Thecus N8800

User's Manual

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About This Manual

All information in this manual has been carefully verified to ensure its correctness. In case of an error, please provide us with your feedback. Thecus Technology Corporation reserves the right to modify the contents of this manual without notice.

Product name: Thecus N8800
Manual Version: 1.02
Release Date: December 2008

Limited Warranty

Thecus Technology Corporation guarantees all components of Thecus N8800 are thoroughly tested before they leave the factory and should function normally under general usage. In case of any system malfunctions, Thecus Technology Corporation and its local representatives and dealers are responsible for repair without cost to the customer if the product fails within the warranty period and under normal usage. Thecus Technology Corporation is not responsible for any damage or loss of data deemed to be caused by its products. It is highly recommended that users conduct necessary back-up practices.

Safety Warnings

For your safety, please read and follow the following safety warnings:

⚠ Read this manual thoroughly before attempting to set up your N8800.

⚠ Your N8800 is a complicated electronic device. DO NOT attempt to repair it under any circumstances. In the case of malfunction, turn off the power immediately and have it repaired at a qualified service center. Contact your vendor for details.

⚠ DO NOT allow anything to rest on the power cord and DO NOT place the power cord in an area where it can be stepped on. Carefully place connecting cables to avoid stepping or tripping on them.

⚠ Your N8800 can operate normally under temperatures between 0°C and 40°C, with relative humidity of 20% – 85%. Using the N8800 under extreme environmental conditions could damage the unit.

⚠ Ensure that the N8800 is provided with the correct supply voltage (AC 100V ~ 240V, 50/60 Hz, 3A). Plugging the N8800 to an incorrect power source could damage the unit.

⚠ Do NOT expose the N8800 to dampness, dust, or corrosive liquids.

⚠ Do NOT place the N8800 on any uneven surfaces.

⚠ DO NOT place the N8800 in direct sunlight or expose it to other heat sources.

⚠ DO NOT use chemicals or aerosols to clean the N8800. Unplug the power cord and all connected cables before cleaning.

⚠ DO NOT place any objects on the N8800 or obstruct its ventilation slots to avoid overheating the unit.

⚠ Keep packaging out of the reach of children.

⚠ If disposing of the device, please follow your local regulations for the safe disposal of electronic products to protect the environment.

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Chapter 1: Introduction

Overview

Thank you for choosing the Thecus N8800 IP Storage Server. The Thecus N8800 is an easy-to-use storage server that allows a dedicated approach to storing and distributing data on a network. Data reliability is ensured with RAID features that provide data security and recovery—over one Terabyte of storage is available using RAID 5 and RAID 6. Gigabit Ethernet ports enhance network efficiency, allowing the N8800 to take over file management functions, increase application and data sharing and provide faster data response. The N8800 offers data mobility with a disk roaming feature that lets you hot swap working hard drives for use in another N8800, securing the continuity of data in the event of hardware failure. The N8800 allows data consolidation and sharing between Windows (SMB/CIFS), UNIX/Linux, and Apple OS X environments. The N8800's user-friendly GUI supports multiple languages.

Product Highlights

File Server

First and foremost, the N8800 allows you to store and share files over an IP network. With a Network Attached Storage (NAS) device, you can centralize your files and share them easily over your network. With the easy-to-use web-based interface, users on your network can access these files in a snap.

To learn about the Web User Interface, go to **Chapter 6: Using the N8800 > Using WebDisk**.

FTP Server

With the built-in FTP Server, friends, clients, and customers can upload and download files to your N8800 over the Internet with their favorite FTP programs. You can create user accounts so that only authorized users have access.

To set up the FTP Server, refer to **Chapter 5: Additional Feature Setup > FTP Server**.

Backup Server

Don't leave precious data to chance. With advanced backup capabilities, you can easily upload mission critical files to the N8800, and even automate your backup tasks for true peace-of-mind.

To find out how to backup your files with the N8800, refer to **Chapter 6: Using the N8800 > File Backup**.

Printer Server

With the N8800's Printer Server, you can easily share an IPP printer with other PCs connected to your network.

To set up the Printer Server, refer to **Chapter 5: Additional Feature Setup > Printer Server**.

Multiple RAID

N8800 supports multiple RAID volumes on one system. So, you can create RAID 0 for your non-critical data, and create RAID 5 for mission-critical data. Create the RAID levels depending on your needs.

To configure RAID modes on the N8800, refer to **Chapter 4: System Management > Storage Management > RAID List**.

