

NetVista™ Thin Client



N2200 Thin Client Reference July 2000

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Note

Before using this information and the product that it supports, be sure to read "Safety notices" on page v and "Notices" on page 41.

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Safety notices

Safety notices contain information that is related to using the IBM® NetVista thin client in a safe manner. These notices can be in the form of a danger, caution, or attention notice.

Danger notices

The following danger notices call attention to situations that are potentially lethal or extremely hazardous. These notices pertain throughout this book.

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (RSFTD201)

DANGER

To prevent a possible electrical shock when installing the system, ensure that the power cords for all devices are unplugged before installing signal cables. (RSFTD202)

DANGER

To prevent a possible electrical shock when adding the device to a system, disconnect all power cords, if possible, from the existing system before connecting the signal cable to that device. (RSFTD205)

DANGER

To prevent a possible electrical shock, disconnect the power cord from the electrical outlet before opening the unit. (RSFTD215)

DANGER

To reduce the risk of electrical shock use only AC power sources approved by IBM. (RSFTD216)

Caution notices

A caution notice applies to a situation that is potentially hazardous to people because of some existing condition.

Handling static-sensitive devices

When you handle components, take these precautions to avoid static electricity damage:

- Do *not* open static-protective packages until you are ready to install their contents.
- Limit your movements to avoid static electricity build-up around you.
- Handle components carefully, and never touch exposed circuitry.
- Prevent others from touching components.
- Place components on static-protective packages while performing hardware removal and installation procedures.
- Do not place components on metal surfaces.

About this book

NetVista N2200 Thin Client Reference (SA23-2804) provides information for the Type 8363 (Models Exx and Txx) IBM NetVista N2200 Thin Client, hereafter referred to as the *NetVista thin client* or *N2200 thin client*.

This publication contains information on hardware setup, software configuration and update, hardware problem resolution, hardware upgrade options, parts replacement, and ordering.

Who should read this book

The following should find the information in this publication helpful:

- Person who administers the thin client
- Hardware service organization and support organization for the thin client

Information available on the World Wide Web

You can obtain the latest version of this information at the following uniform resource locator (URL):

<http://www.ibm.com/nc/pubs>

This is the same URL that is printed on the cover of this document.

Related information

The following publications ship with your hardware. Refer to these publications for information that relates to your NetVista thin client:

- See the *IBM NetVista Quick Setup for NetVista N2200 – Type 8363 (Model Exx or Txx)* (SA23-2806) pamphlet for quick hardware setup information and software configuration.
- See the *IBM License Agreement For Machine Code* (Z125-5468) before using the thin client.
- See *IBM NetVista Thin Client Safety Information* (SA41-4143) for important safety notices.
- See *IBM NetVista Thin Client Hardware Warranty - Type 8363 and Type 8364* (SA23-2802) for important hardware warranty information.

Refer to the documentation for your server-based software for information on setting up and managing your server-based software.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. You can submit comments about this, or any other IBM information by mailing the readers' comment form, located at the end of this information.

- If you are mailing comments from a country other than the United States, you can give the form to the local IBM branch office or IBM representative for postage-paid mailing.

- If you prefer to send comments by FAX, use either of the following telephone numbers:
 - United States and Canada: 1-800-937-3430
 - Other countries: 1-507-253-5192
- If you prefer to send comments electronically, use the following network identification:
 - IBMMAIL, to IBMMAIL(USIB56RZ)
 - RCHCLERK@us.ibm.com

Be sure to include the following:

- The title, and publication number of the information
- The page number or topic to which your comment applies

Learning about the hardware

This section provides detailed hardware information about the Type 8363 (Models Exx and Txx) NetVista thin client.

Standard hardware

The standard NetVista thin client hardware includes the following:

- 32 MB of permanent memory, which includes 3 MB dedicated to video memory
- Integrated Ethernet communication or Token-Ring communication
- 16-bit internal and external sound
- One connector for CompactFlash card
- 2 USB ports for a keyboard and other USB devices

Hardware connectors

Your NetVista thin client hardware includes standard connectors, standard pin, signal, and signal direction configurations. See "Appendix F. Connector pin information" on page 39 for details.

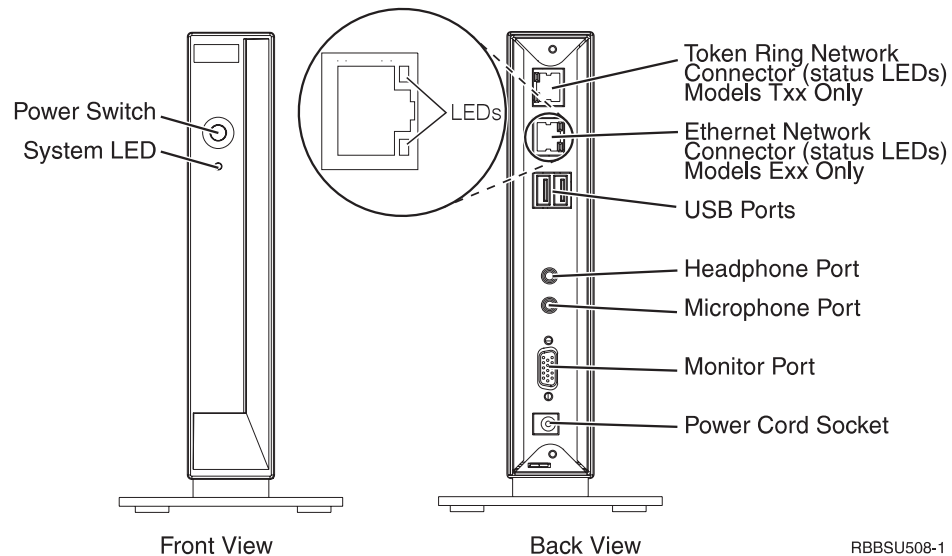


Figure 1. Hardware connectors

Communication hardware

The thin client hardware includes integrated Ethernet connection (Models Exx), or Token-Ring communication (Models Txx).

Required types of communication cable

The required type of cable for the Token-Ring model thin client is category 3 for 4MB ring speed operation. The required type of cable is shielded twisted pair category 4 or 5 for 16MB ring speed operation.

The required type of cable for the Ethernet model for 10MB line speed operation is category 3 or higher Unshielded Twisted Pair (UTP). The required type of cable for 100MB line speed is category 5 UTP.

Refer to “Appendix F. Connector pin information” on page 39 for communication cable specifications.

Monitor specifications

A basic video graphics adapter (VGA)-class monitor that meets the Video Electronics Standards Association (VESA) standards of refresh rate and resolution can function with the NetVista thin client. The NetVista thin client can support VESA Display Power Management Signaling (DPMS) and VESA Display Data Channel (DDC2B).

Refer to “Appendix E. Monitor specifications” on page 37 for a list of resolutions and refresh rates that the NetVista thin client can support. Your monitor may not support all resolutions and refresh rates.

Power consumption

The normal power consumption for a NetVista thin client, while running applications, is approximately 14 watts. You may see power consumption of up to 18 watts in some applications or configurations. For more information, contact an IBM account representative.

Display monitor power reduction occurs when you use the NetVista thin client with a VESA DPMS Standard monitor.

Upgrading hardware features

You can perform the following hardware procedures:

- Connect USB devices

If you plan to use peripheral USB devices with your NetVista thin client, refer to the documentation for your peripheral USB devices for information.

- Upgrade your memory

The NetVista thin client has one random access memory (RAM) slot that accepts Synchronous Dynamic Random Access Memory (SDRAM) Dual Inline Memory Modules (DIMMs). The NetVista thin client includes 32 MB of permanent RAM on the system board, and supports memory expansions of up to 288 MB by using 32, 64, 128, or 256 MB DIMMs.

“Appendix B. Upgrading memory” on page 31 provides information on how to upgrade your memory. Refer to “Replacing additional parts” on page 27 for detailed memory specifications and orderable NetVista thin client parts.

- Install a CompactFlash card

“Appendix C. CompactFlash card” on page 33 provides procedures for CompactFlash card.

