



# NCD ThinSTAR Terminal Administration Guide

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## **Revision History**

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NCD ThinSTAR Operating Software 2.20.

NCD ThinSTAR Operating Software 2.30.



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# Terminal Administration Guide

This book has reference information for those supporting NCD ThinSTAR terminals. It has information about Management Server functions, troubleshooting instructions, and a glossary of terms.

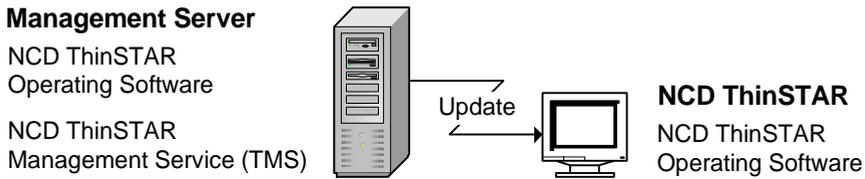
## Automatic Updates and Recovery

NCD ThinSTAR terminals are thin client devices that connect to Windows Terminal Servers to run applications over a network. NCD thin client networking can be set up with different levels of automatic updating, as described in the *NCD ThinSTAR Operating Software and NCD ThinPATH Manager Installation Guide*.

## The Management Server

Sites wanting to update and configure NCD ThinSTAR terminals automatically set up a Windows server as a Management Server—typically one for each subnet—and install NCD ThinSTAR Operating Software on it. This installation includes a utility, NCD ThinSTAR Management Service (TMS), which distributes software as needed to terminals when they restart.

The Management Server distributes software as follows.



Sites can extend automatic capabilities by installing the optional NCD ThinPATH Manager tools on the Management Server. These tools support:

- Central configuration and restart of groups of terminals
- Web configuring for individual terminals

This book does not address variations introduced by NCD ThinPATH Manager options.

## NCD ThinSTAR Operating Software

An NCD ThinSTAR terminal has the following Operating Software which is updated by the Management Server:

- **NCD ThinSTAR boot software**

Boot software initializes and verifies terminal hardware and starts the operating system.

- **NCD ThinSTAR core software**

Core software includes:

- Microsoft Windows CE operating system
- NCD Windows CE device drivers
- Terminal Properties for configuring the terminal
- The Connection Manager for starting and managing connections to servers

- An SNMP agent that reports terminal properties to an SNMP manager on the network
- A terminal component that checks for current Operating Software each time the terminal starts
- A configuration client for communication with NCD ThinPATH Manager Client software, if installed
- A dialer component for network access via phone lines
- **Client software**

Enables communication sessions with a server. It includes:

  - Two default protocol clients—Microsoft Terminal Server Client and Citrix ICA protocol client
  - Microsoft Terminal Server Client Printing, which supports printers attached to NCD ThinSTAR terminals
  - The NCD dial-up client, for modem access to the network
  - Microsoft Internet Explorer for web access.
- **Optional clients that extend NCD ThinSTAR functionality**
  - NCD ThinPATH teemtalk and X Windows, for access to other hosts

## Recovery and Upgrade Functionality

Each terminal is assigned to a Management Server. When a terminal restarts, the Management Server updates it with versions of NCD ThinSTAR Operating Software and client software components as specified by its upgrade policies. In the unlikely case that the Operating Software becomes corrupt, the Management Server provides a fresh copy.

**Note** A terminal in dial-up mode with dial-up upgrades enabled, can upgrade over a dial-up connection. However, a terminal cannot recover software over a dial-up connection.

The automatic upgrading and recovery service becomes available when the Management Server starts. It is listed as a service and runs unless the service is disabled. In Windows 2000, the service is listed

in Start > Programs > Administrative Tools > Services; in Windows NT 4.0, Terminal Server, it is listed in the Control Panel.

## Recovery and Upgrade Requirements

The requirements for a recovery and upgrade are as follows:

- A DHCP server must be running on the terminal's subnet.
- A Management Server must be on the terminal's subnet.

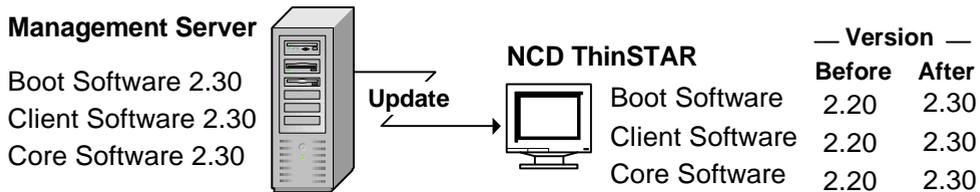
## Automatic Upgrade Requirements

The requirements for an upgrade are as follows:

- If you are not using a static IP address, a DHCP server must be running on the terminal's subnet.
- If you have not defined a Management Server in Terminal Properties, then a Management Server must be on the terminal's subnet.
- If the version on the Management Server is newer, the upgrade policies must be set to upgrade software.

