Carbon/Silver</td>
<td>326227-141</td>
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</table>
## t5000 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhanced USB Keyboards (Continued)</strong></td>
<td></td>
</tr>
<tr>
<td>United Kingdom, Carbon/Silver</td>
<td>326227-031</td>
</tr>
<tr>
<td>United States, Carbon/Silver</td>
<td>326227-001</td>
</tr>
<tr>
<td><strong>Basic USB Keyboards, Carbonite/Silver</strong></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>355631-171</td>
</tr>
<tr>
<td>Belgian</td>
<td>355631-181</td>
</tr>
<tr>
<td>Brazilian Portuguese</td>
<td>355631-201</td>
</tr>
<tr>
<td>Czech</td>
<td>355631-221</td>
</tr>
<tr>
<td>Danish</td>
<td>355631-081</td>
</tr>
<tr>
<td>Finnish</td>
<td>355631-351</td>
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<tr>
<td>French</td>
<td>355631-051</td>
</tr>
<tr>
<td>French-Canadian</td>
<td>355631-121</td>
</tr>
<tr>
<td>German</td>
<td>355631-041</td>
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<tr>
<td>Greek</td>
<td>355631-151</td>
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<tr>
<td>Hebrew</td>
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</tr>
<tr>
<td>Hungarian</td>
<td>355631-211</td>
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<tr>
<td>International</td>
<td>355631-B31</td>
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<tr>
<td>Italian</td>
<td>355631-061</td>
</tr>
<tr>
<td>Japanese</td>
<td>355631-291</td>
</tr>
<tr>
<td>Korean (Hangul)</td>
<td>355631-KD1</td>
</tr>
<tr>
<td>LA Spanish</td>
<td>355631-161</td>
</tr>
<tr>
<td>Norwegian</td>
<td>355631-091</td>
</tr>
<tr>
<td>Portuguese</td>
<td>355631-131</td>
</tr>
<tr>
<td>Russian</td>
<td>355631-251</td>
</tr>
<tr>
<td>Simplified Chinese</td>
<td>355631-AA1</td>
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</table>
### t5000 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic USB Keyboards, Carbonite/Silver</td>
<td></td>
</tr>
<tr>
<td>Slovakian</td>
<td>355631-231</td>
</tr>
<tr>
<td>Spanish</td>
<td>355631-071</td>
</tr>
<tr>
<td>Swedish</td>
<td>355631-111</td>
</tr>
<tr>
<td>Swiss</td>
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<tr>
<td>Taiwanese</td>
<td>355631-AB1</td>
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<tr>
<td>Thai</td>
<td>355631-281</td>
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<tr>
<td>Turkish</td>
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<tr>
<td>UK</td>
<td>355631-031</td>
</tr>
<tr>
<td>U.S.</td>
<td>355631-001</td>
</tr>
</tbody>
</table>

- If you are using a foreign language keyboard, an ICA or RDP connection will perform the localization between a server-based application and the device, but all interaction with the thin client itself is in English.

- All keyboards listed in this table may not be available at the time this document is first published.

### Options

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cradle, USB MultiBay</td>
<td>280879-001</td>
</tr>
<tr>
<td>Cable, USB External MultiBay Cradle</td>
<td>287693-001</td>
</tr>
<tr>
<td>Adapter, AC External MultiBay Cradle</td>
<td>287694-001</td>
</tr>
<tr>
<td>Plugs, External MultiBay Cradle</td>
<td>287695-001</td>
</tr>
<tr>
<td>PCI Expansion Module</td>
<td>336603-001</td>
</tr>
<tr>
<td>Premier•Sound speakers</td>
<td>173980-001</td>
</tr>
<tr>
<td>Kensington cable lock</td>
<td>294359-001</td>
</tr>
<tr>
<td>SODIMM, 512MB, PC2100, 32Mx8CL2.5</td>
<td>338802-001</td>
</tr>
<tr>
<td>Hard Drive, 30GB</td>
<td>217096-001</td>
</tr>
<tr>
<td>Diskette Drive, 1.44MB</td>
<td>241995-001</td>
</tr>
</tbody>
</table>
### t5000 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options (Continued)</td>
<td></td>
</tr>
<tr>
<td>CD-ROM Drive, 24X</td>
<td>228746-001</td>
</tr>
<tr>
<td>USB Flash Drive (Drive Key), 32MB</td>
<td>305283-001</td>
</tr>
<tr>
<td>USB Flash Drive (Drive Key), 128MB (USB 1.1)</td>
<td>331466-001</td>
</tr>
<tr>
<td>USB Flash Drive (Drive Key), 128MB (USB 2.0)</td>
<td>349988-001</td>
</tr>
<tr>
<td>USB Flash Drive (Drive Key), 256MB (USB 2.0)</td>
<td>344249-001</td>
</tr>
</tbody>
</table>

For a full list of supported and leveraged Hewlett-Packard and third party options, go to:

### t5720 Model Spare Parts List

### t5720 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>t5720\XP Embedded/IE AMD NX1500 512F/256R Unit</td>
<td>398131-001</td>
</tr>
<tr>
<td>t5720\XP Embedded/IE AMD NX1500 512F/512R Unit</td>
<td>398134-001</td>
</tr>
<tr>
<td>Mouse, carbonite, 2-button scroll, PS/2</td>
<td>390937-001</td>
</tr>
<tr>
<td>AC adapter, 12V, 40W, AC to DC</td>
<td>399698-001</td>
</tr>
<tr>
<td>Foot stand, with thumbscrew</td>
<td>405974-001</td>
</tr>
<tr>
<td>Battery, Internal, CR 2032, 3V</td>
<td>153099-001</td>
</tr>
</tbody>
</table>
### t5720 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Cords</strong></td>
<td></td>
</tr>
<tr>
<td>Power Cord, AC-Europe</td>
<td>198292-021</td>
</tr>
<tr>
<td>Power Cord, AC-Danish</td>
<td>198292-081</td>
</tr>
<tr>
<td>Power Cord, International</td>
<td>345751-002</td>
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<tr>
<td>Power Cord, AC-Italian</td>
<td>198292-061</td>
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<tr>
<td>Power Cord, AC</td>
<td>142766-001</td>
</tr>
<tr>
<td>Power Cord, AC-PRC</td>
<td>292657-AA1</td>
</tr>
<tr>
<td>Power Cord AC-Japanese</td>
<td>292643-291</td>
</tr>
<tr>
<td><strong>Basic PS/2 Keyboards, Carbonite/Silver</strong></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>396215-171</td>
</tr>
<tr>
<td>Belgian</td>
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<td><strong>Basic PS/2 Keyboards, Carbonite/Silver (Continued)</strong></td>
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</tr>
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</tr>
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<td>German</td>
<td>382925-041</td>
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<td>Greek</td>
<td>396215-151</td>
</tr>
<tr>
<td>Hebrew</td>
<td>382925-BB1</td>
</tr>
<tr>
<td>Hungarian</td>
<td>382925-211</td>
</tr>
<tr>
<td>International</td>
<td>382925-B31</td>
</tr>
<tr>
<td>Italian</td>
<td>382925-061</td>
</tr>
<tr>
<td>Japanese</td>
<td>382925-291</td>
</tr>
</tbody>
</table>
### t5720 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korean (Hangul)</td>
<td>382925-AD1</td>
</tr>
<tr>
<td>LA Spanish</td>
<td>382925-161</td>
</tr>
<tr>
<td>Norwegian</td>
<td>382925-091</td>
</tr>
<tr>
<td>Portuguese</td>
<td>382925-131</td>
</tr>
<tr>
<td>Russian</td>
<td>396215-251</td>
</tr>
<tr>
<td>S. Chinese</td>
<td>382925-AA1</td>
</tr>
<tr>
<td>Slovakian</td>
<td>382925-231</td>
</tr>
<tr>
<td>Spanish</td>
<td>382925-071</td>
</tr>
<tr>
<td>Swedish</td>
<td>382925-101</td>
</tr>
<tr>
<td>Swiss</td>
<td>382925-111</td>
</tr>
<tr>
<td>Taiwanese</td>
<td>382925-AB1</td>
</tr>
<tr>
<td>Thai</td>
<td>382925-281</td>
</tr>
<tr>
<td>Turkish “Q”</td>
<td>382925-141</td>
</tr>
<tr>
<td>UK</td>
<td>382925-031</td>
</tr>
<tr>
<td>US</td>
<td>382925-001</td>
</tr>
</tbody>
</table>