Dual Mode Support

N8800 is not only a file server, but it also supports iSCSI initiators. Your server can access N8800 as a direct-attached-storage over the LAN or Internet. There is no easier way to expand the capacity of your current application servers. All the storage needs can be centrally managed and deployed. This brings ultimate flexibility to users.

To set up an iSCSI volume, refer to **Chapter 4: System Management > Storage Management > Space Allocation > Allocating Space for iSCSI Volume**.

Superior Power Management

N8800 supports schedule power on/off. With this feature, administrator can set at what time to turn on or off the system. This feature is a big plus for people who want to conserve energy. Wake-On-LAN enables administrator to remotely turn on the system without even leaving their own seat.

To schedule system on and off, refer to **Chapter 4: System Management > System Settings > Reboot and Shutdown System > Scheduled Power On/Off**.

Package Contents

Your N8800 package should contain the following items:

- QIG
- CD-Title
- Ethernet Cable
- Screw Kit
- Rack slider

Please check to see if your package is complete. If you find that some items are missing, contact your dealer.

Front Panel

The Thecus N8800's front panel has the device's controls, indicators, and hard disk trays:

Front Panel	
Item	**Description**
1.Power Button	• Power on/off N8800
2.Power LED	• **Solid green:** System is power on.
3.Reboot Button	• Press to system reboot
4.System fan alarm LED	• **Solid red:** system fan failure notification
5. Mute button	• Mute the system fan alarm.
6.USB Port	• USB 2.0 port for compatible USB devices, such as USB disks, USB printers, and USB wireless dongles* **Note**: For supported USB wireless dongles, please contact http://esupport.thecus.com/support
7.Up Button ▲	• Push to scroll up when using the LCD display
8.Down Button ▼	• Push to enter USB copy operation screen
9.Enter Button ↵	• Push to enter LCD operate password for basic system setting
10.Escape Button **ESC**	• Push to leave the current LCD menu

Hard Disk Trays

Each of the N8800's hard disk trays has a lock, a latch, and two LED indicators:
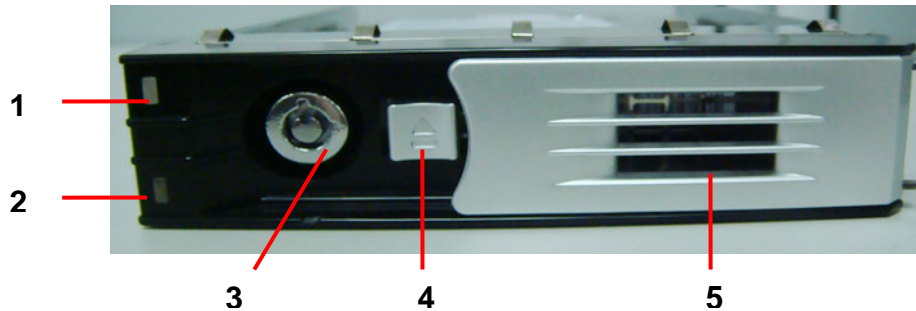
Hard Disk Trays	
Item	**Description**
1.HDD Power LED	• **Solid blue:** hard disk is powered on
2.HDD Access/Error LED	• **Blinking green:** system is accessing data on the hard disk
3.Lock	• Use the lock to physically secure the hard disk to the unit
4.Latch	• Use to open and remove or close and secure the tray
5.Handle	• Pull out HDD tray

Rear Panel

The Thecus 's rear panel features ports and connectors.
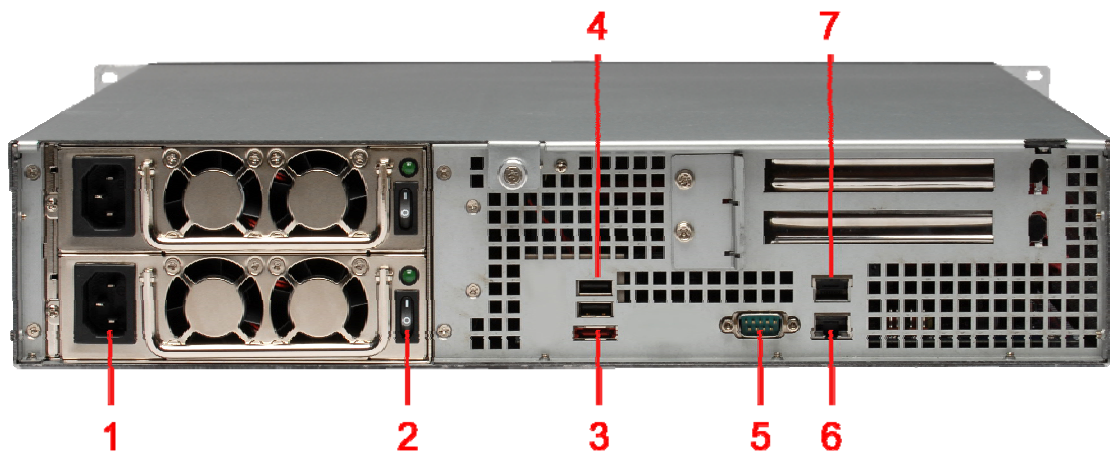
Back Panel	
Item	**Description**
1.Power Connector	• Connect the included power cords to these connectors
2.Power Switch	• Switch for power supply
3.eSATA Port	• eSATA port for high-speed storage expansion
4.USB Port	• USB 2.0 port for compatible USB devices, such as USB disks, and USB printers
5.Serial Port	• This port is for external UPS device
6.WAN Port	• WAN port for connecting to an Ethernet network through a switch or router
7.LAN Port	• LAN port for connecting to an Ethernet network through a switch or router

