StorPoint NAS 100
Network Hard Disk Server

User's Manual ver 1.1

Safety Notices

Please observe all safety markings and instructions when using this product.

Caution! - potential hazard that can damage the product.

Important - potential hazard that can seriously impair operation.

Do not proceed any of the above notices until you have fully understood the implications.

Electromagnetic Compatibility (EMC)

USA - This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his/her own expense will be required to take whatever measures may be required to correct the interference. Shielded cables should be used with this unit to ensure compliance with the Class A limits. CE

Europe - This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1994, and the requirements for immunity according to EN50082-1/1997 residential, commercial, and light industry.

Compliance is not valid for unshielded network cables.

Liability

Every care has been taken in the preperation of this manual; if you detect any inaccuraries or omissions, please inform us at an address which can be found in the last appendix of the manual. Axis Communications cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Axis Communications makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Year 2000 Compliance

Axis Communications warrants that AXIS StorPoint NAS 100 is Year 2000 compliant.

Axis' Trademarks

StorPoint, ThinServer

Trademark Acknowledgments

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AXIS StorPoint NAS 100 User's Manual
Revision 1.1
Part No: 16939
Dated: May 2000

Preface

Thank you for purchasing the AXIS StorPoint NAS 100 Network Hard Disk Server. This product is developed to be a storage appliance for network file sharing and data storage.

About This Manual

The manual provides introductory information as well as detailed instructions on how to set up and manage StorPoint NAS in various network environments. It is intended for everyone involved in installing and managing StorPoint NAS. To fully benefit from the manual, you should be familiar with basic networking principles.

This manual applies to AXIS StorPoint NAS 100 Wide SCSI and AXIS StorPoint NAS 100 IDE with software release 1.10 and subsequent releases until otherwise notified.

About Axis

Axis Communications is dedicated to providing innovative solutions for network-connected computer peripherals. Since the start in 1984, it has been one of the fastest growing companies in the market and is now a leader in its field.

ThinServer™ Technology Being the core of all Axis' products, the ThinServer™ technology enables them to act as intelligent file server independent ThinServer™ devices. A ThinServer™ device is a network server which includes "thin" embedded server software capable of simultaneous multiprotocol communication, scalable RISC hardware and a built-in Web server which allows easy access and management via any standard Web browser. The ThinServer™ technology makes it possible to connect any electronic device to the network, thus providing "Access to everything".

Today, Axis Communications is offering the ThinServer™ technology as well as six major ThinServer™ product lines consisting of:

Network Print Servers offer you a powerful and cost-efficient method for sharing printer resources in your network. They connect to any standard printer, featuring high performance, simple management and easy upgrading across the network. The print servers are available in Ethernet, Fast Ethernet and Token Ring versions.

IBM Mainframe and S/3x - AS/400 Print Servers and Protocol Converters includes a wide range of LAN, coax and twinax attached print servers for the IBM host environment. By emulating IBM devices, these servers provide conversion of the IPDS, SCS and 3270DS data streams to the major ASCII printer languages.

Network Attached CD/DVD Servers provide you with a flexible and cost-efficient solution for sharing CD/DVDs and other optical media across the network. They are available in Ethernet, Fast Ethernet and Token Ring versions.

Network Attached Storage Servers make it possible to easily make hard disk storage available in Ethernet networks. Through direct access by clients, yet integrating into existing security schemes, and requiring a minimum of maintenance they also provide a low total cost of ownership for network storage.

Network Camera Servers provide live images using standard Internet technology, thus enabling access to live cameras via any standard Web browser. They offer a perfect solution for remote surveillance over the Internet and their sharp images can bring life into any Web site. These servers support Ethernet as well as PSTN and GSM phone lines.

Network Document Servers enable easy distribution of paper-based information across workgroups and the enterprise. By sending the scanned documents to your destination via the Internet/intranet, you will reduce your faxing/mailing costs, as well as save time, thus improving your organization efficiency.

Support Services

Should you require any technical assistance, please contact your local dealer. If your questions cannot be answered immediately, your local dealer will forward your queries through the appropriate channels to ensure you a rapid response.

WWW:	http://www.axis.com
FTP server:	ftp://ftp.axis.com/pub/axis
Support e-mail address:	tech-sup@axis.com

If you are connected to Internet, you can find online manuals, technical support, firmware updates, application software, company information, on any of the addresses listed to the left.

Table of Contents

Section 1 Introduction

AXIS StorPoint NAS 100

AXIS StorPoint NAS 100 connects hard disks to 10/100 Mbit Ethernet networks. All users on the network can make use of the hard disk storage and share the information on any connected hard disk.

The enclosure and connectors are designed for installation into a standard 5.25" half-height tower module. These versions are available:

- SCSI - up to 15 Wide SCSI hard disk drives
- IDE - up to 8 ATA-4 hard disk drives

It is not possible to mix IDE disks and drives with a SCSI version, or vice versa.

StorPoint NAS is server independent, which means that no software has to be loaded on any server, and no additional software has to be installed on any client.

StorPoint NAS supports disk mirroring (RAID-1) which means that data written to a hard disk can be automatically and simultaneously written to a second hard disk.

Note: ❑ Throughout this manual, AXIS StorPoint NAS 100 is referred to as simply StorPoint NAS.

Features and Benefits

File Server Independence

StorPoint NAS is connected as a node in a 10 or 100 Mbit Ethernet network. To the network your StorPoint NAS acts as a file server. This means that it is independent of other file servers, i.e. the communication takes place directly between the network client and StorPoint NAS. This results in high performance, reliability and independence of other equipment.

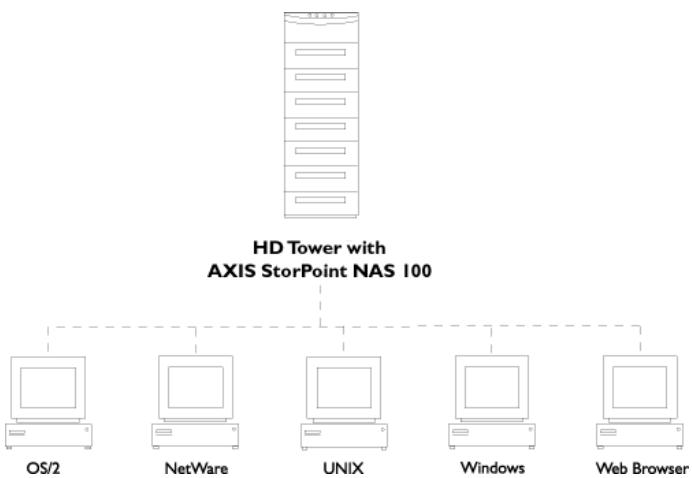
Plug and Play

The file server independent approach makes the installation quick and convenient. In most environments the physical connection to the network is the only installation required prior to starting work with StorPoint NAS. No software needs to be installed on clients or file servers. Your computer will see StorPoint NAS as another network file server, and you access it using the standard commands used in your network operating system.

Environments

StorPoint NAS can be used simultaneously from NetWare, Windows, OS/2, DOS, UNIX and Internet/intranet clients. It supports basic messaging and network protocols:

- NCP over IPX
- NCP over IPX/UDP (NetWare IP)
- NCP over TCP/IP (PureIP)
- SMB over NetBIOS/NetBEUI
- SMB over NetBIOS/TCP/IP
- NFS over UDP/IP
- HTTP over TCP/IP.



Internet/intranet Web Server

The built-in Web server makes it possible to access data via any standard Web browser, such as Netscape Navigator or Microsoft Internet Explorer. The support includes configuration, management and disk access.

Speed

By using a 32-bit RISC processor and cache memory expandable up to 160 MB, data throughput of up to 16 Mbit/sec on a single client.

Security	Disk access can be restricted by setting up native access control in all network environments.
Maintenance	New firmware can easily be downloaded to the Flash memory of your StorPoint NAS using Windows Explorer drag-and-drop, or over the network using FTP. All updates are free of charge.
Network Management	StorPoint NAS supports the Simple Network Management Protocol, SNMP.
Year 2000	StorPoint NAS is year 2000 compliant.
Disk Mirroring (RAID-1)	StorPoint NAS has a built-in disk mirroring option (RAID-1). When enabled, data written to a hard disk will be automatically and simultaneously written to a second hard disk. The purpose of this is to assure that if one hard disk should fail, the data will still be intact on the other one.

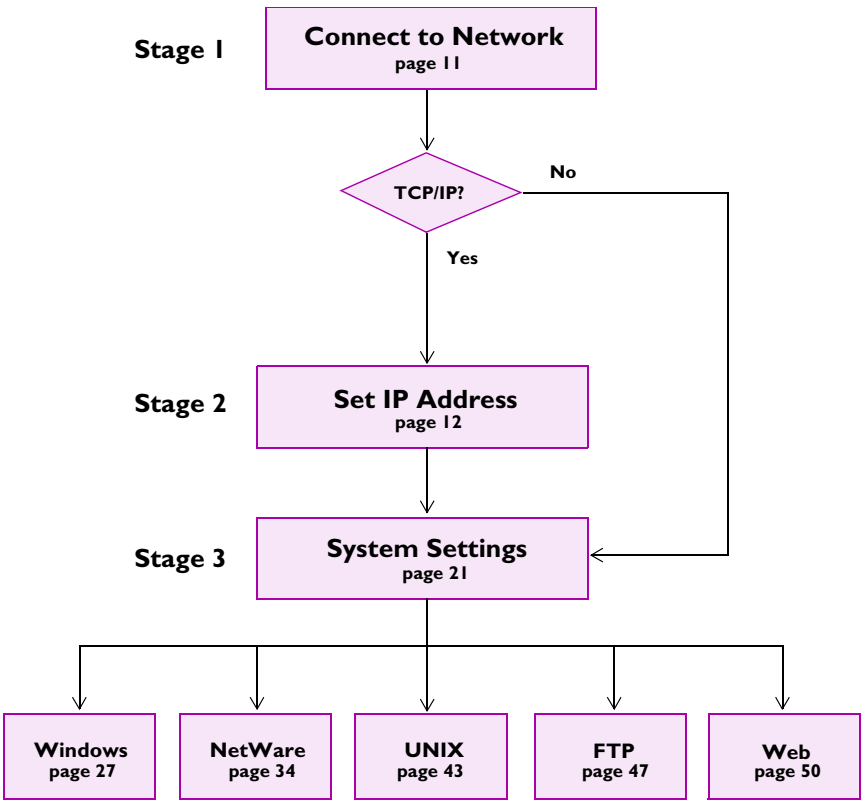
AXIS Storage Online CD

AXIS Storage Online CD includes user documentation and other online information, product firmware, software utilities, data sheets etc. for all the AXIS StorPoint Server products. You can use the CD within all of the supported Axis computing environments.

The CD will autostart from a local CD drive on Windows 95/98/2000 and NT platforms. You can also open the `index.htm` file within your standard Web browser to launch the home page.

Section 2 Basic Installation

To install your StorPoint NAS, read the sections relevant to your network environments:



Note: ❑ Typically, your StorPoint NAS will already be installed in an enclosure when delivered. However, if required:

- Refer to "*Installing StorPoint NAS in a Tower*" on page 97 on how to install StorPoint NAS in a 5¼" tower.
- Refer to "*Connecting the Hard Disks to StorPoint NAS*" on page 98 on how to connect hard disks to StorPoint NAS.

Connecting the StorPoint NAS to the Network

Before you begin

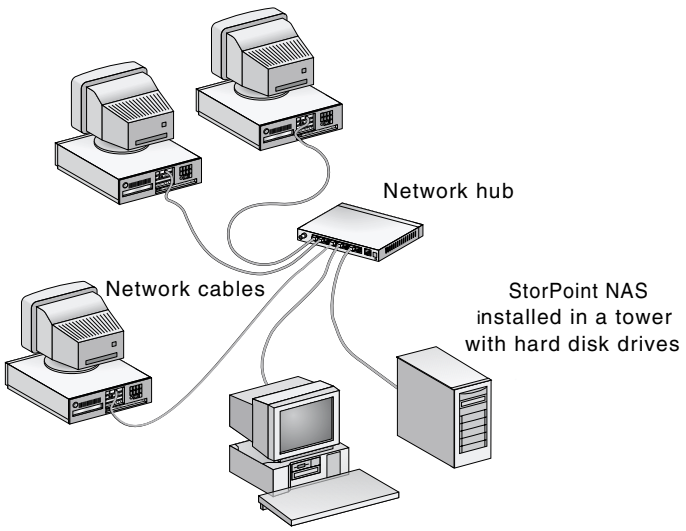
Always consult the Network Administrator before making changes to the network configuration.

Procedure

To connect StorPoint NAS to your network, follow these steps:

1. Turn off the power.
2. Connect the network cable to the appropriate connector, i.e. RJ-45 for 100baseTX and 10baseT.
3. Switch on the tower.

The StorPoint NAS front panel indicators will flash during power-on and self-test. When the Status indicator stops flashing and turns solid green, your StorPoint NAS is ready for use.



Assigning an IP Address

To establish communication with the TCP/IP network, you must assign an appropriate IP address to your StorPoint NAS. For example, this is needed in order to access the StorPoint NAS Web interface.

Note: ❑ Setting the IP address is **not needed** if you are not using IP addressing on your network, i.e. in these environments:

- Windows (SMB over NetBEUI)
- NetWare (IPX)

You can then proceed directly to the appropriate network environment section of the manual.

Before you begin

Make sure your StorPoint NAS is powered up and attached to the network.

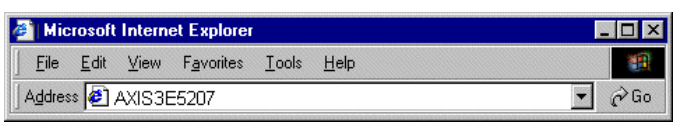
Ethernet Address - Serial Number

Depending on the method you are using, you will need to know the Ethernet address of your StorPoint NAS. The Ethernet address is the same as the serial number. You will find the serial number on the labels at the underside of the unit and at the back of the tower.

Automatic IP Setting (DHCP)

Try accessing your StorPoint NAS via a standard Web browser. Use the default server name *AXIS<nnnnnn>* where *<nnnnnn>* are the last six digits of the serial number.

Example
The serial number of your StorPoint NAS is 00408C3E5207. Enter *AXIS3E5207* in the address/location field:



- If the **File View** page appears in your Web browser, the IP address has been set automatically when you connected your StorPoint NAS to the network. You can skip directly to "*Basic System Settings*" on page 21.
- If the connection cannot be established, set the IP address manually using one of the methods described in "*Methods for Setting the IP Address*" on page 13.

Note: ❑ This will not work in NetWare environments.

Methods for Setting the IP Address

Ask the Network Administrator for an unused IP address.

Important!

- Do not use the default or example IP address when installing your StorPoint NAS. Always consult the Network Administrator before assigning an IP address.

System Privileges

You will need *root* privileges on your UNIX system and *administrator* privileges on the Windows NT servers.

Set the IP address using one of these methods, depending on your network operating environment:

Method	Network environments	See ...
Web browser *	Windows 95/98 and NT	page 14
AXIS IP Installer *	Windows 95/98 and NT, NetWare	page 15
ARP *	Windows 95/98 and NT, NetWare	page 16
	UNIX, OS/2	page 17
DHCP	Windows NT, NetWare, UNIX	page 18
BOOTP	UNIX	page 19
RARP *	UNIX	page 20

*) These methods operate on single network segments only, i.e. they cannot be used over routers.

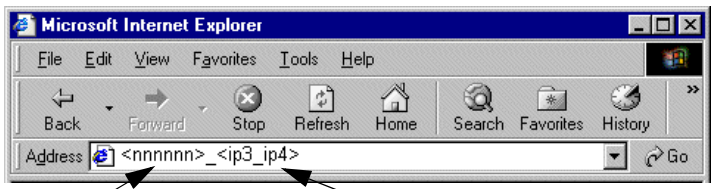
Note:

- When the IP address has been successfully assigned to your StorPoint NAS, you can set the **ProtectIP** parameter to `yes` in order to avoid accidental or malicious changing of the IP address. With this configuration, your StorPoint NAS will no longer accept a new IP address using the Web browser or ARP method. You will find the **ProtectIP** parameter under the [**IP**] section in the `config.ini` file located in the `System/ServerProperties` folder. Use a text editor to edit the file.

Web Browser

In Windows environments using Class B or Class C network addresses, you can set the IP address of your StorPoint NAS using a standard Web browser.

Enter the following in the address/location field:



<nnnnnn> are the last six digits of the **serial number**, e.g. *3E5207* for the serial number 00408C3E5207

<ip3_ ip4> the last two groups of the **desired IP address**, e.g. *253_80* for the IP address 192.16.253.80

StorPoint NAS will retrieve the first two groups of the IP address from the subnet. When the IP address has been successfully set, the **File View** page will appear in your Web browser.

Example
The serial number of your StorPoint NAS is 00408C3E5207 and you want to assign it the IP address 192.16.253.80. Your Windows client has the IP address 192.16.6.40. You enter *C3E5207_253_80* in the location/address field.

Notes:

- ❑ The new IP address must be set within 30 minutes after restart.
- ❑ This method will work for most Windows configurations. However, if you experience problems when using this method, we recommend that you use the AXIS IP Installer for setting the IP address. See "*AXIS IP Installer*" on page 15.

AXIS IP Installer

AXIS IP Installer is an application that allows you to assign IP addresses to your StorPoint NAS, find IP addresses of already installed StorPoint Servers and access the StorPoint NAS Web interface.

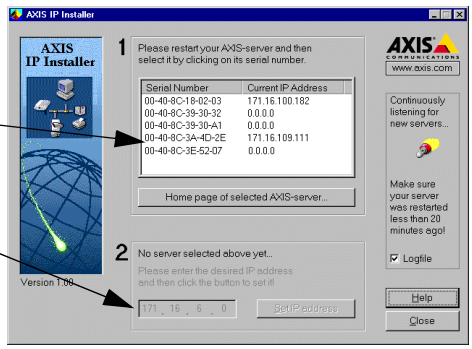
The required utility software is available on the AXIS Storage Online CD. It can also be downloaded from the Axis Web site at http://www.axis.com

To install AXIS IP Installer, follow these steps:

1. Locate the setup file, `Setup.exe`, and choose the **Run** option from the Windows Start Menu.
2. Follow the instructions on the screen.

When finished, AXIS IP Installer will be available from your Start menu. To run the program, select **Programs** | **Axis Communications** | **AXIS IP Installer**.

1. Select the **serial number** of your AXIS StorPoint server in this list.
2. Enter the **desired IP address** in this field.