Memory upgrade options

The NetVista thin client has one random access memory (RAM) slot that accepts Synchronous Dynamic Random Access Memory (SDRAM) Dual Inline Memory Modules, hereafter referred to as DIMMs. The N2200 thin client supports memory expansions of 32, 64, 128, and 256 Megabyte (MB) DIMMs.

The N2200 thin client ships with 32 MB of permanent RAM on the system board, and supports expansion to 288MB. “Appendix B. Upgrading memory” on page 31 explains the procedure for installing and removing a memory DIMM. Refer to “Appendix A. Replacing hardware parts” on page 27 for detailed memory specifications and orderable parts.

Setting up the hardware

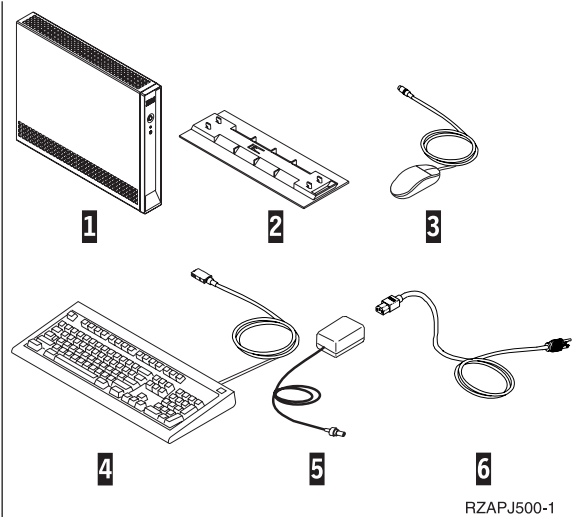
The *IBM NetVista N2200 Thin Client Quick Setup (SA23-2806)* pamphlet, which ships with your hardware, provides the following information. This section goes into more detail for your convenience.

Read "Safety notices" on page v before you continue with these instructions.

Unpacking the hardware

Unpack the hardware. Contact your reseller, or IBM, if you do not have these standard parts:

- 1** Logic unit
- 2** Base
- 3** Mouse
- 4** USB Keyboard
- 5** Power supply
- 6** Power cable



Options:

- If you have additional memory cards, read "Appendix B. Upgrading memory" on page 31 first, and then continue with "Installing the support base".
- If you would like to restrict access to the logic unit, you can thread a security cable through tab **A**.

Installing the support base

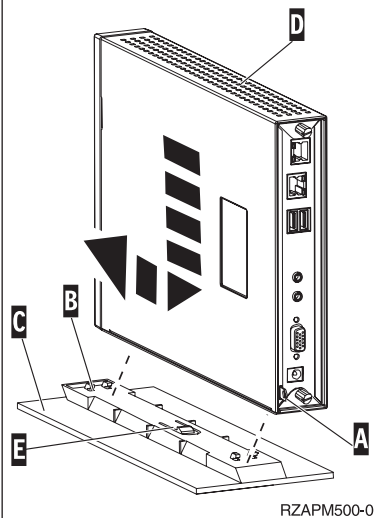
Read "Safety notices" on page v before you continue with these instructions.

IBM recommends that you install the hardware in a vertical position.

1. Align the notches **B** on the support base **C** with the holes on the bottom of the logic unit **D**.
2. Slide the support base **C** onto the bottom of the logic unit **D**.

To remove the support base **C**, lift the latch **E** on the support base and slide the support base off the logic unit **D**.

Note: The N2200 thin client shown here is an Exx Model.



Connecting the hardware

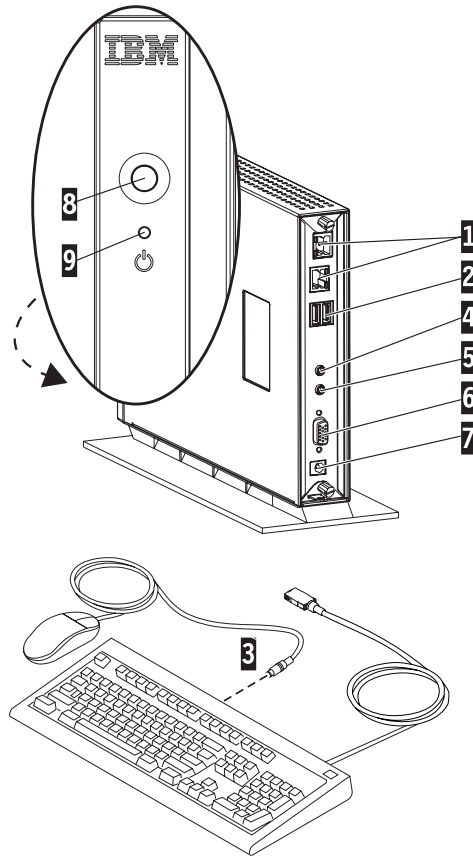
Read "Safety notices" on page v before you continue with these instructions.

1. Connect the devices listed below to the appropriate ports:
 - 1 Network cable
 - 2 USB keyboard and other USB devices (can be attached to either USB port)
 - 3 Mouse (connects to keyboard)
 - 4 Headphones
 - 5 Microphone
 - 6 Monitor
 - 7 Power supply and power cable
2. Ensure that the monitor cable is securely connected to the thin client.
3. Plug any power cables into properly grounded working electrical outlets.

Powering on the hardware

1. Power on the monitor and other devices that are attached to the thin client.
2. Press the white power button **8** to power on the thin client.

The thin client performs its startup sequence. See "Startup sequence" on page 7 for more information.
3. If this is the first time that you are powering on the thin client, proceed to "Configuring the thin client" on page 9.



RBBSU502-1

Startup sequence

This is a typical startup sequence of events for the NetVista thin client. If any of these events do not occur, see “Resolving hardware problems” on page 11.

1. The following devices show light-emitting diode (LED) indications:
 - Logic unit (system LED and network status LED)
 - Power supply
 - Keyboard
 - Monitor¹
 - Any USB devices²
2. The following internal hardware components initialize:
 - Memory
 - L1 cache
 - Video memory
 - Keyboard controller
3. The IBM NetVista thin client screen appears on the monitor.

Refer to “Configuring the thin client” on page 9 for more information on working with your N2200 thin client.

1. Refer to the documentation for your monitor if there is no LED indication.

2. Refer to the documentation for your USB devices if there are no LED indications.

Configuring the thin client

Before you can access applications on your server, you must configure your thin client during the initial startup. The Setup Utility helps you with the configuration.

This section provides information on the “Using the Setup Utility to configure the thin client”.

Using the Setup Utility to configure the thin client

The setup utility allows you to perform the following tasks:

- Specify your keyboard language settings
- Set the resolution and frequency of your display
- Configure your Internet Protocol (IP) settings
- Perform advanced configurations, such as changing your boot file server settings

The first time you start the thin client, you must use the initial Setup Utility to configure the thin client. The following menu is an example of a Setup Utility menu:

```
MENU26 A                IBM NetVista Thin Client                B
                        Network boot - Configure IP settings

DHCP ..... Disabled

Thin Client IP address ..... [0.0.0.0]
Subnet mask ..... [255.255.255.0]
Boot file server operating System ..... AIX
Boot file server IP address ..... [0.0.0.0]
Gateway IP address ..... [0.0.0.0]
Domain name server IP address ..... [0.0.0.0]
      C                                D

                        Press Enter to continue. E
                        Leave at 0.0.0.0 if a Domain Name Server is not used F
                        Thin Client IP address is required G

Enter=Continue   F5=Advanced configuration   F7=Back H
```

Figure 2. Example menu

The menu number **A** makes it easy to navigate through the Setup Utility. Menu numbers that begin with 2 are unique to the initial Setup Utility. The menu title **B** tells you which menu you are using.

Use the arrow keys to select an option from the list of available options **C**. After you select an option, specify a value in the corresponding value field **D**. Certain fields allow you to select a value by using the **Page Up** and **Page Down** keys.

Instructions and other messages (**E** and **F**) provide additional information. Error messages **G** inform you when you need to complete a field or correct a value before continuing.

Use the active function keys **H** to navigate through the Setup Utility.

To access the Setup Utility during a subsequent boot, press **Esc** immediately after the following message disappears:

Hardware testing in progress . . .

