



Changing The World of Storage

Spectra nTier700

Backup and Archive Appliance

**Release Notes and Documentation
Updates**

SPECTRALOGIC.COM

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Part Number

90990019 Revision F

Revision History

BlueScale Version	Document Revision	Date	Description
2.3.0.2	B	April 2008	<ul style="list-style-type: none">Updated formatting.Added information about RMM, power cord specifications
2.6.0.6	C	April 2009	User Guide updates, firmware updates, known issues.
2.6.0.7	D	May 2009	Firmware updates, add File Migrator install files, resolved issues
2.7.1.7-20100107	E	February 2010	<ul style="list-style-type: none">BlueScale firmware 2.7.1.7 updates and known issues.Remove DPM and File Migrator from system disk.
2.7.2.5-20100512	F	May 2010	<ul style="list-style-type: none">Implemented fan speed controls to reduce power consumption and operating noise levels.Add 2TB drives
2.8.0.1-20100615	G	June 2010	<ul style="list-style-type: none">BlueScale firmware 2.8.0.1 updates and known issues.

Note: To make sure you have the release notes for the most current version of the BlueScale firmware, check the Spectra Logic Web site at www.spectralogic.com/documents. The release notes also include updates to the product documentation.

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Introduction

These release notes give you the latest information available about the BlueScale® firmware for the Spectra® nTier700™ Backup and Archive Appliance (referred to as the nTier700). They provide updates to the *Spectra nTier700 Backup and Archive Appliance User Guide*.

- Notes:**
- To make sure you have the most current version of the BlueScale firmware release notes and the *Spectra nTier700 Backup and Archive Appliance User Guide*, check the Spectra Logic Web site at www.spectralogic.com/documents.
 - The Spectra nTier700 was previously called the Spectra nTier700 Intelligent Secondary Storage Appliance.

RELATED PUBLICATIONS

The following publications related to the Spectra nTier700 are available from the Spectra Logic web site at www.spectralogic.com/documents.

For additional information about the nTier700, refer to the following publications.

nTier700

The following documents related to the nTier700 are available on the Spectra Logic web site at www.spectralogic.com/documents.

- The *Spectra nTier700 Backup and Archive Appliance User Guide* provides detailed information about installing, configuring, using, and maintaining your nTier700.

Note: The current version of the user guide is entitled *Spectra nTier700 Intelligent Secondary Storage Appliance User Guide*. The title will change the next time the guide is updated.
- *Spectra nTier700 Backup and Archive Appliance Read This First* gives tips and other important information that you should know before installing the nTier700 in your storage environment.

Microsoft Windows Operating System and Software

Check the following web sites for information and documentation related to the Microsoft Windows Storage Server 2003 operating system and other Microsoft software used with the nTier700.

- The integrated application server in the nTier700 runs the Windows Storage Server 2003 R2 operating system. You can find information about this operating system on the Microsoft web site at www.microsoft.com/windowsserver2003.
- The nTier700 uses the Microsoft Distributed File System (DFS), a feature of Windows Storage Server 2003, as its replication engine. You can find information about DFS on the Microsoft web site at www.microsoft.com/windowsserver2003/technologies/storage/dfs/default.aspx.
- Microsoft Data Protection Manager (DPM) is a software option that can be installed and run on the nTier700. You can find information about Microsoft Data Protection Manager (DPM) on the Microsoft web site at www.microsoft.com/dpm.

Note: DPM is no longer available for purchase with the nTier700. It is supported as legacy software only.

Intel Remote Management Module 2

The integrated Intel Remote Management Module 2 (Intel RMM2) provides remote power management so that you can power cycle the nTier700 from a remote host. You can obtain the *Intel Remote Management Module 2 User Guide* from the Intel web site at www.intel.com/support/motherboards/server/sb/cs-025399.htm.

QLogic Fibre Channel Host Bus Adapter

To configure the option QLogic Fibre Channel Host Bus Adapter, use the QLogic SANsurfer Application for Windows. Search the QLogic web site for additional information about obtaining and using SANsurfer.

Spectra nTier File Migrator

Note: Spectra nTier File Migrator is no longer available for purchase with the nTier700. It is supported as legacy software only.

Spectra nTier File Migrator is a software option that can be installed and run on the nTier700. The following publication related to the Spectra nTier Migrator software are available from the Spectra Logic web site at www.spectralogic.com/documents.

The *Spectra nTier File Migrator User Guide* provides information on how to install, configure, use, maintain, and troubleshoot the nTier File Migrator software.

USER FEEDBACK

Please give us suggestions for and opinions on our products and their documentation by calling us at (800) 833-1132 or sending e-mail to feedback@spectrallogic.com.

REGISTER YOUR NEW nTIER700

Register your nTier700 quickly and easily on the Spectra Logic web site, by visiting www.spectrallogic.com/register.

TYPOGRAPHICAL CONVENTIONS

These release notes use the following conventions to highlight important information:

Note: Read notes for additional information or suggestions about the current topic.



Important

Read text marked by the "Important" icon for information that will help you complete a procedure or avoid extra steps.



Caution

Read text marked by the "Caution" icon for information you must know to avoid damaging the library, the tape drives, or losing data.



Warning

Read text marked by the "Warning" icon for information you must know to avoid personal injury.

Warnung: Lesen Sie markierten Text durch die "Warnung"-Symbol für die Informationen, die Sie kennen müssen, um Personenschäden zu vermeiden.

These release notes use an arrow (→) to describe a series of menu selections. For example:

Select **Configuration → Network**.

means

Select **Configuration**, then select **Network**.

Notes

nTier700 BlueScale Firmware

FIRMWARE PACKAGE INFORMATION

Firmware packages are groupings of program code that are used to update the BlueScale software and firmware for the nTier700.



Important

The Windows Storage Server operating system requires you to install device drivers before application software can correctly communicate with tape drives, either in a library or standalone, connected to the nTier700.

Do not use the Hardware Update Wizard in the Windows Device Manager to install the tape drive device drivers. The wizard does not install the drivers correctly on the nTier700. If you previously installed device drivers using the wizard, you must remove the drivers and then reinstall the drivers. Follow the instructions in [Updating Tape Drive Device Drivers on page 24](#) to remove the drivers and then reinstall them.

Firmware Package Support

Spectra Logic recommends that you keep your nTier700 firmware up-to-date. Spectra Logic provides complete support for the two most recently shipped releases of firmware packages. If you are using a firmware package other than the most current one, Spectra Logic urges you to upgrade to the current release as soon as possible. If the firmware you are running is more than two releases behind, you may be required to upgrade firmware to resolve an issue or to verify that a problem still exists in current firmware.

Updating Firmware

Note: Until further notice, firmware updates for the nTier700 are currently managed on an individual basis by Spectra Logic Technical Support. Contact Spectra Logic Technical Support for assistance (see [Contacting Spectra Logic on page 4](#)).

To ensure that you have the most current firmware for your nTier700:

1. Connect to the BlueScale web interface.
2. Select **About** on the menu bar to check the currently installed BlueScale firmware version.
3. If the version you have is older than the most current version described in these release notes, contact Spectra Logic Technical Support to obtain an update.
4. If a more current firmware version is available, download the update and install it. Refer to the current version of the *Spectra nTier700 Backup and Archive Appliance User Guide* for instructions.

Note: A current support contract is required before you can download firmware updates.

Contact Spectra Logic Technical Support at www.spectralogic.com/support if you have any questions.

Firmware Version Requirements



Important

The update to BlueScale 2.6.0.6 or later from any earlier version of the BlueScale firmware must be performed by Spectra Logic Technical Support personnel (see [Contacting Spectra Logic on page 4](#)).

FIRMWARE PACKAGE HISTORY

The following sections list information about the BlueScale firmware packages and how they affect the nTier700 and its components. The BlueScale firmware releases are listed in reverse chronological order, with the most recent release listed first. All package names are followed with the date of release (YYYYMMDD).



Important

Unless otherwise stated, the known issues remain active until moved to the resolved issues section. Always read the known issues section for each firmware release to make sure you are aware of any potential problems.

BlueScale2.8.0.1

This release implements hardware changes to the nTier700. It also updates the Windows operating system with the patches that were available as of June 14, 2010 (with the exception of Internet Explorer 8) and the drivers for the internal cards.

Enhancements and Changes

The *Spectra nTier700 Backup and Archive Appliance User Guide* incorrectly states that Ethernet ports 2 through 4 have a fixed IP addresses as the default. The default IP address for all four Ethernet ports is set to DHCP. Refer to *Spectra nTier700 Backup and Archive Appliance User Guide* for information about using a blade operator panel to determine the DHCP-assigned address for Ethernet port 1 and if necessary configure a fixed IP address.

BlueScale 2.7.2.5

This release improves the operation of the nTier700.

Enhancements

- The nTier700 now supports using 2 TB data drives; the 500 GB drives are no longer available for purchase.
- The operating speed of the fans in the chassis is now regulated by the temperature inside the chassis. Depending on the temperature, the fans can operate at lower speeds, reducing power consumption and the overall noise from the system.

Resolved Issues

The operator panel **Drive Status** tab now indicates when a drive in the blade is in a failed state.

Known Issues

Problem	Workaround
When accessing the nTier500 through the BlueScale web interface, you may be prompted to install an ActiveX control when you select Remote Desktop to connect to the Windows Desktop. If the installation of the ActiveX control fails, the connection cannot be established.	<p>Access the Windows Desktop using the Remote Desktop Connections application from a Windows-based computer on the same network as the nTier700.</p> <ol style="list-style-type: none"> 1. From your computer, select Start ... Programs ... Accessories ... Remote Desktop to display the Remote Desktop Connection screen. 2. Enter the IP address of the nTier700 and select Connect. 3. Log into Windows using the same User name and Password as you use to log into the nTier700 BlueScale web interface.
When sending a manual AutoSupport Log (ASL), a message displays stating that "Log set sent successfully." However, inside the New Log Set box it states "Cannot send log set. - Description is required."	Ignore the message in the New Log Set window. The ASL was sent successfully. After the ASL is sent, the New Log Set screen clears the Description field in preparation for sending the next ASL.
The RMM module creates four virtual CD-ROM drives, each of which is listed as a separate drive letter listed under My Computer.	Refer to Spectra KB Article #667 for information about disable these virtual drives so that they are no longer listed under My Computer.

BlueScale 2.7.1.7

This release improves the overall reliability of the nTier700.

Enhancements and Changes

- Microsoft Data Protection Manager (DPM) and Spectra nTier File Manager are no longer available for purchase with the nTier700.
- The RAID tab on the BlueScale web interface now includes a **Silence HBA Alarm** button to let a remote operator silence the audible HBA alarm that sounds when a RAID is experiencing problems.

Resolved Issues

- The BlueScale firmware prevents updating the Adaptec RAID controller firmware and /or driver if a RAID is either building or rebuilding. A system message is posted indicating that the RAID controller firmware was not updated because the RAID was building/rebuilding.
- The BlueScale firmware prevents updating the Adaptec RAID controller firmware and /or driver if a task is currently active on the RAID.

- BlueScale services are now more robust when using different types of network configurations.
- When RAIDs are rebuilding, the Bluescale progress screen now correctly updates as the rebuild progresses.
- Error reporting by the BlueScale web interface has been improved.
- You can now export the System log maintained by File Migrator. The system log records all operations, including reads, writes, seeks, moves, and transfer rates. Refer to the *Spectra nTier File Migrator Installation Guide* for information about exporting system logs.

Note: Spectra nTier File Migrator software is no longer available for purchase with the nTier700. The information in this section is provided for legacy support only.

Known Issues

Problem	Workaround
The Driver Install/Update wizard in Windows Device Manager does not correctly install tape drive device drivers on the nTier700.	Follow the instructions in Updating Tape Drive Device Drivers on page 24 to download the appropriate drivers and install them. Note: If you previously installed/updated the device drivers using the wizard, you must first uninstall the drivers and devices, then reinstall them. See Updating Tape Drive Device Drivers on page 24 .
The device drivers for IBM LTO-4 tape drives included in the BlueScale 2.7.1.7 firmware package does not support half-height IBM LTO-4 tape drives.	Download and install the most current LTO-4 device drivers. Refer to Updating Tape Drive Device Drivers on page 24 for instructions.
When sending ASL files generated by AutoSupport, the send log operation fails if the E-mail From field in the AutoSupport Mail Recipients configuration contains an "@" symbol.	When configuring mail recipients in AutoSupport, leave the E-mail From field empty or simply include the domain (for example, spectralogic.com).
If the Windows password is left blank, you cannot login into BlueScale from either a direct connection to the Windows operating system or through the BlueScale web interface.	Make sure that you set the Windows password. Do not leave it blank. Refer to the <i>Spectra nTier700 Backup and Archive Appliance User Guide</i> for information about setting the Windows Administrator password.
The BlueScale web interface may not operate correctly when accessed by a server running Windows Server 2008 AND Internet Explorer 7.	Use Mozilla Firefox or a different version of Internet Explorer.
When multiple servers are connected to the nTier700 and actively transferring data, you occasionally lose access to shared folders when the BlueScale web interface is running.	If you have a large number of clients attached to the system and lose access to shared folders, configure the system to restart the Server service automatically.

BlueScale2.6.0.7

This release improves the overall reliability of the nTier700.

Resolved Issues

The File Migrator installation files have been added to system disk on the the 64-bit Windows version of the nTier700.

Note: As of BlueScale 2.7.1.7, File Migrator is no longer included with the nTier700.