ARP in Windows 95/98 and Windows NT

Perform the following commands to download the IP address and verify correct Internet communication in Windows 95/98 and Windows NT:

Start a DOS window and type the following command:

Syntax Windows 95

```
arp -s <IP address> <Ethernet address> <my PC IP address>
ping <IP address>
```

where `<my PC IP address>` is the IP address of your Windows 95 PC.

Example Windows 95

```
arp -s 192.16.253.80 00-40-8C-3E-52-07 171.16.6.40
ping 192.16.253.80
```

Syntax Windows 98 and Windows NT

```
arp -s <IP address> <Ethernet address>
ping <IP address>
```

Example Windows 98 and Windows NT:

```
arp -s 192.16.253.80 00-40-8C-3E-52-07
ping 192.16.253.80
```

The host will return '`Reply from 192.16.253.80 ...`' or some similar message. This indicates that the address has been set and the communication is established.

Notes:

- Once your StorPoint NAS has established communication using an appropriate IP address, the `arp` command cannot be used to change the address. This is to avoid accidental or unauthorized changes. However, if you restart StorPoint NAS, you can change the IP address within one hour.
- Please note that when you execute the `ping` command for the first time, you will experience a significantly longer response time than usual.
- If you are using host names, you can map a unique host name to the acquired IP address. Refer to your system manuals or to the Network Administrator for instructions on how to perform the name mapping on your particular system.

ARP in UNIX and OS/2

Follow these steps to download the IP address and verify the communication in UNIX and OS/2:

1. Type the following command:

```
arp -s <IP address> <Ethernet address> temp
```

2. Ping the unit as follows:

```
ping <IP address>
```

Example:

```
arp -s 192.16.253.80 00:40:8C:3E:52:07 temp
ping 192.16.253.80
```

The host will return '`192.16.253.80 is alive`', or some similar message to indicate that the address has been set and the communication is established.

Notes:

- Once your StorPoint NAS has established communication using an appropriate IP address, the `arp` command cannot be used to change the address. This is to avoid accidental or unauthorized changes. However, if you restart StorPoint NAS, you can change the IP address within one hour.
- Please note that when you execute the `ping` command for the first time, you may experience a significantly longer response time than **is usual.**
- If you are using host names, you can map a unique host name to the acquired IP address. Refer to your system manuals or to the Network Administrator for instructions on how to perform the name mapping on your particular system.
- The `arp -s` command may vary from system to system. Some BSD-type systems expect the IP address and Ethernet address in reverse order, whereas IBM AIX systems require the additional argument `ether`. For example:

```
arp -s ether <IP address> 00:40:8C:3E:52:07 temp
```

DHCP in Windows NT, NetWare and UNIX

Follow these steps to use the DHCP method:

1. Edit or create a scope in the DHCP manager of the DHCP daemon. For Windows NT servers, refer to the *"Windows NT Resource Kit"* on how to do this.

   The entries made in this scope typically include the following parameters:

   - Range of IP addresses
   - Subnet mask
   - Default router IP address
   - Lease duration
   - Mail server IP address
   - DNS server IP address
   - WINS server IP address(es)
   - Domain name
   - NTP server IP address
   - NDS tree name
   - NDS server IP address(es)

2. Activate the scope.

DHCP is enabled by default. The IP address and all the other settings will be set automatically.

Notes:

- ❑ If you are using DHCP, the IP address will be set automatically as soon as you connect your StorPoint NAS to the network. To find out which IP address has been assigned, check your DHCP server. If you want to set the IP address manually, you can disable DHCP by setting the appropriate configuration parameter.
- ❑ To fully benefit from DHCP, it is recommended that you use the WINS name resolution protocol available in Windows NT. If you intend to use WINS, at least one WINS server IP address must be included in the scope. Once the IP address is received, StorPoint NAS will register its host name and IP address on the WINS server.
- ❑ You might want to include an SLP scope list and some SLP directory agents in the DHCP scope. However, we recommend that you specify the SLP settings in the StorPoint NAS parameter list instead. You can do this via the StorPoint NAS Web interface or by editing the `config.ini` file.

BOOTP in UNIX

Follow these steps to use BOOTP in UNIX:

1. Append the following entry to your boot table (typically `/etc/bootptab`):

```
<host name>:ht=<hardware type>:vm=<vendor magic>:\
:ha=<hardware address>:ip=<IP address>:\
:sm=<subnet mask>:gw=<gateway field>
```

   where:

   `ht =` `ether` for Ethernet

   `vm =` `rfc1048`

   `ha =` The Ethernet or node address, i.e. the StorPoint NAS serial number

   `ip =` The IP address of your StorPoint NAS

   `sm =` The subnet mask

   `gw =` The default router address

   Example:

```
nasserv:ht=ether:vm=rfc1048:\
:ha=00408C3E5207:ip=192.36.253.80:\
:sm=255.255.255.0:gw=192.36.253.254
```

2. Make sure a unique host name is mapped to the acquired IP address. Refer to your system manuals or to the Network Administrator for instructions on how to perform the name mapping on your particular system.
3. Start the BOOTP daemon (if not already running), typically by the command: `bootpd -a`
4. Restart StorPoint NAS to download the IP address, default router address and subnet mask.

RARP in UNIX

Follow these steps to use the RARP method in UNIX:

1. Append the following line to your Ethernet address table. This is typically performed using the command `/etc/ethers`:

   ```
   <Ethernet address> <IP address>
   ```

   Example:

   ```
   00:40:8C:3E:52:07 192.16.253.80
   ```

2. If you are using host names, you can map a unique host name to the acquired IP address. Refer to your system manuals or to the Network Administrator for instructions on how to perform the name mapping on your particular system.
3. If it is not already running, start the RARP daemon. This is typically done using the command `rarpd -a`.
4. Restart StorPoint NAS to download the IP address.

Basic System Settings

You can configure your StorPoint NAS using one of these tools:

- **Web browser** - The StorPoint NAS Web interface, which is the preferred administration tool. This method requires the IP address to be set.
- **Text editor** - The StorPoint NAS text files. See "*Text Editor*" on page 72.

The StorPoint NAS Web Interface

The StorPoint NAS Web interface is divided into two parts:

- The **File View** page for browsing and accessing files and folders on the networked hard disks. This page is available to all users.
- The **Administration** pages for specifying configuration parameters and access rights. These pages are intended for the Administrator only.

You access your StorPoint NAS from a standard Web browser:

- Netscape Navigator version 4.0 or higher
- Internet Explorer version 4.0 or higher

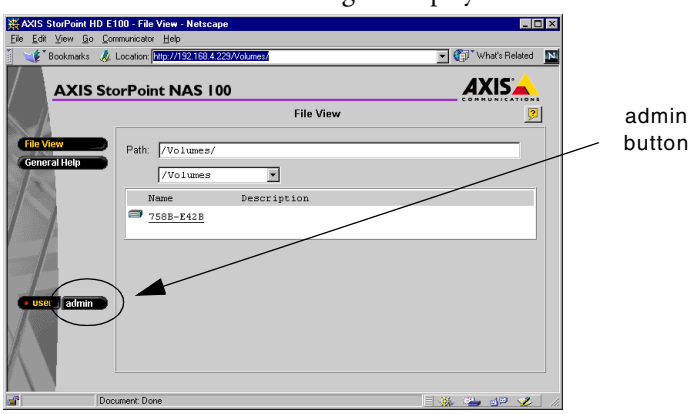
Accessing the Web Interface

Follow these steps:

1. Start the Web browser.
2. Enter the name or IP address of your StorPoint NAS in the location/address field:

```
http://<IP address>
```

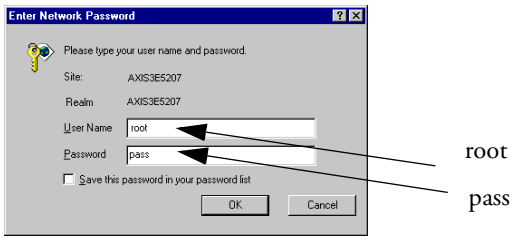
The StorPoint NAS Home Page is displayed.



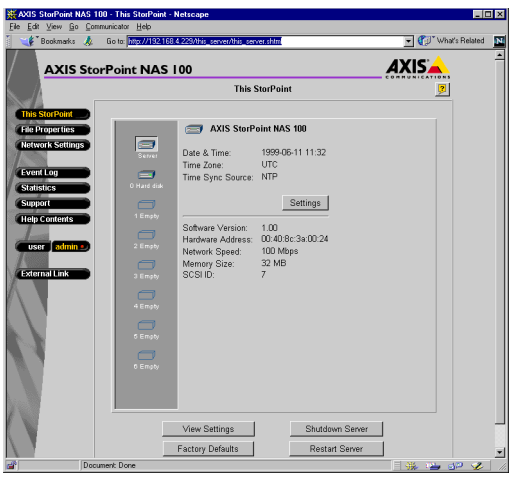
From this page, users can display and access the volumes according to the access permissions set up by the Administrator.

3. Click **admin** to access the Administration pages.

Note: ❑ You will be prompted to supply the Server password the first time during a session. The default use name and password are `root` and `pass`.



4. The **This StorPoint** page is displayed. From this page you can edit the system settings and display information about the connected drives. You can also view the current configuration settings, shutdown the server, restart the server and restore the factory default settings.



SCSI Server- The icons displayed to the left represent all the units connected to the SCSI bus listed by SCSI ID.

IDE Server - The icons displayed to the left represents all the units connected to the IDE bus listed as Master or Slave for each bus

Main Menu

From the main menu, you can access the Administration pages:

- **This StorPoint** - System settings, RAID options and information about the connected drives.
- **File Properties** - Managing Windows shares and access rights for hard disks, folders and files.
- **Network Settings** - Specifying settings for the network protocols used.
- **Event Log** - Viewing the event log that contains occurrences in your StorPoint NAS.
- **Statistics** - Displaying statistics on your StorPoint NAS.
- **Support** - Trouble shooting, server report, software version, Axis online services, contact information etc.
- **Help Contents** - Displaying general help information.
- **External Link** - Optional link to a Web site on the Internet or your company's intranet.

Notes:

- ❑ You can prevent users from accessing the volumes via the Web interface by disabling the Enable access to volumes via Web browser (HTTP) parameter on the **Network Settings - Web (HTTP)** page.
- ❑ Context sensitive online help is available from all the StorPoint NAS Web pages. To access help for a specific page, click Help .

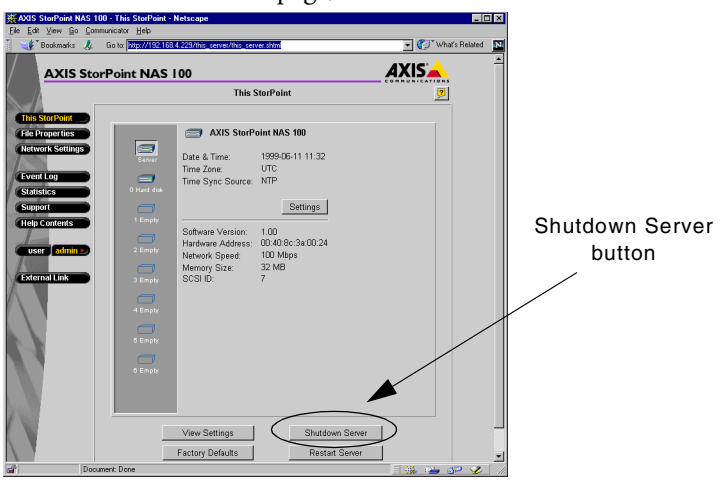
Shutdown

If you need to shut down the StorPoint NAS tower (i.e. StorPoint NAS and the hard disks) after the installation, make sure is shut down safely otherwise you risk loosing hard disk data. Do NOT turn off the power before your StorPoint NAS has been properly shut down.

You can shut down StorPoint NAS via its Web interface or by editing the `config.ini` file.

Via the Web Interface

1. On the **This StorPoint** page, click the **Shutdown Server** button.



2. Click **OK** in the confirmation dialog.

Your StorPoint NAS will shut down and you can now turn off the power.

Via the config.ini File

1. Locate the `config.ini` file using your standard file manager tool. You will find it in the `Root/System/ServerProperties` folder.
2. Use your preferred text editor and change the `Shut Down` parameter to `yes`. You will find the `Shut Down` parameter under the `[Server]` section.
3. Save the `config.ini` file.

Your StorPoint NAS will shut down and you can now turn off the power.

Server Password

To protect the system files, it is important that you change the Server password. The Server password is used in basically all protocols, i.e. HTTP, NetWare (NCP), Windows (SMB) and SNMP. For example, a user will be prompted for the Server password when trying to access the Administration Web pages for the first time during a session.

Default Password

The default Server password is `pass`.

Procedure

To change the Server password, follow these steps:

1. On the **This StorPoint** page, click **Settings** to open the **Server Settings** dialog box.
2. Select the **General** tab.
3. Specify and confirm the Server password.
4. Click **Close**.

Note:

- If you lose the Server password, you must restore the factory default settings using the Push button. See "*Restoring Factory Default Settings* on page 78.

Date & Time

1. On the **This StorPoint** page, click **Settings** to open the **Server Settings** dialog box.
2. Open the **Date & Time** page.
3. Specify the time zone in which your StorPoint NAS operates. Refer to "*Time Zone Parameter Values*" on page 69.
4. To set the time using a time synchronization source, choose **Automatically** and specify the time source:

Network environment	Time Source:	You must also specify the ...
NetWare IPX	Novell Directory Services (NDS)	**Time Source** parameter on the Network Settings | NetWare page: - SAP or - List of server names.
NetWare PureIP NetWare/IP	Novell Directory Services (NDS)	**Time Source** parameter on the Network Settings | NetWare page: - List of server names or IP addresses.
TCP/IP	Network Time Protocol (NTP) *	**NTP Server** parameter on the Server Settings | Date & Time page: - Name or IP address of the time server.
Windows NT domains	Microsoft Windows NT Network (SMB)	

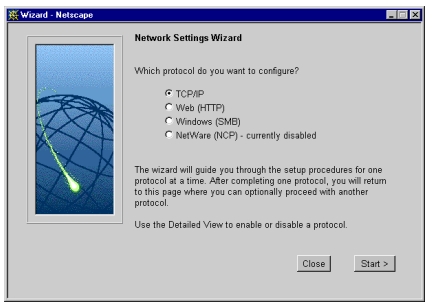
* **Note:** NTP is not natively supported by Windows NT servers. You will need third party software.

   To set the time manually, choose **Manually** and specify the date in `yy-mm-dd` format, and time in `hh:mm:ss` format using the 24 hour clock.
5. Click **Close**.

TCP/IP

The installation wizard is a convenient way to specify the Internet-related settings for your StorPoint NAS.

1. Click **Network Settings**.
2. Click **Wizard** . The **Network Settings Wizard** dialog appears.



3. Choose **TCP/IP.** Click **Start** to proceed with the installation.
4. Follow the instructions on the screen. When finished, click **Close**.
5. Click **Detailed View** . The **Protocols** dialog box appears.
6. Select the **TCP/IP** tab and verify the settings.
7. Click **OK**.

Notes:

- ❑ Context sensitive online help is available for all parameters.
- ❑ The parameter list is described in detail in "Appendix A - *Parameter List*" .

Section 3 Microsoft & IBM Networks (SMB)

This section outlines the required configuration settings for running your StorPoint NAS in the Microsoft and IBM (SMB) network environment, i.e. Windows 95/98/2000, Windows NT , Windows for Workgroups or OS/2. It also describes how to set up access restrictions.

If you are using your StorPoint NAS in a multiprotocol environment, proceed to the other relevant sections of the manual, namely:

- "Section 4 - *NetWare (NCP)*"
- "Section 5 - *UNIX (NFS)*"
- "Section 6 - *FTP*"
- "Section 7 - *Web Browser (HTTP)*"

Network Settings

You do not need to specify any specific settings before you can use your StorPoint NAS in the Windows (SMB) environment. However, you might want to change some of the default settings, e.g. the SMB server name. You can use the StorPoint NAS Administration Web pages for configuration.

SMB Server Name

The default SMB server name is AXIS<nnnnnn>, where <nnnnnn> are the last six digits of the StorPoint NAS serial number. This is the name that will be presented to the Windows clients on the network. You can change that name by editing the SMB Server Name parameter. It can be useful to choose a more descriptive name, e.g. in order to indicate where the unit is located.

Recommendation! Choose a more descriptive name for your server, e.g. NasServer.

SMB Protocols

SMB is a protocol that make use of NetBIOS. NetBIOS can be used over several different network protocols. StorPoint NAS supports the following transport methods:

- SMB over NetBIOS/TCP/IP (NBT) - max 1000 users
- SMB over NetBIOS/NetBEUI - max 300 users

Both protocols are enabled by default. However, you can disable the protocols by setting the appropriate configuration parameters.

Access Control

Access control is used for restricting access to the shared resources. In the Windows (SMB) environment you can select whether you want to use user-level or share-level access control.

User-level Access Control

User-level access control allows you to define access rights for resources based on as whom the user logged into the domain. Your StorPoint NAS will act as a "member server" in the Windows NT or OS/2 domains. It will verify the user's identity and group memberships against a domain controller on the network.

The advantages with this method are:

- The user is not required to answer to password prompts every time he/she needs to access a protected resource.
- The network administrator can administer the access rights for discs and volumes using Windows NT's standard administration tools.
- The network administrator can use the native user groups in the domain to set basic security.

Share-level Access Control

Share-level access control is based on different passwords for different shared resources. No verification with domain controllers will take place. This is a good method to use in smaller "workgroup based" networks when there is no domain controller.

Recommendation!

User-level access control is the preferred method to use in Windows NT server based networks.

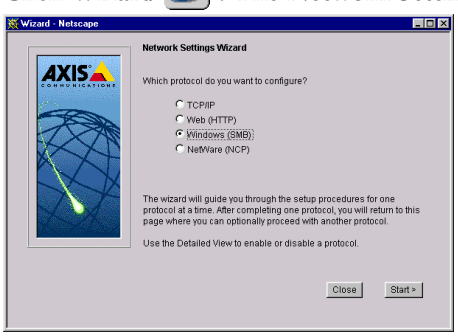
Wizard

The installation wizard is a convenient way to set up your StorPoint NAS for your Windows (SMB) environment. It will guide you through the following:

- Defining your server name and the workgroup/domain you want your StorPoint NAS to appear in.
- Defining how you want to control access to shared resources.

To run the wizard follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings**.
4. Click **Wizard**  . The **Network Settings Wizard** dialog appears.