Chapter 2: Hardware Installation

Overview

Your N8800 is designed for easy installation. To help you get started, the following chapter will help you quickly get your N8800 up and running. Please read it carefully to prevent damaging your unit during installation.

Before You Begin

Before you begin, be sure to take the following precautions:

1. Read and understand the *Safety Warnings* outlined in the beginning of the manual.

2. If possible, wear an anti-static wrist strap during installation to prevent static discharge from damaging the sensitive electronic components on the N8800.

3. Be careful not to use magnetized screwdrivers around the N8800's electronic components.

Hard Disk Installation

The N8800 supports seven standard 3.5″ Serial ATA (SATA) hard disks. To install a hard disk into the N8800, follow the steps below:

1. Remove a hard disk tray from the N8800.

2. Slide the new SATA hard disk into the tray and fasten the screws.

3. Insert the hard disk and tray back into the N8800 until it snaps into place and lock it with a key if desired.

4. The LED blinks green when the hard disk is accessed.

NOTE	If your HDD was part of a RAID 1 or RAID 5 array previously, it automatically rebuilds. If you replace all the drives with higher capacity drives, you will need to go to Administrator login and format the drives.

Cable Connections

To connect the N8800 to your network, follow the steps below:

1. Connect an Ethernet cable from your network to the WAN port on the back panel of the N8800.

2. Connect the provided power cord into the universal power socket on the back panel. Plug the other end of the cord into a surge protector socket. Press the power supply switch to turn on the power supply.

3. Press the power button on the Front Panel to boot up the N8800.

Checking System Status

After making connections on the N8800 and powering up, check whether the system status is normal or has trouble by observing indicators on the front panel and hard disk trays.

System Status Normal

The system status is normal if:

1. The Power LED on the Front Panel glows green.
2. The HDD Power LED on each HDD tray glows blue (assuming all disks are installed).
3. The default IP address of the WAN port is 192.168.1.100 on LCD.

System Trouble

The system has trouble if:

1. Disk Busy LED glows red.

If the system has trouble, please refer to **Chapter 8: Troubleshooting**.

WARNING	There are no user serviceable parts inside the N8800. Please contact your distributor for service.

Chapter 3: First Time Setup

Overview

Once the hardware is installed, physically connected to your network, and powered on, you can configure the N8800 so that it is accessible to your network users. There are two ways to set up your N8800: using the **Thecus Setup Wizard** or the **LCD display**. Follow the steps below for initial software setup.

Thecus Setup Wizard

The handy Thecus Setup Wizard makes configuring N8800 a snap. To configure the N8800 using the Setup Wizard, perform the following steps:

1. Insert the installation CD into your CD-ROM drive (the host PC must be connected to the network).

2. The Setup Wizard should launch automatically. If not, please browse your CD-ROM drive and double click on **Setup.exe.**
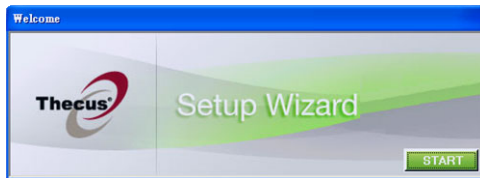
> **NOTE**   For MAC OS X users, double click on Thecus Setup Wizard 1.1.99.dmg