Known Issue

Problem	Workaround
<p>When RAIDs are rebuilding, the Bluescale progress screen does not update to reflect the actual progress, even when the process is nearly complete.</p> <p>Note: This issue is resolved in BlueScale 2.7.1.7.</p>	<p>If you need to determine the status of the RAID rebuild, do one of the following:</p> <ul style="list-style-type: none"> ▪ Monitor the BlueScale messages. The rebuild is complete when you see a message similar to this: <pre>Raid <raid name> in Enclosure <Enclosure #> Chassis <Chassis #> Hba <Hba #> Expander <Expander #> changed state from <previous state> to OK</pre> ▪ Use the Windows command line to determine the status. <ol style="list-style-type: none"> 1. Connect to the Windows desktop. 2. Select Start ... Accessories ... Command Prompt to open a command prompt window. 3. Type the following command: <pre>%ntiercurrent%\adapttec\arcconf.exe getstatus <ctrl #></pre> where <ctrl #> is the number of the RAID controller on which the RAID was being rebuilt (either 1 or 2). 4. Repeat Step 2 until the status returned is "None."

BlueScale2.6.0.6

This firmware release improves overall reliability of the nTier700.

Resolved Issues

Disconnecting and reconnecting the cables to the Ethernet ports on the nTier700 back panel no longer causes the system to hang.

Known Issues

Problem	Workaround
Update from BlueScale 2.2 or 2.3 to 2.6.0.6 fails unless specific procedures are carefully followed.	This update must be performed by Spectra Logic Technical Support personnel (see Contacting Spectra Logic on page 4).
After disabling a NIC through the BlueScale web interface, the operator panel no longer operates correctly.	Do not disable NICs.
If you are updating the firmware for the root expanders from a previous version, the firmware update fails if there is I/O to the drives during the update.	Before you update the nTier700 firmware for the root expanders, stop all I/O to the drives, then stop BlueScale. The expander firmware is updated as part of the BlueScale 2.2 or 2.3 to BlueScale 2.6.0.6 update procedure performed by Spectra Logic Technical Support.
Occasionally, you may not be able to navigate to the BlueScale Network screen when the optional 10 GigE NIC is installed.	<ol style="list-style-type: none"> 1. Access the Windows desktop. 2. Configure the IP addressing for the installed network interface cards through Windows. (Start ... Settings ... Network Connections, select the desired connection, and then select Properties to configure the IP addressing.
Following a reboot of the nTier700, the BlueScale web interface shows the status for all system components as unknown and Last Update as old.	Reboot the system again.
BlueScale posts critical error messages about missing blades immediately following a system start or reboot.	Ignore critical messages concerning the missing blades IF they are posted immediately following a BlueScale restart (for example, a system reboot). Mark the messages as Read and then continue to monitor the messages for subsequent critical alerts for the same components.
If you have a proxy server defined for Internet Explorer you cannot use the Download From Spectra option to update the nTier700 BlueScale firmware.	Download the firmware update file to either a USB drive or a firmware package server and update the firmware from there.

Problem	Workaround
Occasionally you may receive an internal server error when changing IP settings for Ethernet port 2 through BlueScale.	Restart the browser you are using to access the BlueScale web interface and reconnect to the nTier700.
The BlueScale login page does not display following a firmware update. Instead the status page that the system is restarting remains.	Refresh the BlueScale web interface by pressing function key 5 (F5) on your keyboard.
<p>File Migrator. The nTier File Migrator installation file is not currently stored on the nTier700 integrated application server system disk.</p> <p>Notes:</p> <ul style="list-style-type: none"> ▪ This issue is resolved in BlueScale 2.6.07. ▪ As of BlueScale 2.7.1.7 File Migrator is no longer included with the nTier700. 	Contact SpectraGuard Technical Support for assistance (see Contacting Spectra Logic on page 4).
<p>File Migrator. The License Administration Utility and Activating without Internet Access process described in the <i>nTier File Migrator User Guide</i> does not work.</p> <p>Note: As of BlueScale 2.7.1.7 File Migrator is no longer included with the nTier700.</p>	Connect the nTier appliance to a network that has internet connectivity and select Internet as the activation option. If you do not have web access, contact Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 4).

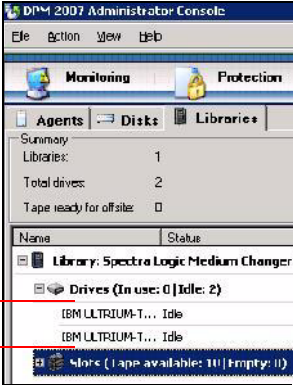
BlueScale 2.3.0.2-20080421

This is the first general-availability firmware release for the Spectra nTier700.

Known Issues

Problem	Workaround
If you are updating the firmware for the blades or root expanders from a previous version, the firmware update fails if there is I/O to the drives during the update.	If you need to update the nTier700 firmware for the blades or root expanders, stop all I/O to the drives and then stop BlueScale before beginning the update.
Occasionally, the operator panel Drive Status tab does not indicate when a drive is in a failed state. Note: This issue is resolved in BlueScale 2.7.2.5.	Use the BlueScale web interface to determine the status of the component in question.
When DPM is installed, the names of the SQL services it installs are not listed correctly on the Applications page. Note: As of BlueScale 2.7.1.7 DPM is no longer included with the nTier700.	Access the Windows desktop and run <code>services.msc</code> to verify that the SQL services are running.
Changing the cables connected to Ethernet ports 1 and 2 on the nTier700 back panel cause the system to hang.	Do not unplug/plug cables to Ethernet ports 1 and 2 while the nTier700 is powered on.

Problem	Workaround
<p>The nTier700 root expanders are not hot-swappable. If a root expander is removed while the nTier700 is powered on:</p> <ul style="list-style-type: none"> ▪ The nTier700 status information is no longer available through the BlueScale web interface and the blade operator panels. ▪ The AutoSupport feature does not function correctly. ▪ You cannot restart the nTier700 through Windows until the root expander is re-installed. 	<p>Power down the nTier700 before removing a root expander.</p>
<p>When installing the nTier700, make sure that it can access a properly configured DHCP/DNS server. Or, enter a known good IP address if you are using a static IP address. Otherwise, Remote Desktop may not work. If it doesn't, attach a monitor, keyboard and mouse to the nTier700 so you can review the event log. Look for the following error, which corresponds to the Remote Desktop connection attempt:</p> <p>Event Type: Error Event Source: TermDD Event ID: 50 Description:</p> <p>The RDP protocol component "DATA ENCRYPTION" detected an error in the protocol stream and has disconnected the client.</p>	<p>If you see this error, follow the directions found in Microsoft's KnowledgeBase article KB323497 http://support.microsoft.com/kb/323497 to repair the problem.</p>
<p>At the end of a package update, you may not be automatically redirected to the BlueScale Web interface login page.</p>	<p>If the upgrade seems to have stalled after rebooting, manually connect to the login page.</p>
<p>If one or more drives assigned to a logical volume have failed or are missing, there is no information about the drives on Logical Volumes page of the BlueScale web interface.</p>	<p>Check the Drives tab on the blade's operator panel or the Overview screen on the web interface to identify the missing drives.</p>

Problem	Workaround
<p>If Microsoft System Center Data Protection Manager (DPM) 2007 writes to tape do not succeed, check the drive mapping. The drives must be associated with a library—for example, refer to the following screen, which shows correctly mapped drives. This is a known Microsoft bug, and Spectra Logic is waiting for the patch to fix this problem.</p> <p>Note: As of BlueScale 2.7.1.7 DPM is no longer included with the nTier700.</p>  <p>Drives are indented showing that they are associated with the Spectra Logic library (Spectra Logic Medium Changer-2)</p>	<p>If the drives are not mapped correctly:</p> <ol style="list-style-type: none"> 1. Stop DPM. 2. Start the Microsoft Removable Storage Manager (RSM) service and map the tape drives. 3. Stop the RSM service. 4. Restart DPM. The drives should be mapped correctly and writes should now succeed.
<p>If you are using a tape library with IBM LTO tape drives in conjunction with your nTier, the standard Windows device driver installation (via the Add New Hardware wizard) does not install all the software needed to take advantage of the tape drives' features.</p>	<p>If the system automatically assigned drivers to the tape drives, uninstall the device drivers for the tape drives after you install the unit. Then, use the following procedure to install the correct device drivers:</p> <ol style="list-style-type: none"> 1. Open a command prompt window (Start ⌵ Accessories ⌵ Command Prompt). 2. Type the following command to switch to the directory where the LTO tape device drivers are located: <pre>cd C:\Program Files (x86) \SpectraLogic\drivers\IBM LTO Tape Drives 6.1.7.8</pre> <p>Note: The number included in the IBM LTO Tapes 6.1.7.8 sub-directory name may not be same as in this step (for instance, IBM LTO Tapes 6.1.7.9 instead of IBM LTO Tapes 6.1.7.8).</p> 3. Type install if you are not using Microsoft Data Protection Manager (DPM) or Microsoft Removable Storage Manager (RSM). <p>– or –</p> Type install -n if you are using DPM or RSM.

Problem	Workaround
When entering information through the BlueScale web interface, using the keyboard Enter key may not work as expected.	Use the buttons in the interface instead of the keyboard. For example, after entering the folder information, click the OK button on the user interface instead of pressing the Enter key to create the folder.
After power-cycling the nTier700, you may experience a problem connecting to the BlueScale Web interface through Ethernet port 1 even though the unit is functioning normally (that is, the IP information for Ethernet port 1 is correct and unchanged, the BlueScale service is running, and the BlueScale login screen is available locally).	One workaround is to power-cycle the nTier700 again. The other workaround is to log into the nTier700 locally and then disable and enable the network interface card through the Windows interface.
If you leave the focus of your Web browser on the Blades page for a long period of time, a memory leak may occur. When this happens, the browser and the Windows operating system begin to lag, with functions like opening the Start menu taking much longer than normal.	To recover the memory, close your browser session.

Notes

Important Information

This section provides information that is essential for ensuring that your data is accessible at all times and ensuring optimal operation of your Spectra nTier700 Backup and Archive appliance (referred to as the nTier700).

SUPPORTED BROWSERS

The following browsers are supported for accessing the BlueScale web interface for the nTier700:

- Microsoft's Internet Explorer versions 6.0 and above
- Mozilla Firefox versions 2.0 and later

The first time you attempt to access the nTier BlueScale web interface, a warning about the web site's security certificate displays. Before you can connect, you must address this warning. If you are using Mozilla Firefox, the method you use to address this warning depends on the version of Firefox. See [Access the BlueScale Web Interface on page 40](#) for detailed instructions.



Important

Do not use the **Enter** key on your keyboard when making selections or entering information in any of the text fields in the BlueScale web interface. Various web browsers handle the **Enter** key differently, causing inconsistent behavior in the BlueScale web interface.

Always use your mouse to make selections and click the buttons in BlueScale screens instead of using your keyboard.

IP ADDRESSING

The nTier700 requires a valid IP address for Ethernet port 1 before you can connect to the BlueScale web interface for the first time. By default, the nTier700 uses DHCP to obtain an IP address. When installing an nTier700, make sure that it can access a properly configured DHCP/DNS server.

If a DHCP/DNS server is unavailable, use the operator panel on any blade to configure Ethernet port 1 to use static (fixed) addressing with a known good IP address on an available network. Refer to the *Spectra nTier700 Backup and Archive Appliance User Guide* for instructions.

WINDOWS OPERATING SYSTEM



Important

Performing a Windows Update for the Windows Storage Server 2003 operating system presents versions of the hardware drivers that are different from what has been tested and released for the nTier700. Do not download and install drivers from Microsoft. If the nTier700 requires an updated driver, the appropriate driver will be provided by Spectra Logic.

Bootup during a RAID rebuild. It can take up to 15 minutes for Microsoft Windows Server 2003 to boot up when the nTier700 is rebuilding a RAID array.

UPDATING TAPE DRIVE DEVICE DRIVERS



Important

The Windows Storage Server operating system requires you to install device drivers before the application software can correctly communicate with tape drives, either in a library or standalone, connected to the nTier700. Always confirm that you have the most current driver available for any tape drives in the tape libraries you have connected to the nTier700.



Important

Do not use the Hardware Update Wizard in Windows Device Manager to install device drivers for tape drives or other devices. The wizard does not install the drivers correctly on the nTier700. If you previously installed device drivers using the wizard, you must remove the drivers and then reinstall the drivers. Use the instructions in the following sections to remove the drivers and then reinstall them.

- Notes:**
- The following instructions are for updating the device drivers for IBM LTO tape drives. The instructions for other types of tape drive may differ slightly.
 - For libraries that use one of the tape drives to provide the robotic control path through ADI, you may also need to install the Media Changer driver.

Obtain the Updated Device Driver

Use the following steps to update the drivers for tape drives.

1. Connect to the Windows Desktop on the nTier700.

2. Download the updated drivers to the nTier700 server.

Note: If your nTier700 has internet access, download the driver archive file directly to a known location on the nTier700 system disk. Otherwise, save the downloaded driver archive file to a USB drive using a computer that does have internet access and then copy the file to a known location on the nTier700 system disk.

- a. Using a web browser, go to the [IBM Tape Device Driver for Windows Platforms](#) page, which displays a list of download directories.

Note: You can also reach this page from the [Drive Firmware & Drivers](#) page on the Spectra Logic web site ([www.spectralogic.com/downloads ...? Tape Drive Firmware & Drivers](http://www.spectralogic.com/downloads...? Tape Drive Firmware & Drivers)).

- b. Scroll down to the Download Pages section and select **Windows directory** on the IBM Tape Device Drivers FTP site.

- c. Select **Win2003**.