5. Choose **Windows (SMB)**. Click **Start** to proceed with the installation.
6. Follow the instructions on the screen. When finished, click **Close**.
7. Click **Detailed View**  . The **Protocols** dialog box appears.
8. Select the **Windows (SMB)** tab and verify the settings.

9. Click **OK**.

Notes:

- ❑ Context sensitive online help  is available for all parameters.
- ❑ The parameter list is described in detail in "Appendix A - *Parameter List*" .

Access Control

The procedures for managing shares depends on the security mode you are using:

- User-level access control in Windows NT networks
- User-level access control in OS/2 networks
- Share-level access control

Verifying the Security Mode

To verify the security mode setting, follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings**.
4. Click **Detailed View**  . The **Protocols** dialog box appears.
5. Select the **Windows (SMB)** tab . If you want to change the Security Mode parameter, click **Change...**
6. Click **OK**.

Managing Shares in User-level Access Control

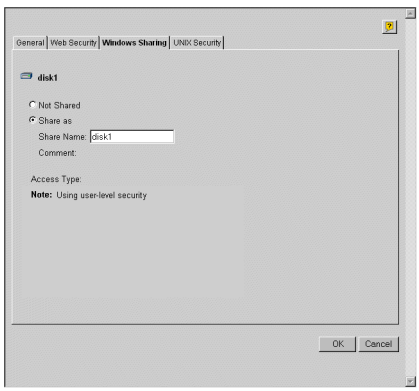
The system files are protected by default. All users that belong to the administrator groups in the domain have administrator rights on your StorPoint NAS. All members of the domain have full access to all hard disks.

Important! You cannot use Server Manager in Windows NT to manage the shares on StorPoint NAS.

Defining Shares

By default, all hard disks are shared automatically. If you want to change a share, i.e. remove it or change the name, follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`.
3. Click **File Properties**.
4. Locate the resource you want to share or protect in the file tree, and click **Properties**  . The **Properties** dialog box appears.
5. Open the **Windows Sharing** page.



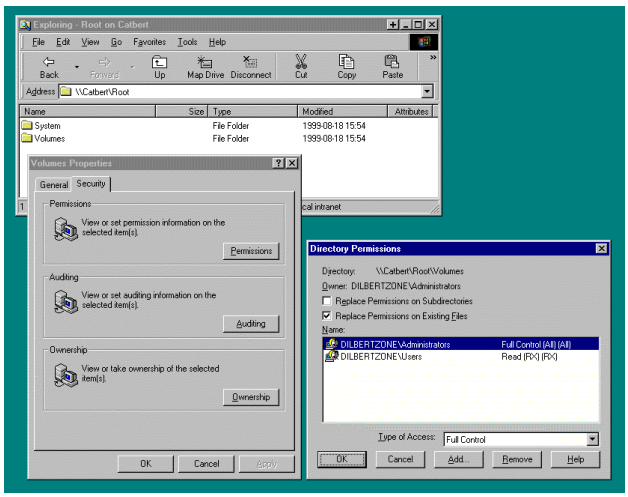
6. Select the **Share as** radio button, and enter a share name in the **Share Name** field.
7. Enter a comment in the **Comment** field.
8. Click **OK**.

Managing Access Rights in NT Environments

In Windows NT environments, access rights are managed from the Windows NT Explorer. It is **not** possible to manage access rights from the Windows 95/98 Explorer.

Follow these steps:

1. In the Windows NT Explorer, select the resource for which you want to change the access rights.
2. Select **Properties** from the **File** menu.
3. Select the **Security** tab, and click the **Permissions** button.



4. Set or change permissions for groups and users. Access rights work as in any other Windows NT 4 Server.
5. Click **OK**.

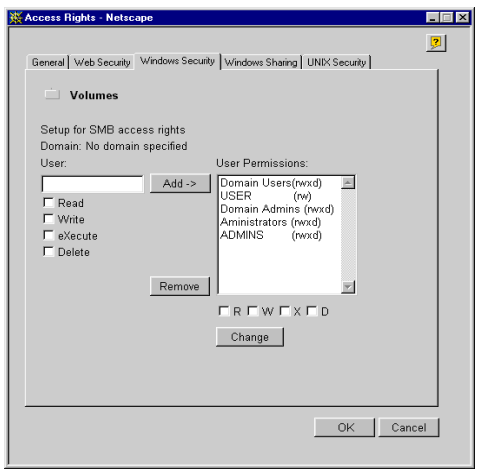
Notes:

- ❑ The built-in help in Windows NT 4 is a good place to start learning more about Windows NT security. See **access permissions: files, directories**.
- ❑ The access rights are additive which means that the user's access rights are the summary of the rights granted from individual assignments and group memberships.
- ❑ Files and subfolders created within the selected folder will automatically inherit the same access rights.

Managing Access Rights in OS/2 Environments

In the OS/2 environment, follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **File Properties**.
4. Locate the resource you want to protect in the file tree, and click **Properties**  . The **Access Rights** dialog box appears.
5. Open the **Windows Security** page.



6. Add permissions for the users and groups you want to grant access.

Notes:

- ❑ All users must belong to the same domain. All groups must be global, not local.
- ❑ The access rights are additive which means that the user's access rights are the summary of the rights granted from individual assignments and group memberships.
- ❑ Files and subfolders created within this folder will automatically inherit the same access rights.

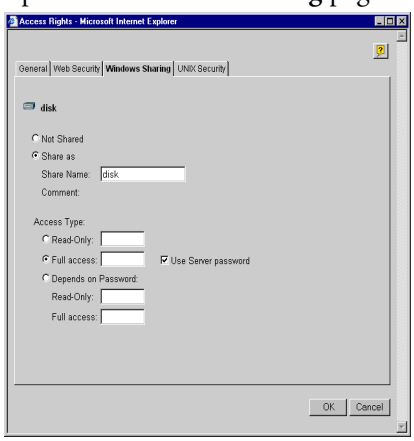
7. Click **OK**.

Managing Shares in Share-level Access Control

Share-level access control allows you to assign passwords to each shared resource on your StorPoint NAS. The user will automatically be prompted for the password when trying to access the resource. The user will then be granted access to the volume and all its subfolders.

By default, all hard disks are shared automatically. If you want to change a share, i.e. remove it or change the name, follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **File Properties**.
4. Locate the resource you want to share or protect in the file tree, and click **Properties**  . The **Access Rights** dialog box appears.
5. Open the **Windows Sharing** page.



6. Select the **Share as** radio button, and enter a share name in the **Share Name** field.
7. Specify the type of access you want the users to have:
   - **Read-Only** to enable users to open and copy documents.
   - **Full** to enable users to change, add or remove files.
   - **Depends on Password** to allow different types of access. Note that you must specify both password fields, otherwise the users will not be prompted for any password.

Note: ❑ The default setting is Full access with no password which means that all users have full access.

8. Click **OK**.

Section 4 NetWare (NCP)

This section outlines the required configuration settings for running your StorPoint NAS in the Novell NetWare environment and how to set up access restrictions.

StorPoint NAS supports a maximum of 1000 users in NetWare.

If you intend to use StorPoint NAS in a multiprotocol environment, proceed to the other relevant sections in this manual, namely:

- "Section 3 - *Microsoft & IBM Networks (SMB)*"
- "Section 5 - *UNIX (NFS)*"
- "Section 6 - *FTP*"
- "Section 7 - *Web Browser (HTTP)*"

Network Settings

StorPoint NAS emulates both a 5.x NDS server and a NetWare 3.x bindery server. It also supports NetWare/IP and PureIP. In NetWare 5 environments, StorPoint NAS can be integrated as any other 5.0 server simultaneously accessed via IPX, NetWare/IP and PureIP.

If your network supports TCP/IP, you can use the StorPoint NAS Administration Web pages for configuration.

NetWare Server Name

The default NetWare server name is AXIS<nnnnnn>_NW, where <nnnnnn> are the last six digits of the StorPoint NAS serial number. This is the name that will be presented to the NetWare clients on the network. You can change that name by editing the **NetWare Server Name** parameter. It is useful to choose a more descriptive name, e.g. in order to indicate where the unit is located.

Recommendation!

Choose a more descriptive name for your server, e.g. NasServer.

Time Synchronization

Make sure you specify the time synchronization source properly. Refer to "*Date & Time*" on page 25.

Installation as an NDS Server

If used as an NDS server, your StorPoint NAS must first be installed in the NDS tree. The most convenient way to do this is using the installation wizard available from the StorPoint NAS Web interface, see "*Wizard*" on page 35.

However, if you do not have TCP/IP, you must use a text editor and edit the configuration file manually. Refer to "*Text Editor*" on page 36.

Important!

- If you change any of the following parameters after installing your StorPoint NAS in the NDS tree, you might need to repeat the installation:
  - IP address
  - Internal Net Address
  - IPX Enable
  - PureIP Enable

Requirements

When installing the **first** StorPoint NAS into the NDS tree, it is recommended that you use an account with Supervisor rights to the [Root] of the tree. This means that the user specified in the NDS Admin Name parameter must have Supervisor access rights.

StorPoint NAS will extend the NDS Schema with a new attribute called `AXIS:SPcd:rights` which will be added to the NDS Server object class. The extension is needed for storing configuration data. StorPoint NAS also becomes easier to administrate and more fault tolerant to changes in your NDS tree.

The new attribute will not affect the operation of your NetWare servers.

Notes:

- Adding the schema extension requires Supervisor rights to the [Root] object of the NDS directory tree.
- If you do not have Supervisor rights to [Root] or if schema extensions are not allowed in your NDS tree, you can store the access rights in a file on a NetWare file server. However, you must specify the NDS Rights Storage and NDS Rights File parameters properly. You will need Admin rights to the Organizational Unit (OU). After the NDS installation, you must create and assign access rights to the directory on the Novell file server where the file is stored.

For **subsequent** installations, Create rights to the context where you want to install StorPoint NAS will be sufficient.

Wizard

The installation wizard is a convenient way to install your StorPoint NAS in the NetWare environment.

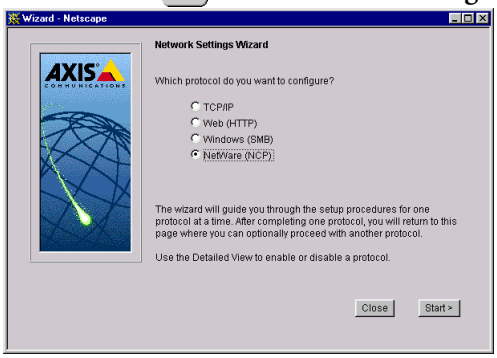
1. Verify that the NDS tree is synchronized. To do that, you load `DSREPAIR.NLM` on a NetWare server console in the NDS tree and select `Unattended full repair`.

Important!

- If the NDS tree is not synchronized, do not continue the installation until you have solved the problem.

2. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
3. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
4. Click **Network Settings**.

5. Click **Wizard** . The **Network Settings Wizard** dialog appears.



6. Choose **NetWare (NCP)** to set up StorPoint NAS for your NetWare clients. Click **Start** to proceed with the installation.
7. Follow the instructions on the screen. When finished, click **Close**.
8. Click **Detailed View** . The **Protocols** dialog box appears.
9. Select the **NetWare (NCP)** tab and verify the settings.
10. Click **OK**.

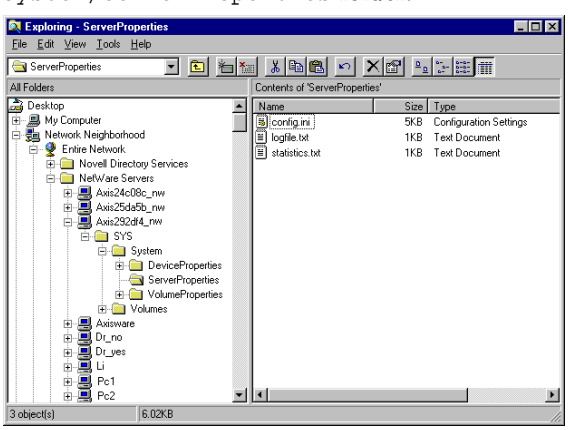
Notes:

- ❑ Online help is available for all parameters.
- ❑ The parameter list is described in detail in "Appendix A - *Parameter List*" .

Text Editor

If you do not have TCP/IP on your network, follow these steps to install your StorPoint NAS as an NDS server:

1. Login as Supervisor in bindery mode.
2. Verify that the NDS tree is synchronized.
3. Use a standard text editor such as Notepad to edit the configuration parameters. From Windows Explorer or File Manager, locate the StorPoint NAS configuration file, `config.ini` which is located in the `System/ServerProperties` folder.



4. Enter the appropriate settings for these parameters:

Parameter name	Value	Description
[Server]		
TimeZone	=	Must be set to the correct time zone that the StorPoint NAS is operating in. See "*Time Zone Parameter Values*" on page 69.
TimeSyncSource	= NDS	Set to *NDS* to enable StorPoint NAS to get its time from the NetWare network. Default is *NDS*.
[NetWare]		
IPXEnable	= yes	Set to *yes* to enable the IPX protocol.
PureIPEnable	= no	Set to *no* to disable PureIP for non-TCP/IP networks.
NDSEnable	= yes	Must be set to *yes* to enable the NDS login.
NDSTreeName	=	The name of the tree where you want to install StorPoint NAS, e.g. *MEDCORP*
NDSServerContext	=	The distinguished name of the context in the NDS tree where you want to install StorPoint NAS, e.g. *Manufacturing.Medtec*
NDSAdminName	=	The distinguished name of a user or administrator with Supervisor or Create rights to the context where you want to install StorPoint NAS, e.g. *Admin.Medtec*
NDSAdminPassword	=	The password of the administrator entered in NDSAdminName shown above. Once written, this password will appear as ******.
NDSInstall	= install	Change this to *install* when you are ready to install StorPoint NAS. The setting f*orced* will overwrite the existing server object without warning.
NDSRightsStorage	= NDS	Set to *NDS* to store the access rights in the NDS tree. Set to *File* to store the access rights in a file on the Novell server. This is necessary if you do not allow schema extensions in your NDS tree, or if you do not have Supervisor access rights.
NDSRightsFile	=	If storing the access rights in a file on the Novell file server, specify the whole path to the file, e.g. *CORPSERVER/SYS:NASSERVER/NASSRV.DAT* The specified directory must exist and StorPoint NAS must have Read, Write, Create, Erase, Modify and File Scan rights. StorPoint NAS will create the file once you start adding trustees.
TimeSyncSources	= SAP	Default is *SAP* for the network agreed time. Alternatively, enter a list of server names to be contacted for time synchronization.

Example (NDS settings):
Your StorPoint NAS is placed in Eastern United States. The name of your NDS tree is ACMECORP, the name of the context where you wish to install the StorPoint NAS is Corp.Acme, and the administrator's name is Admin.Acme. You specify these settings:

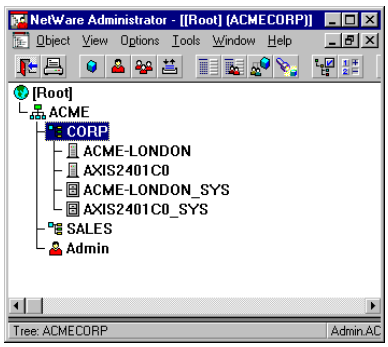
```
[Server]
TimeZone              = US_CAN_Eastern
TimeSyncSource        = NDS
...
[NetWare]
NDSEnable             = yes
IPXEnable             = yes
PureIPEnable          = no
NDSTreeName          = ACMECORP
 NDSServerContext     = Corp.Acme
 NDSAdminName         = Admin.Acme
 NDSAdminPassword     = secret
 NDSInstall           = install
 NDSRightsStorage     = NDS
 TimeSyncSources      = SAP
```

5. Save the `config.ini` file to start the NDS server installation. The installation takes about 15 seconds, after which users will be able to access your StorPoint NAS in NDS mode.

6. Check the `logfile.txt` file to verify that your StorPoint NAS was successfully installed. See "*Installation Errors in NetWare NDS*" on page 39.

7. After the installation you must logout and then login again to have all the necessary rights on the StorPoint NAS server object and the associated volume.

   Using the NWAdmin, you will find a new server object and corresponding volume object in the context you chose above.



StorPoint NAS installed in the NDS Tree

Note:

- You can display Details in NWAdmin to verify the syntax of the `NDSServerContext` and `NDSAdminName` parameters.

Deleting the Server Object

If using the partition manager within NWAdmin to delete the server object from your NDS tree, you must turn off your StorPoint NAS and keep it turned off for 5 minutes before deleting the object. If you do not turn off the server before attempting to delete the server object, your client workstation will hang and you will have to reboot your PC. However, when using NDS manager this is not needed.

Installation Errors in NetWare NDS

If you experience problems when installing your StorPoint NAS in a NetWare NDS network, errors that occur will be written to a file named `logfile.txt` located in the `System/ServerProperties` folder. You can display the log file on the **Event Log** page within the StorPoint NAS Web interface.

This table comprises a summary of error messages:

Error	Description
Installation failed: NDS tree not found	The server could not find the NDS tree. Verify the spelling.
Installation failed: Administrator object missing	The server could not find the user object specified in the `NDSAdminName` parameter. Verify that you use the correct format, e.g. *admin.acme*. Verify the spelling.
Installation failed: Administrator password is incorrect	The password supplied in the `NDSAdminPassword` password could not be used to login as the user in the `NDSAdminName` parameter. Verify the spelling.
Installation failed: Server context not found	The context specified in the `NDSServerContext` parameter was not found. Verify the spelling.
Installation failed: Insufficient rights to create server object	The specified user in the `NDSAdminName` parameter does not have sufficient rights to create the server object in the specified context.
Installation failed: NDS Server object already exists	You have tried to install the server on top of an existing server object. Set the `NDSInstall` parameter to *forced* to overwrite the existing object.
Installation warning: Could not extend NDS Schema. User xxxxx doesn't have SUPERVISOR rights to the [Root] object.	The administrator who is trying to install the server has insufficient rights for adding the schema extension. Specify a `NDSAdminName` with Supervisor rights to the [Root] object.
Installation warning: Could not extend NDS Schema (class 1) Installation warning: Could not extend NDS Schema (class 2) Installation warning: Could not extend NDS Schema (attribute)	These errors are the result of insufficient rights of the administrator trying to install the server. Specify a `NDSAdminName` with Supervisor rights to the [Root] object.

Installation as a Bindery Server

If used as a bindery server, no specific installation is required prior to using and accessing your StorPoint NAS. However, it is recommended that you specify the authentication server.