#### Options

- HP Nvidia Quadro 280 NVS 64 MB Dual Head PCI graphic card 351384-001
- PCI Expansion Module w/50W power brick 409128-001
- 50W power brick (for unit with PCI Expansion Module) 409129-001
- HP Quick Release 409578-001
- Kensington cable lock 294359-001
- 40W power brick (for t5720 base unit) 325709-001
### t5720 Series Spare Parts Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Options (continued)</strong></td>
<td></td>
</tr>
<tr>
<td>HP Belkin wireless PCI LAN adapter for XPe (worldwide except Americas)</td>
<td>391866-001</td>
</tr>
<tr>
<td>HP Belkin wireless PCI LAN adapter for XPe (Americas only)</td>
<td>391866-002</td>
</tr>
<tr>
<td>Modem, PCI, ATX</td>
<td>398661-001</td>
</tr>
<tr>
<td>USB to serial converter</td>
<td>407185-001</td>
</tr>
<tr>
<td>512MB drive key</td>
<td>399131-001</td>
</tr>
<tr>
<td>512MB PC2700 DDR1 SODIMM</td>
<td>407680-001</td>
</tr>
</tbody>
</table>

For a full list of supported and leveraged Hewlett-Packard and third party options, go to: [http://h18004.www1.hp.com/products/thinclients/software.html](http://h18004.www1.hp.com/products/thinclients/software.html)
Using HP t5000 Series Setup (F10) Utility

The Setup utility can be accessed only by turning the computer on or restarting the system. To access the Setup Utility menu, complete the following steps:

1. Turn on or restart the computer.
   - If you are using Microsoft Windows XP Embedded, click Start > Shut Down > Restart the Computer.
   - If you are using Microsoft Windows CE .NET, click Start > Shut Down > Shut Down and Restart > OK.

2. When the F10 = Setup message displays in the task bar at the bottom of the screen, press the F10 key.

If you do not press the F10 key while the message is displayed, you must restart the computer again to access the utility. When the F10 Post Screen display is set to zero seconds, it may be necessary to press and hold F10 on the keyboard, then power on the computer.

3. A choice of five menu headings and five task headings appears in the Setup Utility menu:

   **Menu Headings:** System Information, Standard CMOS Features, Advanced BIOS Features, Integrated Peripherals, and Power Management Setup.

   **Task Headings:** Load Factory Defaults, Set Administrative Password, Set User Password, Save & Exit Setup, and Exit without Saving.
4. Use the arrow (up and down, or left and right) keys to select the appropriate heading, then press the Enter key. To return to the Setup Utility menu, press the Esc key.

5. To apply and save changes, select Save and Exit Setup.
   - If you have made changes that you do not want applied, select Exit without Saving.
   - To reset to factory settings, select Load Factory Defaults. This option will restore the original factory system defaults.

⚠️ CAUTION: Do NOT turn the computer power OFF while the ROM is saving your F10 Setup changes because the CMOS could become corrupted. It is safe to turn off power to the computer ONLY after you exit the F10 Setup screen.

---

### t5000 Series Setup Utility

<table>
<thead>
<tr>
<th>Heading</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Information</td>
<td>Lists:</td>
<td>- Product name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Processor type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Processor Speed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- OEM Config Table Version</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Amount of Flash memory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Memory size</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- System ROM (includes family name and version)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Integrated MAC address for embedded, enabled NIC (if applies)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- UUID (Universal Unique ID)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chassis serial number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asset tracking number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asset Tag Number (Sets Asset tracking number)</td>
</tr>
</tbody>
</table>

⚠️ Support for specific Setup options may vary depending on your hardware configuration.
### t5000 Series Setup Utility (Continued)

<table>
<thead>
<tr>
<th>Heading</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard CMOS Features</td>
<td>Date</td>
<td>Allows you to set the date</td>
</tr>
<tr>
<td></td>
<td>Time</td>
<td>Allows you to set the time</td>
</tr>
<tr>
<td></td>
<td>xxxMB ATA Flash</td>
<td>Indicates ATA Flash settings</td>
</tr>
<tr>
<td></td>
<td>Halt on</td>
<td>Allows you to select system response when POST Error has been detected.</td>
</tr>
<tr>
<td>Advanced BIOS Features</td>
<td>MBR Security</td>
<td>Choose the Virus warning feature.</td>
</tr>
<tr>
<td></td>
<td>Quick Power On Self Test</td>
<td>Allows the system to skip certain tests while booting so the unit has a faster boot.</td>
</tr>
<tr>
<td></td>
<td>First Boot Device</td>
<td>Select Boot Device Priority. The default is set to USB.</td>
</tr>
<tr>
<td></td>
<td>Second Boot Device</td>
<td>Select Boot Device Priority</td>
</tr>
<tr>
<td></td>
<td>Third Boot Device</td>
<td>Select Boot Device Priority</td>
</tr>
<tr>
<td></td>
<td>Bootup NumLock Status</td>
<td>Select Power On state for NumLock.</td>
</tr>
<tr>
<td></td>
<td>Security Option</td>
<td>Select whether the Password is required every time the system boots or only when you enter Setup.</td>
</tr>
<tr>
<td></td>
<td>POST delay (secs)</td>
<td>Set a delay that is added to POST to allow more time to press F10 to enter the Setup Utility.</td>
</tr>
<tr>
<td></td>
<td>F12 Boot</td>
<td>Enable/disable network service boot.</td>
</tr>
</tbody>
</table>

Support for specific Setup options may vary depending on your hardware configuration.
### t5000 Series Setup Utility (Continued)