The IBM FTP page displays a list of download directories, including one titled “Latest” and one titled “WHQL_Cert” (Windows Hardware Quality Labs certified).

- d. Select the download directory to display a list of zipped file archives (.zip files).

Select...	If your organization...
Latest	Does not have a policy against using non-WHQL certified drivers.
WHQL_Cert	Has a policy against using non-WHQL certified drivers.

- e. Select the file with .x64 in the file name (for example, IBMTape.x64_6204.zip).

- f. Save the zip file containing the drivers to a known location on the nTier700 system drive.

3. Extract (unzip) the file into the following folder:

C:\Program Files (x86)\SpectraLogic\drivers\

This creates a new folder whose name includes the latest driver version number. For example:

C:\Program Files (x86)\SpectraLogic\drivers\IBMTape.x64_6204

Remove Current Drivers or Devices

If you previously installed device drivers for your tape drives using the wizard in Windows Device Manager, use the following steps to remove the drivers. Otherwise, skip to [Install the Updated Device Driver](#).

1. Connect to the Windows Desktop on the nTier700, if you are not already connected.
2. Using Windows Explorer, navigate to the folder containing the extracted drivers files. For example:
C:\Program Files (x86)\SpectraLogic\drivers\IBMTape.x64_6204
3. Double click the **uninst.exe** to run the driver uninstall utility.
4. Open the Device Manager and uninstall any of the following devices, if present:

For this device...	Uninstall...
Tape Drives	Any IBM tape drives
System Devices	Changer Bus Enumerator and Tape Bus Enumerator
Medium Changers	Spectra Logic Medium Changer driver
Other Devices	Any tape drives

5. Reboot the nTier700.

Install the Updated Device Driver

Note: If the Windows Add New Hardware Wizard starts, ignore it. The installation script for the device driver automatically manages the wizard.

1. Open a Command Prompt window and change to the folder containing the extracted drivers file.
2. Using the command prompt, run the command to install the tape drive device driver.

Note: If the driver is unsigned, choose **Continue Anyway** when prompted.

Run the following command...	If you are using...
install_exclusive.exe	Tivoli® Storage Manager Note: The exclusive driver performs automatic SCSI Reserve and Release commands upon open and close of the tape drive device. Additionally, the driver enforces a single handle to the device on the backup server.
install_nonexclusive.exe	Microsoft Data Protection Manager (DPM), Removable Storage Manager (RSM), or any other software that does not require the exclusive driver.

3. If the library uses one of the tape drives to provide the robotic control path through ADI, you may need to reinstall the Media Changer driver using the Windows Add Hardware wizard. The Spectra Logic device driver is located on the nTier700 system disk at:

```
C:\Program Files (x86)\SpectraLogic\drivers\  
Spectra T Series Library Driver\SpectraMC.inf
```

Note: A medium changer driver is unnecessary in most configurations. The general practice is for the software to control the library directly, so there is no need for a robotics driver at the OS level.

Three known exceptions are for Windows RSM (Removable Storage Manager), DPM (Data Protection Manager), and File Migrator (or XenData). If you have one of these, right-click on the Unknown Medium Changer and choose **Update Driver...** Use the Windows Add Hardware wizard to install the driver.

WORKING WITH THE HARDWARE COMPONENTS

- **Extending blades.** After powering off a drive that needs replacing, pull the blade containing the drive out from the chassis gently to prevent possible vibration issues with the other drives, which are still powered on and running.
- **Moving drives between blades or units.** The drives in each blade are configured as a single RAID set. Spectra Logic strongly recommends against moving drives from one blade to another or from one Spectra nTier product to another. Contact SpectraGuard Technical Support if you want to move drives (see [Contacting Spectra Logic on page 4](#)).



Caution

Moving drives from one blade to another or from one nTier to another can potentially result in lost data.

- **Expanding capacity.** Any upgrade to add one or more blades to the originally purchased configuration must be performed by Spectra Logic Technical Support (see [Contacting Spectra Logic on page 4](#)).
- **Removing a blade.** The blades in the nTier700 are not hot-swappable or hot-pluggable. Contact Spectra Logic Technical Support (see [Contacting Spectra Logic on page 4](#)) if you need to remove a blade.



Caution

Do not remove a blade unless specifically instructed to do so by Spectra Logic Technical Support.

- **Replacing a root expander.** The nTier700 root expanders are not hot-swappable or hot-pluggable. If a root expander is removed while the nTier700 is powered on, the nTier700 status information is no longer available through the BlueScale web interface and the blade operator panels.
Note: Do not remove a root expander unless specifically instructed to do so by Spectra Logic Technical Support.
- **Using a PS2 keyboard.** Only USA-style PS2 keyboards are supported. If using a non-USA type keyboard, you will need to find the equivalent for some characters like the back slash or forward slash.

MOVING OR SHIPPING THE nTIER700



Important

Before moving or shipping the nTier700, remove all of the data drives from the chassis and carefully pack them in their original shipping box to prevent damage to the drives.

RECYCLING YOUR nTIER700

For information on recycling your nTier700, check the Spectra Logic web site.

Updates to the User Guide

This section includes updates to the *Spectra nTier700 Backup and Archive Appliance User Guide*. These updates will be added to the user guide the next time it is revised.

- Notes:**
- The current version of the user guide is entitled *Spectra nTier700 Intelligent Secondary Storage Appliance User Guide*. The title will be changed the next time the user guide is updated.
 - Always make sure that you have the latest version of the documentation for the nTier700 by checking the Spectra Logic web site at www.spectralogic.com/documents.

Task	Described beginning on...
Chapter 1—Overview	this page
Chapter 2—Installing the nTier700	page 30
Chapter 3—Configuring the nTier700	page 40
Chapter 8—Maintaining the nTier700	page 54
Appendix A—Service and Support	page 63
Appendix B—Specifications	page 64
Appendix D—Tuning Gigabit Ethernet Network Performance	page 66

CHAPTER 1—OVERVIEW

The following sections update the information in this chapter.

Features

RAID-protected data disks The nTier700 includes up to six sets of high-performance disk drives mounted in removable enclosures called blades. For security, the blades can be locked to prevent unauthorized removal.

A minimum of one blade must be installed in the nTier700. Each blade contains ten 1 Terabyte (TB) or 2 TB disk drives. The drives in each blade are preconfigured as a single NTFS-formatted RAID 6 NAS volume.

CHAPTER 2—INSTALLING THE nTIER700

The following sections update the information in this chapter.

Task	Described beginning on...
Install in a Restricted Access Location	this page
Connect the Power Cords	page 31
Install the Data Drives in the Blades	page 32
Connect the Cables and Power On	page 36



Important

Before moving or shipping the nTier700, remove all of the data drives from the chassis and carefully pack them in their original shipping box to prevent damage to the drives.

Install in a Restricted Access Location

The nTier700 chassis serves as a protective enclosure when the blades are in their normal operating position. Pulling the blades out to service the drives opens the protective enclosure. When installing the nTier700, make sure that it is only accessible to users who are aware of possible safety risks when the blades are extended.

Do not operate the nTier700 with the blades pulled out of the enclosure except when servicing the drives. If you pull a blade out from the enclosure:

- do not allow conductive objects to contact the circuit board and connector that are exposed when a drive is removed (to prevent potential risk of heat and fire associated with high energy short circuits).
- make sure you slide the blade completely into the enclosure as soon as you are finished.

Connect the Power Cords

To provide chassis grounding and electrostatic discharge protection while you install the data drives, connect the power cords to the nTier700 before installing the drives.



Caution

DO NOT power-on the nTier700 until you finish installing ALL of the drives for the first time. If you install the drives with the nTier700 powered on, the RAID controller immediately begins rebuilding the RAID volume in the blade, which may destroy the preconfigured RAID 6 volume.

Use the following steps to connect the power cords.

1. Connect a power cord to each of the power supply connectors on the rear panel.

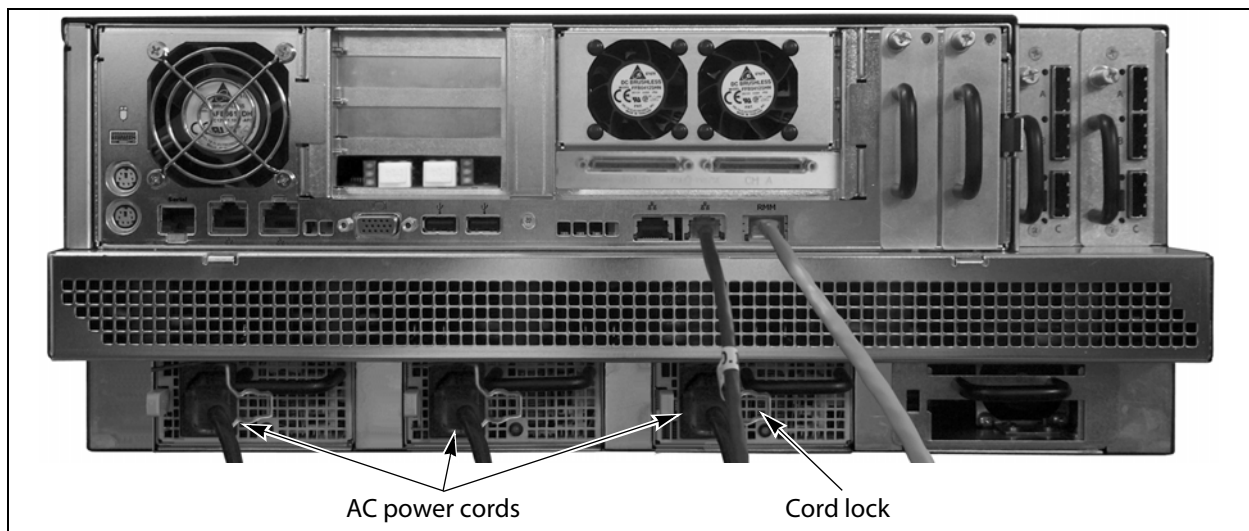


Figure 1 Connect the power cables to the rear panel (N+1 power configuration shown).

2. Push the cord lock on each connector to the left so that it fits over the power cord, locking it in place.
3. Plug the other end of each cord to an AC power outlet.

Install the Data Drives in the Blades

The blades in the nTier700 are numbered consecutively from left to right when viewed from the front, beginning with Blade 1 at the furthest left. For each fully-populated blade in the nTier700, two rows of five drives are mounted in slots along the length of the blade.

Unlock the Blades

For security, the blades in the nTier700 appliance are locked, even when the power is turned off. An internal latch lets you manually unlock the blades without powering on the unit.

1. Push inward on each blade to make sure it is fully seated in its bay.
2. Angle a #2 Phillips screwdriver into the opening in the bottom of the chassis management module and slide it in as far as it will go.

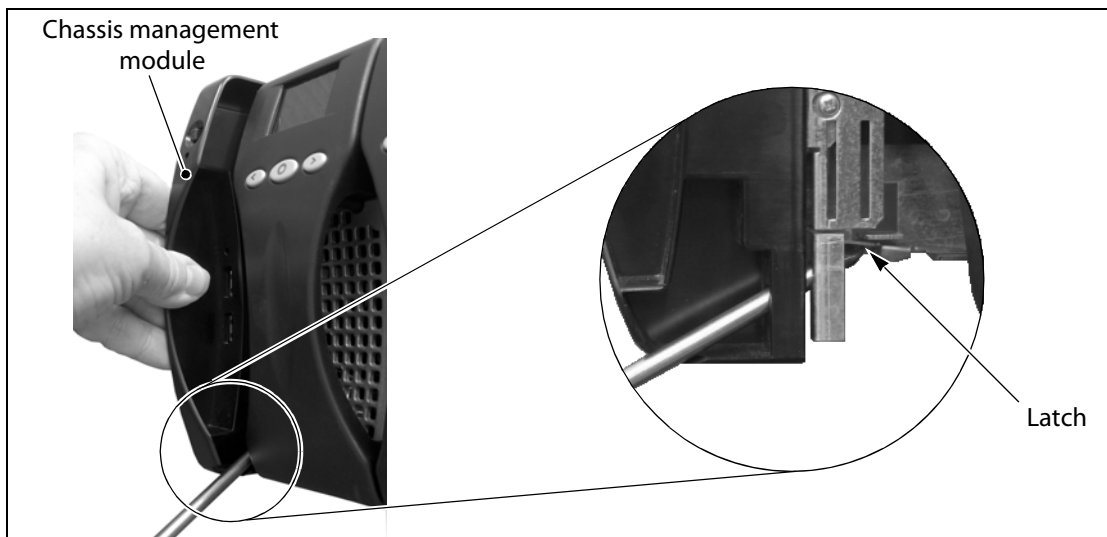


Figure 2 Manually unlocking the nTier700 blades.

3. With the screwdriver still in place, pull outward on the chassis management module until you feel it disengage from its internal connector.



Caution

Only slide the chassis management module out about 2 inches (5 cm). Do not remove it from chassis.

Note: You may need to push down slightly on the screwdriver to lift the latch. The internal latch shown in [Figure 2](#) is not visible until you pull the chassis management module out of the chassis.

4. All of the blades are now unlocked.
5. Remove the screwdriver from the chassis management module.
6. Leave the chassis management module extended.

Install the Data Drives



Warning

Do not pull more than one blade out of the chassis at a time. Extending multiple blades may cause the nTier700 to tip forward.

Warnung: Ziehen Sie nicht mehr als einen Einschub zu gleicher Zeit aus dem Gehäuse. Das gleichzeitige Ziehen mehrerer Einschübe kann dazu führen, dass das nTier700 nach vorne kippt.



