

***COMPAQ***

**Troubleshooting Guide**  
Compaq *Evo* Thin Client T20

Part Number: 245305-001

**August 2001**

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Troubleshooting Guide

First Edition (August 2001)

Part Number: 245305-001

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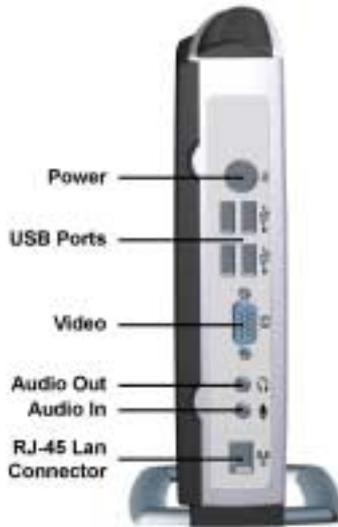
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## Product Description

The Compaq *Evo* Thin Client T20 is a Windows-based terminal that connects over a network to a server where all processing and storage occurs. Because of the nature of the product, troubleshooting is significantly simpler than on a standard PC.



***Compaq Evo Thin Client T20 - Front View***



**Compaq Evo Thin Client T20 - Rear View**

This guide provides diagnostic, troubleshooting, and maintenance information for the Compaq *Evo* Thin Client T20.

## Serial Number Location

The serial number is displayed on the bottom 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 this product:

- The *Compaq Evo Thin Client T20 and Compaq T1010 Windows Based Terminals Users Guide*, which contains information about:
  - *Evo Thin Client T20 features and management*
  - *The user interface*
- The *Compaq Evo Thin Client T20 and Compaq T1010 Windows Based Terminals Administrators Guide*, which contains information about:
  - *Terminal specifications and installation*
  - *Physical and network connections, and protocols supported*
  - *Firmware upgrades*
  - *Terminal Security*
- *Compaq Service Advisories and Bulletins*
- *Compaq QuickFind*

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## Spare Parts

### Spare Parts List

The Spare Parts table below provides a listing of the spare parts available for the Compaq *Evo* Thin Client T20.

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#### Spare Parts List

Description	Spare Part Number
T20 CE 16F/32R Unit	242302-001
T20 NTe 48F/64R Unit	242303-001
T20 NTe 64F/96R Unit	242304-001
T20 NT3 96F/128R Unit	242305-001
Mouse, USB	242306-001
<b>Enhanced Keyboard</b>	242372-xxx
Arabic	-171
APD (Asia-Pacific Division)	-371
Austrian	-011
Belgium	-181
BHCSY (Bosnia-Herzegovina, Croatia, Slovenia, and Yugoslavia)	-B41
Brazilian	-201
China	-AA1
Czech	-221

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## Spare Parts List (*Continued*)

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Description	Spare Part Number
<b>Enhanced Keyboard</b> ( <i>Continued</i> )	242372-xxx
Danish	-081
French	-051
French Canadian	-121
German	-041
Greek	-151
Hebrew	-BB1
Hungarian	-211
International	-B31
International-European	-021
Italian	-061
Japanese	-191
Korean	-AD1
Latin American Spanish	-161
Netherlands	-331
Norwegian	-091
Polish	-241
Portuguese	-131
Russian	-251
Spanish	-071
Swedish	-101
Swiss	-111
Taiwan	-AB1
Turkey, F	-541

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**Spare Parts List (Continued)**

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Description	Spare Part Number
<b>Enhanced Keyboard (Continued)</b>	
Turkish	-141
UK	-031
US	-001

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# Diagnostics and Troubleshooting

## LEDs

### Power-On LED

LED	Status
Off	When the unit is plugged into the wall socket and the LED is off, the unit is in suspend mode.
Amber	Displays during boot sequence or standby mode. During boot sequence, hardware initialization is processed and startup tests are performed on the following: <ul style="list-style-type: none"><li>■ Memory size and data path</li><li>■ OHCI USB</li><li>■ NAND Flash</li></ul>  If one of the tests fails, the unit will simply stop. No messages are sent to video.
Green	Displays when the startup tests have been completed and while the unit is on.