<table>
<thead>
<tr>
<th>Heading</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Peripherals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Controller</td>
<td>Enable/disable</td>
<td>onboard LAN device</td>
</tr>
<tr>
<td>USB Controller</td>
<td>Enable/disable</td>
<td>USB controller</td>
</tr>
<tr>
<td>USB Keyboard Support</td>
<td>Use USB keyboard</td>
<td>under DOS</td>
</tr>
<tr>
<td>USB Mouse Support</td>
<td>Use USB Mouse</td>
<td>under DOS</td>
</tr>
<tr>
<td>Serial Port</td>
<td>Select serial port</td>
<td>base IO port address and IRQ</td>
</tr>
<tr>
<td>Parallel Port</td>
<td>Select parallel port</td>
<td>base IO port address and IRQ</td>
</tr>
<tr>
<td>Parallel Mode</td>
<td>Select parallel port</td>
<td>transfer mode</td>
</tr>
<tr>
<td>ECP Mode</td>
<td>Select DMA channel</td>
<td>if parallel is operated in ECP mode.</td>
</tr>
<tr>
<td>EPP Type</td>
<td>Select EPP type</td>
<td></td>
</tr>
<tr>
<td>PS2 KB/MS</td>
<td>Use PS2 port as</td>
<td>mouse or keyboard.</td>
</tr>
<tr>
<td></td>
<td>as mouse or keyboard.</td>
<td></td>
</tr>
<tr>
<td>Power Management Setup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWRRON After Power-Fail</td>
<td>When power is</td>
<td>lost and comes back, this option determines what power state the system</td>
</tr>
<tr>
<td></td>
<td>used</td>
<td>should use.</td>
</tr>
<tr>
<td>Wake on PME</td>
<td>Enable/disable</td>
<td>system wakeup capability for onboard LAN device and PCI Card</td>
</tr>
<tr>
<td>BIOS Wake Up</td>
<td>Enable wakeup on</td>
<td>RTC alarm</td>
</tr>
<tr>
<td>Load Factory Defaults</td>
<td>Select Yes or No</td>
<td>(Y/N)</td>
</tr>
<tr>
<td><strong>Support for specific Setup options may vary depending on your hardware configuration.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### HP t5000 Series Setup Utility (Continued)

<table>
<thead>
<tr>
<th>Heading</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Administrative Password</td>
<td></td>
<td>Allows you to set and enable the administrative password. If the administrative password is set, it is required to change the Setup options, flash the ROM, and make changes to certain plug and play settings under Windows.</td>
</tr>
<tr>
<td>Set User Password</td>
<td></td>
<td>Allows you to set and enable the user password. When the user password is set, it prevents unauthorized access to the user’s setup. User password provides read-only access to Setup options.</td>
</tr>
<tr>
<td>Save &amp; Exit Setup</td>
<td></td>
<td>Saves data to CMOS</td>
</tr>
<tr>
<td>Exit without Saving</td>
<td></td>
<td>Exits the Setup Utility without saving any changes.</td>
</tr>
</tbody>
</table>

⚠️ Support for specific Setup options may vary depending on your hardware configuration.
Diagnostics and Troubleshooting

LEDs

<table>
<thead>
<tr>
<th>Power-On LED</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LED</strong></td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td>Off</td>
<td>When the unit is plugged into the wall socket and the Power LED is off, the unit is powered off. However, the network can trigger a Wake On LAN event in order to perform management functions.</td>
</tr>
</tbody>
</table>
| Green              | Displays during boot sequence and while the unit is on. During boot sequence, hardware initialization is processed and startup tests are performed on the following:  
|                    | • Processor initialization  
|                    | • Memory detection and initialization  
|                    | • Video detection and initialization  
|                    | ✏ If one of the tests fails, the unit will simply stop, but the LED will stay on. If the video test fails, the unit beeps. There are no messages sent to video for any of these failed tests.  
|                    | ✏ After the video is initialized, anything that fails will have an error message.                                                                 |

RJ-45 LEDs are located inside the RJ-45 connector on the top, rear panel of the thin client. The LEDs are visible when the connector is installed. Blinking green indicates network activity, and amber indicates a 100MB speed connection.
Diagnostics and Troubleshooting

Power-On Sequence

At power-on, the flash boot block code initializes the hardware to a known state, then performs basic power-on diagnostic tests to determine the integrity of the hardware. Initialization performs the following functions:

1. Initializes CPU and memory controller.
2. Initializes VGA software.
3. Initializes and configures all PCI devices.
4. Initializes the video to a known state.
5. Initializes USB devices to a known state.
6. Performs power-on diagnostics. (For more information, see “Power-On Diagnostic Tests”.)
7. The unit boots the operating system.

### IDE Flash Activity LED

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>When the unit is powered on and the flash activity light is off, then there is no access to the system flash.</td>
</tr>
<tr>
<td>Blinking Green</td>
<td>Indicates the system is accessing the internal IDE flash.</td>
</tr>
</tbody>
</table>
Power-On Diagnostic Tests

The Power-on diagnostics performs basic integrity tests of the hardware to determine its functionality and configuration. If a diagnostic test fails during hardware initialization the unit simply stops. There are no messages sent to video.

You may try to restart the unit and run through the diagnostic tests a second time to confirm the first shutdown.

The following table lists the tests that are performed on the t5000 units.

<table>
<thead>
<tr>
<th>Power-On Diagnostic Test</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boot Block Checksum</td>
<td>Tests boot block code for proper checksum value</td>
</tr>
<tr>
<td>DRAM</td>
<td>Simple write/read pattern test of the first 640k of memory</td>
</tr>
<tr>
<td>Parallel port</td>
<td>Initiates the port’s driver and determines if the device is present</td>
</tr>
<tr>
<td>Serial port</td>
<td>Tests the serial port using simple port verification test to determine if ports are present</td>
</tr>
<tr>
<td>Timer</td>
<td>Tests timer interrupt by using polling method</td>
</tr>
<tr>
<td>RTC CMOS battery</td>
<td>Tests integrity of RTC CMOS battery</td>
</tr>
<tr>
<td>NAND Flash device</td>
<td>Tests for proper NAND flash device ID present</td>
</tr>
</tbody>
</table>
BIOS Error Messages

Beep Codes

A BIOS beep code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. One long beep followed by three short beeps indicates the system is running in boot block recovery mode. If there are no video errors, the system goes directly to POST messages.

<table>
<thead>
<tr>
<th>POST Messages</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS ROM checksum error - System halted</td>
<td>The checksum of the BIOS code in the BIOS chip is incorrect, indicating the BIOS code may have become corrupt. To restore a corrupt BIOS, refer to Appendix D, “System BIOS” or call your local HP Call Center for a diagnosis. For phone numbers of an HP Call Center near you, visit the following Web site: <a href="http://www.hp.com/cgi-bin/hpsupport/index.pl">http://www.hp.com/cgi-bin/hpsupport/index.pl</a></td>
</tr>
<tr>
<td>CMOS battery failed</td>
<td>The CMOS battery is no longer functional. For information on replacing the battery, refer to Appendix E, “Replacing the CMOS Battery.”</td>
</tr>
<tr>
<td>CMOS checksum error - Defaults loaded</td>
<td>Checksum of CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that CMOS has become corrupt. A weak battery may have caused this error. Replace the battery if necessary. For more information, refer to Appendix E, “Replacing the CMOS Battery.”</td>
</tr>
</tbody>
</table>
## POST Messages

<table>
<thead>
<tr>
<th>Message</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU at nnnn</td>
<td>Displays the running speed of the CPU.</td>
</tr>
<tr>
<td>Press <strong>ESC</strong> to skip memory test</td>
<td>The user may press <strong>Esc</strong> to skip the full memory test.</td>
</tr>
<tr>
<td>Keyboard error or no keyboard present</td>
<td>Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are pressed during POST. To purposely configure the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. The BIOS then ignores the missing keyboard during POST.</td>
</tr>
<tr>
<td>Keyboard is locked out - Unlock the key</td>
<td>The message usually indicates that one or more keys have been pressed during the keyboard tests. Be sure no objects are resting on the keyboard.</td>
</tr>
<tr>
<td>Memory Test</td>
<td>This message displays during a full memory test, counting down the memory areas being tested.</td>
</tr>
<tr>
<td>Memory Test Fail</td>
<td>If POST detects an error during memory testing, additional information appears giving specifics about the type and location of the memory error.</td>
</tr>
<tr>
<td>Override enabled - Defaults loaded</td>
<td>If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration with a set of BIOS defaults designed for the most stable, minimal-performance system operations.</td>
</tr>
</tbody>
</table>
POST Messages

Press TAB to show POST screen
Press the TAB key during POST to display messages hidden by the HP logo.