Caution

Each box of drives is preconfigured as a RAID 6 for a single blade. Mixing the drives from one box with the drives from another box may destroy the RAID volume.

Each of the nTier700's data drives is mounted on a drive sled for easy installation. The drive sleds are inserted into individual slots in the blade, as shown in [Figure 3](#). When viewed from the front of the nTier700, the odd-numbered slots (1, 3, 5, 7, 9) are located on the left side of the blade; the even-numbered slots (2, 4, 6, 8, 10) are located on the right side. This numbering scheme is used to identify the drives on the Drive Status screen of the operator panel and in the BlueScale web interface.

Latches between the two rows of drives secure the drives in the blades. Each latch has a label on it that points to the drive that is attached to the latch. When unlocked, the latch extracts the drive from the internal connector so the drive sled can be removed.

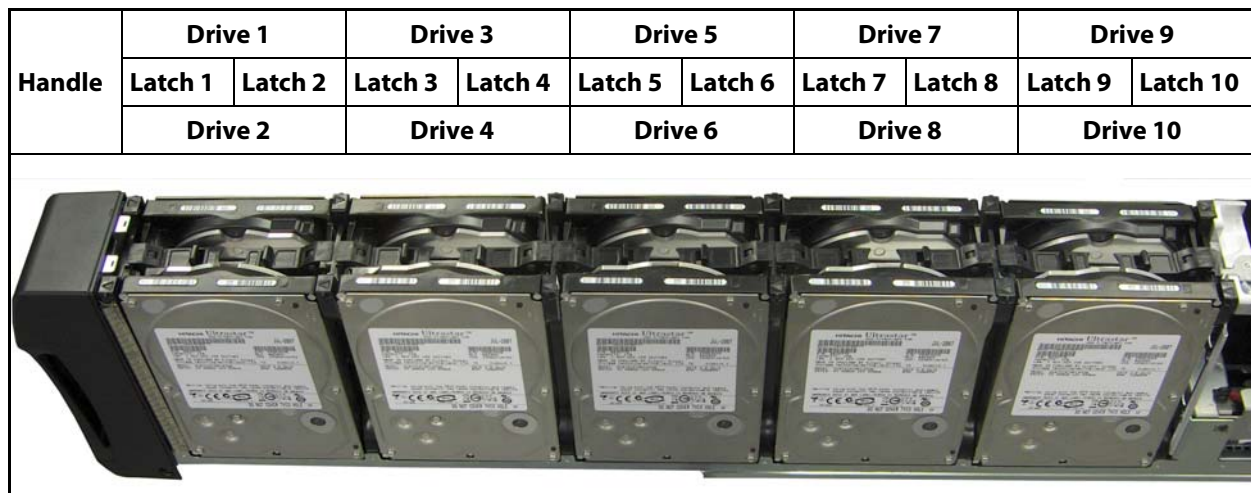


Figure 3 Identifying the drive numbers and latches in a blade.

The drives for each blade are shipped together as a set. The drives in each set are labeled from 1 to 10, corresponding the blade slots they occupied when the RAID 6 volume was originally built. Spectra Logic strongly recommends installing the drives into the blade slot corresponding to the number on the drive. Refer to [Figure 3](#) to determine the slot numbers.

Note: Although the system dynamically detects the locations of the drives and can reconfigure the RAID to reflect the current drive positions, installing the drives in the same positions as they were when the RAID was originally built provides enhanced disaster recovery.

Use the following instructions to install the drives in a blade.

1. Put on the provided anti-static wristband and attach it to an unpainted metallic surface.



Caution

Any damage to the nTier700 caused by failure to protect it from electrostatic discharge (ESD) voids the warranty. To protect the nTier700 and its drives from damage:

- Connect the AC power cords to the power supplies, but **DO NOT** turn on the power (see [Connect the Power Cords on page 31](#)).
 - Wear the provided anti-static wristband, properly grounded, throughout the procedure.
 - Leave the drives in their anti-static bags until you are ready to install them.
 - Do not place un-bagged drives on any metal surfaces.
 - Do not power on the nTier700 until all of the drives are installed in every blade.
-
-

2. Unlock the blades as described (see [Unlock the Blades on page 32](#)).
3. Grasp the blade handle and carefully slide the blade out until all of the drive slots are accessible.
4. Open the first box of drives and remove the top foam packaging to reveal the drives inside.



Figure 4 Drives for a single blade.

5. Take one drive from the box and remove it from its anti-static bag.
6. Look at the number on the drive to determine which drive bay to install it in (see [Figure 3 on page 33](#)).

7. Release the latch on the drive sled by pushing the locking tab to the left, then pulling the latch slightly toward the top of the drive to open it (see Figure 5 and Figure 6).

Note: You only need to pull up on the latch enough to release it.

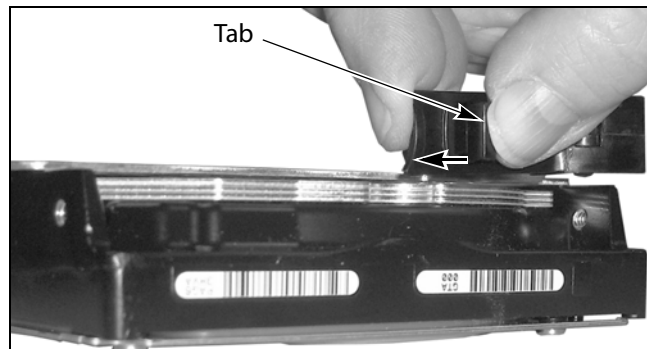


Figure 5 Release the drive sled latch.

8. Position the drive sled over a drive slot in the blade with the latch toward the center of the blade and the edges aligned with the guides in the drive slot.



Caution

When handling the drives, grasp only the outer edges. Squeezing the top cover of the drive could warp the lid, causing the drive to fail.

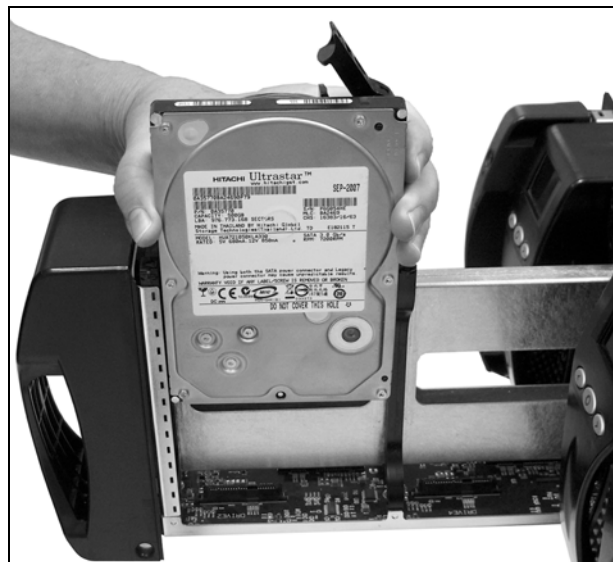


Figure 6 Align the drive sled with the drive slot.

9. Slide the drive sled into the drive slot and press down firmly on the latch until an audible click indicates that the drive sled is seated.

If the drive sled latch does not automatically latch when you seat the drive, press down firmly on the latch until you hear the click.

10. Repeat Step 5 through Step 9 to install the remaining drives in the blade.

11. Using the blade handle, slide the blade completely into the nTier700 enclosure until it is firmly seated.
12. Repeat Step 3 through Step 10 to install the drives in all of the remaining blades.
13. After you finish installing the drives in all of the blades, slide the chassis management module into the chassis as far as it will go. Pull out slightly on the handle to confirm it is firmly seated.

Connect the Cables and Power On

After installing the drives in the blades, connect the cables to the system and perform the initial power-up. [Figure 7](#) shows the location of the connectors used.

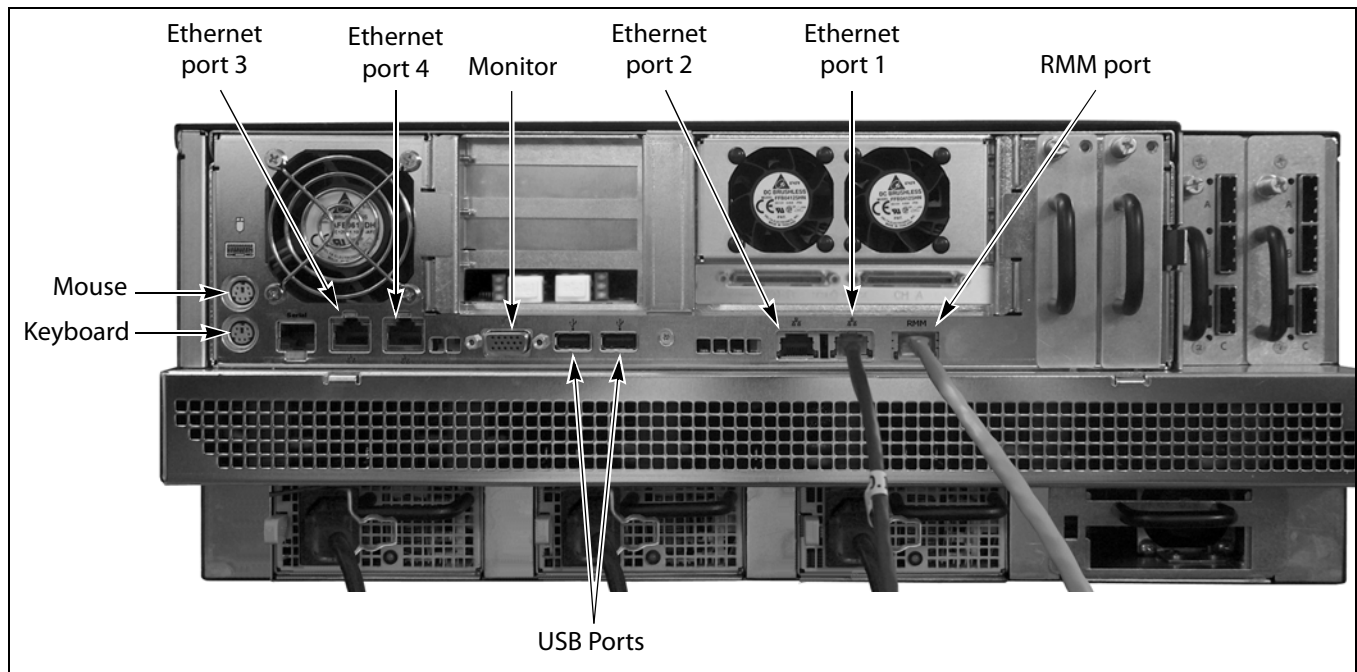


Figure 7 Connectors on the rear panel (N+1 power configuration shown).

Note: The types of network connection between the application server in the nTier700, the backup servers, and any physical storage devices (a library, tape drive, or another nTier appliance), depend on your configuration.

Use the following steps to connect the interface cables to the nTier700 and power it on.

1. Connect an Ethernet cable to the RJ-45 Ethernet connector for Ethernet port 1 or port 2 on the rear panel. Connect the other end of the cable to an active network over which a computer can access the BlueScale web interface using a web browser.

Note: Ethernet port 1 is preconfigured to use DHCP addressing on a network with a DHCP server. The address for Ethernet port 1 displays on the operator panel of each blade. If no DHCP server is available, the IP address displays as 0.0.0.0. You can use the operator panel on any blade to configure Ethernet port 1 to use a fixed IP address.

2. If you plan to use remote power management, connect an Ethernet cable to the RJ-45 RMM port on the rear panel. Connect the other end of the cable to an active network with a computer that can be used to access the Remote Management Module (RMM) from a remote host using a standard web browser.
3. If desired, connect a keyboard, mouse and monitor to the appropriate connectors on the back panel. You can use the keyboard, mouse, and monitor to directly access the nTier700 Windows operating system on the integrated application server for installing software.

Note: Using a USB keyboard and mouse simplifies connecting these devices.

4. Connect the interface cable from your backup server to the appropriate connector on the rear panel of the nTier700. This connection is used to access to the RAID storage on the system.

Network Type	Connect the cable from your network switch to...
Gigabit Ethernet	One of the Ethernet ports on the nTier700 rear panel. If desired, you can use the same port you plan to use for accessing the BlueScale web interface.
Fibre Channel	One of the ports to the optional Fibre Channel host bus adapter (HBA) installed in the nTier700. Connect the other end of the optical fiber cable to your switch for the Fibre Channel fabric to provide connections to the host.
10 Gigabit Ethernet (10 GigE)	The port on the optional 10 GigE card installed in the nTier700 if the host is on a 10 Gigabit Ethernet (10 GigE) network.

- As required for your configuration, connect the Fibre Channel or 10 GigE port or the SCSI connector on the nTier700 rear panel to a physical storage device (a tape library, a standalone tape drive, or another nTier appliance).

Interface Type	Connect the cable from your nTier700 to...
Fibre Channel	The Fibre Channel network switch where the physical storage device is connected. ⚠ Important: The Fibre Channel connection to the physical storage device must use a different Fibre Channel port than the Fibre Channel connection from the backup server to the nTier700.
SCSI bus	The SCSI connector on your physical SCSI device (for example, a tape library or tape drive). ⚠ Important: If you connect a SCSI device to the nTier700 while it is powered on, you must reboot the nTier700 before the SCSI device will be recognized. Refer to the <i>Spectra nTier700 Backup and Archive Appliance User Guide</i> for instructions.
10 Gigabit Ethernet (10 GigE)	If you plan to replicate the data on your nTier700 to another nTier appliance over a 10 GigE network, connect both appliances to a 10 GigE network using one of the ports on the optional 10 GigE NIC installed in each appliance.