Access Control

The way you manage security in NetWare depends on the mode you are using:

- Bindery mode without user authentication
- Bindery mode with user authentication
- NDS mode

StorPoint NAS acts as a normal NetWare file server, which means that you use standard procedures such as NWAdmin, SYSCON and Filer for handling security in NetWare.

Note:

- ❑ You cannot set up access restrictions for the NetWare environment via the StorPoint NAS Web interface.

Access Restrictions in NetWare NDS

In NetWare, access rights for users in bindery mode is separate from users accessing StorPoint NAS in NDS mode. For this reason, we recommend that you disable bindery mode after you have successfully installed your StorPoint NAS in NDS and thus allow users to log on in NDS mode only.

Note:

- ❑ If NDS mode is not functioning, you can always access your StorPoint NAS in bindery mode by logging in as Supervisor. This is true even if you have disabled bindery mode.

Default Access Rights

The default access rights protect all the system files, which means that only users with Supervisor privileges on your StorPoint NAS have access to those files. However, all users logged into NDS can access the volumes. These access rights are set up by the following trustee assignments:

- The Supervisor right from the NDS tree is inherited to all the volumes on your StorPoint NAS. All users who have Supervisor privileges in the context in which your StorPoint NAS was installed will also have Supervisor privileges on your StorPoint NAS.
- The root of the SYS volume has [Public] as trustee, with File Scan, Read, Write, Create, Modify and Erase rights.
- The System folder has all rights, except Supervisor, filtered. Thus all system files are effectively protected from normal users.

Notes:

- ❑ If the default security is satisfactory to your system, simply do not change anything.
- ❑ You can change the default trustee assignments using NWAdmin.

Setting Security Rights in NetWare NDS

Because your StorPoint NAS acts as a normal NDS file server, its NDS security rights can be set using standard procedures, e.g. NWAdmin.

To make **all the volumes** available to some users only, follow these steps:

1. Login as **Admin**, and start the NWAdmin.
2. Remove the [Public] trustee from the root of the SYS volume.

3. Add the new trustee assignments to the root of the SYS volume.

To restrict access to a **particular volume**, follow these steps:

1. Login as **Admin**, and start the NWAdmin.
2. On the resource you want to protect, set an inherited rights filter and filter ALL rights.
3. Add the new trustee assignments to the resource. This makes it available only to the users in the trustee list.

Note:

- The NetWare NDS access rights for your StorPoint NAS can be set using Security Equivalence, Group, Container, Organization role, and User Objects as with any other NDS file server. There is no difference between how you use NWAdmin to set these access rights for a StorPoint NAS, and how you would set the access rights on an NDS file server.

NetWare Bindery Without Authentication

If user authentication is not required, you do not have to specify an authentication server. The Supervisor can login using the Server password. Other users can login without password and will be considered to belong to the EVERYONE group.

No NetWare server licenses are required since a StorPoint NAS does not log on to the file server.

If needed, you can use your standard NetWare administration tool, e.g. Filer, to limit access to the StorPoint NAS system files to the Supervisor. Unauthorized users will still have guest access to the volumes. This is normally sufficient security for a StorPoint NAS.

NetWare Bindery With Authentication

If user access control is required, you must specify an authentication server in the Authentication Server (Bind Authentication) parameter. Your StorPoint NAS will need to log on to the authentication server in order to authenticate the user and read which groups the user belongs to. In this case, the authentication server must have a standby license for StorPoint NAS. However, several StorPoint NAS servers can share this license.

Important!

- If "Station Restrictions" are used on the Novell server used for authentication, each user who wants to access StorPoint NAS need at least two concurrent connections to the authentication server.

If a license is not available, the user will still be authenticated but group information cannot be read.

The authenticated users can access the volumes according to the access rights set up by the administrator.

The authentication procedure will not introduce any extra administrator overhead as there is no need for maintaining a separate user database for StorPoint NAS. If the user is defined in the file server that StorPoint NAS uses for authentication, the user will automatically have access to StorPoint NAS.

Authentication to a NetWare 3.x Server

For access to a StorPoint NAS connected to a NetWare 3.x server, authentication is done against the user list in the bindery of the NetWare server:

- If a user is on the list, the password will be verified. If the password is correct, the user will be granted access.
- If the password is incorrect, login will fail.

If a user is not on the list, he will not be granted access to StorPoint NAS. However, he could login as 'guest' and get access to volumes that are not protected.

Default Access Rights

The default access rights in NetWare bindery mode are set up by the following trustee assignments:

- The root of the SYS volume has [EVERYONE] as trustee, with File Scan, Read, Write, Create, Modify and Erase rights.
- The System folder has all rights, except Supervisor, filtered. Thus all system files are effectively protected from normal users.

Note:

- ❑ You can use Filer to change the default access rights.

Setting Security Rights in NetWare Bindery

The security rights can be set using standard procedures, e.g. Filer.

To make **all the volumes** available to some users only, follow these steps:

1. Login as **Supervisor** on your StorPoint NAS. In order for Filer to access StorPoint NAS, the client must have an active connection.
2. Login as **Supervisor** on your NetWare Bindery file server and start Filer.
3. Change the current directory to AXIS<nnnnnn>_NW/SYS:.
4. Remove the [EVERYONE] trustee from the root.
5. Add a new trustee assignment to the root.

To restrict access to a **particular volume**, follow these steps:

1. Login as **Supervisor** on your StorPoint NAS. In order for Filer to access StorPoint NAS, the client must have an active connection.
2. Login as **Supervisor** on your NetWare Bindery file server and start Filer.
3. Change the current directory to AXIS<nnnnnn>_NW/SYS:.
4. On the resource you want to protect, set an inherited rights filter and filter ALL rights.
5. Add the new trustee assignment to the resource. This makes it available only to the users in the trustee list.

Note:

- ❑ The NetWare bindery access rights for a StorPoint NAS can be set using Group and User Objects as with any other file server.
- ❑ You can always access your StorPoint NAS using the user name Supervisor and the password specified by the Server Password parameter. By default the password is `pass`.

Section 5 UNIX (NFS)

This section outlines the required configuration settings for running your StorPoint NAS in the UNIX (NFS) environment and how to set up access restrictions.

Note: ❑ Make sure you have set the Internet address as described in "*Assigning an IP Address*" on page 12.

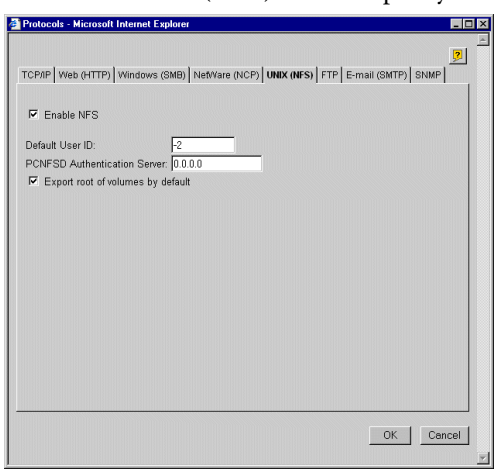
If you are using StorPoint NAS in a multiprotocol environment, proceed to the other relevant sections of the manual, namely:

- "Section 3 - *Microsoft & IBM Networks (SMB)*"
- "Section 4 - *NetWare (NCP)*"
- "Section 6 - *FTP*"
- "Section 7 - *Web Browser (HTTP)*"

Network Settings

Use the Administration pages within the StorPoint NAS Web interface for configuration.

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings**.
4. Click **Detailed View**  . The **Protocols** dialog box appears.
5. Select the **UNIX (NFS)** tab and specify the settings.



6. Click **OK**.

Important!

- File locking does **not** apply to NFS clients. For example, when NFS is enabled, a user can open, edit and save a file regardless if the file is in use by another client.

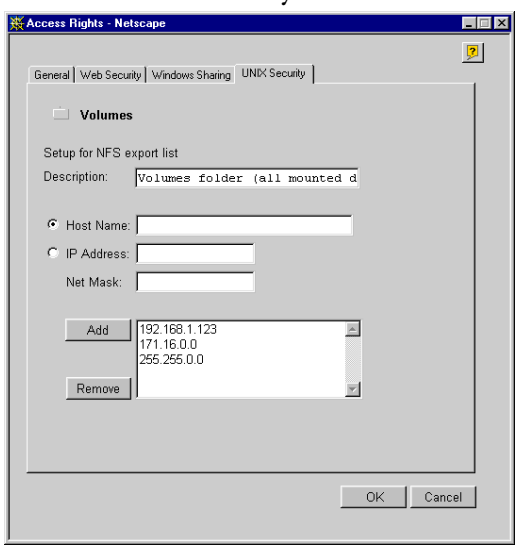
Notes:

- Context sensitive online help is available for all parameters.
- The parameter list is described in detail in "Appendix A - *Parameter List*" .

Access Control

To grant access to the StorPoint NAS resources in the UNIX (NFS) environment, you add clients with specific host names or IP addresses to the NFS export list. You can also specify a range of IP addresses.

1. From within the Administration Web pages, click **File Properties**.
2. Locate the resource you want to protect in the file tree, and click **Properties**. The **Access Rights** dialog is opened.
3. Select the **UNIX Security** tab.



4. Choose whether you want to add a host name or an IP address.
5. Click **Add** to add the new entry to the NFS export list.
6. Click **OK**.

Notes:

- When specifying a host name, you can use these wildcards:

  * which represents any number of characters, except dots (...). A single * implies any host name.

  ? which represents one character, except dot (.).

  Simply * implies any host name. However, * and ? cannot represent a dot (.) when used within names.

- ❑ You can specify a IP address/subnet mask pair in order to export the resource to a IP subnetwork.

7. Click **Add** to add the new entry to the NFS export list.
8. Click **OK**.

Note: ❑ Per file access control is configured by using native utilities such as chown, chgrp and chmod, on the mounted exports.

Mounting Your StorPoint NAS

StorPoint NAS integrates into your network operating system just like any other file server. Thus you can use standard commands to access it.

To access the hard disks from your UNIX applications, you must first mount your StorPoint NAS to make the data available to your system. Some applications will not run properly unless the data is located at root level. Volumes that include such applications must therefore be individually mounted.

Note: ❑ You will need root privileges to mount StorPoint NAS.

To access the StorPoint NAS resources from a UNIX client, follow these steps:

1. Create a directory for StorPoint NAS.

```
mkdir <directory>
```

Example:

```
mkdir /storpoint_sales_dept
```

2. Display the export list.

```
showmount -e <IP address>
```

3. Mount the resource.

```
mount <IP address>:<resource> <directory>
```

where `<IP address>` is the IP address or host name

Example 1 (Root):

```
mount 192.16.253.80:/ /storpoint_sales_dept
```

Example 2 (Volumes directory):

```
mount 192.16.253.80:/volumes /storpoint_sales_dept
```

Example 3 (Hard disk):

```
mount 192.16.253.80:/volumes/statistics
/storpoint_sales_dept
```

Notes:

- To increase performance, you can set the buffer size to 8192 as an option in the mount command on most UNIX systems, e.g.

```
mount -o rsize=8192 <IP address>:<resource>
<mountpoint>
```

Different UNIX systems may have different mount command options. Refer to the manual page on the client system.

Section 6 FTP

This section describes how to configure StorPoint NAS for FTP.

StorPoint NAS can be used as an FTP server, i.e. it is possible to use the File Transfer Protocol (FTP) to put and get files. You can use FTP for:

- Upgrading the firmware
- Accessing the mounted volumes

Note: ❑ The FTP protocol is always enabled in StorPoint NAS.

The following FTP commands are supported:

```
get       put       dir       cd        pwd
mkdir     rd        delete
```

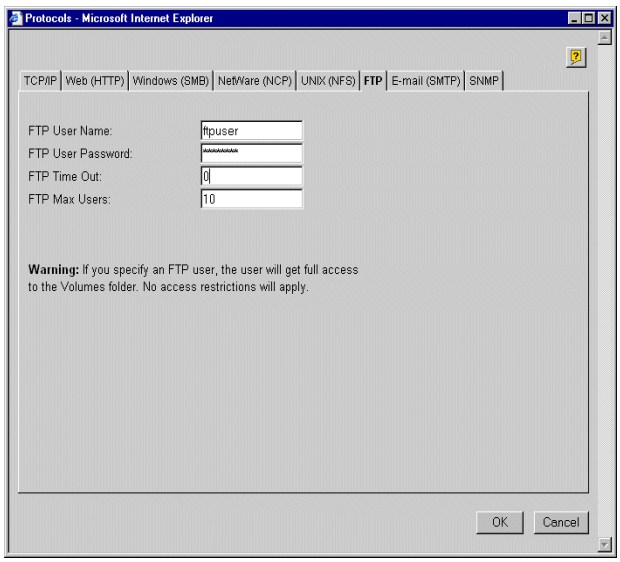
If you intend to use StorPoint NAS in a multiprotocol environment, proceed to the other relevant sections in this manual, namely:

- "Section 3 - *Microsoft & IBM Networks (SMB)*"
- "Section 4 - *NetWare (NCP)*"
- "Section 5 - *UNIX (NFS)*"
- "Section 7 - *Web Browser (HTTP)*"

Network Settings

Use the Administration pages within the StorPoint NAS Web interface to specify the FTP settings. Follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings**.
4. Click **Detailed View**  . The **Protocols** dialog box appears.
5. Select the **FTP** tab to display the **FTP** protocols dialog.



6. Optionally specify an alternative **FTP User Name** and **FTP User Password**. If you leave the fields empty, only the Server password can be used for logging in to your StorPoint NAS via FTP.

   Other optional settings for FTP are:

   - **FTP Time Out**, which specifies the time in seconds of inactivity after which an FTP session is closed down.
   - **FTP Max Users**, which specifies the maximum number of simultaneous FTP sessions.
7. Click **OK**.

Notes:

- ❑ Context sensitive online help  is available for all parameters.
- ❑ The parameter list is described in detail in "Appendix A - *Parameter List*" .

Access Control

You can always use the user name `root` in combination with the Server password for logging in to your StorPoint NAS via FTP. This will grant access to all the resources in the **Volumes** folder, all the configuration files in the **System** folder and flash loading. This type of access is intended for the Administrator only.

However, if you want users to have the possibility to log in via FTP, you can specify an alternative FTP user name and password on the **Network Settings - FTP** page. When users log in to StorPoint NAS using this user name, they will get unlimited access to the **Volumes** folder, but no access to the **System** folder.

Warning!

- A user logging in with the FTP user name and password will automatically get access to the **Volumes** folder, i.e. all the hard disks and their contents. **No** access restrictions will apply.

Section 7 Web Browser (HTTP)

This section describes how to configure your StorPoint NAS for use via its Web interface.

StorPoint NAS supports HTTP over TCP/IP, which means that it works as a Web server available on the Internet and intranets.

If you are using StorPoint NAS in a multiprotocol environment, proceed to the other relevant sections of the manual, namely:

- "Section 3 - *Microsoft & IBM Networks (SMB)*"
- "Section 4 - *NetWare (NCP)*"
- "Section 5 - *UNIX (NFS)*"
- "Section 6 - *FTP*"

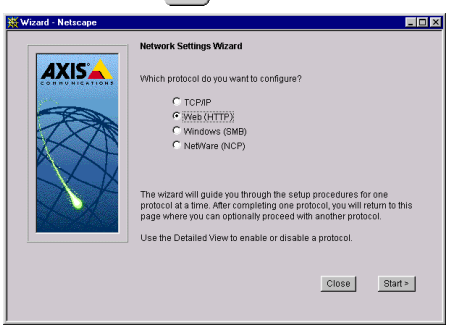
Network Settings

You use the StorPoint NAS Administration Web pages for configuration.

Wizard

The installation wizard is a convenient way to set up your StorPoint NAS for your network environments.

1. Click **Network Settings**.
2. Click **Wizard** . The **Wizard Network Settings** dialog appears.



3. Choose **Web (HTTP)**. Click **Start** to proceed with the installation.
4. Follow the instructions on the screen. When finished, click **Close**.
5. Click **Detailed View** . The **Protocols** dialog box appears.
6. Select the **Web (HTTP)** tab and verify the settings.
7. Click **OK**.

Notes:

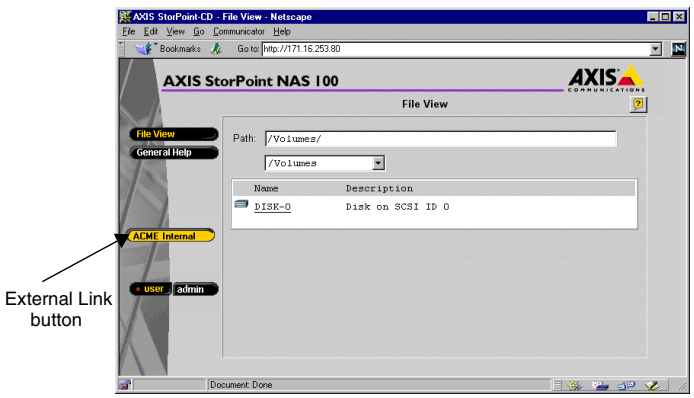
- ❏ Context sensitive online help is available for all parameters.
- ❏ The parameter list is described in detail in "*Parameter List*" on page 65.

External Link

You can add a customized link on the Home Page. For example, you might want to provide a link to a page on your company's intranet with guidelines on how to use the hard disks.

Follow these steps:

1. Click **Network Settings**.
2. Click **Detailed View**  .
3. Select the **Web** (**HTTP**) tab.
   - In the URL to Page field, specify the full path to the page, e.g. `http://www.company.com`.
   - In the URL to Image field, optionally specify a link to an image to be used as a button for the customized link. Specify the full path, e.g. `http://www.company.com/images/image.gif`, or the path relative to the URL of the page, e.g. `images/image.gif`. If you leave the field blank, a standard button will be used.



Access Control

All users will always have access to the StorPoint NAS Home Page. However, individual resources can be protected by password. If required, you can limit Web browser access to the Administration pages only.

Use the Administration pages within the StorPoint NAS Web interface for access control. Refer to "*The StorPoint NAS Web Interface*" on page 21.

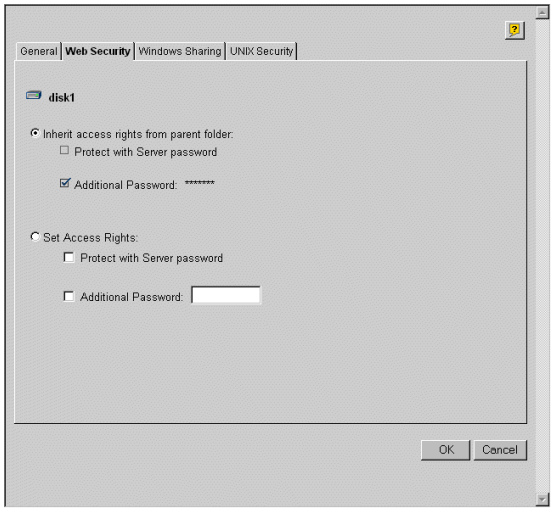
Note: ❑ The Server password implies full access to StorPoint NAS, regardless any additional password set for any hard disk or folder.