3. The Setup Wizard will start and automatically detect all Thecus storage devices on your network. If none are found, please check your connection and refer to **Chapter 8: Troubleshooting** for assistance.
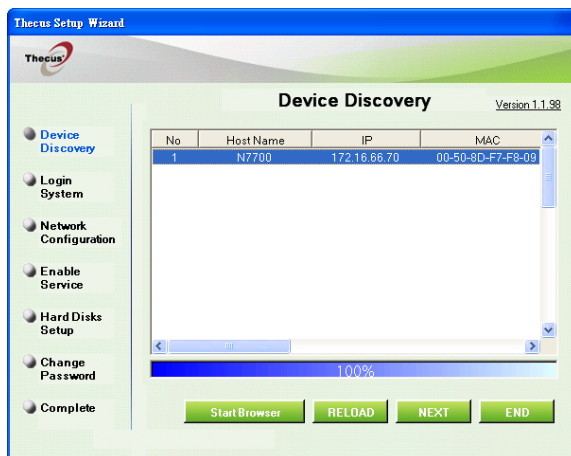
4. Select the N8800 that you like to configure.

5. Login with the administrator account and password. The default account and password are both "admin".

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6. Name your N8800 and configure the network IP address. If your switch or router is configured as a DHCP Server, configuring the N8800 to automatically obtain an IP address is recommended. You may also use a static IP address and enter the DNS Server address manually.
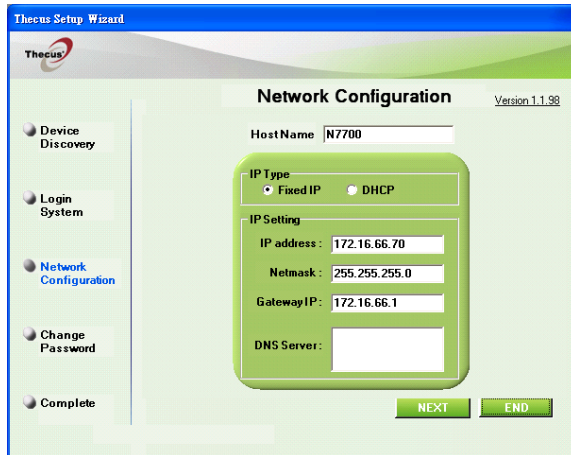
7. Change the default administrator password.
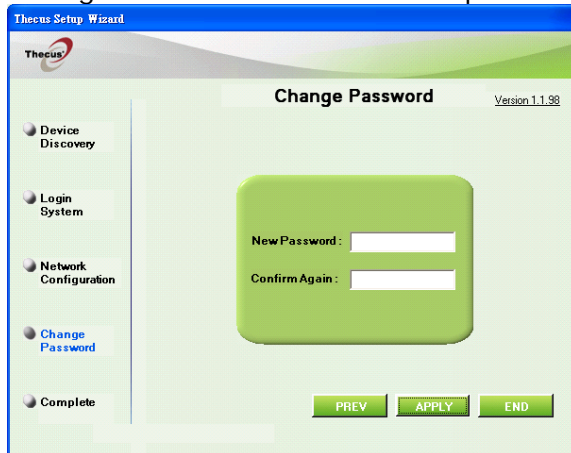
8. Finished! Access the N8800 Web Administrator Interface by pressing the **Start Browser** button. You can also configure another N8800 at this point by clicking the **Setup Other Device** button. Press **Exit** to exit the wizard.
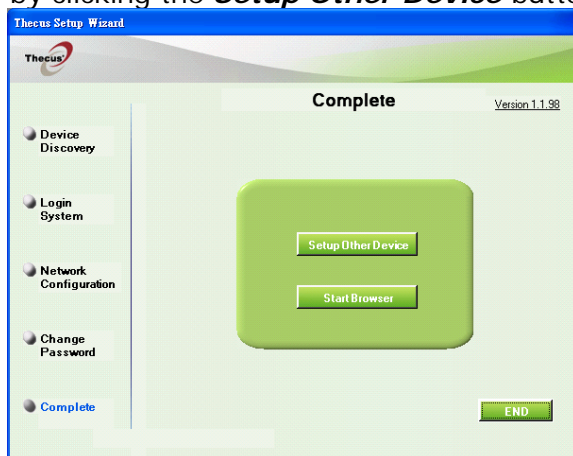
NOTE	The Thecus Setup Wizard is designed for installation on systems running Windows XP/2000 or Mac OSX or later. Users with other operating systems will need to install the Thecus Setup Wizard on a host machine with one of these operating systems before using the unit.

LCD Operation

The N8800 is equipped with an LCD on the front for easy status display and setup. There are four buttons on the front panel to control the LCD functions.

LCD Controls

Use the **Up** (▲), **Down** (▼), **Enter** (↵) and **Escape** (**ESC**) keys to select various configuration settings and menu options for N8800 configuration.