- Power on the system.

Press the power button on the left side of the front panel. A blue LED indicates that the power is on, as shown in [Figure 8](#).

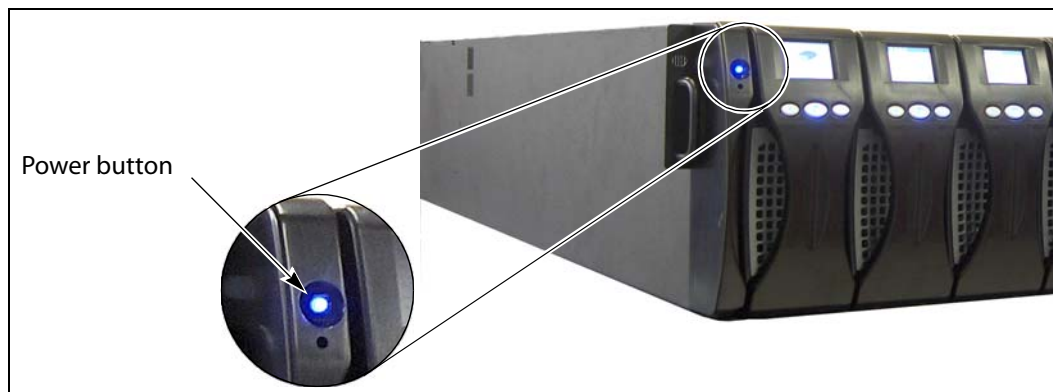



Figure 8 The location of the power button.

7. Wait for the system to complete its power-on sequence. During the power-on sequence, the nTier700 initializes all of its installed components and starts the BlueScale web server.
 - Notes:**
 - It can take up to ten minutes for the nTier700 to boot up for the first time as it automatically starts the operating system, loads software, and attempts to acquire an IP address.
 - The fans in the nTier700 produce a loud, high-pitched whine. This sound is normal.
8. If desired, configure a fixed IP address for Ethernet port 1 as described in the *Spectra nTier700 Backup and Archive Appliance User Guide*.

Next Steps

Your nTier700 hardware is now installed. For information about the BlueScale web interface and how to use it to configure the nTier700, read the following:

- Read [Chapter 3—Configuring the nTier700 on page 40](#) and “Chapter 3 – Configuring the nTier500” in the *Spectra nTier700 Backup and Archive Appliance User Guide* to learn how to configure the nTier700 for operation in your environment. This chapter also describes the BlueScale web interface and how to access the Windows operating system to install anti-virus and other application software on the system.
- Configure the network connections to the nTier700.
 - The Fibre Channel HBA uses soft addressing. By default, both ports on the Fibre Channel HBA are set to initiator mode, meaning that they send commands and data to another physical device (for example, a tape library or tape drive) and receive status information from that device.

When connecting a backup server to the nTier700, the port you use on the Fibre Channel HBA must be set to target mode. Use the QLogic SANsurfer Application for Windows to configure the Fibre Channel HBA.
 - By default, the optional 10 GigE NIC card uses DHCP addressing. Select **Configuration**  **Network** in the BlueScale web interface to change the IP addresses as required for your environment.

CHAPTER 3—CONFIGURING THE nTIER700

The following sections update the information in this chapter.

Task	Described beginning on...
Access the BlueScale Web Interface	page 40
Access the Windows Desktop	page 45
Install Antivirus Software	page 49
Install Additional Application Software	page 49

Access the BlueScale Web Interface

The BlueScale web interface lets you configure how the nTier700 operates, manage RAID volumes, and monitor the status of system components, including the drives and the battery backup. You can also view system-wide metrics, monitor system health, and update the BlueScale firmware. Read the *Spectra nTier700 Backup and Archive Appliance User Guide* for detailed information about using the BlueScale web interface.



Important

Do not use the **Enter** key on your keyboard when making on-screen selections in the BlueScale web interface. Various web browsers handle the **Enter** key differently, causing inconsistent behavior in the BlueScale web interface.

Always use your mouse to make selections and click the buttons in BlueScale screens instead of using your keyboard.

Use the following steps to connect to the BlueScale web interface.

1. Open a web browser on a computer on an active network that has access to the nTier700.

The BlueScale web interface supports the following standard web browsers.

- Microsoft Internet Explorer versions 6.0 or later
- Mozilla FireFox 2.0 or later

2. Enter the IP address for the Ethernet port you used in the browser address bar using the form:

`https://nnn.nnn.nnn.nnn`

where *nnn.nnn.nnn.nnn* is the IP address of the Ethernet port you connected to the network.



Important

The BlueScale web interface uses a secure Internet connection. You must prefix the IP address with **https://** instead of just entering the IP address.

By default, all four Ethernet ports are configured to use DHCP addressing.

- Notes:**
- If you connected to the network using Ethernet port 1, the DHCP-assigned IP address is displayed on the operator panel on each blade.
 - If your network does not use a DHCP server, use the operator panel on any of the blades to configure a fixed IP address for Ethernet port 1 as described in the *Spectra nTier700 Backup and Archive Appliance User Guide*. Connect Ethernet port 1 to the network and use it to connect to the BlueScale web interface for the first time.

3. Resolve the warning about the web site's security certificate. The warning displays because the nTier700 does not have a valid security certificate.

- Notes:**
- This warning only appears if you have not resolved the security certificate warning as described in this step.
 - If you choose to skip this step, you will receive the warning about the security certificate each time you access the BlueScale web interface.
 - As new browser versions are released, the process for resolving the security certificate warning may be different from what is described here.
 - The absence of the certificate does not affect functionality. If you want to eliminate this warning, purchase your own security certificate from www.verisign.com, www.instantssl.com, or another SSL certificate vendor and install on the nTier700 server.

When using Internet Explorer or Firefox 2.x:

Figure 9 shows an example of the security certificate warning from Internet Explorer 7. The format of the warning may be different with the web browser you are using.

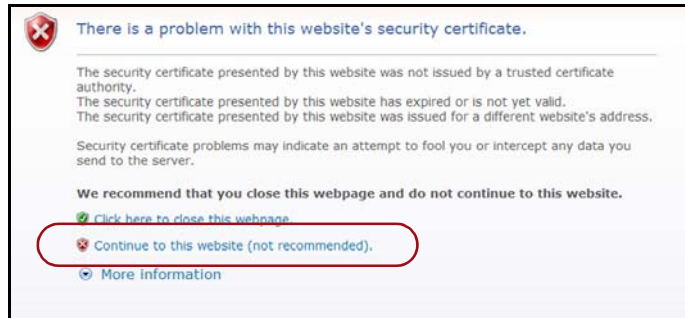


Figure 9 The web site security certificate warning shown in Internet Explorer 7.

Select **Continue to this website** to display the BlueScale Login page (Figure 12 on page 43).

When using Firefox 3.x

Figure 10 shows an example of the warning about the web site's security certificate from Firefox 3.0.



Figure 10 Invalid Spectra Logic nTier security certificate.

Use the following steps to add an exception to the Firefox browser for the nTier700 web server.

- a. In the Secure Connection Failed warning box, select **Or you can add an exception**, then select **Add Exception**.

- b. In the Add Security Exception dialog box, select **Get Certificate**.

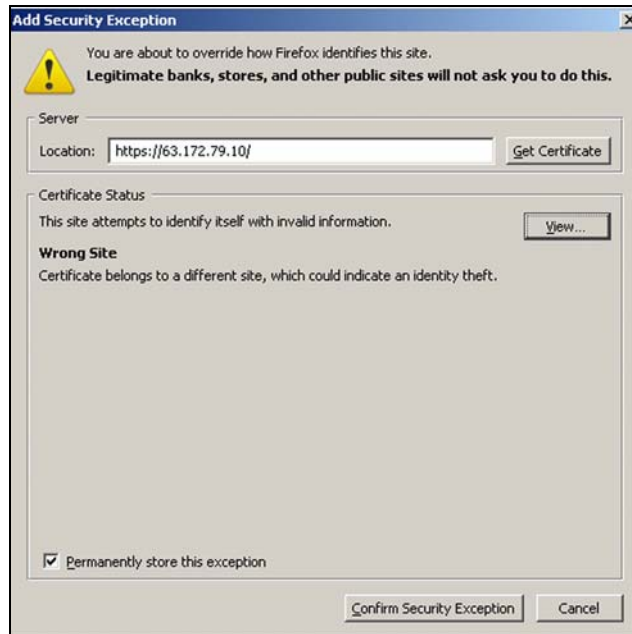


Figure 11 Invalid Spectra Logic nTier security certificate.

- c. Select **View** to confirm that the certificate is for the Spectra Logic nTier, then select **Close** to return to the Add Security Exception dialog box.
- d. Select **Permanently store this exception** and **Confirm Security Exception** to generate the exception and display the nTier700 display the BlueScale login page.

The exception you created remains in affect on the machine where it is stored until you delete it.

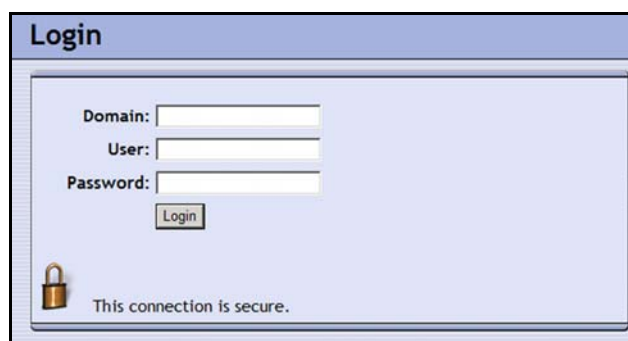


Figure 12 The BlueScale Login page.

4. Enter your login information.

- If you added thenTier700 to a domain and want to log in as a domain user, enter a domain name. Otherwise, leave the **Domain** field blank to log in as a local user.
- If you are accessing the BlueScale interface for the first time, enter **administrator** as the default user name and **spectra** as the default password, all in lower case. If you changed the Windows user name and password, enter the new user name and password.

- Notes:**
- Most configuration steps require local administrator privileges, which the default user name (**administrator**) provides.
 - Spectra Logic recommends that you change the default Windows user name and password.
 - The default system name is **nTier500**. If desired, you can change it to something more meaningful in your environment.
 - Configuring DPM and Replication requires logging into an Active Directory domain with domain administrator privileges.
 - The user name you uses does not affect the Windows ownership and permissions properties for folders and shares on the RAID volumes. The BlueScale login is for authentication only.

5. Select **Login**. The Windows operating system on the nTier700 automatically starts the BlueScale web interface and displays the Overview page.

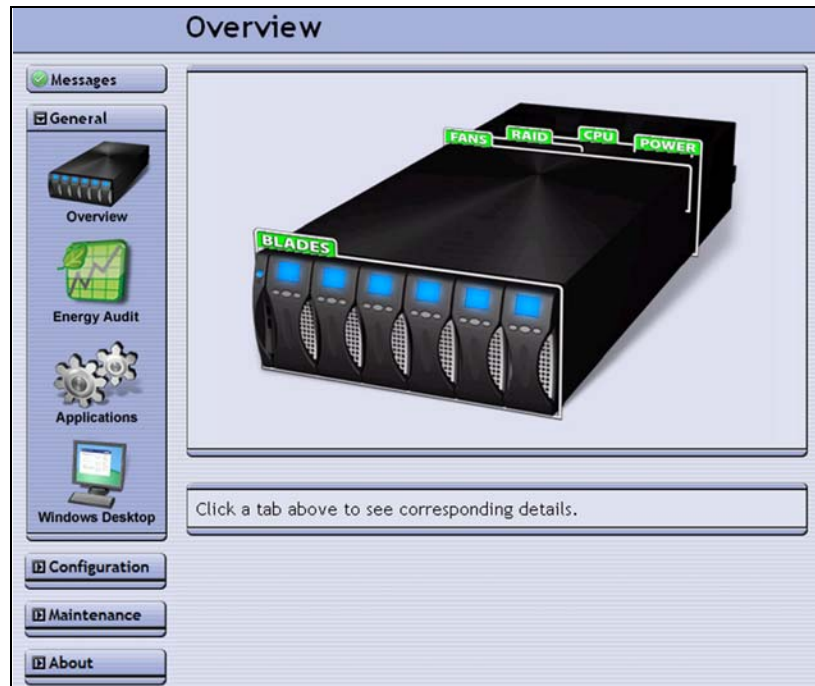


Figure 13 The Overview page.

6. If desired, use the BlueScale web interface to set the IP addresses for each of the Ethernet ports as required for your environment as described in “Chapter 3 – Configuring the nTier500” in the *Spectra nTier700 Backup and Archive Appliance User Guide*.

Access the Windows Desktop

Some configuration operations require working directly with the Windows Storage Server operating system. The **Windows Desktop** option under the General menu on the BlueScale web interface lets you access the Windows Storage Server operating system running on the nTier700.



Important

You must use Microsoft Internet Explorer to access the nTier700 Windows desktop through the BlueScale web interface. The Windows Remote Desktop application does not support the Firefox browser.

Internet Explorer may prompt you to install an ActiveX control the first time that you use this feature. ActiveX is required in order to access the Windows desktop through the BlueScale web interface.

If you do not want to install ActiveX on the system, you can access the Windows operating system directly using a keyboard, mouse, and monitor connected directly to the nTier700 application server (see [Figure 1 on page 31](#) for the connector locations). Log in using the same user name and password that you use to connect to the BlueScale web interface.

Note: Using a USB keyboard and mouse lets you connect these devices without power-cycling the nTier700.