Error: Non-System disk or disk error
The BIOS was unable to find a suitable boot device. For the t5000 Series, this may mean an uninitialized or corrupt ATA Flash. Reflash the unit and press any key when ready. For more information, refer to Chapter 5, “Restoring the Flash Image.”

Boot Error Messages

<table>
<thead>
<tr>
<th>Screen Messages</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Block Test Error Message:</td>
<td>Too many bad flash memory blocks. This is a hardware problem. If the problem occurs every time the terminal is turned on, call your local HP Call Center for a diagnosis. For the phone numbers of an HP Call Center near you, visit the following Web site: <a href="http://www.hp.com/cgi-bin/hp">http://www.hp.com/cgi-bin/hp</a> support/index.pl</td>
</tr>
</tbody>
</table>
## Boot Error Messages (Continued)

<table>
<thead>
<tr>
<th>Screen Messages</th>
<th>Corrective Action</th>
</tr>
</thead>
</table>
| Flash Memory Error Message: “The terminal’s flash file system has been corrupted. Normally, this problem can be corrected by reloading the terminal’s firmware.” | • Reflash the software image if you have already created a recovery device or file.  
• If you have not created a recovery diskette, you must download the appropriate image from http://h18004.www1.hp.com/products/thinclients/software.html and reflash the terminal’s software.  
For information on reflashing software, see Chapter 5, “Restoring the Flash Image.” |
t5000 Troubleshooting Flow Chart

Start
Initial Troubleshooting

Is there power? N Go to Page 4-10
No Power

Y Is there video? N Go to Page 4-13
No Video

Y Beeps, LEDs, or error messages? N Go to Page 4-17
Error Messages

Y Is the OS Loading? N Go to Page 4-18
No O/S Loading

Y Go to next page

T5000 Troubleshooting Flow Chart B
t5000 Troubleshooting Flow Chart (cont’d)

Continued from Page 4-8

B

Initial Troubleshooting

Keyboard /mouse working?  

Y

NIC working?  

N

Go to Page 4-20  
Non-functioning Pointing Device or Keyboard

Y

Audio working?  

N

Go to Page 4-21  
No Internal Network Connector

Y

Windows Desktop displayed but can’t connect?  

N

Go to Page 4-22  
No Audio

N

Boot in continuous loop.  

Y

Go to Page 4-23  
No IP address

Go to Page 4-24  
Boot into Continuous Loop
No Power, Part 1

No Power
(Power LED is off)

Is power cord connected from power source to brick and brick to system?

Y

Using power strip or UPS?

Y

Ensure power strip or UPS is turned on.

N

Active Outlet

Y

Turn off power, and disconnect power cord.

N

Plug power cord into brick and power source, then from brick to system.

Turn computer off. Plug power cord into different active wall outlet.

Go to next page
t5000 Troubleshooting Flow Chart
No Power, Part 2
t5000 Troubleshooting Flow Chart (cont'd)

No Power, Part 2

Plug directly into AC outlet

Power LED on?

Y  Done

N  Reseat AC adapter in thin client and at power source

Power on?

Y  Done

N  Try different outlet

Power outlet active?

N

Y  Go to next page

t5000 Troubleshooting

Flow Chart

No Power, Part 3
t5000 Troubleshooting Flow Chart (cont’d)

No Power, Part 3

Replace power cord

Power on?

Y

Done

N

Is the power brick light on?

Y

Replace the power brick.

N

Call your local HP Call Center for a diagnosis. To locate a local phone number, visit the HP Web site at:
http://www.hp.com/cgi-bin/hpsupport/index.pl

Power on?

N

Y

Done
t5000 Troubleshooting Flow Chart (cont’d)

No Video, Part 1

Beeps

Y  Go to Page 4-17 Error Messages

N

Monitor LED on?

Y  LED color? (note 1)

Contrast and brightness turned up?

N  Turn contrast and brightness up.

Amber

N

Video adapter connected? (note 2)

Y  Go to Page 4-14 No Video, Part 2

N

Plug in, turn on, and return to page 4-8 Initial Troubleshooting.

Notes:
1. Older monitors and some third party monitors do not support the amber LED.
2. If more than one adapter is installed, monitor must be connected to primary controller.
t5000 Troubleshooting Flow Chart (cont’d)

Continued from Page 4-13

No Video, Part 2

Monitor plugged in and turned on? Y

Reconnect monitor to thin client (note 3)

Video OK? Y

Done

N

Replace Monitor

Plug in and turn on monitor

Video OK? Y

Done

N

Does unit have added PCI expansion or memory upgrades? N

Have the unit serviced. NOTE: Refer to the Warranty for coverage information.

Y

Go to next page
t5000 Troubleshooting Flow Chart

No Video, Part 3

Note:
3. Turn off and unplug thin client before reconnecting cables.
t5000 Troubleshooting Flow Chart (cont’d)

No Video, Part 3

Turn off power, disconnect power cord, and open the computer.

Reseat flash, riser board, and PCI memory, then clear CMOS by removing and replacing the battery.

Replace cover and power cord, then restart computer.

Video OK, computer starts?

Y

Done

N

Same symptoms?

Y

CMOS checksum error - defaults loaded

F1-CMOS checksum error - defaults loaded

N

CMOS checksum error - defaults loaded

Turn off computer and disconnect power. Replace components in system one at a time starting with Flash. Test system after each replacement for video or beeps.

CAUTION: Power is continuous to the system board and power supply even when the power switch is turned off. To prevent damage to the unit, disconnect the power cord from the power source or the unit before beginning disassembly procedures.

NOTE: Remove auxiliary video card if integrated video.

Go to next page

No Video, Part 4
**No Video, Part 4**

- **Restart computer**

  - **See codes or hear beeps?**
    - **N**
      - Integrated video?
        - **N**
          - Replace video card
        - **Y**
          - **Y**
            - Have the unit serviced.
            - NOTE: Refer to the Warranty for coverage information.
            - Video OK?
              - **N**
                - Done
              - **Y**

  - **Y**
    - Turn off computer and disconnect power. Replace components in system one at a time starting with Flash. Test system after each replacement for video or beeps. (see page 4-17)

---

**CAUTION:** Power is continuous to the system board and power supply even when the power switch is turned off. To prevent damage to the unit, disconnect the power cord from the power source or the unit before beginning disassembly procedures.
Error Messages

Beeps, CPU or Keyboard Lights, or POST error messages.