File Properties

To restrict user access to a particular resource:

1. Click **File Properties**.
2. Locate the resource you want to protect in the file tree.
3. Click **Properties**  . The **Access Rights** dialog appears.

4. Open the **Web Security** page.



5. Select **Set Access Rights**. Optionally specify an additional password. Note that the Server password is always valid. By default, access rights are inherited from the parent folder.
6. Click **OK**.

Disable User Access

On the **File View** page, you can either show all the volumes or none. The default value is all. To disable user access from the Web browser and thus limit access to the Administration pages only, follow these steps:

1. Click **Network Settings**.
2. Click **Detailed View**  .
3. Select the **Web** (**HTTP**) tab.
4. Uncheck the **Enable access to volumes via Web browser** (**HTTP**) check box.
5. Click **OK**.

Section 8 Managing the Hard Disks

This section includes information about:

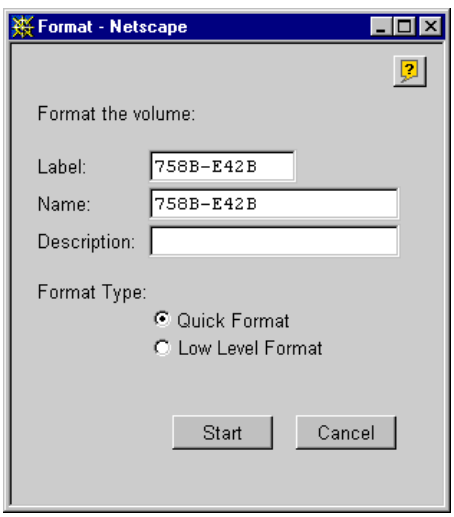
- Formatting
- Disk mirroring (RAID-1)
- Error checking

Formatting

StorPoint NAS formats the hard disks for UDF.

To format a hard disk, follow these steps:

1. Start the Web browser.
2. Enter the name or IP address of your StorPoint NAS in the location/address field.
3. Click **admin**. You will be prompted for User Name and Password. By default this is set to `root` and `pass` respectively.
4. Click the icon that corresponds to the hard disk you want to format.
5. Click **Format**.



6. Optionally, specify the volume label and volume name.
7. Select the format type. Two format types are available:
   - **Quick Format** - This is the format you would normally use.
   - **Low Level Format** - Use this format if you want to erase all data on a hard disk completely. This may take several hours depending on the hard disk size.
8. Click **Start**.

Note: ❑ If you omit the volume label or volume name, these will be set to the default name which is the hard disk serial number.

Disk Mirroring (RAID-1)

StorPoint NAS supports RAID-1 (disk mirroring), which means that the hard disks can be matched in pairs with identical images. Whenever an update is made to one of the disks, StorPoint NAS will automatically duplicate that update to the second disk.

If one of the disks should fail, the data will still be intact and accessible on the other disk. The user will never notice any disturbance. The StorPoint NAS can be configured to send an e-mail to the administrator containing information about the failed disk.

Using RAID-1

To use the RAID-1 functionality, at least two hard disks must be connected to your StorPoint NAS. One of the hard disks must be empty and formatted for UDF. It must be of the same size or larger than the other disk.

To enable RAID-1, follow these steps:

1. Start the Web browser.
2. Enter the name or IP address of your StorPoint NAS in the location/address field.
3. Click **admin**. You will be prompted for the Server Password. By default, this is set to `pass`.
4. On the **This StorPoint** page, click **Settings** and select the **RAID** tab.
5. By default, all the disks are available as JBOD volumes. Uncheck the disks that you want to be used for RAID-1.
6. Click **Match Disks**.

The StorPoint NAS will now match the disks and start to make identical images in pairs. The number of available volumes will be reduced with the number of pairs that were matched. The automatic selection is based on disk size to match disks closest in size, and the result is displayed on the Web page.

Immediately after matching the disks, StorPoint NAS will start to make the pairs identical. During this process the SCSI LED is alternating between green and amber. While creating identical images, the hard disks can be accessed for both reading and writing.

Note: ❑ Existing RAID-1 pairs are not effected when new disks are added.

Removing RAID Pairs

To break up a pair of mirrored disks, follow these steps:

1. Within the Administration Web pages, open the **This StorPoint** page.
2. Click on the disk icon that corresponds to the volume you want to remove.
3. Click **UnRAID**.

One of the disks will remain intact and be available under the volume name used for the mirrored pair. The other disk will be formatted and available under its default name.

Replacing a Failed Hard Disk

In case a hard disk fails during operation, this will be registered in the event log and an e-mail will be sent to the administrator - if your StorPoint NAS has been set up to do this. Refer to "*E-mail (SMTP)*" on page 60.

To replace the failed disk, follow these steps:

1. Within the Administration Web pages, open the **This StorPoint** page. Click the **Shutdown Server** button to perform a proper shutdown.
2. Turn off the StorPoint NAS tower.
3. Replace the failed hard disk with another of the same or larger size, and with the same SCSI ID.
4. Turn on the StorPoint NAS tower.
5. On the **This StorPoint** page, click the icon that corresponds to the new hard disk.
6. Click the **Format** button.
7. Select **Quick Format**, and click **Start** to format the new disk with UDF.
8. On the **This StorPoint** page, click the **Settings** button, and select the **RAID** tab.
9. Uncheck the new hard disk and click the **Match Disks** button.

Notes:

- A hard disk will fail if the StorPoint NAS has failed writing the same block of data to the hard disk five times. This will be logged in the event log and a critical message will be sent from the StorPoint NAS to the administrator via e-mail. The faulty hard disk will be dismounted and excluded from use.
- In case of read errors, both disks will continue being used. The read error will be logged in the event log and a warning will be sent from the StorPoint NAS to the administrator via e-mail.
- Read and write errors will be listed on the **Statistics** page.

Error Checking

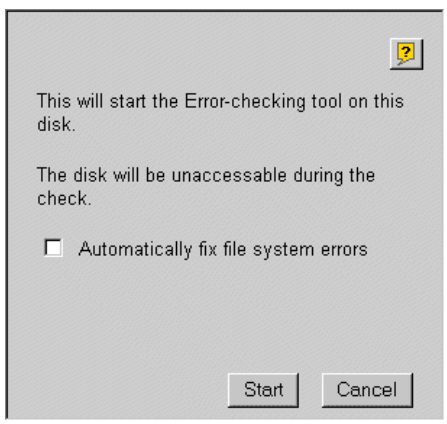
In case StorPoint NAS has not been properly shut down, for example caused by an unexpected power failure, the hard disk file structure may become damaged. In this case, a message will appear in the Event Log, and optionally an e-mail notify the administrator.

StorPoint NAS also includes an error checking tool for finding out whether a hard disk has been corrupt. This tool will first check the hard disk for errors and in case any errors are detetcted, the tool can also repair the hard disk.

Note: ❑ Normally, the repair tool will succeed in repairing the file system on the hard disk. However, you risk losing damaged data during the process. It is therefore advisable to create a backup copy of the hard disk before carrying out the repair.

To check an hard disk for errors, follow these steps:

1. Start the Web browser.
2. Enter the name or IP address of your StorPoint NAS in the location/address field.
3. Click **admin**. You will be prompted for User Name and Password. By default this is set to `root` and `pass` respectively.
4. Click the icon that corresponds to the hard disk you want to check.
5. Click **Error-checking**.



6. Check **Automatically fix file system errors** to have any detected erros repair the errors automatically.
7. Click **Start** to start the error check.

Note: ❑ If you do not check the **Automatically fix file system errors** checkbox, only a hard disk check will be performed. The results will be written to the Event Log.

Section 9 Monitoring StorPoint NAS

This section describes the following monitoring tools:

Event Log

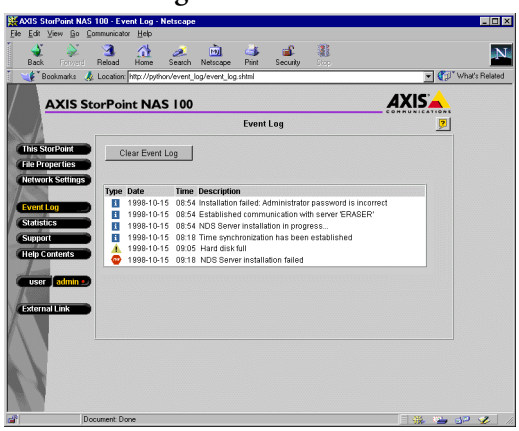
In the event log, StorPoint NAS writes information such as:

- Information, e.g. completed tasks, error checking results
- Warnings, e.g. hard disk full
- Errors, e.g. installation failures, hard disk failures

The event log is stored in the `logfile.txt` file located in the `System/ServerProperties` folder.

To display the event log from the StorPoint NAS Web interface, follow these steps:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`.
3. Click **Event Log**.



All events are viewed in the same order as they entered the log.

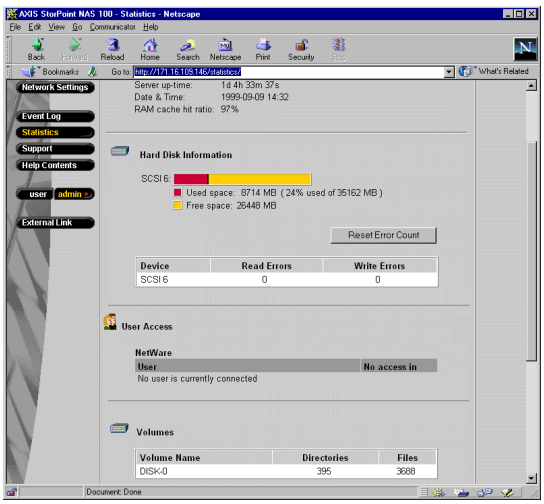
Notes:

- ❏ If a synchronization source has been found or if the correct date and time have been set manually, date information will appear in the log file.
- ❏ When the server is restarted, a sub-set of critical events will remain in the event log.
- ❏ Click **Clear Event Log**, to clear the event log of events.

Statistics

To display the statistics:

1. Start your Web browser, and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Statistics**.



StorPoint NAS presents statistics such as:

- Server up-time
- Cache hit ratio in the RAM cache
- Available space on the attached hard disks
- List of users who are currently connected to your StorPoint NAS in each particular network environment
- List of hard disks and the number of files and folders on these.

E-mail (SMTP)

StorPoint NAS can be set up to notify the administrator by e-mail in case of certain occurrences such as hard disk failures etc.

To specify the settings for your e-mail facilities:

1. Start your Web browser and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings** within the Administration Web pages.
4. Click **Detailed View**  . The **Protocols** dialog box appears.
5. Select the **E-mail (SMTP)** tab. Specify the settings for the mail server.
6. Enter the administrator's e-mail address.
7. Select the required log events from the **Mail Log Events** drop down list. The selected log events will be sent to the e-mail address specified above. Click **OK**.

SNMP

You can use SNMP (Simple Network Management Protocol) for remote monitoring of StorPoint NAS.

General Information

SNMP refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The StorPoint NAS SNMP implementation runs in the TCP/IP environment.

The management is handled by NMS (Network Management System) software running on a host on your network. The NMS software communicates with network devices by the means of messages, which are references to one or more objects.

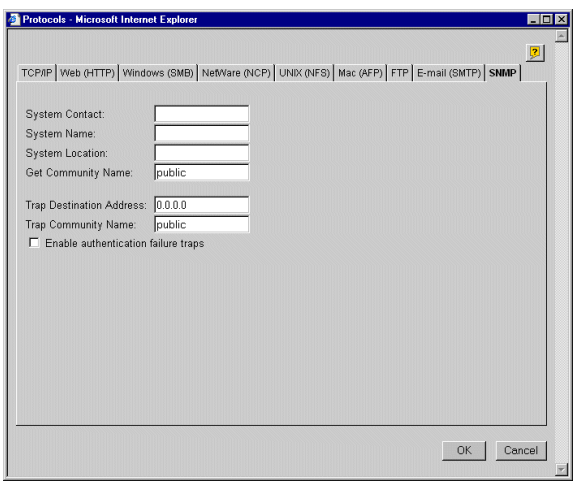
A message can be a question or an instruction to a device, or an alarm triggered by a specific event in a device. Objects are contained in data bases called MIBs (Management Information Base), where MIB-II is a standard database.

StorPoint NAS supports all relevant parts of MIB-II.

SNMP Settings

To configure your StorPoint NAS for SNMP:

1. Start your Web browser and enter the name or IP address of your StorPoint NAS in the location/address field.
2. Click **admin**. You will be prompted for the user name and password. By default, these are set to `root` and `pass`. To change the Server password, see "*Server Password*" on page 24.
3. Click **Network Settings**.
4. Click **Detailed View**  .
5. Select the **SNMP** tab.



6. Specify the settings, and click **OK**.

AXIS ThinWizard

AXIS ThinWizard provides a convenient interface for locating and managing all the AXIS servers on your network. AXIS ThinWizard runs on Windows NT, Windows 95/98 and UNIX.

Note:

- AXIS ThinWizard requires the IP address of your StorPoint NAS to be set. Refer to "*Assigning an IP Address*" on page 12.

Installing AXIS ThinWizard

The AXIS ThinWizard is included on the AXIS Online CD. The required software can also be downloaded from the Axis Web Site free of charge. An installation wizard will guide you through the installation procedures.

Accessing AXIS ThinWizard

Follow these steps to access the AXIS ThinWizard:

1. Make sure an AXIS ThinWizard server is running on your network.
2. Start the Web browser and enter the name or IP address of the AXIS ThinWizard server in the location/address field. If the AXIS ThinWizard server is installed on a port other than port number 80, you must add the port number to the URL:

```
http://<IP address>:<port number>/
```

Example:

```
http://192.16.253.80:8011/
```

3. The AXIS ThinWizard start page appears.

4. Enter your user ID and password and click **Log in**.

Creating a Network Group

Before you can access your StorPoint NAS via AXIS ThinWizard, you must first create an appropriate network group. A network group is defined by the specific IP address ranges and server types i.e. storage servers, print servers etc. that are included.

Follow these steps to create a network group:

1. Click **Network Groups** in the AXIS ThinWizard main menu.
2. Click **Create**.
3. The Create Network Group page opens. Type a name for the new network group.
4. Specify the IP address ranges and AXIS server types to be included in the network group. If you are only interested in storage servers, deselect all options but the **Storage Servers** option.
5. Click **OK** to create the network group.

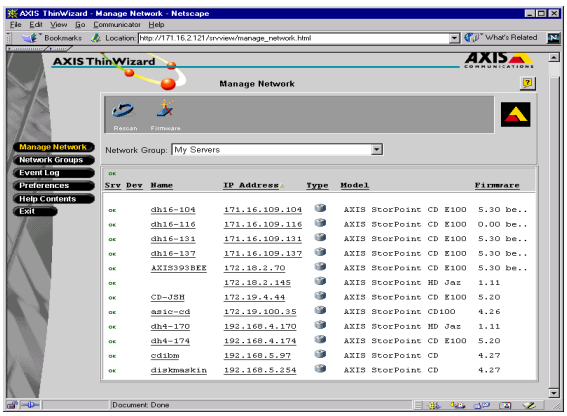
Note:

- ❑ You can create as many network groups as you need.

Accessing StorPoint NAS

Follow these steps to access the StorPoint NAS Web pages via AXIS ThinWizard:

1. Click **Manage Network** in the AXIS ThinWizard main menu.
2. Select the network group that includes your StorPoint NAS from the pull-down list.
3. All the detected AXIS servers included in the network group are listed.



4. Click the IP Address link of your StorPoint NAS. The StorPoint NAS Home Page, the **File View** page, appears.

Note: ❑ The AXIS ThinWizard can also be used for upgrading the StorPoint NAS firmware. Refer to "*Upgrading the Firmware*" on page 88.

Appendix A Parameter List

This section includes the StorPoint NAS parameter list. It also explains the StorPoint NAS directory structure and how to edit the configuration settings.

The Configuration File

This table shows the parameter list stored in the `config.ini` file located in the `System/ServerProperties` folder, see the "*Directory Structure*" on page 70. The middle column shows the default values, when applicable. The right-hand column gives a brief description of the parameters.

Parameter name	Value	Description
[Server]		
HardwareAddress	= 00:40:8c:39:30:44	The StorPoint NAS hardware address. Default is the *serial number*. You can set a Locally Administrated Address. The value shown is an example only.
Date	= 00-06-01	yy-mm-dd, enter the date followed by ! to set manually
Time	= 12:00:00	hh:mm:ss, enter the time followed by ! to set manually
FactoryDefaults	= no	Set to *configuration*, *volumeProperties* or *all*.
Restart	= no	Set to *yes* to restart StorPoint NAS.
TimeZone	= UTC	Must be set to the time zone that your StorPoint NAS is operating in. Refer to "*Time Zone Parameter Values* " on page 69.
TimeSyncSource	= None	Specifies the time source for StorPoint NAS. Set to *NDS* for the NetWare network. Set to *NTP* for UNIX and SMB over TCP/IP. Set to SMB for NT.
ServerPassword	= pass	The Supervisor, Administrator or Root user password used for basically all protocols; i.e. HTTP, NetWare bindery, SMB user level, SNMP and FTP. Once written into the configuration file, the password will not be shown but replaced with eight *'s, representing the password.
Shut Down	= no	Set to *yes* to shut down StorPoint NAS.
NetworkSpeed	= auto	The network speed is automatically detected by StorPoint NAS.
[SCSI]		
SCSITermination	= on	Always on.
Disconnect_Reselect	= on	Set to *off* to disable the disconnect/reselect function in the disc drives.
BusMode	= Ultra	Specifies the transfer mode on the SCSI bus: *Asynchronous*, *Synchronous*, *Fast-10 or Ultra*.
SCSIBootDelay	= 0	
[IP]		
InternetAddress	= 192.36.253.80	The StorPoint NAS IP address.
DefaultRouter	= 0.0.0.0	The IP address for the default router. All traffic directed outside the local network (according to the NetMask) is sent to the default router. Any re-routing via other routers is done automatically. The default *0.0.0.0* indicates that no default router is set.
NetMask	= 0.0.0.0	Used to determine when the traffic should be sent via a router. For example, the normal class C mask is 255.255.255.0. The default *0.0.0.0* indicates that automatic router sensing is used.
BOOTPEnable	= yes	Enables BOOTP IP address setup.
DHCPEnable	= yes	Enables DHCP IP address setup.
RARPEnable	= yes	Enables RARP IP address setup.
DomainName	=	Name of the domain to which StorPoint NAS belongs.