Connect and Log In

Use the following steps to access the Windows desktop.

Note: If you are accessing Windows using a direct connection to the nTier700 application server, skip to [Step 3 on page 47](#) to log in.

1. Log into the BlueScale web interface (see [Access the BlueScale Web Interface on page 40](#)).
2. Select **General** ... **Windows Desktop**. The Windows Desktop screen displays.

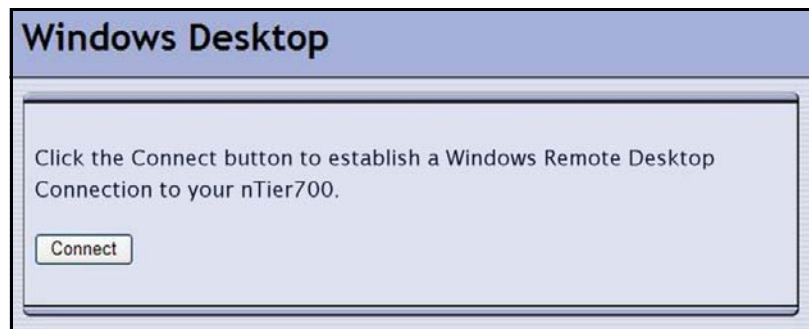


Figure 14 The Windows Desktop message.

Note: If you attempt to connect to the remote desktop using Firefox, you will receive a notification that you must use Internet Explorer.

3. Select **Connect** to start a Windows Remote Desktop session. Windows Remote Desktop displays the Windows login dialog box.



Important The system supports a maximum of two Remote Desktop sessions at a time.



Figure 15 The Windows Storage Server login.

4. Log into Windows using the same **User name** and **Password** as you use to log into the nTier700 BlueScale web interface.

The default Windows user name and password are **administrator** and **spectra**, respectively.

Note: You remain logged into the BlueScale web interface even when you are using the Windows operating system. You return to the BlueScale web interface when you log off of the desktop (see [Step](#) on page 48).

5. The Windows desktop displays. From here, you interact directly with the Windows operating system

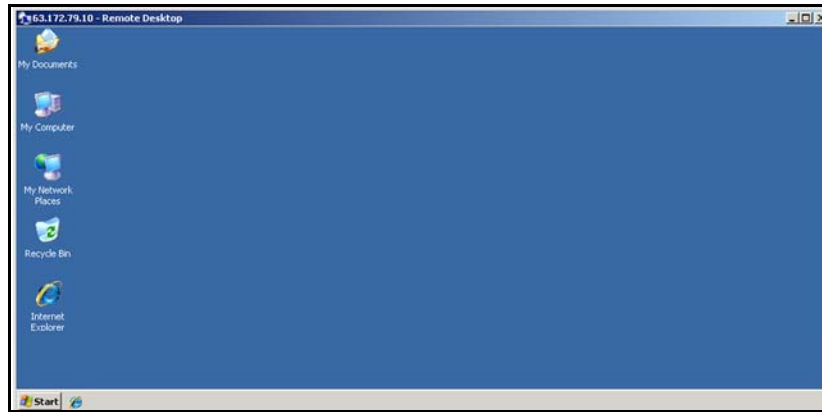


Figure 16 The Windows Storage Server Remote Desktop.

- Notes:**
- When the Remote Desktop window is maximized, a yellow bar across the top of the screen shows that you are accessing the desktop through the Windows Remote Desktop application.
 - You can access the BlueScale web interface from the Windows operating system by selecting **nTier700 Management Console** from the **Start** menu.

If you are unfamiliar with the Windows operating system or the Windows Remote Desktop application, refer to the Windows Storage Server documentation for detailed information (see [Microsoft Windows Operating System and Software](#) on page 14).

Log Off and Return to BlueScale

You can use either of the following methods to return to the nTier700's BlueScale web interface when you are finished installing and configuring the software:

- Log off of the Windows desktop by selecting **Start**  **Log Off**.



Important Do not select **Shutdown** unless you want to power off the nTier700.

- If you want to access the Windows desktop again without having to log in, select the minimize button in the upper right corner of the Remote Desktop bar.

Note: If you minimize the Windows desktop or exit the Remote Desktop application without logging off, you remain logged into the Windows operating system. When you are finished, be sure to log off so others can use the remote session to log in.

Install Antivirus Software

Spectra Logic recommends that you install antivirus software on the nTier700 application server.

Note: If you plan to use the optional data replication feature of Windows Storage Server, make sure your antivirus software is compatible with the DFS Replication service. Contact your antivirus software vendor to check for compatibility. Refer to the *Spectra nTier700 Backup and Archive Appliance User Guide* for additional information.

1. Obtain a licensed copy of the antivirus software you plan to use.
2. Use one of the methods described in [Make the Installation Files Accessible to Windows](#) to make the antivirus software installations files accessible to the Windows operating system.
3. Install the software as described in [Install the Software on page 52](#).

Install Additional Application Software

If desired, you can install additional Windows software applications, including Symantec® Backup Exec, on your nTier700. You use the Windows operating system to install application software on the nTier700.

For detailed information about installing software, refer to the Windows Storage Server documentation (see [Microsoft Windows Operating System and Software on page 14](#)).

Note: Spectra nTier File Migrator software and Microsoft Data Protection Manager (DPM) are no longer available for purchase with the nTier700.

Make the Installation Files Accessible to Windows

Use one of the following methods to make the installation files accessible to the Windows operating system on the nTier700 and then install the software.

- Connect a USB CD or DVD drive to one of the USB ports on the back panel (see [Figure 7 on page 36](#)). If you use this method, skip to [Install the Software on page 52](#).
- Copy the installation files to a USB flash drive and connect it to a USB port on the nTier700 (see [Figure 7 on page 36](#)). If you use this method, skip to [Install the Software on page 52](#).
- Copy the files to a location on the network to which the nTier700 is connected and access the files there. If you plan to use this method, skip to [Install the Software on page 52](#).

- Share a CD or DVD drive on a computer connected to a network location that is accessible from the nTier700. If you use this method, begin with the instructions in [Share a CD or DVD Drive on a Remote Computer](#).

Share a CD or DVD Drive on a Remote Computer

Use the steps in the following sections if you want to use a CD or DVD drive on a remote computer to install the software. The computer must be on an active network that is accessible to the nTier700.

Share the Drive

Before you can use a CD or DVD drive on another computer, you must share the drive to make it accessible from the nTier700 Windows operating system.

1. Open Windows Explorer or My Computer on the computer whose drive you plan to use.
2. Right-click on the drive letter for the CD or DVD drive and select **Sharing and Security**.

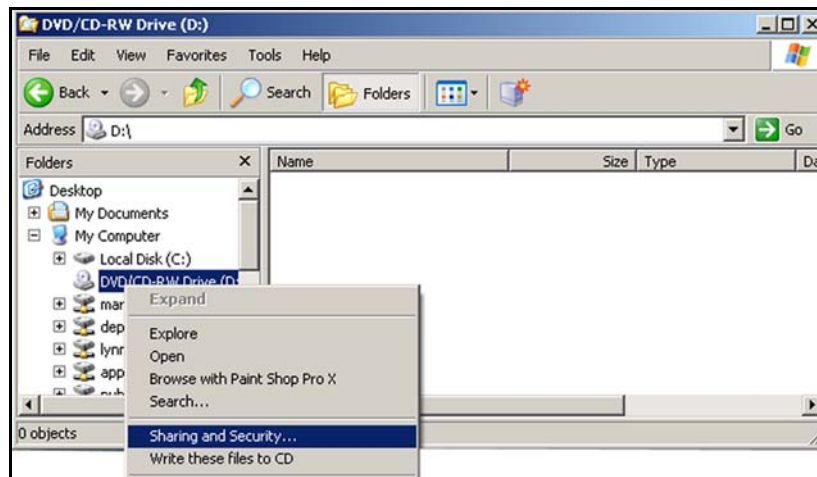


Figure 17 Preparing to share a CD or DVD drive.

3. Select **Share this folder**. Change the Share name, if desired.

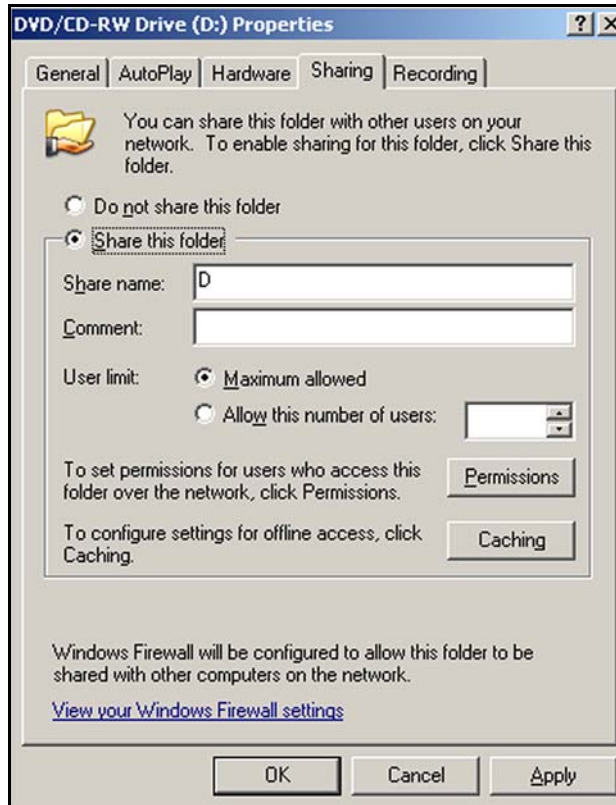


Figure 18 Setting the share properties.

4. Select **OK** to save your changes.

Map the Shared CD or DVD Drive to a Drive Letter

1. Launch Windows Explorer and select **Tools** ⋮ **Map Network Drive**.



Figure 19 Mapping a drive letter to the CD or DVD drive.

2. Type in the name of the remote computer with the CD or DVD drive and the name of the share you just created (for example, \\lynnealaptop\D) in the Folder text box. Alternatively, you can enter the IP address of the remote computer and the name of the share (for example, \\192.168.7.32\D).
3. Select **Finish** to create the drive letter. The remote CD or DVD drive is now available just as if it was physically installed in the nTier700.

Install the Software

1. Obtain a licensed copy of the software you plan to install.
2. Connect to the nTier700 Windows desktop (see [Access the Windows Desktop on page 45](#)).
3. Use the **Add/Remove Software** option in the Windows Control Panel, or navigate to the location of the installation files, to install the antivirus software.

Refer to the Windows Storage Server documentation and the software documentation for detailed installation instructions.

CHAPTER 4—USING THE NTIER700

The following sections update the information in this chapter.

Displaying the Status of Components

The RAID tab on the Overview page now includes a **Silence HBA Alarm** button to let a remote operator silence the audible alarm that sounds when a RAID is experiencing problems.

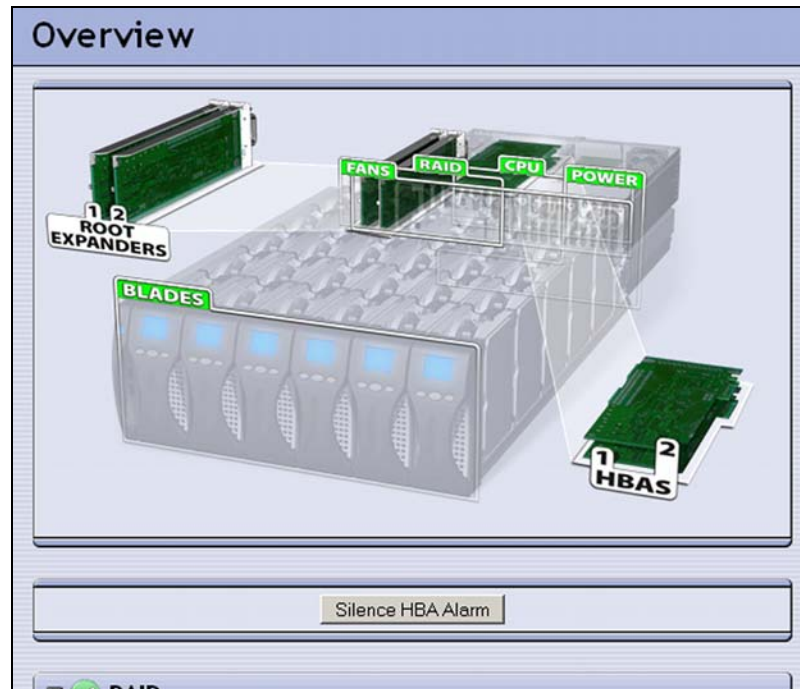


Figure 20 The Silence HBA Alarm button on the RAID tab of the Overview page.

Using the Blade Operator Panel

Note: When a blade is overheating, the over-temperature indication is only shown on the Enclosure status screen on the affected blade. If the Enclosure status screen on a blade indicates an over-temperature condition, check the BlueScale Overview screen to determine which component is affected.

CHAPTER 8—MAINTAINING THE nTIER700

The following sections update the information in this chapter.

Task	Described beginning on...
Moving or Shipping the nTier700	this page
Updating Firmware	this page
Updating Tape Drive Device Drivers	page 60

Moving or Shipping the nTier700



Important

Before moving or shipping the nTier700, remove all of the data drives from the chassis and carefully pack them in their original shipping box to prevent damage to the drives. Reverse the instructions in [Install the Data Drives in the Blades on page 32](#) to remove the drives and repackage them.

Updating Firmware

Some problems with the nTier700 may be fixed by updating firmware packages. Spectra Logic provides complete support for the most currently shipped releases of firmware packages. Customers using previously released firmware packages are asked to upgrade to the current release as soon as possible.