## Upgrade Policies

Upgrade policies specify whether to download new software to NCD ThinSTAR terminals. In the following example, the terminal receives a newer version of the Operating Software.



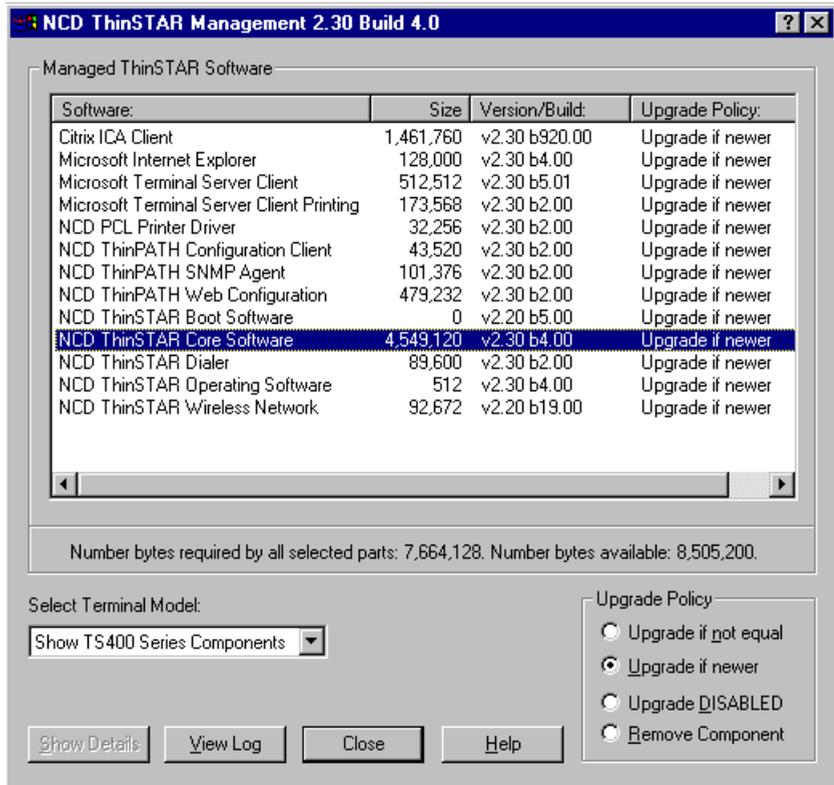
You can select a terminal model and set the upgrade policy for each of its Operating Software components. The policy applies to all

terminals of that model serviced by the Management Server.

Upgrade Policy	Description
Upgrade if <b>not equal</b> .	<p>The Management Server upgrades the terminal if the Operating Software on the terminal is newer or older than the software on the Management Server.</p> <p>This lets you return to an earlier version or use a newer version.</p>
Upgrade if the server version is <b>newer</b> .	<p>The Management Server upgrades the terminal if the Operating Software on the terminal is older than the software on the Management Server.</p> <p>The terminal always runs the latest version of the Operating Software kept on the Management Server.</p> <p>This is the default value for most Operating Software components.</p>
Upgrade <b>DISABLED</b> .	<p>The Management Server does not replace the terminal's Operating Software under any conditions.</p>
Remove component.	<p>The Management Server removes the software component from the terminal the next time it restarts. Use this policy to remove software that you no longer use, or to increase the amount of available flash memory. (In Terminal Properties, see <b>Inventory &gt; Hardware</b> for flash memory.)</p>

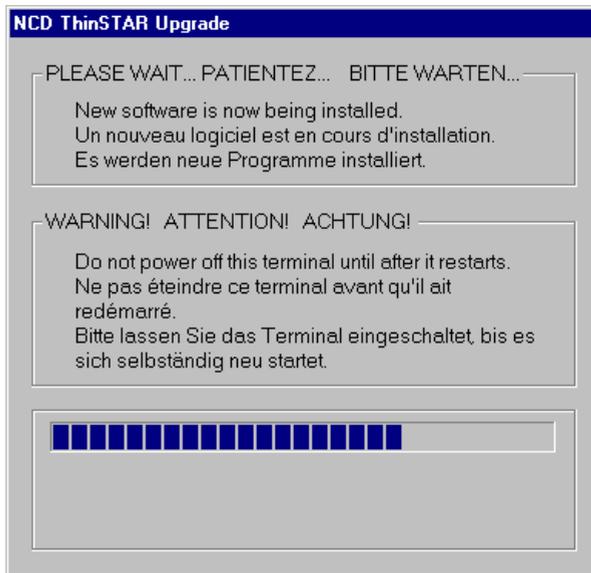
To set the upgrade policy for each component:

1. Open the Control Panel and click the ThinSTAR Manager icon or select Start > Programs > Administrative Tools (Common) > NCD ThinSTAR OS > NCD ThinSTAR Management.
2. Select the terminal model, then select a component and an upgrade policy for it as shown in the following example, and click Close.