Parameter name	Value	Description
PrimaryDNS	= 0.0.0.0	The IP address of the primary DNS server. Used for identifying computers with names instead of IP addresses.
SecondaryDNS	= 0.0.0.0	The IP address of the secondary DNS server.
NTPServer	= 0.0.0.0	Name or IP address for the NTP server.
EnableWINS	= no	Enables WINS over NetBIOS/TCP/IP.
PrimaryWINSserver	= 0.0.0.0	The IP address of the primary WINS server.
SecondaryWINSserver	= 0.0.0.0	The IP address of the secondary WINS server.
[HTTP]		
HTTPEnable	= yes	Enables HTTP. Set to *no* to restrict users from accessing StorPoint NAS from a Web browser.
EnableMediaAccess	= yes	Enables access to the attached resources. When set to *no*, only administration is available from HTTP.
ExternalLink	=	Specifies the URL to a customized link, e.g. to your company's Web site. The link will be available from the StorPoint NAS Web interface.
ExternalImage	=	Specifies the URL to the image that will indicate the customized external link.
[FTP]		
FTP User name	=	The user name for non-administrator FTP log in.
FTP User password	=	The password for non-administrator FTP log in. Warning: If FTP user is specified, the user will get access to the volumes folder and no access restrictions will apply.
FTP Timeout in seconds	= 0	Specifies after how many seconds of inactivity an FTP session will be closed down.
FTP Max Users	= 10	Specifies the maximum number of simultaneous FTP sessions.
[SMB]		
SMBEnable	= yes	Enables SMB.
ServerName	=	The server name in the SMB environment. Default is *AXIS<nnnnnn>* where *nnnnnn* are the last six digits of the serial number.
Domain/GroupName	=	Name of the StorPoint NAS workgroup in SMB. If not specified, the StorPoint NAS will appear in the folder that comes first in alphabetical order.
ServerComment	=	Optional entry which should be in plain text.
SecurityMode	= shareLevel	Specifies the security mode used in SMB: *userLevel* or *shareLevel*.
NTDomainInstallation	= no	Set to *yes* when you want to install StorPoint NAS in an NT Domain.
EnableNBT	= yes	Enables NBT over NetBIOS/TCP/IP.
NBTscopeID	=	
EnableNetBEUI	= yes	Enables NetBEUI over TCP/IP.
NetBEUIFrameType	= auto	If set to *auto*, 802.2 or DIX will automatically be selected by scanning the network. If required, the frame type can also be set to either *802_2* or *dix*.
Oplock	= yes	Set to *no* to turn off Oplock.
[NFS]		
NFSEnable	= yes	Enables NFS.
DefaultUid	= -2	Default user id to be used when authenticating PCNFSD clients. Disable by setting the parameter to *0* (zero).
PCNFSDAuthentServer	= 0.0.0.0	The IP address of the server used for authentication of PC users on the UNIX (NFS) network. The default *0.0.0.0* disables the function.
ExportVolumes	= yes	Enables default export of each new disk attached. If you restore the factory default settings, all the currently inserted discs will be exported.
[SNMP]		
GetCommunityName	= public	Specifies the community that has read only access to all supported SNMP objects except writeCommunity, SupervisorPassword and ftpPassword. It corresponds to the readCommunity SNMP object.

Parameter name	Value	Description
TrapDestination	= 0.0.0.0	Specifies the IP address which SNMP traps are sent to. It corresponds to the trapAddress SNMP object. Default is *0.0.0.0*, i.e. all SNMP traps are disabled.
TrapCommunityName	= public	Specifies the community for all generated SNMP traps. It corresponds to the trapCommunity SNMP object.
SystemContact	=	Optional entry which should be in plain text and may be used to show the name of the system contact person.
SystemName	=	Optional entry which should be in plain text and may be used to show the name of the location of the system.
SystemLocation	=	Optional entry which should be in plain text and may be used to show the name of the location of the system.
AuthenticationTrap	= disabled	Disables the SNMP authentication failure traps. It corresponds to the snmpenableAuthenTraps (MIB-II) SNMP object.
[NetWare]		
NWEnable	= yes	Enables NetWare support.
IPXEnable	= yes	Enables the IPX protocol.
Frame_802.2	= auto	Enables the 802.2 frame type.
Frame_802.3	= auto	Enables the 802.3 frame type (Ethernet versions only).
Frame_EthernetII	= auto	Enables the Ethernet II frame type (Ethernet versions only).
Frame_SNAP	= auto	Enables the SNAP frame type.
NetWareIP_Enable	= no	Enables NetWare over the IP protocol.
NetWareIP_DSS_Server	=	The IP address of the DSS server.
ServerName	= AXIS<nnnnnn>_NW	NetWare server name to be presented to the NetWare clients. Default is AXIS<*nnnnnn*>_NW where *nnnnnn* are the last six digits of the serial number.
InternalNetAddress	= nn-nn-nn-nn	Internal network address. Default is *nn-nn-nn-nn* where *nnnnnnnn* are the last eight digits of the serial number.
BurstMode	= on	Burst mode enable.
ShowAllVolumes	= yes	Shows all drives and discs also at SYS level.
BinderyEnable	= yes	Enables bindery mode login. When using NDS, set to *no* in order to increase system security. The Supervisor can always login in bindery mode even if this parameter is set to *no*.
BindAuthentication	=	Name of the server used for authenitcating clients.
NDSEnable	= yes	Enables NDS mode.
NetWareIP_Enable	= no	Enables NCP over IPX/UDP (NetWare/IP).
NetWareIP_DSS_Server	=	The IP address of the DSS server.
NDSTreeName	=	Name of the tree where you wish to install StorPoint NAS.
NDSServerContext	=	Distinguished name of the context in the NDS tree where you wish to install StorPoint NAS, e.g. *Corp.Acme*.
NDSAdminName	=	Distinguished name of a user or administrator with Supervisor or Create rights to the context where you want to install StorPoint NAS, e.g. *Admin.Acme*.
NDSAdminPassword	=	Password for the administrator defined in NDSAdminName. Once written into the configuration file, the password will not be shown but replaced with *'s, representing each letter of the password.
NDSInstall	= no	Set to *install* when you are ready to install StorPoint NAS in NDS, or *forced* to overwrite the NDS server object.
NDSRightsStorage	= NDS	Set to *NDS* to store the access rights in the NDS tree. Set to *File* to store the access rights in a file on the Novell server. This is necessary if you do not allow schema extensions in your NDS tree, or if you do not have Supervisor access rights.
NDSRightsFile	=	If you have set NDSRightsStorage to *File*, specify the whole path to the file on the Novell file server using this syntax: *SERVER/VOLUME:DIR/.../FILE.DAT* The specified directory must exist and StorPoint NAS must have Read, Write, Create, Erase, Modify and File Scan rights. StorPoint NAS will create the file once you start adding trustees.

Parameter name	Value	Description
TimeSyncSources	= None	Default is *SAP* for the network agreed time. Alternatively, enter the server names to be contacted for time synchronization.
[SMTP]		
Primary Mail Server	= mail	Specifies the name or IP address of the SMTP mail server that provides the e-mail facilities, e.g. *mail* or *mail.domain.com* or *192.36.253.80*.
Secondary Mail Server	=	Optional. Specifies the name or IP address of a secondary mail server. The secondary mail server will be used in case the primary mail server is disconnected or unavailable.
Administrator Address	=	Specifies the e-mail address to which log information should be sent.
Mail Log Events	= no	*No* means that no log events will be sent via e-mail to the administrator. *Error* means that only errors will be sent to the administrator. *Warning* means that only warnings will be sent to the administrator. *All* means that all logged events will be sent via e-mail to the administrator
[END]		

Time Zone Parameter Values

This table lists the time zone as the number of hours +/- UTC.

TimeZone parameter value	Hours +/- UTC
UTC	0
UTC+1_(No_DST)	1
UTC+2_(No_DST)	2
UTC+3_(No_DST)	3
UTC+4_(No_DST)	4
UTC+5_(No_DST)	5
UTC+6_(No_DST)	6
UTC+7_(No_DST)	7
UTC+8_(No_DST)	8
UTC+9_(No_DST)	9
UTC+10_(No_DST)	10
UTC+11_(No_DST)	11
UTC+12_(No_DST)	12
UTC-1_(No_DST)	-1
UTC-2_(No_DST)	-2
UTC-3_(No_DST)	-3
UTC-4_(No_DST)	-4
UTC-5_(No_DST)	-5
UTC-6_(No_DST)	-6
UTC-7_(No_DST)	-7
UTC-8_(No_DST)	-8
UTC-9_(No_DST)	-9
UTC-10_(No_DST)	-10
UTC-11_(No_DST)	-11
UTC-12_(No_DST)	-12

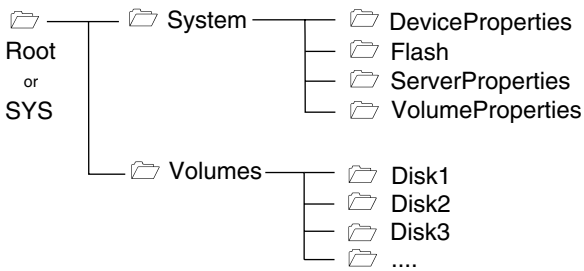
UTC = Universal Time Coordinated, which used to be known as Greenwich Mean Time (GMT), i.e. the local time at the Greenwich meridian (zero degrees longitude).

DST = Daylight Saving Time. No_DST means that automatic adjustment for DST is not included. The parameter values shown to the right include adjustments for DST.

TimeZone parameter value	Hours +/- UTC
GB_Eire	0
Western_Europe	0
Iceland	0
Central_Europe	1
Poland	1
Eastern_Europe	2
Turkey	3
Western_Russia	3
US_CAN_Eastern	-5
US_CAN_Central	-6
Saskatchewan	-6
US_CAN_Mountain	-7
US_Arizona	-7
US_CAN_Pacific	-8
US_Alaska	-9
US_Aleutian	-10
Cuba	-5
Egypt	2
Libya	1
Sudan	2
Tunisia	1
Brazil_Noronha	-2
Brazil_Sao_Paulo	-3
Brazil_Manaus	-4
Brazil_Rio_Branco	-5
Chile	-4
Chile_Easter_Isl	-7
Paraguay	-4
Aust_Adelaide	9h30m
Aust_Darwin	9h30m
Aust_Hobart	10
Aust_Perth	8
Aust_Sydney	10
New_Zealand	12
Afghanistan	4h30m
Armenia_Azer	4
Burma	6h30m
China_PRC	8
India	5h30m
Iran	3h30m
Iraq	3
Jordan	2
Kazak_Kirgi	6
Lebanon	2
Syria	2

Directory Structure

StorPoint NAS will appear to your system as a file server. Like any other file server it has a directory structure where files are stored. The directory structure of a StorPoint NAS is outlined below:



The purpose of each folder is explained on the following pages.

The System Folder

The **System** folder includes configuration information about your StorPoint NAS, e.g. configuration settings, connected drives, inserted discs, access rights etc. It contains these subfolders:

- **DeviceProperties** - Includes one text file for each connected hard disk.
- **Flash** - When updating the firmware, you can copy the file with the latest firmware version into this subfolder.
- **ServerProperties** - Includes the configuration parameter list, event log and statistics files.
- **VolumeProperties** - Includes one text file for each available volume.

The Volumes Folder

For each attached hard disk, StorPoint NAS will create a subfolder for the corresponding volume in the **Volumes** folder. The files on that hard disk are accessed through this folder. By default, the **Volumes** folder is available to all users. However, the administrator can set a password to protect it.

The names of the subfolders found under the **Volumes** folder will comply with the following rules:

- If the administrator has set a volume name, this name will be used.
- If no volume name has been set, the volume label of the hard disk will be used.

Editing the Configuration Parameters

Web Browser

If your network supports TCP/IP, you can display and edit the StorPoint NAS parameter list using a standard Web browser:

- Netscape Navigator version 4.0 or higher, or
- Internet Explorer version 4.0 or higher

Note:

❑ You must first assign a valid IP address as described in "*Assigning an IP Address*" on page 12.

To access the StorPoint NAS Home Page, you simply enter the name or IP address of your StorPoint NAS in the location/address field of your Web browser.

Example:

```
http://192.16.253.80
```

FTP

You can retrieve the configuration parameters of your StorPoint NAS using the File Transfer Protocol (FTP). FTP is supported by most operating environments.

Follow these instructions:

1. Log in to your StorPoint NAS with the command:

   ```
   ftp <IP address>
   ```

   where `<IP address>` is the name or IP address of your StorPoint NAS.
2. You will be prompted for user id and password. Use the user id `root`, which has the default password `pass`.
3. *Windows 95 only:* Change directory not to overwrite any of your system files. See the caution note below.
4. To access the configuration file, type:

   ```
   get config.ini
   ```

5. Edit the `config` file using any text editor. In the Windows 95/98 and Windows NT environments, you can for example use Notepad. Once the editing is complete, save the file as `config`.
6. To upload the configuration file to your StorPoint NAS, type

```
put config CONFIG
```

   Note that if the last uppercase `CONFIG` is omitted, the file will only be stored temporarily until the next time the product is powered off.
7. To exit FTP, type the command `quit`, `bye`, or `exit`.

Caution!

- Windows 95 has a directory called `config` that contains important system files. It is therefore important to change to another directory using the `cd` command before modifying the StorPoint NAS configuration file from within the Windows 95 environment. Failure to do this may result in some of your system files to be overwritten.

Text Editor

If you do not have TCP/IP on your network, you can edit the StorPoint NAS parameter list and access control parameters via the text files. Use your preferred text editor to make updates to the files.

You submit the new settings to your StorPoint NAS by simply saving the files. To activate the new settings it is necessary to perform a restart. You can do this by setting the `Restart` parameter to `yes`.

Important!

- Do not restart your StorPoint NAS in the middle of the NDS installation.

Configuration Settings

The StorPoint NAS configuration settings are stored in the `config.ini` file located in the `System/ServerProperties` folder.

Example:

```
; AXIS StorPoint NAS Parameter List, V1.10

[Server]
HardwareAddress       = 00:40:cc:24:c3:0c
Date                  = 00-05-10
Time                  = 08:54:37
FactoryDefaults       = no
Restart               = no
TimeZone             = UTC
TimeSyncSource        = None
ServerPassword       = ********
Shut Down             = no
Network Speed         = auto

[SCSI]
SCSITermination       = on
Disconnect_Reselect   = on
BusMode               = Asynchronous

[IP]
InternetAddress       = 192.16.253.80
DefaultRouter         = 192.16.1.1
NetMask               = 255.255.0.0
BOOTPEnable           = yes
DHCPEnable            = yes
RARPEnable            = yes
...
```

Access Control Parameters

The StorPoint NAS access control parameters are stored in separate text files for each shared resource. These text files are located in the `System/VolumeProperties` folder.

Note:

- The text files cannot be used for setting up access rights for NetWare. Instead, you can use standard NetWare tools such as NWAdmin or Filer.

Example:

```
...
; Explanations:
;   [W] - Writable
;   [R] - Read-only

--- Identification ---
[R] Volume name = Root
[R] Volume label = Root
[R] Volume serialnumber = 00000001
[W] Volume description =
...
; Access rights
...
--- Windows Sharing ---
...
File       = /
Share name           = Root
Comment              =
AccessRight          = Full-Server-Password
Read-Only Password   =
Full Access Password =

[END]
```

Notes:

- When editing the file, be sure that the equal sign and the parameter values are separated by a space.
- Do not remove the `[END]` marker from the file.

Appendix B Troubleshooting

This section provides useful information to help you resolve any difficulty you might have with your StorPoint NAS, namely:

Notes:

- ❑ You will find other useful information such as technical notes and support FAQs on the Axis Support Web at http://www.axis.com/techsup/.
- ❑ You can also go to the **Support** page within the StorPoint NAS Web interface to solve any problems you may have. From this page, you can produce a Server Report which includes technical information about your product that will help the support personnel diagnose your problem.
- ❑ To receive update information about Axis products, services and software updates by e-mail, you can subscribe to the AxisNews mailing list at http://www.axis.com/services/axisnews.htm

The Front Panel Indicators

The front panel indicators show the status of StorPoint NAS. The indicators have the following functions:

- **Status** - Flashes during startup. When StorPoint NAS is ready for use, the light turns solid green.
- **SCSI/Drive** - Flashes to indicate activity on the bus.
- **Network** - Flashes to indicate the presence of network traffic.
- **Power** - Indicates that power is connected to StorPoint NAS. This LED should always remain lit and is only used to indicate power is present in the StorPoint NAS unit.

Normal Conditions

The Power LED is controlled by hardware and is always green when power is connected. When the system starts running after startup, the Status LED turns solid green. The SCSI/Drive and Network LEDs are turned off.

This table shows the other front panel indicators under normal conditions:

Event	Status LED	SCSI/Drive LED	Network LED
Initial power to unit.	GREEN	GREEN	GREEN
Power-up and self-test, approx. 30 seconds.	GREEN	GREEN	GREEN
Firmware preparation	GREEN		
Firmware startup.	GREEN *		
Startup sequence OK.	GREEN		
Normal operation.	GREEN		
Writing to the SCSI/IDE bus.		AMBER *	
Reading from the SCSI/IDE busk.		GREEN *	
100 Mbit packet arrived.			GREEN *
10 Mbit packet arrived.			AMBER *
Flash loading in progress.	AMBER *		
Mirroring a RAID-1 pair.		AMBER / GREEN	

* Flashing, short interval.
** Flashing, long interval.

Error Conditions

This table shows various error conditions:

Event	Action	Status LED	SCSI/Drive LED	Network LED
New firmware required.	Flash loading via FTP possible	AMBER **		
Illegal serial number.	Return unit.	RED *		
Error in Flash PROM.	Return unit.	RED **		
Error in DRAM.	Return unit.	RED **		
Error in DRAM expansion module.	Replace DIMM module.	RED / AMBER		
Fatal SCSI/IDE error.	Return unit.		RED	
Drive disconnected or not working properly.	Check drive connection.		RED *	
The network connection is down.	Check network cabling, use another port to the hub.			RED

* Flashing, short interval.
** Flashing, long interval.

Status Indicator Red

If the **Status** indicator turns red, this indicates a serious error in the hardware. If this happens, contact your dealer and return the unit for replacement.