Note: Until further notice, firmware updates for the nTier700 are currently managed on an individual basis by Spectra Logic Technical Support. Contact Spectra Logic Technical Support for assistance (see [Contacting Spectra Logic on page 4](#)).

Check the Current Firmware Version

Use the following steps to determine the current firmware version your nTier700 is using. You can then compare it with the most current version available on the Spectra Logic web site.

1. Log into the nTier700 BlueScale web interface (see [Access the BlueScale Web Interface on page 40](#)).

2. Select **About** to display information about the version of the firmware package currently installed on the nTier700 (circled in [Figure 21](#)).

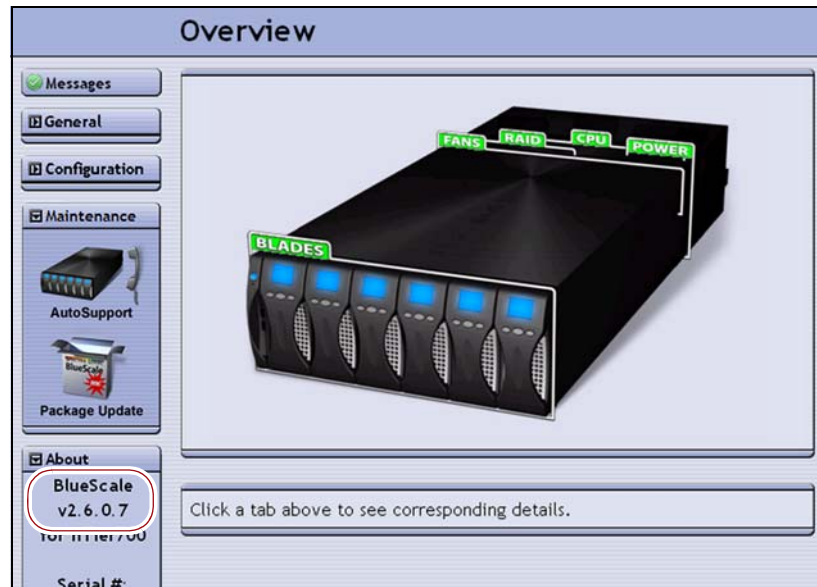


Figure 21 The current BlueScale version on the About menu.

Determine Whether an Update is Available

If the version you have is older than the most current version described in the current version of the *Spectra nTier700 Backup and Archive Appliance Release Notes and Documentation Updates*, contact Spectra Logic Technical Support to obtain an update (see [Contacting Spectra Logic on page 4](#)).



Important

You must have a current service contract with Spectra Logic Technical Support before you can download firmware updates for the nTier700.

If you have questions about your service agreement, contact Spectra Logic Technical Support (see [Contacting Spectra Logic on page 4](#)).

Note: The most helpful information on updated firmware packages can be found in the *Spectra nTier700 Backup and Archive Appliance Release Notes and Documentation Updates*, which are available from the nTier Firmware page. The release notes also include any documentation updates since the last release.

Download the Updated Firmware

If there is a more current version of the firmware available, you will be given instructions for downloading the firmware. You can then use one of the methods in this section to save the firmware to a known location and then perform the update as described in [Update the Firmware on page 57](#).

If...	Then...
<p>You plan to use the default Spectra Logic package server to update the firmware,</p>	<p>The firmware is downloaded when you start the firmware update process. There is no need to download it beforehand.</p> <p>Note: Under most circumstances, this is the preferred method for updating the BlueScale firmware to download and install the firmware in a single step. However, this option is not currently supported.</p>
<p>The nTier700 cannot access an outside web site because of security or firewall requirements, —OR— The default Spectra Logic package server option is not available,</p>	<ol style="list-style-type: none"> 1. Download the current firmware package from the location provided by Spectra Logic Technical Support. 2. Save the downloaded firmware file to a USB drive. 3. Connect the USB drive to one of the USB ports on the back of the nTier700. 4. Select the firmware package from the ones listed under Drives on the Package Update screen (see Figure 22 on page 57). <p>—OR—</p> <ol style="list-style-type: none"> 1. Download the current firmware package from the location provided by Spectra Logic Technical Support. 2. Save downloaded firmware file to a previously configured package server that is accessible from the nTier700. 3. Enter the URL for this package server as the remote package server (see Figure 22 on page 57).

Update the Firmware

After you obtain the updated firmware, use the following steps to perform the update.

1. Select **Maintenance** > **Package Update** to display the Package Update page. The nTier700 automatically scans the following locations for firmware files:
 - **Drives.** A USB drive connected to one of the USB ports on the back of the nTier700. Packages are only listed under this option if a USB drive is connected to the nTier700.
 - **Remote.** The specified remote package server. The default package server is the downloads page on the Spectra Logic web site.
 - **Archived Packages.** The C:\Program Files (x86)\SpectraLogic\nTier\Packages folder on the system boot drive. After the nTier700 firmware is updated using a new package, the package is moved to this folder and listed under **Archived Packages**.

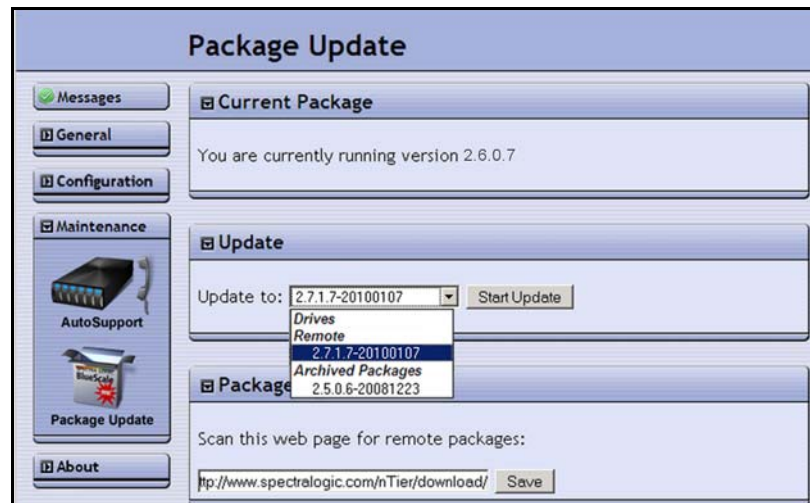


Figure 22 The Package Update page with available firmware package files listed.

2. Select the firmware package you want to use. The selected package displays in the **Update To** field.
 - The most current available firmware package found during the scan displays in the **Update to** field. In [Figure 22](#), the most current version is on the nTier firmware downloads page on the Spectra Logic web site.
 - If you want to install the firmware from a different remote package server, enter a valid URL in the **Scan this web page for remote packages** text field and click **Save**. The nTier700 scans the specified web page for available firmware packages.

Note: The default package server is the nTier firmware downloads page on the Spectra Logic web site.

- If you want to use a different firmware version, use the **Update To** drop-down menu to display all of the available firmware package files at each location.



Important

Do not install a package that is older than the currently installed version unless you are specifically instructed to do so by Spectra Logic Technical Support.

3. Select **Start Update**.

A progress page shows the step-by-step progress of the update. Information about the firmware update progress also appears in the Messages page. The update may take several minutes to complete.

- If the firmware package includes updates to the firmware for the Adaptec RAID controller HBA, the blades, or the root expanders, a Confirmation Needed page similar to the one shown in Figure 23 displays.

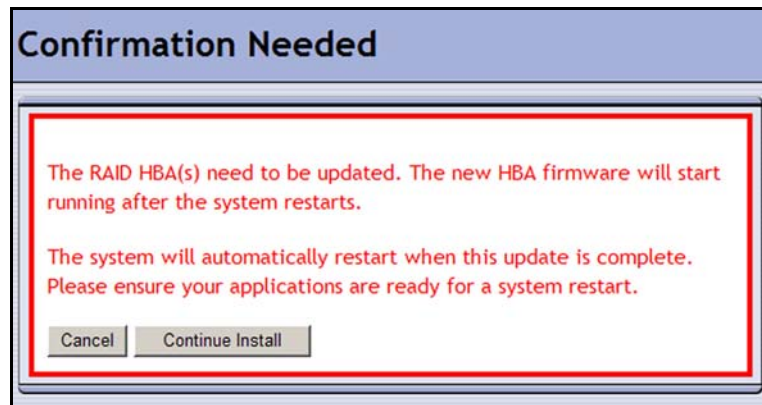


Figure 23 Confirmation message to update the HBA.

Note: The BlueScale firmware prevents the Adaptec RAID controller firmware and /or driver from being updated if a RAID is actively performing any task (for example, a RAID volume is either building or rebuilding).

In this case, a message displays to indicate that the RAID controller firmware was not updated because the RAID was actively performing another task. The only available option in this case is **Cancel**. Wait until the RAID tasks are complete, then begin the update process again.

Choose...	If...
Continue Install	Your nTier700 is prepared for the system to reboot. The progress page redisplay and the update continues.
Cancel	Your nTier700 is in a state where a reboot would impact operations. Wait until the nTier700 is in a state where it is ready for a reboot, then simply begin the update process again. Note: If the RAID is actively performing any task (for example, a RAID volume is being built), the only option available is Cancel .

- When the firmware update is finished the system reboots.

Note: If the firmware for the root expanders or blades was updated, the nTier700 will shutdown. Power on the system and wait for the Windows operating system to restart.
- Reconnect to the BlueScale web interface.

Updating Tape Drive Device Drivers



Important

The Windows Storage Server operating system requires you to install device drivers before the application software can correctly communicate with tape drives, either in a library or standalone, connected to the nTier700. Always confirm that you have the most current driver available for any tape drives in the tape libraries you have connected to the nTier700.



Important

Do not use the Hardware Update Wizard in Windows Device Manager to install device drivers for tape drives or other devices. The wizard does not install the drivers correctly on the nTier700. If you previously installed device drivers using the wizard, you must remove the drivers and then reinstall the drivers. Use the instructions in the following sections to remove the drivers and then reinstall them.

- Notes:**
- The following instructions are for updating the device drivers for IBM LTO tape drives. The instructions for other types of tape drive may differ slightly.
 - For libraries that use one of the tape drives to provide the robotic control path through ADI, you may also need to install the Media Changer driver.

Obtain the Updated Device Driver

Use the following steps to update the drivers for tape drives.

1. Connect to the Windows Desktop on the nTier700.
2. Download the updated drivers to the nTier700 server.

Note: If your nTier700 has internet access, download the driver archive file directly to a known location on the nTier700 system disk. Otherwise, save the downloaded driver archive file to a USB drive using a computer that does have internet access and then copy the file to a known location on the nTier700 system disk.

- a. Using a web browser, go to the [IBM Tape Device Driver for Windows Platforms](#) page, which displays a list of download directories.

Note: You can also reach this page from the [Drive Firmware & Drivers](#) page on the Spectra Logic web site (www.spectralogic.com/downloads → [Tape Drive Firmware & Drivers](#)).

- b. Scroll down to the Download Pages section and select **Windows directory** on the IBM Tape Device Drivers FTP site.
- c. Select **Win2003**.

The IBM FTP page displays a list of download directories, including one titled “Latest” and one titled “WHQL_Cert” (Windows Hardware Quality Labs certified).

- d. Select the download directory to display a list of zipped file archives (.zip files).

Select...	If your organization...
Latest	Does not have a policy against using non-WHQL certified drivers.
WHQL_Cert	Has a policy against using non-WHQL certified drivers.

- e. Select the file with .x64 in the file name (for example, IBMTape.x64_6204.zip).
 - f. Save the zip file containing the drivers to a known location on the nTier700 system drive.
3. Extract (unzip) the file into the following folder:

```
C:\Program Files (x86)\SpectraLogic\drivers\IBM LTO Tape Drives
```

This creates a new folder whose name includes the latest driver version number. For example:

```
C:\Program Files (x86)\SpectraLogic\drivers\IBM LTO Tape Drives\
IBMTape.x64_6204
```

Remove Current Drivers or Devices

If you previously installed device drivers for your tape drives using the wizard in Windows Device Manager, use the following steps to remove the drivers. Otherwise, skip to [Install the Updated Device Driver](#).

1. Connect to the Windows Desktop on the nTier700, if you are not already connected.
2. Using Windows Explorer, navigate to the folder containing the extracted drivers files.
3. Double click the **uninst.exe** to run the driver uninstall utility.
4. Open the Device Manager and uninstall any of the following devices, if present:

For this device...	Uninstall...
Tape Drives	Any IBM tape drives
System Devices	Changer Bus Enumerator and Tape Bus Enumerator
Medium Changers	Spectra Logic Medium Changer driver
Other Devices	Any tape drives

5. Restart the nTier700.

Install the Updated Device Driver

Note: If the Windows Add New Hardware Wizard starts, ignore it. The installation script for the device driver automatically manages the wizard.

1. Open a Command Prompt window and change to the folder containing the extracted drivers file.
2. Using the command prompt, run the command to install the tape drive device driver.

Note: If the driver is unsigned, choose **Continue Anyway** when prompted.

Run the following command...	If you are using...
<code>install_exclusive.exe</code>	Tivoli® Storage Manager Note: The exclusive driver performs automatic SCSI Reserve and Release commands upon open and close of the tape drive device. Additionally, the driver enforces a single handle to the device on the backup server.
<code>install_nonexclusive.exe</code>	Microsoft Data Protection Manager (DPM), Removable Storage Manager (RSM), or any other software that does not require the exclusive driver.