## Upgrade Process

When a terminal restarts, it displays an upgrade message while it replaces its Operating Software.



Do not turn the terminal off during an upgrade.

Turning it off at this time may damage it, requiring a software recovery that destroys the configuration that is currently defined.

As the files are copied, the file names and IP address of the Management Server are displayed.

After the upgrade is complete, the terminal restarts automatically, without any changes to its configuration and connections.

- If no connections have been defined, a connection wizard starts.
- If connections have been defined, the Connection Manager starts.

Some terminals running NCD ThinPATH Manager tools may not have enough flash memory available for a software upgrade. If you encounter this situation, change some of the upgrade policies on the Management Server to Upgrade DISABLED or Remove Component.

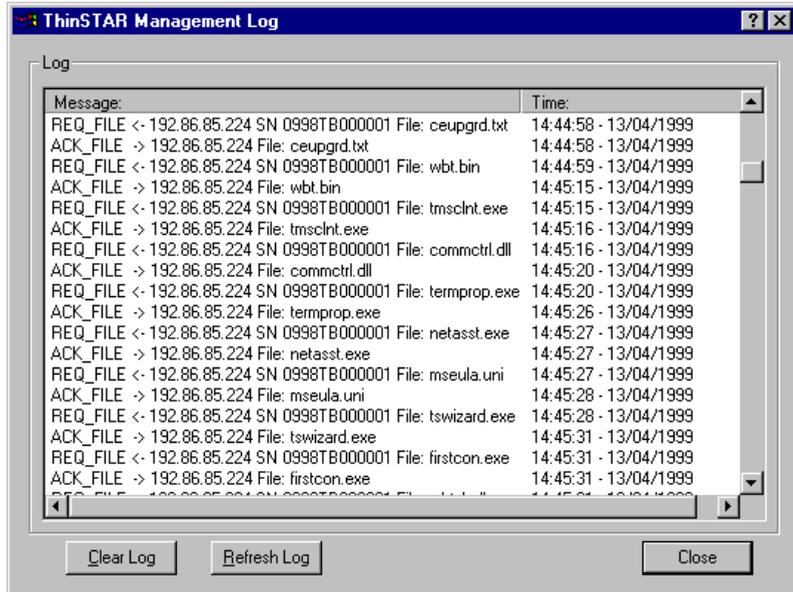
## The Upgrade Log

The upgrade log tracks communication between a terminal and the Management Server; it can be useful in troubleshooting and tracking communication between them. The log accumulates up to the limit, then is cleared automatically so logging can continue. You can manually clear it at any time.

To view or clear the log:

1. Open the Control Panel and click the NCD icon labeled ThinSTAR Manager.
2. Click View Log to display the log.

Clear empties the log and Refresh updates it with recent activity.



## Automatic and Forced Software Recovery

The terminal's Operating Software rarely becomes corrupted, but if it does, the Management Server provides automatic recovery. If necessary, you can force a recovery.

**Note** Recovery cannot occur over a dial-up connection.

When the terminal starts, it checks the software in its flash memory and replaces it, if necessary. A message announces the recovery.



**CAUTION.** Do not turn the terminal off during recovery.

As a result of software recovery:

- The terminal restarts automatically.
- The terminal's configuration returns to factory defaults and the setup wizard starts so that you can change the configuration.
- All defined connections are deleted and the connection wizard starts so that you can create a connection.
- The Microsoft terminal server license is deleted. You may need to contact Microsoft to assist you in recovering the license.

**Note** If NCD ThinPATH Manager is installed, the terminal may be configured to omit the setup and connection wizards.

### Enabling and Disabling Automatic Updates and Recovery

By default, if you have installed Operating Software, automatic updating of Operating Software is available when the Management Server starts. However, you may want to disable this service if all terminals have the correct version of the Operating Software and you want to reduce the load on the Management Server.

**Note** If a server restarts, repeat the steps listed below to disable automatic updating since these services are set for automatic restart. Or, you can change the Startup Type setting from Automatic to Manual.



**CAUTION.** Never disable automatic updating during a terminal recovery or an upgrade.

To disable automatic updating:

1. On the Management Server, start the ThinSTAR Management Service.
  - For Windows 2000, select Start > Programs > Administrative Tools > Services.
  - For Windows NT, 4.0, go to the Control Panel and double click the Services icon.
2. Scroll until you see:
  - ThinSTAR Management Service
  - TMS File Server
3. Select and stop each service.
  - For Windows 2000, select Action > Stop.
  - For Windows NT 4.0, click Stop.