CAUTION: Power is continuous to the system board and power supply even when the power switch is turned off. To prevent damage to the unit, disconnect the power cord from the power source or the unit before beginning disassembly procedures.

Power LED has no color showing. Computer is off.

Power LED glows green. Computer is on.

Beep code - 1 Long, 2 Short. Video controller not present or incorrectly initialized. Ensure the monitor is plugged in. Unplug, open computer and check video card. Reseat card and ensure it is in the proper expansion slot.


NOTES: Short (S) and long (L) beeps will only be heard if the system has a speaker. LEDs will only function on PS/2 keyboards, not USB.
t5000 Troubleshooting Flow Chart (cont’d)

No O/S Loading (IDE Flash LED Blinking Green)

O/S not loading from:

- Flash
  Go to Page 4-19

- Network
  Go to Page 4-21

Factory recommended booting priority:
1. USB Device
2. Flash
3. Network
Note: For diskless models see page 4-29.

NOTE: If USB diskette drive present and diskette installed, system will not boot from other USB device.
O/S not loading from Flash*
IDE LED not blinking

Using t5000 F10 Setup, change boot priority to factory defaults.
1. USB Device
2. Flash*
3. Network
*Check “Amount of Flash memory” in system information table.

Disconnect any USB diskette drive or USB CD-ROM drive.

Press Ctrl-Alt-Del to reboot.

Boot from Flash?

Y
Done

N
Restore image using the Recovery process (See Chapter 5)

Boot from Flash?

Y
Done

N
Service the unit.
NOTE: Refer to the Warranty for coverage information.

* Not for diskless models
Non-functioning Pointing Device or Keyboard

- Pointing device or keyboard not operating properly.
- Reseat keyboard or mouse and disconnect other devices.
- F10 Setup to enable USB controller.
- Press Ctrl-Alt-Del to reboot.

Keyboard or mouse working?
- Y: Done
- N: Disconnect the non-functioning device and attach a known working keyboard/mouse to the system.
  - Press Ctrl-Alt-Del to reboot.
  - Working?
    - Y: Done
    - N: Reimage device using the recovery process.

Working?
- Y: Done
- N: Have the unit serviced.
  NOTE: Refer to the Warranty for coverage information.
t5000 Troubleshooting Flow Chart (cont’d)

No Internal Network Connection

Network or jack active? (see Note)

Replace cable or have jack activated.

NIC configured in OS?

Reimage using recovery process

OK?

Done

Call your local HP Call Center for a diagnosis. To locate a local phone number, visit the HP Web site at: http://www.hp.com/cgi-bin/hpsupport/index.pl

NOTE: Yellow or green LED on NIC connector indicates an active jack.
No Audio

Is Volume Control or Media Player muted? If so, change the setting.

Audio? Y Done

Audio? N

Are speaker connectors in correct jacks? Try both audio jacks.

Audio? Y

Restore image using the Recovery process. (See Chapter 5.)

Audio? N

In Control Panel's Sound and Audio, does the Audio tab indicate whether the unit sees its audio hardware?

Audio? Y

Take the following actions:
1. Reseat speaker cable
2. Replace speaker
NOTE: Refer to Warranty for coverage information.

Audio? N

Disconnect any external speakers.

Turn up volume for internal and external speakers.

Audio? Y Done
t5000 Troubleshooting Flow Chart (cont'd)

No IP Address

- Thin client have a valid IP address?
  - Y: Done
  - N: Ping Loopback OK?
    - Y: Service the unit. NOTE: Refer to the Warranty for coverage information.
    - N: Reboot unit and server

- Ping Gateway OK?
  - Y: Done
  - N: Ping Server by name OK?
    - Y: Contact Server Administrator to verify DCHP, DNS services started.
    - N: Replace network cable

- Reimage device using restore process
Booting in Continuous Loop

Using t5000 F10 Setup, change boot priority to factory defaults.
1. USB Device
2. Flash*
3. Network
*Check “Amount of Flash memory” in system information table.

Reboot the thin client.

Boot OK?  

Y  

Service the unit.  
NOTE: Refer to the Warranty for coverage information.

N  

Reboot the thin client.

If you are using XPe OS, disable the write filter.  
Check that Altiris 5.6 Deployment server is being used.

Boot OK?  

Y  

Done

N  

Reboot the thin client.

Boot OK?  

Y  

Reimage the system. Refer to Chapter 5, "Restoring the Flash Image."

N  

End
### Basic Troubleshooting

If the Thin Client t5000 Series is experiencing operating problems or will not power on, review the following items.

#### Power-On Troubleshooting

<table>
<thead>
<tr>
<th>Issue</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>The thin client unit is experiencing operating problems.</td>
<td>Ensure that the following connectors are securely plugged into the thin client unit:</td>
</tr>
<tr>
<td></td>
<td>• Power connector</td>
</tr>
<tr>
<td></td>
<td>• Keyboard</td>
</tr>
<tr>
<td></td>
<td>• Mouse</td>
</tr>
<tr>
<td></td>
<td>• Network RJ-45 connector</td>
</tr>
<tr>
<td></td>
<td>• Monitor</td>
</tr>
<tr>
<td>The thin client unit does not power on.</td>
<td>1. Verify that the power supply is good by installing it on a known working unit and testing it. If the power supply does not work on the test unit, replace the power supply.</td>
</tr>
<tr>
<td></td>
<td>2. If the unit does not work properly with the replaced power supply, have the unit serviced.</td>
</tr>
</tbody>
</table>
Diagnostics and Troubleshooting

---

**Power-On Troubleshooting (Continued)**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>The thin client unit powers on and displays a splash screen, but does not connect to the server.</td>
<td>1. Verify that the network is operating and the network cable is working properly.</td>
</tr>
<tr>
<td></td>
<td>2. Verify that the unit is communicating with the server by having the System Administrator ping the unit from the server:</td>
</tr>
<tr>
<td></td>
<td>• If the thin client pings back, then the signal was accepted and the unit is working. This indicates a configuration issue.</td>
</tr>
<tr>
<td></td>
<td>• If the thin client does not ping back and the thin client does not connect to the server, reimage the unit.</td>
</tr>
</tbody>
</table>
## Power-On Troubleshooting (Continued)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Procedures</th>
</tr>
</thead>
</table>
| No link or activity on the network RJ-45 LEDs or the LEDs do not illuminate blinking green after powering on the thin client unit. (The network LEDs are located inside the RJ-45 connector on the top, rear panel of the thin client. Indicator lights are visible when the connector is installed.) | 1. Verify that the network is not down.  
2. Make sure the RJ-45 cable is good by installing the RJ-45 cable onto a known working device—if a network signal is detected then the cable is good.  
3. Verify the power supply is good by replacing the power cable to the unit with a known working power supply cable and testing it.  
4. If network LED’s still do not light and you know the power supply is good, then reimage the unit.  
5. If network LED’s still do not light, run the IP configuration procedure on page 4-23.  
6. If network LED’s still do not light, have the unit serviced. |
| A newly connected unknown USB peripheral does not respond or USB peripherals connected prior to the newly connected USB peripheral will not complete their device actions. | An unknown USB peripheral may be connected and disconnected to a running platform as long as you do not reboot the system. If problems occur, disconnect the unknown USB peripheral and reboot the platform. |
### Power-On Troubleshooting (Continued)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video does not display.</td>
<td>1. Verify that the monitor brightness is set to a readable level.</td>
</tr>
<tr>
<td></td>
<td>2. Verify the monitor is good by connecting it to a known working computer and ensure its front LED turns green (assuming the monitor is Energy Star compliant). If the monitor is defective, replace it with a working monitor and repeat testing.</td>
</tr>
<tr>
<td></td>
<td>3. Reimage the thin client unit and power on the monitor again.</td>
</tr>
<tr>
<td></td>
<td>4. Test the thin client unit on a known working monitor. If the monitor does not display video, replace the thin client unit.</td>
</tr>
</tbody>
</table>
Diskless (No-Flash) Unit Troubleshooting