If you worked only with the **Simple Configuration** menu during the initial boot, then the **Simple Configuration** menu appears. However, if you worked with the **Advanced Configuration** menu during the initial boot, then the **Advanced Configuration** menu appears.

Resolving hardware problems

This section provides information on verifying and resolving hardware problems.

If you cannot identify a hardware problem, you can request technical service and support by contacting IBM. You need to provide the machine type, model, and serial number of your NetVista thin client.

You can obtain additional service and support information at the following uniform resource locator (URL):

<http://www.pc.ibm.com/ww/netvista/thinclient>

Notes:

1. If your NetVista thin client is under warranty or a maintenance contract, contact IBM Service and Support to obtain a customer-replaceable unit (CRU). Refer to *IBM Network Station™ Hardware Warranty - Type 8363 and Type 8364 (SA23-2802)* for more information.
2. To resolve software errors, follow the instructions on the error message. For more information, contact IBM Service and Support.
3. Refer to the documentation for your monitor and USB devices for information on resolving hardware problems that are associated with your monitor and USB devices.

Verifying hardware problems

Table 1 identifies possible hardware problem indications that can occur with the NetVista thin client during its startup sequence (see “Startup sequence” on page 7), or during normal operation.

Table 1. Hardware problem indications

Startup Checkpoints	Visible hardware failure	LED indications (system LED)	Audio beep sequences	Error codes and text messages (NSBxxxx)
Power on	X	X	X	
Monitor initialization	X			X
Keyboard initialization	X			X
Welcome screen	X			X

If you experience any hardware problem indications, you need to verify that an easily avoidable problem is not causing the hardware problem indication. Record any hardware problem indications and a description of the problem, and then proceed with the instructions below.

These instructions ensure that you start resolving any hardware problems by resetting the power to your hardware.

To determine the cause of NetVista thin client hardware problems, follow these steps to reset the power to your hardware:

- ___ 1. Power off the NetVista thin client.
- ___ 2. Unplug the power supply from the electrical outlet.
- ___ 3. Ensure that you properly connected all devices to the NetVista thin client. See "Connecting your hardware" on page 6 for more information.
- ___ 4. Plug the NetVista thin client power supply into a properly grounded, working electrical outlet.
- ___ 5. Power on the NetVista thin client.
- ___ 6. Wait for the IBM NetVista thin client screen to appear on your monitor.
 - If the IBM NetVista thin client screen appeared, and the NetVista thin client did not indicate any hardware problems, you do not have a hardware problem.
 - If the NetVista thin client indicates a hardware problem, record any problem indications and a description of the problem. Consult Table 2 with your hardware problem information.

Table 2. Hardware problem resolution information

Hardware problem indications	Where to find information
Visible hardware failure	"Visible hardware failure"
Audio beep sequences	"Audio beep sequences" on page 14
LED indications	"LED indications" on page 15
Error codes and text messages	"Error codes and text messages" on page 17

Visible hardware failure

You experience visible hardware failure during normal operation when a device that is attached to your logic unit fails to function properly. Visible hardware failure includes the following:

- A device that is attached to your logic unit fails to function at all.
For example:
 - Your mouse cursor stops moving.
 - Your monitor displays a blank screen.
 - Characters do not display on your monitor when you type.
- A device that is attached to your logic unit does not function properly.
For example:
 - Your monitor displays unreadable screens.
 - Your mouse cursor does not move smoothly.
 - Some keys on your keyboard do not respond correctly.

If your NetVista thin client hardware has a visible hardware failure, consult Table 3. Contact your technical support if these steps do not resolve the problem.

Table 3. Visible hardware failure

Symptom	What you should do
Logic Unit	

Table 3. Visible hardware failure (continued)

Symptom	What you should do
<p>The system LED does not light up when you press the white power button to power on the NetVista thin client.</p>	<ol style="list-style-type: none"> 1. Verify that you plugged the power supply into a working electrical outlet. 2. Verify that the power supply LED indicates a solid green color. 3. Reset power to the NetVista thin client by pressing the white power button. 4. If the system LED does not work, any of the following devices may be defective: <ul style="list-style-type: none"> • Power supply Verify that the power supply LED indicates a solid green color. • Power cable <p>Substitute a properly working device for a defective device. Repeat the previous steps. See “Appendix A. Replacing hardware parts” on page 27 for more information.</p> 5. If the system LED still does not work, you may need to replace the NetVista thin client logic unit. See “Appendix A. Replacing hardware parts” on page 27 for more information on replacing a defective mouse.
Monitor	
<ul style="list-style-type: none"> • The monitor displays a blank screen. • The monitor displays unreadable screens. 	<p>If the problem persists after you have verified the monitor cable connections, or after you have substituted a properly working monitor, refer to the documentation for your monitor for troubleshooting information.</p>
Keyboard	
<ul style="list-style-type: none"> • The arrow keys do not respond when you press them. • Characters do not display on the monitor when you type. 	<ol style="list-style-type: none"> 1. Verify that you connected the keyboard cable properly to the NetVista thin client. 2. If the problem persists, the keyboard may be defective. <ul style="list-style-type: none"> • Substitute a properly working keyboard, and repeat the previous steps. • See “Appendix A. Replacing hardware parts” on page 27 for more information on replacing a defective keyboard. 3. If the keyboard still does not work, you may need to replace the NetVista thin client logic unit. See “Appendix A. Replacing hardware parts” on page 27 for more information on replacing a defective logic unit.
Mouse	

Table 3. Visible hardware failure (continued)

Symptom	What you should do
<ul style="list-style-type: none"> • The mouse cursor stops moving; the mouse does not function at all. • The mouse cursor does not move smoothly. 	<ol style="list-style-type: none"> 1. Verify that you connected the mouse cable properly to the NetVista thin client keyboard. 2. If the mouse does not work, any of the following devices may be defective: <ul style="list-style-type: none"> • Mouse • Keyboard Substitute a properly working device for a defective device. Repeat the previous steps. See "Appendix A. Replacing hardware parts" on page 27 for more information. 3. If the mouse still does not work, you may need to replace the NetVista thin client logic unit. See "Appendix A. Replacing hardware parts" on page 27 for more information on replacing the defective logic unit.

Audio beep sequences

The NetVista thin client hardware utilizes both audio and visual alerts when reporting hardware problems. In the event of a hardware problem, the NetVista thin client emits audio beeps before your monitor initializes. After your monitor initializes, error codes and text messages appear on the screen (see "Error codes and text messages" on page 17).

Audio beep sequences can include short beeps, long beeps, and brief silent periods. Table 4 on page 15 defines the possible audio beep sequences that can occur when a hardware problem exists.

To verify that a NetVista thin client hardware problem exists, ensure that you complete the instructions in "Verifying hardware problems" on page 11.

If the NetVista thin client is not functioning properly, and it is emitting audio beep sequences, consult Table 4 on page 15. Contact your technical support if these steps do not resolve the problem.

Notes:

1. These beep sequences are in a numeric format which indicates the sequence of the audio output.
2. Audio beep sequences do not occur after the monitor initializes.

Table 4. Audio beep sequences

Symptom	What you should do
The NetVista thin client emits a 1-3-1 beep sequence, and the system LED is flashing amber.	<p>Memory error</p> <ol style="list-style-type: none"> 1. Check or replace the memory card. Refer to “Appendix B. Upgrading memory” on page 31 for instructions. 2. Verify that you properly connected the network cable to the NetVista thin client network connector. 3. Power on the NetVista thin client. 4. If the problem persists, you may need to replace the NetVista thin client logic unit. Refer to “Appendix A. Replacing hardware parts” on page 27 for information.
The NetVista thin client emits a 2-3-2 beep sequence, and the system LED is flashing amber.	<p>Video memory error</p> <ol style="list-style-type: none"> 1. Verify that you properly connected the network cable to the NetVista thin client network port. 2. Power on the NetVista thin client. 3. If the problem persists, you may need to replace the NetVista thin client logic unit. Refer to “Appendix A. Replacing hardware parts” on page 27 for information.