To re-enable automatic updating of Operating Software:

1. On the Management Server, select the Services icon in the Control Panel.
2. Scroll until you see:
  - ThinSTAR Management Service
  - TMS File Server
3. Select and start each service.
  - For Windows 2000, select Action > Start.
  - For Windows NT, 4.0, click Start.

## Forcing Software Recovery

If a terminal does not recover after an error, you can force recovery. DHCP must be running for a successful recovery.

To force a recovery:

1. Restart the terminal.
2. When the progress bar appears, press Shift+F11.



**CAUTION.** Do not turn the terminal off during recovery.

**Note** Management Server upgrade policies also govern recovery. During recovery, a terminal receives downloaded software only if its upgrade policy is to upgrade if newer or not equal.

# Troubleshooting

This section describes problems that may occur with NCD ThinSTAR terminals and suggests ways of resolving them. It also lists the flashes, tones, and messages that terminals produce under various conditions, and explains how to respond to them.

## Terminal Startup Sequences

The steps following terminal startup depend on the state of the terminal. The following table describes expected results in the different states.

**Note** If you have installed NCD ThinPATH Manager, an optional product, its configuration settings may affect the results. For example, with NCD ThinPATH Manager, a connection wizard does not appear if connections already exist.

<b>Steps Following Terminal Startup</b>	
<b>When starting ...</b>	<b>This happens ...</b>
The first time	<ul style="list-style-type: none"> <li>■ The setup wizard guides you through terminal configuration.</li> <li>■ A connection wizard lets you create an initial connection.</li> <li>■ The Connection Manager starts; you can start the connection you created and create other connections.</li> </ul>
After resetting to factory defaults in Terminal Properties	<ul style="list-style-type: none"> <li>■ The terminal restarts automatically.</li> <li>■ The setup wizard guides you through terminal configuration.</li> <li>■ A connection wizard lets you create an initial connection.</li> <li>■ The Connection Manager starts; you can start the connection you created or create other connections.</li> </ul>
After upgrading software	<ul style="list-style-type: none"> <li>■ The terminal restarts automatically.</li> <li>■ If connections exist, the Connection Manager starts; otherwise, a connection wizard lets you create an initial connection.</li> </ul>
After an upgrade failure	<ul style="list-style-type: none"> <li>■ The terminal restarts automatically or a message says that there was inadequate flash memory to upgrade software. For more information, see <i>Upgrade Process</i> on page 6 and <i>Operating Software Is Not Upgraded</i> on page 14.</li> </ul>

<b>Steps Following Terminal Startup</b> <i>(continued)</i>	
<b>When starting ...</b>	<b>This happens ...</b>
After software recovery	<ul style="list-style-type: none"> <li>■ The terminal restarts automatically.</li> <li>■ The setup wizard guides you through terminal configuration.</li> <li>■ A connection wizard lets you create an initial connection.</li> <li>■ The Connection Manager starts; you can start the connection you created or create other connections.</li> </ul>
Under normal conditions	<p>Normally, the Connection Manager starts when you restart a configured terminal that has connections defined.</p> <p>However, if the terminal has been configured to automatically start a connection, a Windows NT logon, Windows NT desktop, or application starts instead. See the section titled, <i>Setting an Autostart Connection</i>, in the <i>NCD ThinSTAR Terminal User's Guide</i>.</p>

## Problems and Solutions

This section describes the most common problems and offers solutions.

### Unreadable Display

If the monitor displays the initial logo screen at power-on, but nothing after that, the desktop area and refresh frequency setting for the monitor is wrong.

If this occurs, you need to start the terminal in safe boot mode, which is 640 x 480 at 60 Hz. To do this, restart the terminal, then press F5 when you see the progress bar on the logo screen.

The monitor may support a better desktop area (resolution) and frequency than the default setting. To try alternate monitor settings, follow the instructions in the section titled, *Completing Initial Terminal Setup*, in the *NCD ThinSTAR Terminal User's Guide*.

You can also try alternate monitor settings if the terminal restarts the setup wizard.

### Terminal Does Not Operate

If a terminal stops operating and restarting it does not solve the problem, you may need to force software recovery.

To force the recovery:

1. Turn the power to the terminal off, then on.
2. Press Shift+F11 when you see the progress bar on the logo screen.

For more information, see *Forcing Software Recovery* on page 11.

### Operating Software Is Not Upgraded

If the terminal does not receive new software from the Management Server, you can check the following:

- Check the Management Server and its upgrade policies. Compare the software version and build numbers with the versions shown on the Terminal Properties > Inventory > Software tab to see whether the software should be upgraded.
- Check the upgrade log to see if the terminal was recognized. To view the log:
  - Open the Control Panel and click the NCD icon labeled ThinSTAR Manager.
  - Click View Log to display the log, then click Close to close it.
- In the Control Panel, check whether the services are enabled.
- On a switched network using the spanning tree protocol, increase the Management Server timeout as described in the section titled, Set Timeouts, in the *NCD ThinSTAR Terminal User's Guide*.