This section is only for those units that do not have ATA Flash capability. Because there is no ATA Flash in this model the boot priority sequence is:

- USB device
- PXE

1. When the unit boots, the monitor should display the following information:
   - MAC Address — NIC portion of the system board is OK
   - GUID—General system board information
   - Client ID—Information from server
   - MASK—Information from server
   - DHCP IP—Information from server

   - If there is no MAC Address, the system board is at fault. Contact the Call Center for service.
   - If there is not GUID information, the system board is at fault and should be replaced.
   - If there is no Client ID, MASK, and DHCP IP information there is no network connection. This may be caused by a bad cable, the server is down, or a bad system board. Contact the Call Center for service for the bad system board.

   If you are running in an MS RIS PXE environment go to step 2.
   If you are running in a Linux environment go to step 3.

2. If you are running in an MS RIS PXE environment press the F12 key to activate the network service boot as soon as the DHCP IP information appears on the screen.
   - If the unit does not boot to the network the server is not configured to PXE.
   - If you missed the F12 cue, the system will try to boot to the ATA flash that is not present. The message on the screen will read:
ERROR: Non-system disk or disk error. Replace and press any key when ready.

- Pressing any key will restart the boot cycle.

3. If you are running in a Linux environment an error message will appear on the screen if there is no Client IP.

ERROR: Non-system disk or disk error. Replace and press any key when ready.
Restoring the Flash Image

System Requirements

To create a recovery device for the purpose of reflashing or restoring the software image on the ROM, you will need the following:

- A personal computer running Microsoft Windows 2000 Professional or Microsoft Windows XP Professional
- One or more HP Compaq t5000 Series Thin Clients
- CD-R or CD-RW drive (if using the ISO Image option)
- USB flash device 32MB for Microsoft Windows CE or 512MB for Windows XP Embedded (if using the USB format) or Linux. Compatible USB flash devices (drive keys) 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 (drive keys) 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.
Restoring the Flash Image

Getting Started

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

- 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)
- Unbundle 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 in the following paragraphs.

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 15 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.

Once this process is complete, use the generated ISO file to create a bootable restore CD with your CD creation software.
3. 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.**

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

5. Restart the thin client.

6. 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 Drive

> **CAUTION:** To prevent loss of data, be sure that you have saved any user-created data from the USB drive to another drive.

1. Connect your USB flash device (drive key) to your personal computer. 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.)

![Format USB Drive](image)

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**.

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.**

5. Restart the thin client.

6. 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 unbundled. When this process is complete, there will be three new files: **IBR.EXE** (the image restoration utility), **FLASH.IMG** (the OS image), and **README.TXT**.
Restoring the Flash Image

Select a Location for Image and Tools

Look in: Local Disk [E:]

CD Automation  msdownld.tmp
DM500  QUICKLNK
ExtendNTFS  RECYCLER
MAPLE.RE  softpaq.ocx
Microsoft Platform SDK  Stuff
Microsoft Visual Studio  System Volume Information

Open  Cancel

Extracting Files

Extracting the flash image.

Extracting...

Cancel

HP Compaq Thin Client Imaging Tool

The tools and image have been successfully written to the desired location. Please review the provided documentation for any additional information on their usage.
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 C, “Configuring a PXE Server under Microsoft RIS” 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.
Citrix MetaFrame

Citrix MetaFrame Troubleshooting

✎ This Troubleshooting section is not intended to enable HP or Compaq Service to support Citrix software. All Citrix software is supported by Citrix or Citrix authorized service providers on a warranty or service contract basis. Customers that call the HP or Compaq Customer Service Center with Citrix issues and questions should be referred to Citrix for assistance.

A frequently encountered issue is the inability of the Thin Client to connect to the Citrix server. The problem is often caused by using the server name but not having a DNS server configured on the network or on the terminal. To correct the problem, do one of the following:

■ Configure a DNS server on the network, then add the necessary DNS information at the terminal.

■ Specify the server by its IP address rather than by its name.
## Citrix Error Messages

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The option option is not valid.</td>
<td>Missing argument for option option.</td>
</tr>
<tr>
<td>The option option has an invalid argument: argument.</td>
<td>The configuration file has been edited directly or is corrupt. Reconfigure Citrix MetaFrame.</td>
</tr>
<tr>
<td>Error in configuration file: file cannot find section section.</td>
<td>The configuration file has been edited directly or is corrupt. Reconfigure Citrix MetaFrame.</td>
</tr>
<tr>
<td>Error in configuration file. section must contain an entry entry.</td>
<td></td>
</tr>
<tr>
<td>Invalid ICA Protocol data received.</td>
<td>This probably indicates a network error.</td>
</tr>
<tr>
<td>Cannot open visual: ID number.</td>
<td>This visual (ID =...) cannot support the required number of colors.</td>
</tr>
<tr>
<td>Cannot allocate sufficient colors. Continuing in 16-color mode.</td>
<td>A suitable visual has been found but it can only support 16 colors.</td>
</tr>
<tr>
<td>Cannot find a suitable visual on this display.</td>
<td>Unable to allocate a private color map on this display.</td>
</tr>
<tr>
<td>An error occurred in the graphics system.</td>
<td>This message indicates a problem with the display. Try exiting other applications, such as Microsoft Internet Explorer, to release the colors on your display.</td>
</tr>
<tr>
<td>Cannot find keyboard mapping file file.</td>
<td>The keyboard mapping file specified in the Preferences page of the Settings dialog box is invalid or cannot be located.</td>
</tr>
</tbody>
</table>
### Citrix Error Messages (Continued)

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A server must be entered.</td>
<td>A server name must be entered on the <strong>Network</strong> page of the <strong>Properties</strong> dialog box.</td>
</tr>
<tr>
<td>Window size must be between 300 and 2048.</td>
<td>The <strong>Custom Width and Height</strong> fields on the <strong>Window</strong> page of the <strong>Properties</strong> dialog box can take values between 300 and 2048 only.</td>
</tr>
<tr>
<td>Data has been changed. Are you sure you want to quit?</td>
<td>You are quitting from the ICA client without saving changes to the current connection entry.</td>
</tr>
<tr>
<td>Cannot write file: <em>file</em>.</td>
<td>This message indicates a problem with saving or creating a connection database (for example, no disk space).</td>
</tr>
<tr>
<td>Invalid Error: Cannot start Wfica with this connection.</td>
<td>The connection entry is invalid.</td>
</tr>
<tr>
<td>Cannot find selected connection, or cannot find specified connection.</td>
<td>The configuration file is corrupt. Create a new configuration file.</td>
</tr>
<tr>
<td>Error in configuration file: <em>file</em> Missing section: <em>section</em></td>
<td>The configuration file is corrupt. Create a new configuration file.</td>
</tr>
<tr>
<td>Inconsistency in configuration file: <em>file</em> Missing section: <em>section</em></td>
<td>The configuration file is corrupt. Create a new configuration file.</td>
</tr>
<tr>
<td>This description is already in use. The Description must be unique.</td>
<td>The <strong>Description</strong> field on the <strong>Network</strong> page of the <strong>Properties</strong> dialog box must be unique.</td>
</tr>
</tbody>
</table>
### Citrix Error Messages (Continued)