RJ45 LEDs are inside the RJ45 junction connector on the bottom rear of the *Evo Thin Client T20*. The indicator lights are visible through the clear plastic RJ45 cable connector.

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### RJ45 LEDs

Top LED	Bottom LED	Network	Status
OFF	OFF	None	No Link
OFF	ON (Green)	10BT	No Activity/Link
Blinking (Yellow)	ON (Green)	10BT	Activity/Link
OFF	ON (Amber)	100BT	No Activity/Link
Blinking (Yellow)	ON (Amber)	100BT	Activity/Link

## 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 VSA software.
3. Initializes and configures all PCI devices.
4. Initializes the video to a known state.
5. Initializes the keyboard controller to a known state.
6. Performs power-on diagnostics. (Refer to the following “Power-On Diagnostics” section.)
7. Checks for special connectors.

If any of the special connectors are installed, then the unit:

- Downloads the MAC address
- Downloads software or runs the manufacturing self-test

If no special connectors are present, then the unit boots the operating system.

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## Boot Error Messages

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Issue	Procedures
Bad Block Test Error Message: “The internal diagnostics have detected a problem.”	Too many bad flash memory blocks. This is a hardware problem. If the problem occurs every time the terminal is turned on, the terminal must be serviced to correct the problem.
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.”	This is considered a correctable error by downloading and reflashing the terminal’s software.

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## 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.



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

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The following table lists the tests that are performed.

## **Power-On Diagnostic Test**

<b>Test</b>	<b>Description</b>
Boot Block Checksum	Tests boot block code for proper checksum value
DRAM	Simple write/read pattern test of the first 640k of memory
Parallel port	Initiates the port's driver and determines if the device is present
Serial ports	Tests serial port 1 and serial port 2 using simple port verification test to determine if ports are present
Timer	Test timer interrupt by using polling method
Keyboard controller	Tests for the presence of the keyboard controller
Mouse interface	Tests for the presence of the mouse controller
RTC CMOS battery	Tests integrity of RTC CMOS battery
NAND Flash device	Tests for proper NAND flash device ID present

## Basic Troubleshooting

If the Thin Client T20 is experiencing operating problems or won't power on, review the following items.

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### Power-On Troubleshooting

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Issue	Procedures
The T20 unit is experiencing operating problems.	Ensure that the following connectors are securely plugged into the Thin Client T20: <ul style="list-style-type: none"><li>■ Power connector</li><li>■ USB Keyboard</li><li>■ USB Mouse</li><li>■ Network RJ45 connector</li><li>■ Monitor</li></ul>
The T20 unit doesn't power on.	<ol style="list-style-type: none"><li>1. Verify that the power supply is good by installing it on a known working unit and testing it. If the power supply doesn't work on the test unit, replace it.</li><li>2. If the unit doesn't work properly with the replaced power supply, then replace the T20 unit.</li></ol>

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## Power-On Troubleshooting (*Continued*)

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Issue	Procedures
The T20 unit powers on and displays a splash screen, but does not connect to the server.	<ol style="list-style-type: none"><li>1. Verify that the network is operating and the network cable is working properly.</li><li>2. Verify that the unit is communicating with the server by having the System Administrator ping the unit from the server:<ul style="list-style-type: none"><li>❖ If the T20 pings back, then the signal was accepted and the unit is working. This indicates a configuration issue.</li><li>❖ If the T20 does not ping back and the T20 does not connect to the server, replace the unit.</li></ul></li></ol>
No link or activity on the network RJ45 LEDs or the LEDs do not illuminate blinking yellow after powering on the T20 unit. (The network LEDs are located inside the RJ45 junction connector on the bottom rear of the T20. Indicator lights are visible through the clear plastic RJ45 cable connector.)	<ol style="list-style-type: none"><li>1. Verify that the network is not down.</li><li>2. Make sure the RJ45 cable is good by installing the RJ45 cable onto a known working device—if a network signal is detected then the cable is good.</li><li>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.</li><li>4. If network LED's still do not light and you know the power supply is good, then the T20 unit is defective and should be replaced.</li></ol>