## Calibration Program for Touchscreen Times Out

In touchscreen mode, the calibration program runs when a new display resolution is selected and the terminal restarts. The touchscreen calibration program can time out if there is no touchscreen monitor.

If you switch from a touchscreen to a non-touchscreen monitor, the calibration program times out after 30 seconds.

To correct this:

1. Wait for the calibration timeout or press Esc to cancel the calibration program.
2. When the calibration program ends, press F2 to return to Terminal Properties.
3. Go to Management > Touchscreen. To do this, use the right arrow key to move to the Management tab, press Tab, then use the right (or left) arrow key to move to the Touchscreen tab.
4. Press Alt+E to disable touchscreen.
5. Press Alt+A to apply the changes.
6. Restart the terminal.

### Network Screen Appears at Startup

At startup, the terminal checks for network accessibility and availability of IP addresses.

The Network screen appears if the cable is not secure, the terminal cannot determine the necessary network addresses, or the terminal is in the wrong network connection mode.

#### Disconnected Network Cable

Check the network cable connection at the terminal and at the outlet on the wall or hub. If the cable is not secure, plug it in and click Restart in the Network screen. The terminal should restart normally.

#### Fixing an Address Problem

If the cable is plugged in securely, the problem may be that the terminal cannot find the required network identifiers.

To check how the terminal is configured for network identifiers:

1. In the Network screen, click Manage Network Options.
2. In Terminal Properties, select the Network tab.
  - If the terminal is configured to use DHCP, make sure DHCP is properly configured on the server.
  - If the terminal uses static IP addresses, make sure it is configured properly and that the address is not in use by another device. To check whether it is in use by another device, turn off the terminal and ping the IP address from another device.
3. Click OK. The terminal restarts.

**Note** See the section titled, *Configuring Terminal Properties*, in the *NCD ThinSTAR Terminal User's Guide* for information on Terminal Properties.

### Waiting for a Network Address

When a terminal in DHCP mode restarts, it seeks an IP address from the DHCP server. If the DHCP server does not respond immediately, a timer is displayed and counts down until the DHCP server provides the IP address. By default, the countdown is 60 seconds. If the countdown reaches 0, an error message notifies you that the network is not available. It presents two options: restarting (click Restart) or adjusting terminal properties (click Managed Network Options) to change network settings or increase the DHCP timeout value. These settings are described in the section titled, *Configuring Terminal Properties*, in the *NCD ThinSTAR Terminal User's Guide*.

### Changing from LAN Use to Dial-up Use

If the terminal is in LAN mode and you do not switch it to dial-up mode before taking it off the LAN and attaching it to a modem, the Network screen appears when you start the terminal.

To switch the terminal to dial-up mode:

1. In the Network screen, click Manage Network Options.
2. When the Management tab of Terminal Properties appears, click Network Options.
3. Enable Dial-Up Connection.
4. Click OK. The terminal restarts in dial-up mode.

## Boot Error Codes and Messages

This section lists error codes and messages for NCD ThinSTAR terminals and offers recommendations for actions to take.

### Boot Error Alert Tones and Beeps

The following table lists boot software errors that are signaled by a series of tones (beeps) from the terminal. For example, the pattern 3-2-4 means three tones, pause, two tones, pause, four tones.

- **Tone pattern 3-2-4**  
Keyboard controller failed

Try a different keyboard. If error persists, contact NCD Technical Support.

■ **Tone pattern 3-4-1**

Video subsystem failure

Contact NCD Technical Support.

**Boot Error Flashes**

The following bootstrap errors are signaled by a series of LED flashes punctuated with a short pause from the LED light on the front of the terminal.

**Boot Error Flashes**

■ **Flash 1**

Video controller initialization failed

Contact NCD Technical Support.

■ **Flash 2**

Video memory test failed

Contact NCD Technical Support.

**NCD ThinSTAR Operating Software Messages**

The following messages may appear.

<b>NCD ThinSTAR Operating Software Errors</b>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>RE000000 STARTING USER FORCED RECOVERY</b>	The recovery mechanism was initiated by holding down <b>SHIFT+F11</b> . No action is required.
<b>RE000001 RECOVERY ATTEMPT STARTED</b>	The flash file system failed during a read operation. Recovery mechanism started. No action is required.