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot get address for server server.</td>
<td>The server name cannot be resolved.</td>
</tr>
<tr>
<td>Unable to perform update: client is not on local file system.</td>
<td>The client cannot update an installation on a non-local (for example, NFS-mounted) file system.</td>
</tr>
<tr>
<td>Unable to perform update: Not running $ICAROOT/wfica.</td>
<td>The client cannot update an installation other than its own.</td>
</tr>
</tbody>
</table>
Microsoft Remote Desktop Protocol

Microsoft Remote Desktop Protocol (RDP) is designed to provide remote display and input capabilities over network connections for Windows-based applications running on a server. RDP services are accessed by the Terminal Services client application on the thin client. RDP can be made available on the network using any of the following services:

- Microsoft Windows 2000 Server with Terminal Services installed:
- Microsoft Windows NT 4.0 Terminal Server Edition
- Microsoft Windows XP Professional
- Microsoft Windows .NET Server

For more information about RDP, visit the following Microsoft Web sites:

Microsoft Remote Desktop Protocol
# Thin Client t5000 Specifications

## Specifications - t5000 Series (not for t5720)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Transmeta Crusoe high-speed CPU with on-board SDRAM controller and PCI bus controller</td>
</tr>
<tr>
<td>Memory</td>
<td>Memory may be expandable. Refer to <a href="http://h18000.www1.hp.com/products/quickspecs/productbulletin.html">http://h18000.www1.hp.com/products/quickspecs/productbulletin.html</a> for the latest information.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Integrated Microsoft RDP and Citrix ICA protocols and terminal personalities standard</td>
</tr>
<tr>
<td>Display Support</td>
<td>VESA Monitor support; scalable video up to 1600 x 1200, 16-bit color, up to 85-Hz refresh rate.</td>
</tr>
<tr>
<td>Audio</td>
<td>Output: 1/8-inch mini-plug, full 16-bit stereo, 44-KHz sample rate Input: 1/8-inch mini-plug for microphone</td>
</tr>
<tr>
<td>Input Output Peripheral support</td>
<td>Keyboard: HP Enhanced USB with Microsoft Windows keys (104 keys) included Mouse: HP USB scroll mouse included Printer: Local and/or network printers on ICA (virtual port redirection ready) Video: VGA-type video output (DB-15)</td>
</tr>
</tbody>
</table>
### Specifications - t5000 Series (not for t5720)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking</td>
<td>• TCP/IP with DNS and DHCP;</td>
</tr>
<tr>
<td></td>
<td>Point-to-Point Protocol (PPP)</td>
</tr>
<tr>
<td></td>
<td>• Multiple master browser support and</td>
</tr>
<tr>
<td></td>
<td>Citrix load balancing on ICA</td>
</tr>
<tr>
<td></td>
<td>• SNMP support allows configuration of</td>
</tr>
<tr>
<td></td>
<td>terminal settings, reporting of terminal</td>
</tr>
<tr>
<td></td>
<td>configuration and attached devices, and traps</td>
</tr>
<tr>
<td></td>
<td>• DHCP support for automatic firmware</td>
</tr>
<tr>
<td></td>
<td>upgrades and unit configuration</td>
</tr>
<tr>
<td>Administrative Software</td>
<td>• Altiris Deployment Solution 5.6 or greater</td>
</tr>
<tr>
<td>Communications</td>
<td>• Four USB ports</td>
</tr>
<tr>
<td></td>
<td>• 10/100BaseT Fast Ethernet, twisted</td>
</tr>
<tr>
<td></td>
<td>pair (RJ45)</td>
</tr>
<tr>
<td></td>
<td>• ICA Remote dial-up via external modem</td>
</tr>
<tr>
<td>Resident Operating Systems</td>
<td>t5000 Series models may have one of the following operating systems:</td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows CE .NET/IE or XP Embedded/IE for Thin Clients</td>
</tr>
<tr>
<td>Server Compatibility</td>
<td>• Microsoft Windows NT Server 4.0</td>
</tr>
<tr>
<td></td>
<td>• Terminal Server Edition</td>
</tr>
<tr>
<td></td>
<td>• Microsoft Windows 2000 Server with Terminal Services installed</td>
</tr>
<tr>
<td></td>
<td>• Citrix WinFrame</td>
</tr>
<tr>
<td></td>
<td>• Citrix MetaFrame</td>
</tr>
</tbody>
</table>
### Specifications - t5720 Model

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>AMD Geode NX1500 high-speed CPU</td>
</tr>
<tr>
<td>Memory</td>
<td>Memory may be expandable. Refer to <a href="http://h18000.www1.hp.com/products/quickspecs/productbulletin.html">http://h18000.www1.hp.com/products/quickspecs/productbulletin.html</a> for the latest information.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Integrated Microsoft RDP and Citrix ICA protocols and Terminal personalities standard</td>
</tr>
<tr>
<td>Display Support</td>
<td>VESA Monitor support; scalable video up to 2048 x 1536, 32-bit color, up to 60-Hz refresh rate. Supports the following configurations:</td>
</tr>
<tr>
<td></td>
<td><strong>Mode</strong></td>
</tr>
<tr>
<td></td>
<td>640 x 480</td>
</tr>
<tr>
<td></td>
<td>800 x 600</td>
</tr>
<tr>
<td></td>
<td>1024 x 768</td>
</tr>
<tr>
<td></td>
<td>1152 x 864</td>
</tr>
<tr>
<td></td>
<td>1280 x 1024</td>
</tr>
<tr>
<td></td>
<td>1600 x 1200</td>
</tr>
<tr>
<td></td>
<td>1920 x 1200</td>
</tr>
<tr>
<td></td>
<td>1920 x 1440</td>
</tr>
<tr>
<td></td>
<td>2048 x 1536</td>
</tr>
<tr>
<td>Audio</td>
<td>Output: 1/8-inch mini-plug, full 16-bit stereo, 44-KHz sample rate</td>
</tr>
<tr>
<td></td>
<td>Input: 1/8-inch mini-plug for microphone</td>
</tr>
<tr>
<td>Input Output</td>
<td>Keyboard: HP Enhanced PS/2 with Microsoft Windows keys (104 keys) included</td>
</tr>
<tr>
<td>Peripheral support</td>
<td>Mouse: HP PS/2 scroll mouse included</td>
</tr>
<tr>
<td></td>
<td>Printer: Local and/or network printers on ICA (virtual port redirection ready)</td>
</tr>
<tr>
<td></td>
<td>Video: VGA-type video output (DB-15)</td>
</tr>
</tbody>
</table>
**Specifications - t5720 Model**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| Networking                | • TCP/IP with DNS and DHCP; Point-to-Point Protocol (PPP)  
• Multiple master browser support and Citrix load balancing on ICA  
• SNMP support allows configuration of terminal settings, reporting of terminal configuration and attached devices, and traps  
• DHCP support for unit configuration. |
| Administrative Software   | • Altiris Deployment Solution 5.6 or greater                                                                                                  |
| Communications            | • Six USB 2.0 ports, 2 front, 4 rear  
• 10/100BaseT Fast Ethernet, twisted pair (RJ45)  
• ICA Remote dial-up via external modem                                                                 |
## Specifications - t5720 Model