Restoring Factory Default Settings

If required, you can restore the factory default settings to your StorPoint NAS. This might be needed if you have disabled all the network protocols, or if you have lost the Server password.

You can use any of these methods:

- Web browser
- FTP on a TCP/IP network
- Push button

Step by step instructions for each method are given below.

Caution!

- The node address, the Hardware Address parameter, will remain unchanged, but all other parameters will be restored. You will thus need to re-assign the IP address in order to re-establish the Web browser connection.

Web Browser

To restore the defaults settings using a Web browser:

1. Start the Web browser.
2. Enter the name or IP address of your StorPoint NAS in the location/address field.
3. Click **admin**. You will be prompted for the Server password. By default, this is set to `pass`. To change the Server password, see "*Server Password" on page 24*.
4. Click **This StorPoint**.
5. Click the **Factory Defaults** button at the bottom of the page.
6. Select the required factory default option:

   Configurations - This option restores all server and network protocol settings to their factory default values. Your Web browser will lose contact with the server.

   Volume Properties - This option will remove:

   - Volume properties such as the volume names
   - Access rights for the Root, System and Volumes folders. The access rights for the hard disk volumes will remain unchanged.
   - All the existing RAID pairs. As a result of this you will need to format the hard disk volumes manually.

   All - This option includes both the above actions.

Note:

- If you select the Configurations or All option, you will need to re-assign the IP address as described in "*Assigning an IP Address*" on page 12.

7. Click **OK**.

The factory default setting will now be restored and your StorPoint NAS will then automatically restart.

FTP

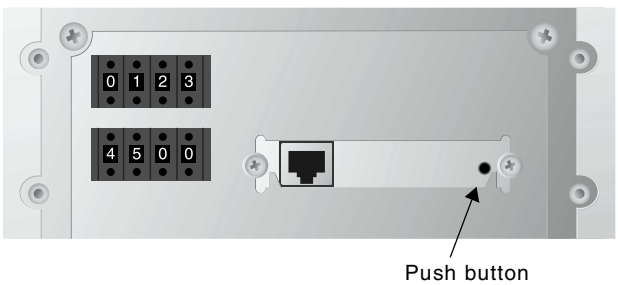
To restore the default settings using FTP:

1. Log in to your StorPoint NAS with the command:
   `ftp <IP address>`, where `<IP address>` is the name or IP address assigned to your StorPoint NAS.
2. You will be prompted for user id and password. Use the user id `root`, which has the default password `pass` (`root` is the user id with the highest priority).
3. Restore the default setting with the command:
   `get defaults`
   The unit will then automatically restart.
4. Log out using any of the commands `quit`, `bye` or `exit` depending on your FTP version.

Push Button

To restore the default settings using the Push button:

1. Turn off your StorPoint NAS.
2. Press and hold the Push button using a thin object, e.g. a pen.
3. Restart your StorPoint NAS.
4. Wait until the Status indicator flashes yellow (one flash/second).
5. Let go of the button at least two seconds.
6. Press and hold the Push button again until the Status indicator shows a steady yellow light. This may take 10 - 15 seconds.



7. Restart your StorPoint NAS. StorPoint NAS is now reset to factory default settings.

Running a Diagnostic Test

The StorPoint NAS Web pages include a diagnostic test that you can run in order to check the memory and the performance of the connected drives.

Before you begin

Note the following:

- Users that are currently accessing StorPoint NAS will be interrupted.
- The diagnostic test is only available the first hour after startup.
- If you want to repeat the test, you must first restart your StorPoint NAS.

Procedure

To perform the diagnostic test, follow these steps:

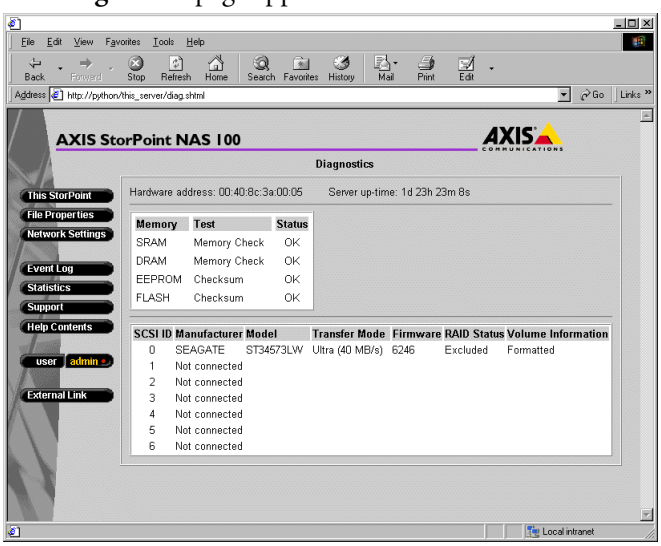
1. Start the Web browser, and enter the URL of the Diagnostics page in the location/address field:

```
http://<IP address>/this_server/diag.shtml
```

Example

```
http://192.16.253.80/this_server/diag.shtml
```

2. The **Diagnostics** page appears:



Errors when Accessing StorPoint NAS or a Hard Disk

If you get error messages when trying to access your StorPoint NAS or a hard disk:

LED Indicators Consult the error table in section "*Error Conditions*" on page 77 to see if the front panel indicators can help you identify the problem.

SCSI Chain Check the SCSI chain and ensure that all the drives are switched on and that only the last unit is terminated. Consult the drive documentation for settings.

IDE Connector Ensure that all the drives are switched on. Check that no device has been configured as Slave with no Master.

IP Address If using TCP/IP, make sure that you have assigned a unique and valid IP address to your StorPoint NAS. If you have changed the IP address, try restarting the unit. To verify that the connection is functioning, ping your StorPoint NAS as follows:

```
ping <IP address>
```

The host will return '`Reply from <IP address> ...`' or some similar message. This indicates that the address has been set and the communication is established.

SMB Protocol In the Microsoft & IBM networking environments, verify that the SMB protocol is enabled.

WINS Database If using WINS, check that StorPoint NAS is registered in the WINS database. If it is, there is probably a problem with the name resolution on your network.

NDS Installation If you have changed any of the following parameters after installing StorPoint NAS in the NDS tree, you might need to repeat the installation in order to connect to StorPoint NAS:

- IP address
- Internal Net Address
- IPX Enable
- PureIP Enable

Difficulties Locating the StorPoint NAS in NetWare

There are basically two different frame types on Ethernet networks, Ethernet II or IEEE 802.3. The IEEE 802.3 frame can be encapsulated in an IEEE 802.2 LLC frame or a SNAP frame. All four frame types are enabled by default with the value `auto`, which means that your StorPoint NAS automatically adapts to the frame type used on the network. This will meet most requirements. Frame types that are not in use in your network will not be used by StorPoint NAS.

However, depending on your network, you may want your StorPoint NAS not to operate on some frame types. If your network has multiple sections with different frame types on some of the sections, then StorPoint NAS might log on to the wrong network section and adapt to a frame type incompatible with the intended network section. For this reason, you have the option to disable those frame types by changing the parameter from `auto` to `off`.

Alternatively, it is possible to use the eight digit network number appropriate to your segment of the network, in the form xx-xx-xx-xx (e.g. 00-3F-B5-01). In all normal cases this will not be necessary since autodetection will handle most cases.

Problems Connecting to StorPoint NAS in a PureIP Environment

SLP Parameters

In the PureIP environment, make sure your StorPoint NAS is properly configured for SLP. SLP (Service Location Protocol) is a protocol for locating resources in IP networks.

You can specify a SLP scope list and directory agents for StorPoint NAS. From the StorPoint NAS Web interface, you find the SLP settings on the **Network Settings | Detailed View | TCP/IP** page.

Note:

- If you are using DHCP on your network, the SLP parameters can also be included in the DHCP scope. However, we recommend that you specify the SLP settings in the StorPoint NAS parameter list instead.

Time Synchronization

Make sure you have specified the time synchronization source properly. Note that in the PureIP environment, you **cannot** use SAP for automatic time synchronization. You can specify the name or IP address of the time server. You find the time source setting on the **Network Settings | Detailed View | NetWare** page.

Insufficient Access Rights in NetWare NDS

When you install the first StorPoint NAS in the NDS tree, StorPoint NAS will extend the NDS Schema with a new attribute. This is needed in order to store the NDS access rights in the NDS tree. To carry out the schema extension, you must use user account with Supervisor rights to [Root] object of the NDS tree.

If you do not have Supervisor rights or if schema extensions are not allowed in your NDS tree, you can instead store the NDS access rights in a file on a Novell file server.

Follow these steps:

1. Create a directory on the Novell server where you want to store the access rights.
2. Make sure that your NDS tree is synchronized.
3. Install StorPoint NAS as described in "*Installation as an NDS Server*" on page 34. Make sure you set the NDS Rights Storage parameter to File and specify the name of the file where you want to store the access rights on the Novell file server.
4. Logout and login again in order to obtain all the necessary rights on the StorPoint NAS server object.
5. Start NWAdmin. The server object just created will appear in the context where you installed your StorPoint NAS.
6. Add the StorPoint NAS server object as a trustee with Read, Write, Create, Erase, Modify and File Scan rights to the directory where you want to store the access rights.

StorPoint NAS will create the file once you start adding trustees.

Name Resolution Problems in Windows (SMB)

If you cannot find your StorPoint NAS on your Windows (SMB) network, the reason might be a name resolution problem.

Find Computer

When you have installed StorPoint NAS, it takes a while before it shows up in the browser list in Network Neighborhood. You can either just wait for the browser list to be updated, or you can accelerate the process using the **Find Computer** function available in Windows 95/98/2000 and NT. Alternatively, you can perform a manual mapping, e.g. use the command `NET USE X: \\AXISnnnnnn\Volumes`.

Flush Name Cache

Use the command `NBTSTAT -R` to flush your machine's name cache.

Workgroup

Note that StorPoint NAS cannot be a master browser server in a workgroup. It is not possible to place a StorPoint NAS or a group of StorPoint NAS servers in a single workgroup without Windows machines running file and/or print sharing.

Use WINS or LMHOST

If you are using NBT and try to access your StorPoint NAS over a router, e.g. StorPoint NAS is located on a segment remote from your computer, you must use WINS or LMHOST. The recommended method is WINS. Provided that you have set the WINS parameters correctly, you should be able to access StorPoint NAS over routers. If this fails, check the following:

1. Make sure your StorPoint NAS has been registered in your WINS database located on the Windows NT server. If your StorPoint NAS is registered and you still cannot see or access it over the Network Neighborhood, you probably have other name resolution problems on your network.
2. Ping the unit via its IP address to make sure that you have TCP/IP connectivity.
3. Ping the unit using the SMB server name (NetBIOS) to check that the name resolution works.
4. If you are using WINS, try a "static mapping" where you connect the IP address of your StorPoint NAS to its NetBIOS name. Note that if you used DHCP, you should add a reservation where you connect the MAC address of StorPoint NAS to a reserved IP address. It is often recommended that you use these types of settings for server equipment. Refer to your Windows NT server manuals for more information on this.

Problems Locating the Domain Controller in Windows (SMB)

If there is a problem locating the primary domain controller when using user-level security mode in Windows (SMB), all users will be denied access to StorPoint NAS.

Web Browser

You can verify the configuration settings from the StorPoint NAS Web interface. Within the Administration Web pages, click Network Settings, Detailed View, and open the Windows (SMB) tab to do that.

Local Administrator Account

In Windows NT, you can correct the problem by logging on to StorPoint NAS as local administrator. Note that the local administrator is not the same as an Administrator with an account on the domain.

In the Map Network Drive dialog, specify the following:

Path:	The StorPoint NAS name
Connect as:	Server name\Administrator
Password:	The password set in the ServerPassword parameter

Example:
The host name of your StorPoint NAS is `hdserv`.

Path:	`\\hdserv\root`
Connect as:	`hdserv\Administrator`

Note:

- In Windows 95, you cannot tell the SMB client to change domain and user when you are already logged in. Therefore, you cannot use the local administrator account to solve domain problems in the Windows 95 environment.

Appendix C Upgrading StorPoint NAS

This section includes the following information:

Obtaining New Software

The following software for StorPoint NAS can be updated free of charge:

- The StorPoint NAS firmware held in Flash memory
- AXIS IP Installer
- AXIS ThinWizard

Note: ❑ New software updates are announced in the AxisNews mailing list.

Over the Internet — You may wish to check the Axis Web Site at **http://www.axis.com/**, where you can download the latest versions of the software. A link to the Axis Web Site is available from the StorPoint NAS' Home Page.

Anonymous FTP — You can also get files and information through anonymous ftp: log in to ftp.axis.com and go to the /pub/axis directory.

Your Dealer — Contact your dealer to check if there has been any new issues of the software. You should have your present version numbers ready to compare against the latest software issues from Axis.

Upgrading the Firmware

You can use any of these methods to upgrade your StorPoint NAS:

- Windows Explorer
- ThinWizard
- FTP

Using Windows Explorer Drag-and-Drop

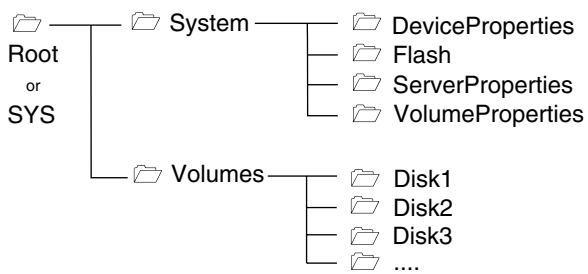
The StorPoint NAS firmware can easily be upgraded by using the Windows Explorer drag-and-drop.

To upgrade using Windows Explorer, you need the following:

- The file with the new StorPoint NAS firmware. The name of this file is of the form `product_version.bin`, e.g. `nas100_110.bin` for StorPoint NAS release 1.10.
- A computer running Windows Explorer.

Follow these steps to upgrade your StorPoint NAS by using drag-and-drop:

1. Download the latest software from the Axis Web site to your computer.
2. You can download the latest versions of the AXIS StorPoint CD E100 required software from the Axis Communications Web site. All software updates are free of charge.
3. Start Windows Explorer.
4. Find your StorPoint NAS. The default server name is Axis<nnnnnn> where <nnnnnn> are the last six digits of the StorPoint NAS serial number.
5. Expand the **Root** and **System** folders.



6. Copy the new firmware file to the **Flash** folder.
7. Wait for the copy to complete.

Caution!

- ❑ StorPoint NAS will automatically restart when the upgrade is complete. It is very important that you do NOT press the Power button during the upgrade.

Note:

- ❑ It is not neccessary to run Windows Explorer to upgrade the firmware. This can be perfomed in NFS environment etc.

Using AXIS ThinWizard

AXIS ThinWizard enables batch upgrading of several AXIS servers. The program retrieves the new software from the Axis Web Site automatically.

For more information about AXIS ThinWizard, refer to "*Event Log*" on page 58.

Follow these steps to upgrade StorPoint NAS using AXIS ThinWizard:

1. Start the Web browser and enter the name or IP address of the AXIS ThinWizard server in the location/address field.

Note:

- If the AXIS ThinWizard server is installed on a port other than 80, you must add `:<port number>/` to the URL.

  Example:

  ```
  http://192.16.253.80:8033/
  ```

2. Log in to AXIS ThinWizard.
3. Click **Manage Network** in the main menu.
4. Select the network group that includes your StorPoint NAS. Note that you can only update servers that are included in the selected network group.
5. All the detected servers included in the network group are listed. Click **Firmware** to start the Upgrade Wizard.
6. Follow the instructions on the screen in order to complete the installation.

Using FTP

To upgrade over the network you will need the following:

- The file with the new StorPoint NAS firmware. The name of this file is of the form `product_version.bin`, e.g. nas100_`110.bin` for the software release 1.10 for StorPoint NAS.
- A computer on the network with TCP/IP and FTP.
- The StorPoint NAS must also be installed on the network with TCP/IP as described in "*Assigning an IP Address*" on page 12.

Follow these steps to upgrade StorPoint NAS using FTP:

1. Log in to your StorPoint NAS with the command:

   ```
   ftp <IP address>
   ```

   where `<IP address>` is the StorPoint NAS name or IP address .
2. You will be prompted for user id and password. You can use the ftp user name and password defined in the `config.ini` file, or on the **FTP** tab which is accessed from **Network Settings** in the Web interface.
3. To change to binary transfer mode, issue the command:

   ```
   bin
   ```

4. Issue the command:

   ```
   put <software name> flash
   ```

   where `<software name>` is the name of the new software, e.g. `nas100_100.bin`.
5. Wait for the flash memory load to finish. This normally takes about 30 seceonds to 2 minutes. The unit will then automatically restart with the new StorPoint NAS software.
6. Log out using the command `quit`, `bye` or `exit` depending on your FTP version.

Caution!

- ❑ StorPoint NAS will automatically restart when the upgrade is complete. It is very important that you do NOT press the Power button during the upgrade.

Extending the RAM Memory

This section describes how to increase the performance of your StorPoint NAS by adding extra memory.

The basic 32 Mbytes of RAM can be increased up to 160 Mbytes. The extra cache memory will speed-up data flow rates, especially when several users are accessing the same disc.

Memory Modules

You can add one module of either 32, 64 or 128 Mbytes in size.

32 Mbyte Module

- 144-pin 8-byte SO DIMM
- 4Mx16 EDO DRAM based (4 pcs.)
- 3.3V
- 50 ns
- 4k refresh cycles
- A0-A11 address inputs

Use one of these modules or equivalent:

Manufacturer	Type
Centon	P/N CKE115TE4VD391G
Samsung	P/N KMM466F404BS2-L5
Toshiba	P/N THL64V4075ATG-5
Viking	P/N VC4641U4EN3-HT01
Golden RAM	P/N 92G7342
Southland Micro Systems	P/N SGE SD4X64E6V

64 Mbyte Module

- 144-pin 8-byte SO DIMM
- 4Mx16 EDO DRAM based (8 pcs.)
- 3.3V
- 50 ns
- 4k refresh cycles
- A0-A11 address inputs

Use one of these modules or equivalent:

Manufacturer	Type
Centon	P/N CKF115TE4VD391G
Samsung	P/N KMM466F804BS1-L5
Toshiba	P/N THL64V8015ATG-5
Golden RAM	P/N 76H0268
Southland Micro Systems	P/N SGE SD8X64E6V

128 Mbyte Module

- 144-pin 8-byte SO DIMM
- 16Mx8 EDO DRAM based (8 pcs.)
- 3.3V
- 50 ns
- 4K refresh cycles
- A0-A11 address inputs

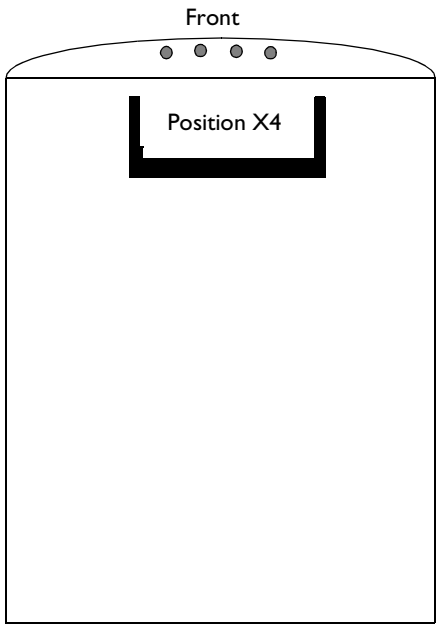
Use this module or equivalent:

Manufacturer	Type
Centon	P/N CAX16MX64-5EVDG

Installation Procedure

Follow these steps to add the memory module:

1. Unplug the power supply from your StorPoint NAS.
2. Remove the server casing.



3. Mount the memory module by sliding it into the X4 socket at an angle of 45 degrees. Once the module is fully inserted, press it downwards towards the PCB, until the socket locks the module into place.