LED indications

The LED indicators of the following devices maintain a solid green color during normal operation:

- Logic unit (system LED and network status LED)
- Power supply
- Monitor
- Keyboard

The network status LED indicates a solid green color during normal operation. The network status LED indicates flashing amber during network activity.

The system LED quickly flashes from amber to green during a normal power-on. The system LED indicates hardware problems in the following ways:

- Flashing green indications
- Flashing amber indications
- Steady amber indications
- Failure to function

To verify that a NetVista thin client hardware problem exists, ensure that you complete the instructions in “Verifying hardware problems” on page 11.

If the NetVista thin client is not functioning properly, and the LED indicators of the NetVista thin client hardware indicate anything other than a solid green color, consult Table 5 on page 16. Contact your technical support if these steps do not resolve the problem.

Table 5. LED indications

Symptom	What you should do
System LED	
The system LED fails to function after power on.	<ol style="list-style-type: none"> 1. Verify that you plugged the power supply into a working electrical outlet. 2. Verify that the power supply LED indicates a solid green color. 3. Press the white power button to reset power to the NetVista thin client. 4. If the system LED does not work, any of the following devices may be defective: <ul style="list-style-type: none"> • Power supply Verify that the power supply LED indicates a solid green color. • Power cable Substitute a properly working device for a defective device. Repeat the previous steps. Contact your reseller, or IBM, to request a replacement part (see “Replacing additional parts” on page 27). 5. If the system LED still does not work, you may need to replace the NetVista thin client logic unit. Contact your reseller, or IBM, to request a replacement part (see “Replacing additional parts” on page 27).
A power interruption during a software update occurs. When you power on the NetVista thin client, the system LED shows a solid green color, or a flashing amber color, and the monitor does not display any screens.	The software on the NetVista thin client may be damaged. Contact IBM Service and Support, and refer to “Appendix D. Recovering the boot block image” on page 35 for information on recovering the software on the NetVista thin client.
The system LED shows a solid amber color, or a flashing amber color.	<ol style="list-style-type: none"> 1. Press the white power button to reset power to the NetVista thin client. 2. If the system LED still shows a solid amber color, or a flashing amber color, you may need to replace the NetVista thin client logic unit. Contact your reseller, or IBM, to request a replacement part (see “Replacing additional parts” on page 27).
The system LED flashes amber once shortly after power off.	The NetVista thin client hardware automatically enables Wake-On-LAN (WOL). This is not an indication of a hardware problem.
Power Supply LED	

Table 5. LED indications (continued)

Symptom	What you should do
The power supply LED fails to function after power on.	<ol style="list-style-type: none"> 1. Verify that you connected the power supply to the NetVista thin client. 2. Verify that you plugged the power supply into a working electrical outlet. 3. If the power supply LED does not indicate a solid green color, any of the following devices may be defective: <ul style="list-style-type: none"> • Power supply • Power cable <p>Substitute a properly working device for a defective device. Repeat the previous steps. Contact your reseller, or IBM, to request a replacement part (see “Replacing additional parts” on page 27).</p>
Monitor LED	
The monitor LED fails to function after power on.	If the problem still persists after you verified the monitor cable connections, or after you substituted a properly working monitor, refer to the documentation for your monitor for more information.
The monitor LED shows a solid amber color, or a flashing amber color.	If the problem still persists after you verified the monitor cable connections, or after you substituted a properly working monitor, refer to the documentation for your monitor for more information.

Error codes and text messages

Error codes and text messages can appear on the bottom of your screen during the startup sequence of the NetVista thin client. **NSBxxxx** error codes and text messages indicate only hardware problems.

To verify that a NetVista thin client hardware problem exists, ensure that you complete the instructions in “Verifying hardware problems” on page 11.

If the NetVista thin client is not functioning properly, and an error code or text message appears on your screen, consult Table 6. Contact your technical support, reseller, or IBM, if these steps do not resolve the problem.

Table 6. Error codes and text messages

Symptom	What you should do
An error code or text message appears on the screen.	<ol style="list-style-type: none"> 1. Record any error messages, audio beep sequences, or LED indications, and a description of the problem. 2. Perform any actions indicated within the error message. 3. Contact your technical support.
A boot interruption screen appears.	Press F10 to reboot the NetVista thin client.

Table 7 on page 18 defines the error messages that can appear when you power on the NetVista thin client. This table provides information that you must only follow

under the direction of the IBM Service and IBM Support teams. For a better understanding of error messages that are generated by the setup utility, see “Understanding error messages generated by the IBM NetVista Thin Client Setup Utility” on page 24.

Table 7. NSBxxxx error codes and text messages

Error code	Error message	What you should do
General messages (NSB0xxxx)		
NSB00030	Canceled by user.	Press any key to enter the setup utility.
Main memory messages (NSB10xxx)		
NSB11500	On board memory failure.	Ensure that the memory is installed properly, or replace memory (see “Appendix B. Upgrading memory” on page 31 — Installing a memory card).
NSB11510	Slot %d memory failure.	Ensure that the memory is installed properly, or replace the memory (see “Appendix B. Upgrading memory” on page 31 — Installing a memory card).
Non-volatile memory messages (NVRAM) (NSB11xxx)		
NSB12500	Checksum failure for nonvolatile memory.	Re-enter setup configuration data, if different from the default values.
NSB12510	Not able to access nonvolatile memory.	Replace the thin client logic unit (see “Replacing the logic unit” on page 27).
NSB12520	Setting nonvolatile memory to manufacturing defaults.	Re-enter setup configuration data, if different from the default values.
NSB12530	Detected reset jumper.	The password has been cleared.
NSB12540	New nonvolatile memory structure detected.	Re-enter setup configuration data, if different from the default values.
Audio messages (NSB21xxx)		
NSB21500	Audio failure.	Replace the thin client logic unit (see “Replacing the logic unit” on page 27).
Input, Keyboard and mouse messages (NSB3xxxx, NSB31xxx, and NSB32xxx)		
NSB30500	No input device detected. NS Boot will continue in 10 seconds.	Check the keyboard and mouse cable connections.
NSB31500	Keyboard did not respond.	Check the keyboard cable connection.
NSB31510	Keyboard controller did not respond.	Check the keyboard cable connection. If the symptom remains, replace the thin client logic unit (see “Replacing the logic unit” on page 27).
NSB31520	Keyboard was not recognized.	Check the keyboard cable connection.
NSB32500	Mouse did not respond.	Check the mouse cable connection.
USB messages (NSB4xxxx)		
NSB40500	USB failure.	Disconnect any USB devices from the thin client and restart the system. If the symptom remains, replace the thin client logic unit (see “Replacing the logic unit” on page 27).