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<td>Microsoft Windows XP Embedded/IE.</td>
</tr>
<tr>
<td>Server Compatibility</td>
<td>- Microsoft Windows NT 4.0 Server</td>
</tr>
<tr>
<td></td>
<td>- Windows NT 4.0 Terminal Server Edition</td>
</tr>
<tr>
<td></td>
<td>- Windows 2000/2003 Server families</td>
</tr>
<tr>
<td></td>
<td>- Windows 2000/2003 Server Terminal Services</td>
</tr>
<tr>
<td></td>
<td>- Windows 2000 Advance Server</td>
</tr>
<tr>
<td></td>
<td>- Windows 2000 Advance Server Terminal Services</td>
</tr>
<tr>
<td></td>
<td>- Citrix MetaFrame and Presentation Server for Microsoft Windows NT 4.0,</td>
</tr>
<tr>
<td></td>
<td>Windows 2000 Server family, and</td>
</tr>
<tr>
<td></td>
<td>Windows 2003 Server family</td>
</tr>
</tbody>
</table>
Adding an Image Restore Tool Using Altiris Deployment Solution

1. Ensure that IBR.exe (Image Restore) 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. Type [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 (http://www.altiris.com/support/documentation) for more detailed information.
Configuring a PXE Server under Microsoft RIS

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 Windows 2000 Server. You must first format the drive on which RIS is installed 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 Windows 2000 Server CD into the CD-ROM drive, if prompted.)
5. Restart the computer after the wizard has 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. Select 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 file 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 the Microsoft Web site for instructions about creating a network bootable diskette.)
For More Information

HP Compaq t5000 Series Documentation (including white papers discussing software deployment methods):

Altiris Deployment Solution Documentation:
http://www.altiris.com/support/documentation/
Restoring a Corrupt BIOS

If the BIOS code on the thin client is corrupt (see the section on BIOS Error Messages in Chapter 4, “Diagnostics and Troubleshooting”), the BIOS must be restored before the thin client will boot to the operating system. To restore the BIOS on a thin client t5000 Series, you will need the following:

- An external USB diskette drive connected to the thin client
- HP Compaq Thin Client t5000 Series System BIOS Softpaq (for the product being restored) on diskette

A thin client with a corrupt BIOS will only boot from a USB diskette drive.

To restore a corrupt BIOS, complete the following instructions:

1. Insert an empty diskette into a diskette drive on a working computer, and navigate to the following HP Web site:
2. Select Thin Client Software and Drivers.
3. Under option 2, in operating system select your thin client operating system, and then under category select BIOS.
4. Download to your hard drive. The downloaded file is an executable.
5. From your hard drive, open the Softpaq, then open the Flash Diskette folder and double-click the .bat file.

   The screen prompts: Place Destination disk in drive A: Press any key when you are ready.
6. Be sure you have inserted an empty diskette in drive A: and press any key to copy the software to the diskette.

7. Power off the thin client with the corrupt BIOS.

8. Connect the external USB diskette drive to the thin client and insert the newly created Flash diskette into the diskette drive.

Before powering on the thin client, check to make sure there are no other USB devices connected to the thin client. If there are, disconnect them.


10. At power on, the BIOS is automatically restored from the diskette.

**WARNING:** Do not turn off power or attempt to reboot the thin client during the recovery process.

While this procedure is primarily used to recover systems with corrupt BIOS, it can also be used to locally update a system BIOS.

### Updating a BIOS

To update the system BIOS on the Thin Client t5000 Series, download the Thin Client t5000 Series Softpaq (for the product being updated) from the HP Web site at:

The Softpaq contains utilities for restoring or updating the system BIOS on the Thin Client t5000 Series. Included in the Softpaq are several methods for changing or updating the BIOS version on your computer. The tools and appropriate BIOS images are contained in the following Softpaq directories:

- **DOS Flash**—DOS utility that can be used locally or with a Preboot eXecution Environment (PXE) management application to update the system BIOS.

- **WFlash**—Windows-based utility used to locally update the system BIOS on individual PCs through the Windows environment.
To determine the BIOS family, version, and date on the thin client, press **F10** during system power-on to run the F10 Setup utility, then select **System Information**.

To update the system BIOS, complete the following instructions:

1. Download the Softpaq to a directory on your hard drive. The downloaded file is a self-extracting executable.
2. From that drive and directory, execute the downloaded file and follow the on-screen instructions.
3. Copy the appropriate utility to a diskette to transfer to the thin client.

**WARNING:** Do not turn off power or attempt to reboot the computer during the upgrade process.
Replacing the CMOS Battery

Removing and Replacing the Side Access Panel and Chassis Cover

t5000 Series

⚠️ The t5720 procedures differ. For more information, see “t5720 Model” on page 3

To replace the CMOS battery, you must remove the side access panel and chassis cover as shown in the following sections.

⚠️ WARNING: Before removing the side access panel, ensure that the thin client is turned off and that the power cord is disconnected from the electrical outlet.

1. Remove the two back panel screws 1.
Replacing the CMOS Battery

2. Pull the side panel off 2.

Removing the Side Access Panel

3. Remove the chassis cover by removing the two screws 1 and pulling the chassis cover 2 off.

4. Disconnect the speaker cable 3 from the system board.

Removing the Chassis Cover and Disconnecting the Speaker
t5720 Model

1. Remove the two screws that secure the chassis cover to the chassis 1.
2. Slide the chassis cover to the right about 9-mm (3/8-inches) then, pull the chassis cover off the chassis 2.
3. Disconnect the speaker cable 3 from the system board.

Removing the chassis cover and disconnecting the speaker

To replace the chassis cover, reverse the previous procedure.

Replacing the Battery

1. Locate the battery on the system board.
2. Pull back on the clip 1 that is holding the battery in place, and remove the battery 2.
3. Insert the new battery and position the clip back into place.

Removing and Replacing the CMOS Battery

After replacing the battery, replace the side panel and chassis cover by reversing the previous steps.
The following URLs point to thin client support information listed on the HP Web site:

  Links to information on the Support Home index, product documentation, Operating System upgrades and SoftPaqs, customer announcements and notifications, and self-help

  Links to thin client SoftPaqs and documentation

The following URLs point to embedded operating system information listed on the Microsoft Web site:

  Embedded home pointer

  CE.NET pointer

  XPe pointer

  XPe Technical Resources pointer

The following URLs point to Altiris software support:

- http://www.altiris.com/
  Lifecycle Management Software

- http://www.altiris.com/support/complimentary/
  Altiris Complimentary Support

The following URL points to Citrix support and services:

  Citrix Knowledge Center
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