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### **Power-On Troubleshooting (*Continued*)**

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<b>Issue</b>	<b>Procedures</b>
Video does not display.	<ol style="list-style-type: none"><li>1. Verify that the monitor brightness is set to a readable level.</li><li>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.</li><li>3. Test the T20 unit on a known working monitor. If the monitor does not display video, replace the T20 unit.</li></ol>

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# Rapport Administrative Software and Citrix MetaFrame

## Rapport Administrative Software

Rapport is an intuitive graphical management tool that enables network administrators to control and upgrade networked client devices with minimum time and effort.

Rapport uses SNMP to communicate with the *Evo* Thin Client T20. The Rapport agent software on the thin clients manages the translation to/from SNMP, and the agents use a Rapport specific set of error definitions and codes. These are the codes that Rapport displays in Update Manager, and in its log reports.

The codes are defined in a file named MGTErr.cpp, a C++ insert file. The MGT errors are defined in groups. For example, Command errors return codes between 1200 and 1216, terminal connect errors return codes in the 3000s, and SNMP service errors return codes in the 4000s. The SNMP errors are broken down further, such that 4000-4099 are general errors, 4100-4199 are generated for SNMP Get functions, and so on.

## Initial Support Checklist

After verifying that the hardware is functioning, review the following checklist.

Verify that:

1. Rapport is installed on one of the following operating systems:
  - Microsoft Windows NT 4.0 Server SP 5 or higher

- ❑ Microsoft Windows NT 4.0 Terminal Server SP 5 or higher
  - ❑ Microsoft Windows NT 4.0 Workstation SP 5 or higher
  - ❑ Microsoft Windows 2000 Advanced Server SP 1 or higher
  - ❑ Microsoft Windows 2000 Server SP 1 or higher
  - ❑ Microsoft Windows 2000 Professional SP 1 or higher
2. The user or system administrator has set up a domain and is logged on as Domain Administrator. For security reasons, Rapport must be installed on a domain and the installer must be logged on as a domain administrator for that domain. If the user is not familiar with domains or setting up domains, they can be referred to Compaq Enterprise technical support, or they can call the Operating System (Microsoft or other OS vendor) technical support for assistance in setting up a domain.
  3. The user had either Microsoft-SQL Server or Microsoft Data Engine (MSDE) installed prior to installing Rapport. MSDE is not installed as part of Rapport, but MSDE 2000 and MSDE 7 are provided on the Rapport Installation CD-ROM in the Applications folder. Please note that MSDE 2000 does not work on Windows NT Terminal Server.
  4. The Rapport Sales Key was installed as suggested. By default, the Workgroup sales key is pre-populated in the software; however, if you received a sales key, please use it instead. The appropriate sales key is printed on a label on the installation instructions provided with the CD.
  5. An FTP server was installed, running, and accessible to the computer on which Rapport was being installed. The Microsoft FTP server is preferred. The user can also install the War FTP Daemon that is provided in the Applications folder on the Rapport Installation CD-ROM.

6. The SNMP Service was installed and running prior to the installation of Rapport.



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Rapport should not be installed on a system that already has a TFTP service or a PXE/Proxy service installed.

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## Citrix MetaFrame Troubleshooting

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This Troubleshooting section is not intended to enable 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 Compaq Customer Service Center with Citrix issues and questions should be referred to Citrix for assistance.

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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.