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
NSB40510	USB initialization failure.	Disconnect any USB devices from the thin client and restart the system. If the symptom remains, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
CompactFlash card messages (NSB51xxx)		
NSB51500	File not found on flash card.	Check the contents of the CompactFlash card.
NSB51510	Cannot close file on flash card.	Check the contents of the CompactFlash card.
Token Ring messages (NSB61xxx)		
NSB61500	Token Ring PCI device not detected.	Restart the thin client. If the symptom remains, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61510	Token Ring PCI device soft reset failed.	Restart the thin client. If the symptom remains, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61520	Token Ring PCI device initialization timed out.	Restart the thin client. If the symptom remains, take any actions recommended by the text messages that accompany this message. If you still cannot resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61530	Token Ring PCI device initialization not complete.	Restart the thin client. If the symptom remains, take any actions recommended by the text messages that accompany this message. If you still cannot resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61569	Token Ring open command canceled due to failure.	Adapter failed to insert into ring. Perform any actions recommended by the messages that accompany this error.
NSB61610	Token Ring flash contents not valid.	Microcode corruption. Replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61620	Token Ring flash contents not valid.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61639	Token Ring error in loop back test phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61639	Token Ring error in ring insertion phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61649	Token Ring error in address verification phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61659	Token Ring error in neighbor notification phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
NSB61669	Token Ring error in request parameters phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61679	Source address received is not equal to a neighbor source address.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61689	Claim token received.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61699	Ring purged token received .	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61709	Standby monitory frame received.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61719	Full duplex insert denied.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61729	Full duplex heartbeat received too early.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61739	Beacon received before open completed.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61740	Insertion timer expired.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
NSB61750	Loop back test failed.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61760	Heartbeat failed.	Full duplex error. Contact the system administrator regarding network problems, or, switch to half duplex. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61770	Unexpected Token Ring interrupt.	Stray error. If the thin client does not automatically restart, restart the thin client.
NSB61809	Token Ring error in full duplex request phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61819	Token Ring error in full duplex loop back phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61829	Token Ring error in full duplex duplicate address phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61839	Token Ring error in station query phase.	Indicates stage of Token-ring adapter insertion. Watch for any messages that accompany this message.
NSB61840	Error - open function failure.	Replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61850	Error - signal loss.	Verify network connection.
NSB61860	Error - wire fault.	Verify network connection.
NSB61870	Error - ring speed mismatch.	Manually set the ring speed in the Local (NVRAM) settings of the setup utility, or in the IBM thin client Manager program.
NSB61880	Error - time-out.	Replace the thin client logic unit (see "Replacing the logic unit" on page 27).
NSB61890	Error - ring failure.	Verify that there are no problems with the network, and restart the thin client.
NSB61900	Error - ring beaconing.	Verify that there are no problems with the network, and restart the thin client.
NSB61910	Error - duplicate MAC address.	Verify that the MAC address of the thin client is correctly defined.
NSB61930	Error - remove received.	Ensure that you are not blocked from entering the ring.
NSB61940	Error - no active network monitor.	Manually set the ring speed in the Local (NVRAM) settings of the setup utility, or in the IBM thin client Manager program.
NSB61950	Error - active network monitor contention.	Verify that there are no problems with the network, and restart the thin client.

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
NSB61960	Error - full duplex protocol error.	Manually set the ring speed in the Local (NVRAM) settings of the setup utility, or in the IBM thin client Manager program.
NSB61970	Unknown Token Ring error code.	Verify that there are no problems with the network, and restart the thin client. If this does not resolve the problem, replace the thin client logic unit (see "Replacing the logic unit" on page 27).
Ethernet messages (NSB62xxx)		
NSB62500	Line speed automatic negotiation failed.	Verify that you connected the network cable to the thin client correctly.
NSB62510	No network device found.	Replace the thin client logic unit (see "Replacing the logic unit" on page 27).
Network priority messages (NSB7xxxx)		
NSB70500	DHCP, BOOTP, and Local (NVRAM) network priority not set.	Verify that at least one network priority is enabled in the setup utility.
DHCP messages (NSB71xxx)		
Most errors associated with DHCP are server configuration errors, contact the system administrator and report your error		
NSB71509	DHCP option %d boot server name %s failed DNS.	Verify that the DHCP server settings are correct.
NSB71515	Missing DHCP option %d from server.	Verify that the DHCP server settings are correct.
NSB71525	Missing DHCP client IP address.	Verify that the DHCP server settings are correct.
NSB71535	Missing DHCP client directory and file name.	Verify that the DHCP server settings are correct.
NSB71545	DHCP OFFER XID different than DHCP DISCOVER XID.	Verify that the DHCP server settings are correct.
NSB71555	DHCP options exceed the maximum allowable DHCP option length.	Verify that the DHCP server settings are correct.
NSB71605	DHCP offer from server %s not valid.	Verify that the DHCP server settings are correct.
BOOTP messages (NSB72xxx)		
NSB72505	BOOTP options exceed the maximum allowable BOOTP option length.	Verify that the BOOTP server settings are correct.
Network communication messages (NSB8xxxx)		
NSB80509	Destination unreachable, return code %d.	Verify that there are no problems with the network, and restart the thin client.
NSB80519	Failed ICMP mask request.	Verify that there are no problems with the network, and restart the thin client.
NSB80529	Failed ICMP router solicitation.	Verify that there are no problems with the network, and restart the thin client.

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
NSB80539	Domain Name Server (DNS) error, return code %d.	Verify that there are no problems with the network, and restart the thin client.
NSB80549	Cannot fragment data packet, data not sent.	Verify that there are no problems with the network, and restart the thin client.
NSB80550	Transfer terminated by user.	Restart the thin client.
TFTP messages (NSB81xxx)		
NSB81509	Time-out waiting for TFTP reply.	Restart the thin client. If this does not solve the problem, verify that you connected the network cable to the thin client.
NSB81519	TFTP error - %d %s.	Watch for any messages that accompany this message, and perform any indicated actions.
Boot file server messages (NSB83xxx)		
NSB83509	Unable to load file via boot file server protocol.	Ensure that the boot protocol agrees with your server settings in the setup utility.
NSB83519	Cannot access boot file from any server.	Verify your configuration settings in the setup utility, and confirm the server configuration.
NSB83529	Cannot contact boot file server %s.	Verify that the boot server settings are configured correctly.
NSB83539	Cannot PING boot server %s.	Verify your configuration settings in the setup utility, and confirm the server configuration.
NSB83549	Unable to open file.	Confirm the server configuration.
NSB83560	Boot file name or directory not valid.	Verify your configuration settings in the setup utility, and confirm the server configuration.
NSB83579	Failed to boot after 1 attempt.	Verify your configuration settings in the setup utility, and confirm the server configuration.
NSB83589	Failed to boot after %d attempts.	Verify your configuration settings in the setup utility, and confirm the server configuration.
NSB83590	Unrecognized boot file server protocol.	Verify your configuration settings in the setup utility.
NSB83600	Boot file server protocol not specified.	Verify your network configuration settings in the setup utility.
NSB83619	Address resolution failed, boot file server %s.	Verify your configuration settings in the setup utility, and confirm the server configuration.
Gateway messages (NSB84xxx)		
NSB84509	Gateway address not valid.	Verify your network configuration settings in the setup utility.
NSB84519	Address resolution failed, gateway %s.	Verify your network configuration settings in the setup utility.

Table 7. NSBxxxx error codes and text messages (continued)

Error code	Error message	What you should do
Client IP address messages (NSB85xxx)		
NSB85509	Duplicate IP address %s, that is owned by %s.	Verify your network configuration settings in the setup utility, and the DHCP or BOOTP server configuration settings.
NSB85519	IBM thin client IP address not valid.	Verify your network configuration settings in the setup utility.
Subnet mask messages (NSB86xxx)		
NSB86509	Subnet mask not valid.	Verify your network configuration settings in the setup utility.
IP address messages (NSB87xxx)		
NSB87509	Address resolution failed, IP address %s.	Verify your network configuration settings in the setup utility.
NSB87519	Address resolution failed. IP address %s not valid.	Verify your network configuration settings in the setup utility.
NSB87529	IP address %s not in ARP cache.	Verify your network configuration settings in the setup utility.
Remote packet messages (NSB88xxx)		
NSB88500	Stopping DLL packet replication.	Reload the factory default settings on the thin client, and then configure the network settings in the setup utility.

Understanding error messages generated by the IBM NetVista Thin Client Setup Utility

Error messages that are generated by the IBM NetVista Thin Client Setup Utility consist of a prefix and a five digit, numeric code. The prefix for these error messages is NSB. The numeric code that follows the prefix indicates the group, sub group, message number, and message origin. For example, the error message NSB12530 indicates an error message from group 1, sub group 2, message number 53, and a message origin of 0.

Group

Error messages can be in the following groups:

- Group 0 indicates general messages.
- Group 1 indicates memory-related messages.
- Group 2 indicates multimedia messages.
- Group 3 indicates input device messages.
- Group 4 indicates universal serial bus (USB) device messages.
- Group 5 indicates storage messages.
- Group 6 indicates local area network (LAN) messages.
- Group 7 indicates network priority messages.
- Group 8 indicates network communication messages.

Sub group

You can classify error messages by the following subgroups:

- Group 1 includes the following subgroups:
 - Common memory messages (sub group 0).