<b>NCD ThinSTAR Operating Software Errors</b> <i>(continued)</i>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>RE000002 RECOVERY ATTEMPT DHCP</b>	STATUS MESSAGE: Flash file system failed during a read operation. Recovery mechanism has begun, using DHCP to get an IP address. No action is required.
<b>RE000003 RECOVERY ATTEMPT BROADCAST</b>	STATUS MESSAGE: Flash file system failed during a read operation. Recovery mechanism started; broadcasting to find a Management Server. No action is required.
<b>RE000004 RECOVERY ATTEMPT RETRY ###</b>	STATUS MESSAGE: Flash file system failed during a read operation. Recovery mechanism re-broadcasting to find a Management Server. No action is required.
<b>RE000005 RECOVERY ATTEMPT FAILED TO CONNECT</b>	Flash file system failed during a read operation. Failed to find a Management Server. The terminal stops operating. Make sure the Management Server is in the same subnet as the terminal.
<b>RE000006 RECOVERY ATTEMPT: CONNECT</b>	STATUS MESSAGE: Successful connection to a Management Server. No action is required.
<b>RE000007 RECOVERY ATTEMPT: LOADING</b>	STATUS MESSAGE: Flash file system failed during a read operation. A fresh copy of the Operating Software is being downloaded. No action is required.

<b>NCD ThinSTAR Operating Software Errors</b> <i>(continued)</i>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>RE000008 RECOVERY ATTEMPT: FAILED LOAD</b>	<p>File system hardware failed during a read operation. An attempt to download a fresh copy of the Operating Software failed due to incorrect format or a transmission error.</p> <p>Retry recovery by restarting the terminal.</p> <p>Re-install the Operating Software on the Windows NT server, then restart the terminal.</p> <p>For Windows 2000, ensure that the Everyone group has Read permission on the recovery files.</p>
<b>RE000009 RECOVERY ATTEMPT: EXECUTING</b>	<p>STATUS MESSAGE: Flash file system failed during a read operation. Executing recovery code. Control has passed from Boot Software to Windows CE. The terminal restarts.</p> <p>No action is required.</p>
<b>RE000010 RECOVERY ATTEMPT: CHECK NETWORK CONNECTION</b>	<p>The terminal tried to get an IP address via DHCP, but detected a connectivity problem. This can be caused by a network cable not securely connected to the unit.</p> <p>Check the network cable connection to the terminal. If the green link light on the back of the terminal is on, the terminal is properly connected.</p> <p>If the network cable is secure, check physical network cable connections back to the hub.</p> <p>Ensure that the IP address is not being used elsewhere.</p>
<b>MS000001 COULD NOT MOUNT FILE SYSTEM</b>	<p>The firmware could not mount the file system. The terminal stops operating.</p> <p>Contact NCD Technical Support.</p>
<b>MS000002 NVINFO BLOCK NOT FOUND</b>	<p>The MAC address (the low-level network ID of the terminal) has been lost. The terminal stops operating.</p> <p>Contact NCD Technical Support.</p>
<b>MS000005 DID NOT FIND NVINFO BLOCK</b>	<p>The MAC address (the low-level network ID of the terminal) has been lost. The terminal stops operating.</p> <p>Contact NCD Technical Support.</p>

<b>NCD ThinSTAR Operating Software Errors</b> <i>(continued)</i>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>MS000006 FAILURE READING NVINFO BLOCK</b>	The MAC address (the low-level network ID of the terminal) and serial number have been lost. The terminal stops operating. Contact NCD Technical Support.
<b>MS000007 UNABLE TO READ NV STORAGE</b>	The MAC address (the low-level network ID of the terminal) and serial number have been lost. The terminal stops operating. Contact NCD Technical Support.
<b>MS000008 MAC ADDRESS CHECKSUM FAILURE</b>	The MAC address (the low-level network ID of the terminal) and serial number have been lost. The terminal stops operating. Contact NCD Technical Support.
<b>MS000011 FAILED TO REGISTER NFTL</b>	The file system failed to load low-level routines. Contact NCD Technical Support.
<b>MS000012 FAILED TO REGISTER DOCSOC</b>	The file system failed to load low-level routines. Contact NCD Technical Support.
<b>MS000013 FAILED TO REGISTER DOC200</b>	The file system failed to load low-level routines. Contact NCD Technical Support.
<b>MS000019</b>	WARNING: File has no CRC (Cyclical Redundancy Code—refers to checksum functions) installed; unable to verify CRC. Will continue to load and execute code. No action is required.
<b>MS000020</b>	Incorrect product file. Fails to load, displays error message and stops operating. Contact NCD Technical Support.
<b>MS000021</b>	Incorrect file type. Fails to load, displays error message and stops operating. Contact NCD Technical Support.