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## Citrix Error Messages

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

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## Citrix Error Messages (*Continued*)

Error Message	Meaning
Window size must be between 300 and 2048.	The <b>Custom Width and Height</b> fields on the <b>Window</b> page of the <b>Properties</b> dialog box can take values between 300 and 2048 only.
Data has been changed. Are you sure you want to quit?	You are quitting from the ICA client without saving changes to the current connection entry.
Cannot write file: <i>file</i> .	This message indicates a problem with saving or creating a connection database (for example, no disk space).
Invalid Error: Cannot start Wfica with this connection.	The connection entry is invalid.
Cannot find selected connection, or cannot find specified connection.	The configuration file is corrupt. Create a new configuration file.
Error in configuration file: <i>file</i> Missing section: <i>section</i>	The configuration file is corrupt. Create a new configuration file.
Inconsistency in configuration file: <i>file</i> Missing section: <i>section</i>	The configuration file is corrupt. Create a new configuration file.
This description is already in use. The Description must be unique.	The <b>Description</b> field on the <b>Network</b> page of the <b>Properties</b> dialog box must be unique.
Cannot get address for server <i>server</i> .	The server name cannot be resolved.
Unable to perform update: client is not on local file system.	The client cannot update an installation on a non-local (for example, NFS-mounted) file system.
Unable to perform update: Not running \$ICAROOT/wfica.	The client cannot update an installation other than its own.

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# Specifications

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## Specifications

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Item	Description
<b>Processor</b>	300 MHz low-power CPU (National Semiconductor Geode GX1) with on-board SDRAM controller and PCI bridge
<b>Memory</b>	<ul style="list-style-type: none"><li>■ 16MB to 96MB flash memory, upgradeable to 256MB</li><li>■ 32MB to 128MB DRAM, upgradeable to 256 MB</li></ul>
<b>Protocol</b>	Integrated Microsoft RDP and Citrix ICA protocols and terminal personalities standard
<b>Display Support</b>	VESA Monitor support; scalable video up to 1280 x 1024, 16-bit color, up to 85-Hz refresh rate.
<b>Audio</b>	Output: 1/8-inch mini-plug, full 16-bit stereo, 44-KHz sample rate Input: 1/8-inch mini-plug for microphone
<b>Input Output Peripheral support</b>	Keyboard: Compaq Enhanced USB with Windows keys (104 keys) included Mouse: Compaq USB mouse included Printer: Local and/or network printers on ICA (virtual port redirection ready) Video: VGA-type video output (DB-15)

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## Specifications

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Item	Description
<b>Networking</b>	<ul style="list-style-type: none"><li>■ TCP/IP with DNS and DHCP; Point-to-Point Protocol (PPP)</li><li>■ Multiple master browser support and Citrix load balancing on ICA</li><li>■ SNMP support allows configuration of terminal settings, reporting of terminal configuration and attached devices, and traps</li><li>■ DHCP support for automatic firmware upgrades and unit configuration</li><li>■ Rapport Administrative Software for Compaq Thin Clients</li></ul>
<b>Communications</b>	<ul style="list-style-type: none"><li>■ Four USB ports</li><li>■ 10/100BaseT Fast Ethernet, twisted pair (RJ45)</li><li>■ ICA Remote dial-up via external modem</li></ul>
<b>Communication Protocols</b>	RDP and ICA
<b>Terminal Personalities Supported</b>	Wyse WY-60, WY-50, WY-50+; IBM TN3270e, TN5250, TN3151; DEC VT420; ADDS A2; Hazeltine 1500; Tandem 6530; and SCO Console resident

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## Specifications

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Item	Description
<b>Resident Operating System</b>	Microsoft Windows CE for Thin Clients or Windows NTe
<b>Server Compatibility</b>	<ul style="list-style-type: none"><li>■ Microsoft Windows NT Server 4.0</li><li>■ Terminal Server Edition</li><li>■ Microsoft Windows 2000 Server with Terminal Services installed</li><li>■ Citrix WinFrame</li><li>■ Citrix MetaFrame</li></ul>
<b>Environmental</b>	<p><b>Temperature range:</b> Operating: 0 to +40° C (32 - 104° F) Storage: -40 to +60° C (-40 - 140° F)</p> <p><b>Humidity:</b> Operating: 10 to 90% Non-condensing Storage: 10 to 95% Non-condensing</p> <p><b>Power:</b> Worldwide auto-sensing 90-265 VAC, 47-63 Hz; Energy-saving automatic power-down</p> <p><b>Altitude:</b> Operating: 0 to 10,000 feet ASL Storage: 0 to 40,000 feet ASL</p>

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