- DIMM memory messages (sub group 1).
- Local (NVRAM) memory messages (sub group 2).
- Group 2 includes the following subgroups:
 - Common multimedia messages (sub group 0).
 - Audio messages (sub group 1).
 - Video messages (sub group 2).
- Group 3 includes the following subgroups:
 - Common input device messages (sub group 0).
 - Keyboard messages (sub group 1).
 - Mouse messages (sub group 2).
- Group 4 includes common USB device messages (sub group 0).
- Group 5 includes the following subgroups:
 - Common storage messages (sub group 0).
 - CompactFlash card messages (sub group 1).
- Group 6 includes the following subgroups:
 - Common LAN messages (sub group 0).
 - Token-ring messages (sub group 1).
 - Ethernet messages (sub group 2).
- Group 7 includes the following subgroups:
 - Common network priority messages (sub group 0).
 - DHCP messages (sub group 1).
 - BOOTP messages (sub group 2).
 - Local NVRAM) messages (sub group 3).
- Group 8 includes the following subgroups:
 - Common network communication messages (sub group 0).
 - Trivial File Transfer Protocol (TFTP) messages (sub group 1).
 - NFS messages (sub group 2).
 - Boot file server messages (sub group 3).
 - Gateway messages (sub group 4).
 - thin client IP address messages (sub group 5).
 - Subnet mask messages (sub group 6).
 - Internet Protocol (IP) address messages (sub group 7).
 - Remote packet messages (sub group 8).

Message number

Message numbers indicate the type of error message. For example, messages NSBXX00X to NSBXX49X are informational messages. Error messages NSBXX50X to NSBXX99X are warning and error messages.

Origin

A message origin can be 0, 5, or 9. The message NSBXXXX0 indicates a high probability of a thin client problem. The message NSBXXXX5 a high probability of a network server problem. The message NSBXXXX9 indicates that the problem can be either client or server related.

This table defines the error messages that can occur during the startup sequence of a thin client that you configured from the setup utility. These errors appear on the screen during the startup sequence. Improper configurations in the setup utility

cause these errors. For more information about setting configurations in the setup utility, see "Configuring the thin client" on page 9.

To solve configuration errors, enter the setup utility and reset all configuration options to default values. All configuration settings will be removed.

Appendix A. Replacing hardware parts

You can order IBM replacement parts for the thin client. Contact IBM or your reseller to order warranty parts and non-warranty parts. IBM provides warranty service without charge for parts during the warranty period on an exchange basis only.

If you need to return a part, refer to “Returning hardware parts” on page 30 for more information.

Replacing the logic unit

IBM replaces a defective logic unit as a complete assembly. To replace a logic unit, the customer must transfer features, such as a memory DIMM, to the replacement unit. If customers do not transfer their features, the replacement units cannot operate properly. See “Safety notices” on page v for information about handling Customer Replaceable Unit (CRU) parts.

IBM delivers CRUs to the customers for exchange, and customers return defective parts to IBM under the basic service offering. Customers should return all defective logic units with the cover assembly, and without the support base or memory DIMMs. For upgraded service offerings, a service representative delivers replacement parts, transfers features, and returns defective parts to IBM.

See “Resolving hardware problems” on page 11 to determine whether or not it is necessary to replace the thin client logic unit or any other parts. If it is necessary to replace the logic unit, find the correct part number on the right side of the thin client, near the back. The identification format is as follows, where ##X#### indicates the part number:

FRU P/N ##X####

If you cannot locate the part number for the logic unit, refer to Table 8 to determine the correct number. Warranty service terms and conditions by country apply.

Table 8. Thin client logic units

Part description	Part number
Logic Unit for Model Exx	34L4194
Logic Unit for Model Txx	34L4195

Replacing additional parts

Use the following tables to determine the correct part to replace. Warranty service terms and conditions by country apply.

Table 9. Type 8363 thin client replacement parts

Description	Country	Part number
Parts associated with the Logic Unit		
Base (Mounting Stand)	All Countries	03N2725
Slotted Thumbscrews	All Countries	03N3882

Table 9. Type 8363 thin client replacement parts (continued)

Description	Country	Part number
Power module		
(see Table 10 on page 29 for part numbers)		
Power module (detachable power cable not included)	All Countries	03N2662
Memory		
Note: This thin client supports SDRAM DIMM memory that is 100MHz, 168 pin, 3.3 V, gold tab, unbuffered, and non-parity.		
Memory (32 MB SDRAM DIMM)	All Countries	01K1146
Memory (64 MB SDRAM DIMM)	All Countries	01K1147
Memory (128 MB SDRAM DIMM)	All Countries	01K1148
Memory (256 MB SDRAM DIMM)	All Countries	01K1149
Network cables		
TTP RJ-45 plug STP cable for connection to 9 pin D shell connector	All Countries	60G1066
TTP RJ-45 plug Shielded Twisted Pair (STP) cable for connection to IBM Cabling System connector	All Countries	60G1063
TTP RJ-45 socket adapter for connection to IBM Cabling System	All Countries	73G8315
TTP RJ-45 socket adapter for connection to 9 pin D shell connector	All Countries	73G8320
Mouse		
Mouse (two button)	All Countries	76H0889
Keyboards		
Keyboard	Belgian UK	37L2651
Keyboard	Brazilian Portuguese	37L2648
Keyboard	Canadian French	37L2646
Keyboard	Danish	37L2654
Keyboard	Dutch	37L2655
Keyboard	French	37L2656
Keyboard	French Canadian	37L2645
Keyboard	Finnish	37L2671
Keyboard	German	37L2657
Keyboard	Icelandic	37L2661
Keyboard	Italian	37L2662
Keyboard	Latin America (Spanish)	37L2647
Keyboard	Norwegian	37L2663
Keyboard	Portuguese	37L2665
Keyboard	Spanish	37L2670
Keyboard	Swedish	37L2671
Keyboard	Swiss (French and German)	37L2672
Keyboard	UK English	37L2675

Table 9. Type 8363 thin client replacement parts (continued)

Description	Country	Part number
Keyboard	US English ISO9995	37L2677
Keyboard	US English	37L2644

Table 10. Detachable power cables









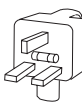


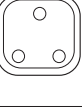




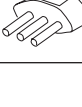



Plug	Receptacle	Country	Part number
Detachable power cables			
		Argentina, Australia, New Zealand	13F9940
		Abu Dhabi, Austria, Belgium, Bulgaria, Botswana, Egypt, Finland, France, Germany, Greece, Iceland, Indonesia, Korea (South), Lebanon, Luxembourg, Netherlands, Norway, Portugal, Saudi Arabia, Spain, Sudan, Sweden, Turkey, Yugoslavia	13F9979
		Bahamas, Barbados, Bolivia, Brazil, Canada, Costa Rica, Dominican Republic, El Salvador, Ecuador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Netherlands Antilles, Panama, Peru, Philippines, Taiwan, Thailand, Trinidad, Tobago, U.S.A. (except Chicago), Venezuela	1838574
		Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saudi Arabia, Suriname, Trinidad, Taiwan, U.S.A	6952301
		Bahrain, Bermuda, Brunei, Channel Islands, Cyprus, Ghana, Hong Kong, India, Iraq, Ireland, Jordan, Kenya, Kuwait, Malawi, Malaysia, Nigeria, Oman, People's Republic of China, Qatar, Singapore, Tanzania, Uganda, United Arab Emirates (Dubai), United Kingdom, Zambia	14F0033
		Bangladesh, Burma, Pakistan, South Africa, Sri Lanka	14F0015
		Denmark	13F9997
		Israel	14F0087
		Chile, Ethiopia, Italy	14F0069

Table 10. Detachable power cables (continued)

Plug	Receptacle	Country	Part number
		Liechtenstein, Switzerland	14F0051

Returning hardware parts

You may not need to return all defective items to IBM. Always check the replacement part packaging for any instructions regarding the return of defective parts.

To return a defective part to IBM, pack the defective part in the packaging container of the replacement part.

Note: Customers must not ship features, such as memory DIMMs, with defective logic units that they are returning to IBM. It is not possible for IBM to return these features back to customers.

If customers do not follow IBM shipping instructions, they may get charges for any damage to a defective part. IBM covers shipping costs on all warranted hardware and maintenance agreement hardware. Replacement parts become the customer's property in exchange for the defective parts, which become the property of IBM.