<b>NCD ThinSTAR Operating Software Errors</b> <i>(continued)</i>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>MS000022</b>	Bad record checksum. Fails to load, displays error message. Contact NCD Technical Support.
<b>MS0000014 FAILED TO MOUNT FLASH FOR READ</b>	The firmware could not mount the file system. The terminal keeps trying to recover. Contact NCD Technical Support.
<b>MS0000015 FAILED TO PARSE FILENAME</b>	The firmware had an error processing the name of a file to be loaded. The terminal keeps trying to recover. If the error persists, contact NCD Technical Support.
<b>MS0000018 FAILED TO DISMOUNT FILE SYSTEM</b>	The terminal could not dismount the file system after a read operation. The terminal keeps trying to recover. If the error persists, contact NCD Technical Support.
<b>MS207180 FAILED TO OPEN FILE TO READ</b>	The terminal could not load the file containing the Windows CE code, <b>wbt.bin</b> . The terminal keeps trying to recover. If the error persists, contact NCD Technical Support.
<b>MS107180 FAILURE ON READ</b>	The terminal could not load the file containing the Windows CE code, <b>wbt.bin</b> . The terminal keeps trying to recover. If the error persists, contact NCD Technical Support.
<b>MS007180 FILE LOAD FAILED</b>	The terminal could not load the file containing the Windows CE code, <b>wbt.bin</b> . The terminal keeps trying to recover. If the error persists, contact NCD Technical Support.
<b>SE000012 UNABLE TO READ NV STORAGE</b>	The MAC address (the low-level network ID of the NCD ThinSTAR) and serial number have been lost. The unit stops operating. Contact NCD Technical Support.

<b>NCD ThinSTAR Operating Software Errors</b> <i>(continued)</i>	
<b>Message</b>	<b>Description/Recommended Response</b>
<b>SE000014 KEYBOARD CONTROLLER ERROR</b>	Keyboard controller module on the circuit board did not pass diagnostic test. Try a different keyboard. If the error persists, contact NCD Technical Support.
<b>SE000016 NETWORK CONTROLLER FAILURE</b>	The network controller failed diagnostic tests. Contact NCD Technical Support.
<b>SE000017 FLASH SYSTEM REQUIRES FACTORY REWORK - PLEASE CONTACT NCD</b>	The terminal has outdated flash memory. Contact NCD Technical Support.
<b>SE000019 FLASH SYSTEM REQUIRES FACTORY REWORK - PLEASE CONTACT NCD</b>	The terminal has an outdated flash memory. Contact NCD Technical Support.
<b>SE000020 MARCH FAILURE FOUND A5A5A5A6 exp A5A5A5A5 at 40122040</b>	A memory test failed. There may be a problem with the memory or with the SIMM or DIMM in the terminal Open the unit as described in your hardware documentation. If there is a SIMM or DIMM installed, it may be defective; replace it with the correct type of SIMM or DIMM. If the error persists, contact NCD Technical Support.
<b>SE000030 CANNOT CHANGE NVINFO DUE TO VERSION MISMATCH</b>	When the MAC address or serial number is changed, the info block is not a version 2 or version 3. Should be seen in manufacturing only. Contact NCD Technical Support.
<b>SM000001 SAFE BOOT ENABLED</b>	STATUS MESSAGE: The Safe Boot mode has been enabled by pressing <b>F5</b> . The terminal will use the default 640x480 display resolution. No action is required.

## Glossary

<b>Secondary Domain Controller (BDC)</b>	A Windows NT Server that handles the same functions as a Primary Domain Controller (PDC) if the PDC is unavailable. See also domain controller.
<b>Boot ROM</b>	See NCD ThinSTAR boot software.
<b>client</b>	A device or software on a network that accesses services, applications, or data provided by a server. See also thin client.
<b>connection</b>	A communication session between a client device and a server by means of a session protocol. An NCD ThinSTAR terminal communicates with a Terminal Server by means of the RDP protocol or the Citrix ICA protocol. You can define any number of connections on an NCD ThinSTAR terminal.
<b>DDC</b>	Display Data Channel. DDC allows a display monitor to inform the host system about its identity and communicate additional levels of display capabilities.
<b>DHCP</b>	Dynamic Host Configuration Protocol. A network service that dynamically assigns valid IP addresses to network devices as they start up. DHCP can also provide machines with valid subnet mask values, the IP addresses of gateway devices, DNS servers, and WINS server IDs. See also subnet mask and DNS.
<b>DNS</b>	Domain Name System. A distributed database and utilities for defining TCP/IP domains and mapping domain names to IP addresses. See also domain and fully qualified domain name.

<b>domain</b>	<p>A set of network devices that are managed together. NCD networking involves DNS domains and Windows NT domains.</p> <p>A DNS domain is a TCP/IP construct that defines hierarchical groups of devices on the Internet. It is a segment of the Internet and is given a unique, official name by InterNIC, the organization that administers Internet names and IP addresses.</p> <p>A Microsoft Windows NT domain is a unique group of Windows NT Servers and workstations that the network administrator defines for centralized administration.</p> <p>See also domain controller, DNS, and fully qualified domain name.</p>
<b>domain controller</b>	<p>A Windows NT Server maintains the master database for a Microsoft domain (see domain). The database identifies users and systems, both of which may be members of the domain. The domain controller authenticates domain logons and maintains the Windows NT domain's security policy.</p>
<b>fully qualified domain name</b>	<p>A name for a network device that combines its hostname and its DNS domain name. For example, suppose that the domain acctg.biggcorp.com has a device whose hostname is SaleServer. The device's fully qualified domain name is SaleServer.acctg.biggcorp.com. See also DNS and domain.</p>
<b>FQDN</b>	<p>See fully qualified domain name.</p>
<b>ICA</b>	<p>Independent Computing Architecture. A remote session protocol developed by Citrix Systems for communication between terminals and servers running Citrix WinFrame or Citrix MetaFrame.</p>