Caution!

- ❑ Always use an antistatic bracelet when handling the memory modules.

4. Replace the server casing.
5. Power up the unit. The new memory module is automatically identified and the usage optimized by StorPoint NAS.

Appendix D Tower and Drive Installation

This appendix includes the procedures for installing StorPoint NAS in a tower and connecting the drives.

Hardware Inventory

Unpack and inspect all parts for damage. Contact your dealer if anything is missing. All packaging materials are recyclable.

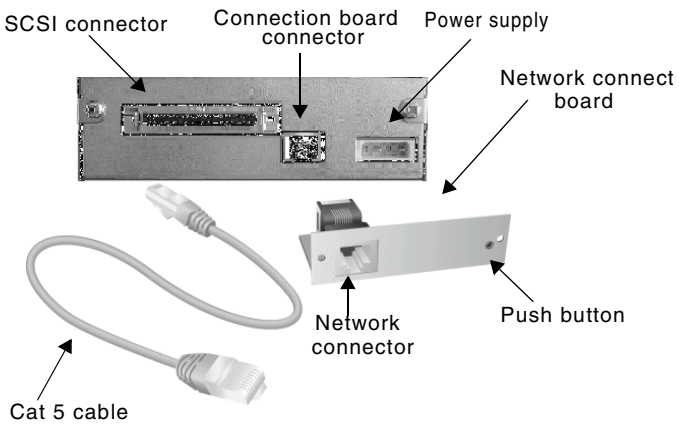
The standard delivery includes the following:

Hardware	Description	Part Number
StorPoint NAS	AXIS StorPoint NAS 100 Wide SCSI Ethernet	0099-002-01
	AXIS StorPoint NAS 100 IDE	0102-001-01
4 Screws, 2 Screws	(To attach the server unit)	15163 11998
Product Label	(To be attached to the back of the tower.)	16277
Network Connection Board		16273
Shielded Cat 5 Cable	(To connect the server unit and the network connection board)	16283
CD-ROM	AXIS Storage Online CD ver. 1.0	17561
Printed Material	AXIS StorPoint Instant Up & Running ver. 1.0	17562

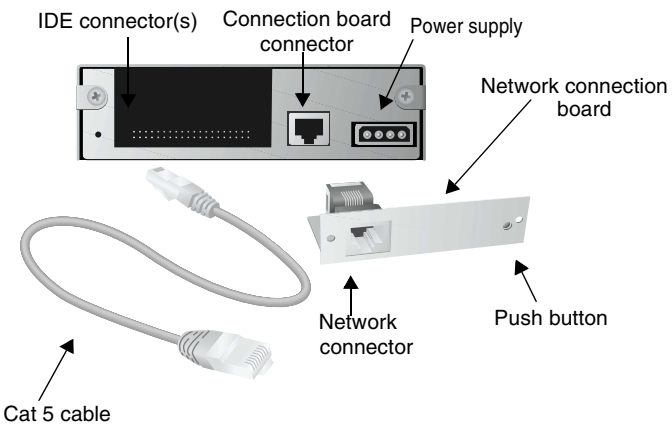
Physical Description

Familiarize yourself with your StorPoint NAS. This information provides a useful reference during the installation.

SCSI Server



IDE Server



Network Connector

StorPoint NAS is equipped with a 100baseTX connector. The internal network connector will automatically adjust to 10baseT or 100baseTX, full or half duplex mode. Use a Category 5 UTP cable for the 100baseTX operation.

Note: ❑ When StorPoint NAS has been installed in a tower, the network connector is found on the network connection board that appears at the back of the tower. Note that the network cable cannot be connected directly to the server unit.

SCSI Connector *SCSI server only:* StorPoint NAS has a SCSI connector for connecting wide SCSI hard disk drives.

IDE Connector *IDE server only:* StorPoint NAS has four IDE connectors for connecting ATA-4 IDE hard disk drives.

Push Button The Push button is used for restoring the StorPoint NAS parameters to the factory default settings. See "*Restoring Factory Default Settings*" on page 78.

LED Indicators The StorPoint NAS front panel indicators show the status of the unit. The indicators have the following functions:

- **Status** - Flashes during startup. The light turns solid green when StorPoint NAS is ready for use.
- **SCSI/Drive** - Flashes to indicate disc access.
- **Network** - Flashes to indicate the presence of network traffic.
- **Power** - Remains on to indicate that power is present in the unit.

Refer to "*The Front Panel Indicators*" on page 76 for a list of error conditions.

Serial Number The StorPoint NAS serial number is found on the labels at the underside of the server unit and at the back of the tower.

Installing StorPoint NAS in a Tower

StorPoint NAS is installed in standard 5.25 inch towers.

Caution! ❑ To avoid the risk of electrical chock or other injury, disconnect power from the tower before removing the chassis.

If not already installed in a tower when delivered, follow these steps:

1. Prepare the tower for the installation, e.g. by removing the chassis.
2. Make a note of the serial number of your StorPoint NAS, or attach the enclosed product label to the back of the tower. The serial number is found on the underside label of the unit and will be needed during the TCP/IP configuration.
3. Slide StorPoint NAS into the tower.
4. Fix StorPoint NAS with the four screws supplied. Use the upper or lower holes depending on type of tower and mounting.

Caution! ❑ The length of the screws must not exceed 0.2 inch (5 mm). If they do, the internal components of the StorPoint NAS unit may be damaged.

5. Attach the power cord to StorPoint NAS. The power supply connector is a standard PC 4-pin power supply connector (12 and 5 V DC). Hence, the power supply available in the tower can also be used to supply StorPoint NAS.
6. Connect the external network connector board to StorPoint NAS using the shielded CAT 5 cable.

Important!

❑ It is not possible to connect an RJ-45 cable directly between the back of the StorPoint NAS server unit and the hub.

7. Mount the board on the back of the tower. The mounting plate on the board fits into the standard Centronics cut-out available on most towers.
8. Attach the product label to the back of the tower.

Connecting the Hard Disks to StorPoint NAS

A single StorPoint NAS can service several hard disks.

- **SCSI Server** - The SCSI bus allows 15 hard disks to be connected to StorPoint NAS. Each unit on the SCSI bus must have a unique SCSI address. To work properly, the bus must be electrically terminated at both ends.
- **IDE Server** - The IDE bus allows 8 hard disks to be connected to StorPoint NAS. Each unit on the IDE bus must be assigned as Master or Slave.

Caution!

❑ Always make sure that power is not connected to the StorPoint NAS unit or to any of the drives when making changes to the SCSI or IDE bus. The bus may become damaged if you connect or disconnect any units when the power is on.

Connecting the SCSI Drives

To connect the SCSI drives to StorPoint NAS, follow these steps:

1. Connect the SCSI cable to the SCSI connector on StorPoint NAS.
2. Connect the SCSI cable to the hard disk(s).
3. Set a unique SCSI address 0 through 15, excluding 7, for each of the connected hard disks.

❑ The SCSI address of StorPoint NAS is 7, and cannot be changed.

4. Connect an external, preferably active, SCSI terminator to the last drive in the SCSI chain. If there is only one drive, it is the last one in the chain and must be terminated. StorPoint NAS has built-in SCSI termination which is always switched on. Therefore, the server must be physically located at one end of the chain.

Important!

❑ Do not terminate the hard disks placed between StorPoint NAS and the last hard disk.

5. Switch the power on to the whole of the tower.
6. The StorPoint NAS front panel indicators will flash during power-on and self-test. When the Status indicator stops flashing and turns solid green, StorPoint NAS is ready for use.

Connecting the IDE Drives

To connect the IDE drives to StorPoint NAS, follow these steps:

1. Connect the IDE cable to the IDE connector on StorPoint NAS.
2. Connect the IDE cable to the drive(s).
3. Assign each of the connected drives to Master or Slave. Refer to the drive documentation for instructions on how to set the device type for your drives.

Note:

- ❑ The server must be physically located at one end of the cable.

4. Switch the power on to the whole of the tower.
5. The StorPoint NAS front panel indicators will flash during power-on and self-test. When the Status indicator stops flashing and turns solid green, StorPoint NAS is ready for use.

Appendix E Technical Specifications

Supported Systems	
Novell NetWare	NetWare 3.11, 3.12, 4.10, 4.11 and 5.00.
Microsoft Windows	Windows for Workgroups, Windows 95, Windows 98, Windows 2000, Windows NT.
TCP/IP	Supports all UNIX dialects through NFS over UDP/IP on TCP/IP networks.
Web Browser	Internet/intranet over HTTP 1.0 and HTML 2.0 compatible browsers.
Supported Protocols	
Novell NetWare	NDS, NCP (IPX and NetWare/IP and PureIP).
Windows and OS/2	SMB over NetBIOS/NetBEUI, SMB over NetBIOS/TCP/IP, WINS/NBNS.
UNIX	NFS over UDP/IP, TCP, ARP, RARP, BOOTP, DHCP, SNMP, FTP.
Web Browser	HTTP over TCP/IP.
Network Management	SNMP MIB-II. Platform independent configuration and management via standard Web browser.
Security	
Novell NetWare	Encrypted passwords. Authorization via file server, including NDS.
Windows and OS/2	User-level or share-level access control.
UNIX	NFS version 2, PCNFSD authentication via file server.
Web Browser and FTP	Password.
File System	Universal Disk Format (UDF).
Software Updates	Flash memory allows central and remote updating of the StorPoint NAS firmware over the network using FTP over TCP/IP or using any protocol with Windows Explorer.
Performance	Data throughput up to 16 Mbit/sec.
Hardware	CPU: 32 bit RISC controller (ETRAX 100). Flash memory: 4 MB. RAM: 32 MB, expandable up to 160 MB.
Attachments	RJ-45 (for 100baseTX and 10baseT).
Disk Mirroring (RAID-1)	Disk Mirroting (RAID-1). RAID management via standard Web browser.
Compatible Hard Disks	Standard SCSI or IDE hard disks.
SCSI Hard Disk Connections	Up to 15 Wide SCSI hard disk drives.
Connector	Wide 68-pin header.
Speed	Asynchronous (< 5 MB/sec), synchronous (5 MB/sec), fast SCSI (10 MB/sec), ultra fast SCSI (20 MB/sec) or ultra wide SCSI (40 MB/sec).
IDE Hard Disk Drive Connections	Up to 8 IDE/ATA-4 hard disk drives.
Connector	Four 40 pin headers.
Speed	DMA Mode 2 (16.67 MB/s), PIO Mode 4 (16.67 MB/sec).

Power Supply	Via 4-pin power connector: 12V DC (0.5 A) and 5V DC (2 A).
Dimensions	Height: 1.7 in (4.3 cm), Width: 5.9 in (14.9 cm), Depth: 8.2 in (20.9 cm).
Weight	1.5 lbs (0.7 kg).
Environmental	
SCSI	Temperature: 40-105°F (5-40°C). Humidity: 20-80% RHG, non-condensing.
IDE	Temperature operational: 40-105°F (5-40°C). Temperature shipping/storage: -4 - 140°F (-20 -60°C). Humidity operational: 8 - 80% Humidity shipping/storage: 5 - 80%
Year 2000	StorPoint NAS is year 2000 compliant.
Approvals	
EMC	SCSI - CE: EN 55022/1994, EN 50082-1/1997. FCC Subpart B Class A. CE IDE - CE: EN 55022/1994, EN 55024/1998. FCC Subpart B Class A.
Safety	EN 60950, UL1950. Approved power supply for all countries.
Warranty	3 years.

All specifications are subject to change without prior notice.

Appendix F Glossary

AIX Advanced Interactive eXecutive. A version of the UNIX operating system from IBM that runs on various IBM computers including Mainframe systems.

ARP Address Resolution Protocol. A protocol within TCP/IP networks that allows a host to find the physical address of a node on the same network. ARP cannot be used over routers.

BOOTP Boot Protocol. A TCP/IP protocol, which allows an Internet node to discover certain startup information such as its IP address. A request made to an active BOOTP daemon initiates a search of the Boot Table for an entry matching the unit's Ethernet address. If a matching entry is found, the daemon then downloads the IP address to the device.

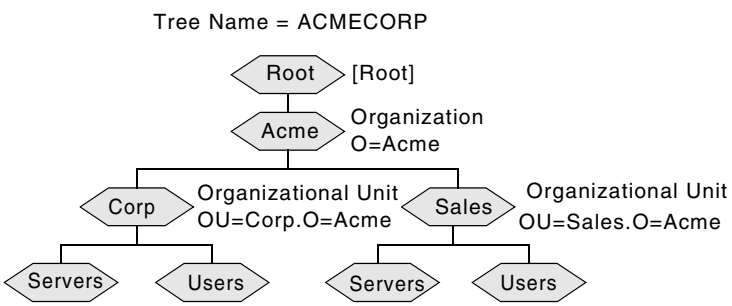
BSD Berkeley Software Distribution. The University of California, Berkeley additions to the UNIX operating system.

DHCP Dynamic Host Configuration Protocol. A system based on network interface card addresses for allocating IP addresses and other configuration information for networked systems. It provides automatic but temporary assignment of IP addresses from a central pool.

Distinguished Names Names in the Directory tree have two name types: typeful or typeless. A typeful name includes the name types (OU, O, etc.) when identifying the distinguished name of the object. A typeless name excludes the name types. You can use either syntax when specifying the parameters.

Example 1 (`NDSServerContext` parameter syntax):
Typeful distinguished name: `OU=Corp.O=Acme`
Typeless distinguished name: `Corp.Acme`

Example 2 (`NDSAdminName` parameter syntax):
Typeful distinguished name: `CN=Admin.O=Acme`
Typeless distinguished name: `Admin.Acme`



Objects in an NDS Directory Tree

DNS Domain Name Service. Reflects the server names and addresses within a network.

DSS Domain SAP/RIP Services. Provides a source of SAP/RIP information in a NetWare environment.

DVD Digital Versatile Disk. An optical disk that store up to 16 times more information than a standard CD-ROM disk. Developed for video, multimedia etc.

FAT File Allocation Table. A file system originally invented for the DOS operating system.

Flash Memory Flash Memory is a memory chip that, like ordinary ROM memory, keeps its contents even when the power is turned off. What makes it unique is the possibility to erase its contents and write new data to it. The software that runs on your StorPoint NAS is stored in Flash Memory, i.e. when software updates are available, you can updateStorPoint NAS without having to replace any parts.

FTP File Transfer Protocol. The TCP/IP protocol used for logging into a network and transferring files.

HTML Hypertext Markup Language. A standard hypertext language used for creating Web pages and other hypertext documents.

HTTP Hypertext Transfer Protocol. The TCP/IP protocol for Web based communication.

IDE Integrated Device Electronics. A high-speed parallel interface, used to connect a computer to peripheral devices using channels.

IP Internet Protocol. The TCP/IP session-layer protocol that regulates packet forwarding by tracking Internet addresses, routing outgoing messages and recognizing incoming messages.

JBOD Just a Bunch Of Disks.

LED Light Emitting Diode. The LED indicators on the StorPoint NAS front panel indicate the status of the unit.

MIB Management Information Base. A database of network configuration information used by SNMP and CMIP to monitor or change network settings.

NAS Network Attached Storage.

NCP NetWare Core Protocol. Network clients use the NCP to request services of servers, and servers use NCP to provide services, such as file and print services.

NDS NetWare Directory Services. Manages network resources such as NetWare servers and volumes.

NIS Network Information Services. The security and file-access databases on UNIX systems, previously known as Yellow Pages.

NTP Network Time Protocol. Used by Internet time servers and their peers to synchronize clocks, as well as automatically organize and maintain the time synchronization subnet itself.

RARP Reverse Address Resolution Protocol. A TCP/IP protocol governing the translation of a Data-Link Control (DLC) address to an IP address. A request made to an active RARP daemon initiates a search of the Ethernet Address Table for an entry matching the unit's Ethernet address. If a matching entry is found, the daemon then downloads the IP address to the device. RARP operates within a single network segment only, i.e. it does not work over routers.

RISC Reduced Instruction Set Computing. A processor that recognizes only a limited number of assembly-language instructions.

SAP Service Advertising Protocol. A network name advertising service that e.g. file servers can use for advertising their existence to network clients.

SCSI Small Computer System Interface. A high-speed parallel interface, used to connect a computer to peripheral devices using just one port.

SLP Service Location Protocol. A protocol used for advertising and discovering network services, e.g. printers and CD servers.

SMB Server Message Blocks. A protocol that makes use of NetBIOS.

SNMP Simple Network Management Protocol. A TCP/IP protocol for managing and monitoring nodes on a network.

TCP Transmission Control Protocol. The connection-oriented, transport-level protocol used in the TCP/IP suite of protocols.

UDF Universal Disk Format. A specification developed by OSTA (Optical Storage Technology Association) for use in optical storage devices. The file format for DVD.

UNIX A 32-bit multitasking, multiuser operating system originally developed by AT&T.

URL Uniform Resource Locator. A way of specifying the location of publicly available information on the Internet.

WINS Windows Internet Name Service. Allows Windows-based clients to locate NetBIOS resources on TCP/IP networks. When using TCP/IP, the computer name must be resolved to an IP address. WINS is designed to eliminate the need for broadcasts in order to resolve computer names to IP addresses. It provides a dynamic database that maintains computer name to IP address mappings.

Wizard A form of user assistance that automates a task through a dialog with the user in order to speed up operation. These tasks are typically complex and require experience.

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