For information on ordering thin client parts, refer to "Replacing additional parts" on page 27.

Appendix B. Upgrading memory

See “Resolving hardware problems” on page 11 to determine whether or not it is necessary to replace the logic unit, or any other parts. For information on ordering thin client hardware parts, refer to “Replacing additional parts” on page 27.

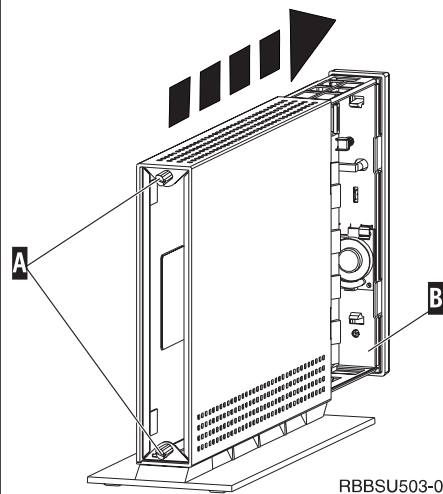
Read “Safety notices” on page v before you continue with these instructions.

Note: The thin client shown in these procedures is an Exx Model.

Removing the logic unit

Read “Safety notices” on page v before you continue with these instructions.

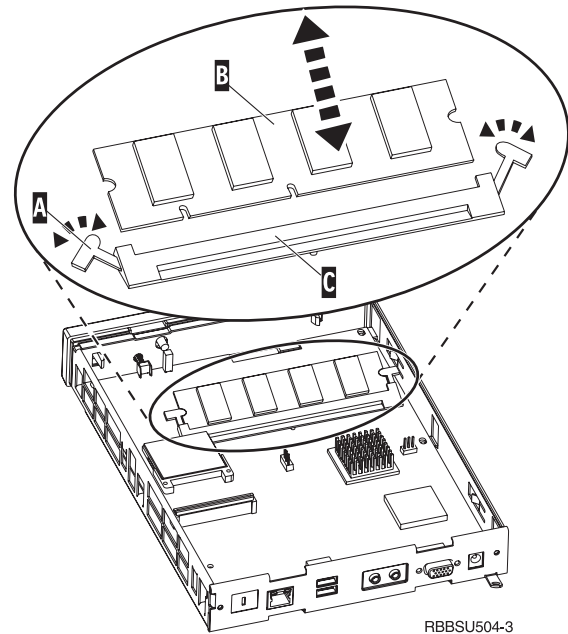
1. Power off the thin client, and disconnect all cables to the thin client.
2. Remove the two thumbscrews **A** at the back of the logic unit.
3. Push the logic unit **B** out of the cover.
4. Lay the logic unit on a flat surface.
5. Continue with “Installing a memory card” to install a memory card.



Installing a memory card

Complete the instructions in “Removing the logic unit”, and read “Safety notices” on page v before you continue with these instructions.

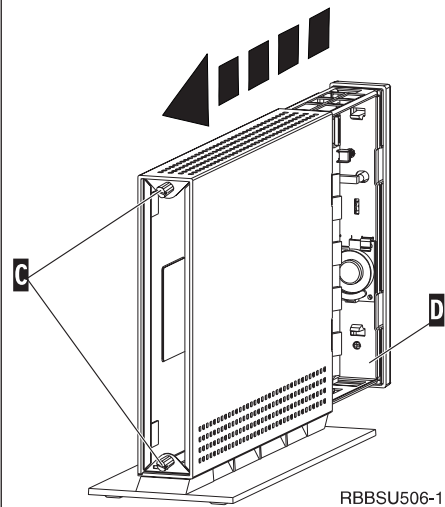
1. To remove a previously installed memory card, press the tabs **A**, that are located at each end of the memory card **B**, out until the memory card **B** comes out of the memory socket **C**.
2. To install a memory card, align the notches on the bottom of the memory card **B** with the matching notches on the memory socket **C**.
3. Press the memory card down into the memory socket **C**. The tabs **A** should swing in, holding the memory card in place.
4. Continue with “Reassembling the Network Station” on page 32.



Reassembling the thin client

Read "Safety notices" on page v before you continue with these instructions.

1. To reassemble the thin client, carefully slide the logic unit **D** back into the cover, connectors first.
2. Install and tighten the two thumbscrews **C** at the back of the thin client.
3. Continue with "Installing the support base" on page 5 and "Connecting your hardware" on page 6.



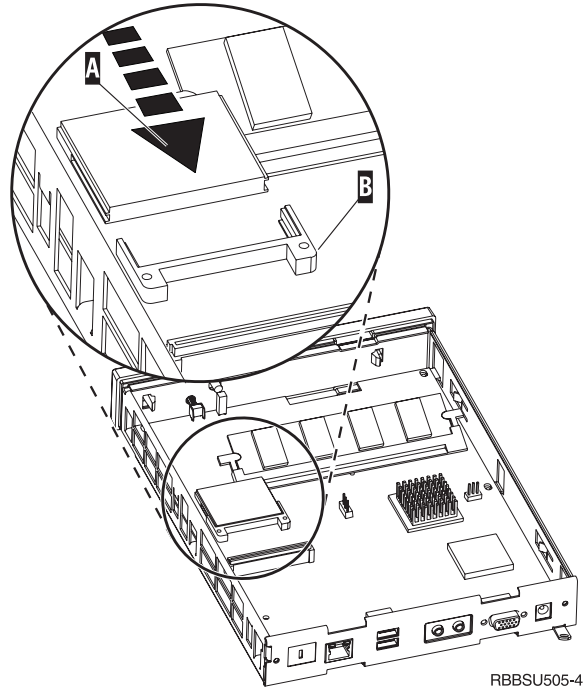
Appendix C. CompactFlash card

Follow these steps to verify if the CompactFlash card is installed properly.

Read "Safety notices" on page v before you continue with these instructions.

Note: The thin client shown in these procedures is an Exx Model.

1. Perform Steps 1 to 4 in "Removing the logic unit" on page 31.
2. Align the grooves on the sides of the CompactFlash card **A** to the grooves of the flash card slot **B**. Make sure to align the grooves properly, as you can insert the CompactFlash card only one way.
3. Carefully press the CompactFlash card into the flash card slot. To avoid hardware damage, do not force the card into the flash card slot.
4. Perform "Reassembling the Network Station" on page 32.



Appendix D. Recovering the boot block image

This section provides instructions that should be followed only under the direction of the IBM Service and Support team. Use these instructions only if you encountered a power interruption during a software update.

Read “Safety notices” on page v before you continue with these instructions.

Note: The thin client shown in these procedures is an Exx Model.

Creating the boot block recovery CompactFlash card

Read “Safety notices” on page v before you continue with these instructions.

Perform these instructions **from a properly working thin client**:

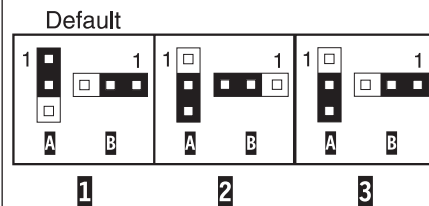
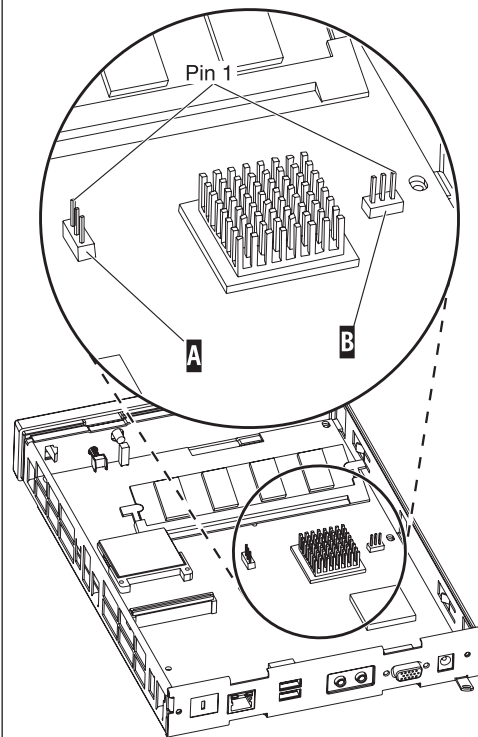
1. Perform Steps 1 to 4 in “Removing the logic unit” on page 31.
2. If a CompactFlash card is already installed, remove it by carefully pulling out of the flash card slot. If a CompactFlash card is not installed, go to step 3.
3. Carefully insert a blank CompactFlash card into the flash card slot. This CompactFlash card is your recovery CompactFlash card.