<b>Internet</b>	The collection of networks and gateways that use the TCP/IP protocol family and function as a single, cooperative virtual network that connects many businesses, universities, and government facilities.
<b>LAN</b>	Local Area Network. A network that connects devices over relatively short distances, typically within a building or campus.
<b>MetaFrame</b>	Server software from Citrix Systems that provides connectivity for NCD ThinSTAR terminals through the ICA protocol.
<b>Microsoft Terminal Server Client</b>	An implementation of Microsoft's RDP remote display protocol. It enables terminals and Terminal Servers to exchange graphical application input and output. See also client and Terminal Server.
<b>Microsoft Windows CE</b>	A compact Microsoft operating system, originally developed for handheld devices, that has been adapted for use in thin client devices. See also thin client.
<b>NCD ThinSTAR</b>	NCD Windows-based terminal.
<b>name server</b>	A host that provides translation between network hostnames and IP addresses. See also DNS.
<b>NCD ThinSTAR boot software</b>	Low-level code that initiates the startup process of an NCD ThinSTAR terminal when it is powered up or restarted.
<b>NCD ThinSTAR Management Service (TMS)</b>	An NCD utility that runs on a Windows NT server. Can be configured to automatically replace outdated or corrupt Operating Software on terminals.

<b>NetBIOS</b>	<p>A communication protocol developed for networks of Microsoft platforms. NetBIOS identifies devices by the ID number of their NICs (Network Interface Cards). A device's hostname is mapped to its NIC IDs.</p> <p>The WINS name resolution service can map NetBIOS hostnames to IP addresses so that Microsoft platforms can communicate over TCP/IP networks.</p>
<b>network server</b>	See Windows NT server.
<b>PPP</b>	Point-to-Point Protocol. The NCD dial-up client uses this protocol to establish a connection with a network server over a modem.
<b>PPPD</b>	Point-to-Point Protocol Daemon. A service that the PPP client communicates with.
<b>Primary Domain Controller</b>	See domain controller.
<b>published application</b>	An application configured by the system administrator for remote users. With published applications, the user accesses only the specified application and does not need to know the address of a specific server to create a connection.
<b>RAS</b>	Remote Access Service. A service on Windows NT hosts that enables users to dial into a Windows NT network with a modem.
<b>RDP</b>	Remote Desktop Protocol, a proprietary communication protocol that Microsoft Corporation developed so that Windows-based Terminals, such as the NCD ThinSTAR terminal, could communicate with Terminal Servers.

<b>SNMP agent</b>	<p>Software on a terminal that reports terminal settings to the SNMP manager (if it is installed). The SNMP agent is read-only by default. The full list of SNMP values is in the NCD-THINSTAR.MIB.txt file, which is installed by default in \Program Files\NCD\ThinSTAR Management.</p> <p>You need the NCD ThinPATH Manager Configuration Tool to enable SNMP to write and change terminal settings.</p>
<b>subnet</b>	<p>A physical network within a larger IP network. Allows a site to use a single Internet network for multiple physical networks.</p>
<b>subnet mask</b>	<p>The format of an IP address that shows which part of the address identifies the subnet and which part identifies a particular machine.</p>
<b>TCP/IP</b>	<p>Transmission Control Protocol/Internet Protocol. A common name for the Internet protocol family.</p>
<b>terminal</b>	<p>A set of input and output devices, such as a monitor and keyboard, that access data and/or computing services on a server across a network.</p>
<b>Terminal Server</b>	<p>A server running the Microsoft Windows NT Server 4.0, Terminal Server Edition operating system. It allows Windows-based terminals like the NCD ThinSTARs to run Windows NT applications remotely.</p>
<b>Terminal Server host</b>	<p>A computer running the Microsoft 2000 operating system or the Microsoft Windows NT Server 4.0, Terminal Server Edition operating system. See also Terminal Server.</p>
<b>thin client</b>	<p>Terminal software that manages input and output between a user's input/output devices (keyboard, mouse, and monitor) and a server using a remote session protocol. See thin client device.</p>

<b>thin client device</b>	Hardware that runs thin client software. See thin client.
<b>ThinSTAR</b>	See NCD ThinSTAR.
<b>TMS</b>	See NCD ThinSTAR Management Service (TMS).



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