3. If the library uses one of the tape drives to provide the robotic control path through ADI, you may need to reinstall the Media Changer driver using the Windows Add Hardware wizard. When prompted for the location of the driver, navigate to the following folder:

```
C:\Program Files (x86)\SpectraLogic\drivers\Spectra <Series>
Library Driver\
```

- Notes:**
- A medium changer driver is unnecessary in most configurations. The general practice is for the software to control the library directly, so there is no need for a robotics driver at the OS level.

Three known exceptions are for Windows RSM (Removable Storage Manager), DPM (Data Protection Manager), and File Migrator (or XenData). If you have one of these, right-click on the Unknown Medium Changer and choose **Update Driver...** Use the Windows Add Hardware wizard to install the driver.

APPENDIX A—SERVICE AND SUPPORT

This section replaces Appendix A, “Technical Support.”

SpectraGuard™ Support provides a worldwide service and maintenance structure, refined over many years to provide timely, professional service. Go to Spectra Logic’s web site at: www.spectralogic.com/warranty-service for information about the warranty and service options for your Spectra nTier700.

Before Contacting Spectra Logic Technical Support

If you have a problem with your nTier700, use the information in this section to obtain help with resolving the problem. If the problem persists, open a support ticket.

System Messages If you are encountering problems, review any System Messages that have been posted and take any action described in the message(s).

Product Support For additional troubleshooting information, check the Spectra Logic Product Support page at www.spectralogic.com/support and the Knowledge Base and FAQ page at www.spectralogic.com/knowledgebase.

Opening a Support Ticket

You can use AutoSupport to open a ticket, if you have AutoSupport configured. Refer to the *Spectra nTier700 Backup and Archive Appliance User Guide* for detailed information about configuring and using AutoSupport to open a support ticket.

If you need to open a ticket using telephone, email, or the Spectra Logic web site, use the following instructions.

1. Note the problem, including what happened just before the failure occurred.
2. Gather the following information:
 - Your Spectra Logic customer number
 - Company name, contact name, phone number, and email address
 - nTier700 serial number
 - Type of host system being used
 - Type and version of operating system being used
 - Type and version of application software installed on the nTier700
3. Contact Spectra Logic Technical Support (see [Contacting Spectra Logic](#) on page 4).

Returns

Your Spectra Logic Technical Support representative may ask you to return a problem component to Spectra Logic for servicing and failure analysis. After you complete a replacement procedure, return the defective part using ALL the packaging that the replacement part arrived in (including any anti-static bags or foam inserts).



Caution

Severe damage can occur if the component is not packaged correctly. You may be invoiced if it is damaged due to improper or insufficient packaging.

Use the return label and instructions that were included with the replacement part when preparing to ship the component you are returning. If you cannot locate these, contact Spectra Logic for another copy (see [Contacting Spectra Logic on page 4](#)). The return label and RMA printed on it are used to associate the returned component with your account. To avoid being invoiced for failure to return the component, do not ship the component back to Spectra Logic without the RMA return label.

APPENDIX B – SPECIFICATIONS

This section updates Appendix B, “Specifications.”

RAID Storage Specifications

The following table shows the RAID storage specifications for the nTier700.

Parameter	Specification
Drive Type	7200 RPM SATA
Single Drive capacity, native	1 TB or 2 TB
Capacity Options, native ^{a, b} <ul style="list-style-type: none"> ▪ Minimum, one blade ^c ▪ Maximum, six blades ^c 	<ul style="list-style-type: none"> ▪ 10 TB ▪ 120 TB
RAID <ul style="list-style-type: none"> ▪ RAID level ▪ RAID controller write cache ▪ Write cache memory battery backup time 	RAID 6 256 MB Up to 72 hours with fully-charged battery

- a. The native capacity numbers refer to raw disk capacity; RAID configuration and system overhead reduce the actual usable space; the usable capacity numbers are approximate.
 b. In 10 drive increments, each increment being equal to one blade, up to sixty drives
 c. Each blade contains ten 2 TB SATA drives.

Power Cords

North American 120 Volt-AC Power Cord The criteria for a 120-volt power cord for use in the United States and Canada are as follows:

Parameter	Specification
Power cordage	Three-conductor, 14 AWG
Power input connectors	<ul style="list-style-type: none"> ▪ NEMA 5-15P or IEC-60320 C14, male ▪ IEC 60320-C13, female

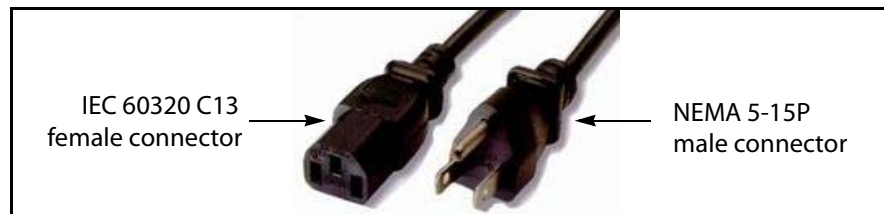


Figure 24 120 Volt-AC Power Cord for Use in North America (Spectra Logic P.N. 8289).

North American 220 Volt-AC Power Cord The criteria for a 220-volt AC power cord for the nTier700 are as follows:

Parameter	Specification
Power cordage	SJT type, three-conductor, 14 AWG minimum ^a
Power input connectors	<ul style="list-style-type: none"> ▪ Male connector must be of the proper type, rating, and safety approval. ▪ IEC 60320-C13, female

a. Power cord must comply with local electrical code.

International 220 Volt-AC Power Cord The criteria for an international 220-volt AC power cord are as follows:

Parameter	Specification
Power cordage	Flexible, HAR (harmonized) type H05VV-F, three conductor, cord with minimum conductor size of 0.03 square inches (1.0 square millimeter). ^a
Power input connectors	<ul style="list-style-type: none"> ▪ Male connector must be of the proper type, rating, and safety approval for the intended country. ▪ IEC 60320 C13, female

a. Must meet the specifications for the intended country.

APPENDIX D—TUNING GIGABIT ETHERNET NETWORK PERFORMANCE

This new appendix describes advanced configuration procedures for improving the performance of connections to Gigabit Ethernet networks.

Enable Jumbo Frames for 10 GigE Network Interface Cards

If you have the optional 10 Gigabit Ethernet (GigE) NIC card installed in the nTier700, you can use the instructions in this section to improve the performance of the card if your network supports jumbo frames.

The Maximum Transfer Unit (MTU) specifies the maximum transmission unit size of an interface. Each interface used by TCP/IP may have a different MTU value specified. The MTU is usually determined through negotiation with the lower-level driver and by using that lower-level driver value. However, that value may be overridden.

Change the MTU Setting for the NIC Card

Use the following steps to change the MTU setting to enable jumbo frames.

1. Access the Windows Desktop on the nTier700 (see [Access the Windows Desktop on page 45](#)).
2. Select **Start** ... **Settings** ... **Control Panel** to open the Control Panel.
3. Select the **Network Connections** icon to open Network Connections window.

4. In the Local Area Connections pane, double-click the Local Area Connection corresponding to the 10 Gigabit Ethernet (GigE) NIC card and select **Properties** to display the Local Area Connection Properties window.

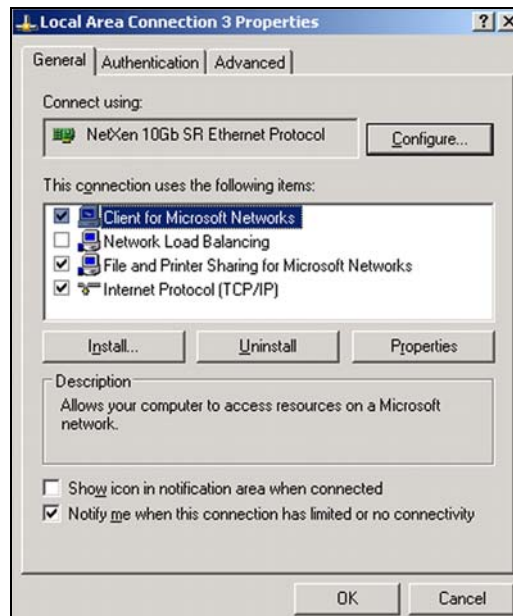


Figure 25 Local Area Connection Properties.

5. On the General tab, select **Configure** to display the Intel driver configuration dialog box.
6. On the Advanced tab, select **Max Jumbo Buffers** and use the drop-down list to select the desired maximum transmission unit size.

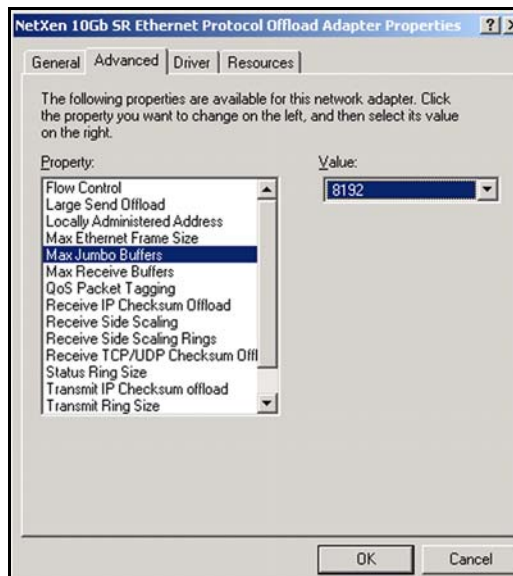


Figure 26 Set the Max Jumbo Buffers value.

7. Select **OK** to save your changes and close the configuration dialog box.
8. Close the Local Area Connection Properties dialog box.

Enable Window Scaling

For more efficient use of high bandwidth networks, a larger TCP window size can be used. The TCP window size field controls the flow of data and is limited to 2 bytes, or a window size of 65,535 bytes.

Since the size field cannot be expanded, a scaling factor is used. The TCP window scale option is used to increase the maximum window size from 65,535 bytes to 1 Gigabyte.



Caution

The instructions in this section involve editing the Windows registry. Serious problems can occur if you modify the registry incorrectly. Therefore, make sure that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs. For more information about how to back up and restore the registry, read [article 322756](#) in the Microsoft Knowledge Base (How to back up and restore the registry in Windows).

Use the following steps to add the `Tcp1323Opts` DWORD registry key and set its value set to enable window scaling.

1. Access the Windows Desktop on the nTier700 (see [Access the Windows Desktop on page 45](#)).
2. Back up the registry (recommended).
3. Select **Start** ... **Run** and type `regedit`. Select **OK** to launch the Registry Editor.
4. Navigate to the following location:


```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
Tcpip\Parameters
```
5. Highlight the **Parameters** submenu.
6. From the **Edit** menu, select **New** ... **DWORD Value**.
7. In the **New Value** box, type `Tcp1323Opts` and press **Enter**.
Note: DWORD values are case sensitive. Be sure to type `Tcp1323Opts` exactly as shown.
8. From the **Edit** menu, select **Modify**.
9. Enter `1` (window scale enabled only) for the MTU size and select **Decimal**.
10. Click **OK** to save your changes.
11. Exit the Registry Editor.
12. Select **Start** ... **Shutdown** ... **Restart** to reboot the Windows operating system.



Teaming NICs

NIC teaming (link aggregation) is a function of the Intel Pro NIC driver in Windows Storage Server 2003 which lets you use multiple Ethernet ports in parallel to increase the link speed beyond the limits of any one NIC. In high-performance network environments you can aggregate the Gigabit Ethernet ports in the nTier700 into a single logical network link for added performance. If you have additional Gigabit Ethernet NICs installed, you can also include them in the team.

- Notes:**
- You cannot team the optional 10 GigE NIC.
 - Refer to Spectra Logic [Knowledge Base Article 456](#) for additional technical information about determining whether teaming is appropriate for your environment.
 - The additional configuration tabs for the NICs in the Windows Device Manager on the nTier700 are only visible through the console session on the nTier700 server. They are not available through a standard Remote Desktop connection.

Use the following steps to team the Gigabit Ethernet ports in the nTier700 into a single logical network link.

1. From a Windows-based computer on the same network as the nTier700, select **Start**  **Run** to open the Run dialog box.
2. Type `mstsc /v:server /console`, where *server* is the DNS name or IP address of the nTier700.
3. Select **OK** to connect to the console session on the nTier700 server.

Note: You can only run one console session at a time. When you connect to the console session remotely, other users may be unable to log on to the nTier700 locally.
4. Select **Start**  **Settings**  **Control Panel** to open the Control Panel.
5. Select the **Network Connections** icon to open Network Connections window.
6. In the Local Area Connections pane, double-click the Local Area Connection you want to configure and select **Properties** to display the Local Area Connection Properties dialog box.
7. On the General tab, select **Configure** to display the Intel driver configuration dialog box.
8. On the Teaming tab, select **Team with other adapters**.
9. Select **New Team** and enter a name for the new team.
10. Select the NICs you want to include in the team.

You can choose the two standard GigE NICs included in the nTier700. If you have any optional Gigabit Ethernet NICs installed, you can also include them in the team.

11. Based on the requirements of your switch, select the team type from the list.

Team Type	Description
Adapter Fault Tolerance	Provides for one active connection with the remaining connections in a standby state.
Adaptive Load Balance	The transmitted data is balanced across the team with one port acting as the receiver.
Static Link Aggregation (SLA)	All ports act together presenting one MAC for throughput performance increase. Switch must be configured for SLA before the team is created. Note: Most contemporary switches support SLA.
IEEE 802.3ad Dynamic Link Aggregation	All ports act together presenting one MAC for throughput performance increase. Switch must be configured with 802.3ad support.

12. Select **OK** to save your changes and close the configuration dialog box.

13. Close the Local Area Connection Properties dialog box.