For more information on CompactFlash cards, see “Appendix C. CompactFlash card” on page 33.

4. Move the jumpers on headers **A** and **B** into configuration **2**.
5. Reconnect the power cable to the logic unit.
6. Power on the thin client, and wait for the system LED to flash green.

If the system LED flashes amber, the image was not created. Repeat the procedure with another CompactFlash card.

7. Power off the thin client.
8. Remove the recovery CompactFlash card.
9. Move the jumpers back into the default configuration **1**.
10. If you removed an original CompactFlash card in step 2, reinsert it into the flash card slot. If you did not remove an original CompactFlash card in step 2, go to step 11.
11. Perform “Reassembling the Network Station” on page 32.
12. Continue with “Reflashing the boot block from the recovery CompactFlash card” on page 36.



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Reflashing the boot block from the recovery CompactFlash card

Read “Safety notices” on page v before you continue with these instructions.

Perform these instructions **using the thin client that requires the new boot block**:

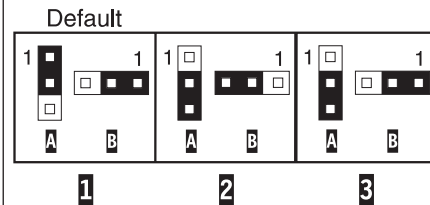
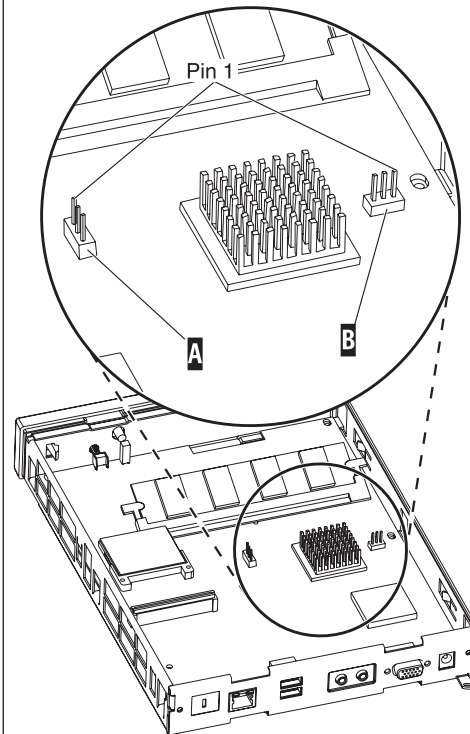
1. Perform Steps 1 to 4 in “Removing the logic unit” on page 31.
2. If a CompactFlash card is already installed, remove it by carefully pulling out of the flash card slot. If a CompactFlash card is not installed, go to step 3.
3. Carefully insert the recovery CompactFlash card into the flash card slot.

For more information on CompactFlash cards, see “Appendix C. CompactFlash card” on page 33.

4. Move the jumpers on headers **A** and **B** into configuration **3**.
5. Reconnect the power cable to the logic unit.
6. Power on the thin client, and wait for the system LED to flash green.

If the system LED flashes amber, the image was not copied correctly. Replace the logic unit (see “Appendix A. Replacing hardware parts” on page 27).

7. Power off the thin client.
8. Remove the recovery CompactFlash card.
9. Move the jumpers back into the default configuration **1**.
10. If you removed an original CompactFlash card in step 2, reinsert it into the flash card slot. If you did not remove an original CompactFlash card in step 2, go to step 11.
11. Perform “Reassembling the Network Station” on page 32.



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Appendix E. Monitor specifications

A basic video graphics adapter (VGA)-class monitor that meets the VESA standards of refresh rate and resolution can function with the thin client. The thin client supports VESA Display Power Management Signaling (DPMS) and VESA Display Data Channel (DDC2B). A monitor that is attached to the thin client does not require either standard. The resolution in each case is configured at the client and OS level.

Your monitor may not support all resolutions and refresh rates.

Table 11. Monitor support

High color (16 bit) and 256 color (8 bit)	
Resolution (pixels)	Refresh Rate (Hz)
640x480	60, 72, 75
800x600	60, 72, 75
1024x768	60, 75
256 color (8 bit)	
640x480	60, 72, 75
800x600	60, 72, 75
1024x768	60, 75
1280x1024	60

Appendix F. Connector pin information

The following tables define the connector pins that are used with the thin client.

Table 12. Monitor Connector

Pin	Signal	Signal Direction
1	Red Video	Out
2	Green Video	Out
3	Blue Video	Out
4	Monitor Detect 2	In
5	Ground	---
6	Red Video Ground	---
7	Green Video Ground	---
8	Blue Video Ground	---
9	Not connected	---
10	Ground	---
11	Monitor Detect 0	In
12	Monitor Detect 1 / DDCSDA	In / Out
13	Horizontal Sync	Out
14	Vertical Sync	Out
15	Monitor Detect 3 / DDCSCL	In / Out
Connector shell	Protective Ground	---

Table 13. RJ-45 Twisted Pair Connector

Pin	Name	Function
1	TPOP	Transmit +
2	TPON	Transmit -
3	TPIP	Receive +
4/5	Not used	---
6	TPIN	Receive -
7/8	Not used	---

Table 14. USB connector

Pin #	Direction	Description
1	Power	Power (5V) for USB0
2	Bidir	Data positive for USB0
3	Bidir	Data negative for USB0
4	Power	Ground for USB0
5	Power	Power (5V) for USB1
6	Bidir	Data positive for USB1
7	Bidir	Data negative for USB1
8	Power	Ground for USB1

Table 15. Power supply connector

Pin #	Voltage+12V dc input
1	+12V dc
2	Ground
3	Ground

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Glossary of abbreviations

A

ARP. Address Resolution Protocol

B

BOOTP. Bootstrap Protocol

C

CPU. Central Processing Unit

CRU. Customer-Replaceable Unit

D

d.d.d.d. IP address format

DDC. Display Data Channel

DDC2B. Display Data Channel (version 2B)

DHCP. Dynamic Host Configuration Protocol

DIMM. Dual In-line Memory Module

DMA. Direct Memory Access

DNS. Domain Name Server

DPMS. Display Power Management Signaling

E

EXX. Ethernet thin client with country-specific code (XX)

F

FRU. Field Replaceable Unit

I

IBM. International Business Machines

ICMP. Internet Control Message Protocol

ID. Identification

IEEE. Institute of Electrical and Electronics Engineers

IP. Internet Protocol

IRQ. Interrupt Request

L

LAN. Local Area Network

LED. Light Emitting Diode

LLC. Logical Link Control

M

MAC. Medium Access Control

MB. Megabyte

MHz. Megahertz

MMX™. Multi-Media Instructions

MTU. Maximum Transmission Unit

N

NFS. Network File Server

NS. Network Station

NSB. Network Station Boot

NSBXXXXX. Network Station Boot message with identification number (XXXXXX)

NVRAM. Nonvolatile Random Access Memory

O

OS. Operating System

P

PCI. Peripheral Component Interconnect

PMR. Problem Management Record

POST. Power On Self Test

R

RAM. Random Access Memory

RAP. Remote Authentication Protocol

RIF. Routing Information Field

RFS. Remote File Server

S

SDRAM. Synchronous Dynamic Random Access Memory

SGRAM. Synchronous Graphic Random Access Memory

T

TCP/IP. Transmission Control Protocol / Internet Protocol

TFTP. Trivial File Transfer Protocol

TXX. Token-ring thin client with country-specific code (XX)

U

UDP. User Datagram Protocol

URL. Uniform Resource Locator

USB. Universal Serial Bus

V

VESA. Video Electronics Standards Association

VM. Virtual Machine

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