The following table illustrates the keys on the front control panel:

LCD Controls		
Icon	**Function**	**Description**
▲	Up Button	Select the previous configuration settings option.
▼	Down Button	USB copy confirmation display.
↵	Enter	Enter the selected menu option, sub-menu, or parameter setting.
ESC	Escape	Escape and return to the previous menu.

There are two modes of operation for the LCD: **Display Mode** and **Management Mode**.

Display Mode

During normal operation, the LCD will be in **Display Mode**.

Display Mode	
Item	**Description**
Host Name	Current host name of the system.
WAN	Current WAN IP setting.
LAN	Current LAN IP setting.
Link Aggregation	Current Link Aggregation status (N8800 only)
System Fan1	Current system fan 1 status.

System Fan2	Current system fan 2 status.
CPU Fan	Current CPU fan status
2006/06/16 12:00	Current system time.
Disk Info	Current status of disk slot has been installedh
RAID	Current RAID status.

The N8800 will rotate these messages every one-two seconds on the LCD display.

USB Copy

The USB Copy function enables you to copy files stored on USB devices such as USB disks and digital cameras to the N8800 with a press of a button. To use USB copy, follow the steps below:

1. Plug your USB device into an available USB port on the Front Panel.

2. In **Display Mode**, press the **Down Button** (▼).

3. The LCD will display "USB Copy?"

4. Press **Enter** (↵) and the N8800 will start copying USB disks connected to the front USB port.

5. All of data will be copied into system folder named "USBcopy".

Management Mode

During setup and configuration, the LCD will be in **Management Mode**.

To enter into Management Mode, press **Enter (↵)** and an "*Enter Password*" prompt will show on the LCD.

At this time, the administrator has to enter the correct LCD password. System will check whether the correct LCD password has been entered. The default LCD password is "0000". If correct password is entered, you will enter into the **Management Mode** menu.

Management Mode	
Item	**Description**
WAN Setting	IP address and netmask of your WAN ports.
LAN Setting	IP address and netmask of your LAN ports.
Link Agg. Setting	Select **Load Balance** or **Failover**. (N8800 only)
Change Admin Passwd	Change administrator's password for LCD operation.
Reset to Default	Reset system to factory defaults.
Exit	Exit **Management Mode** and return to **Display Mode**.

> **NOTE** You can also change your LCD password using the Web Administration Interface by navigating to **System** > **Administrator Password**. For more on the Web Administration Interface, see **Chapter 4: System Management**.

Typical Setup Procedure

From the Web Administration Interface, you can begin to setup your N8800 for use on your network. Setting up the N8800 typically follows the five steps outlined below.

For more on how to use the Web Administration Interface, see **Chapter 4: System Management > Web Administration Interface**.

Step 1: Network Setup

From the Web Administration Interface, you can configure the network settings of the N8800 for your network. You can access the **Network** menu from the menu bar.

For details on how to configure your network settings, refer to **Chapter 4: System Management > Network Management**.

Step 2: RAID Creation

Next, administrators can configure their preferred RAID setting and build their RAID volume. You can access RAID settings from the menu bar of the Web Administration Interface by navigating to *Storage > RAID.*

For more information on configuring RAID, see **Chapter 4: System Management > RAID Configuration**.

Don't know which RAID level to use? Find out more about the different RAID levels from **Appendix C: RAID Basics**.

Step 3: Create Local Users or Setup Authentication

Once the RAID is ready, you can begin to create local users for the N8800, or choose to setup authentication protocols such as Active Directory (AD).

For more on managing users, go to **Chapter 4: System Management > User and Group Management**.

For more information on configuring Active Directory, see **Chapter 4: System Management > User and Group Management > ADS/NT Configuration**.

For information about the benefits of Active Directory, see **Appendix D: Active Directory Basics**.

Step 4: Create Folders and Set Up ACLs

Once users are introduced into your network, you can begin to create various folders on the N8800 and control user access to each using Folder Access Control Lists.

More information on managing folders, see **Chapter 4: System Management > Folder Management**.

To find out about configuring Folder Access Control Lists, see **Chapter 4: System Management > Folder Management > Folder Access Control List (ACL)**.

Step 5: Start Services

Finally, you can start to setup the different services of the N8800 for the users on your network. You can find out more about each of these services by clicking below:

SMB/CIFS

Apple File Protocol (AFP)

Network File System (NFS)

File Transfer Protocol (FTP)

iTunes Server

Media Server

Printer Server

Download Manager

Photo Server

Chapter 4: System Management

Overview

The N8800 provides an easily accessible **Web Administration Interface**. With it, you can configure and monitor the N8800 anywhere on the network.

Web Administration Interface

Make sure your network is connected to the Internet. To access the N8800 **Web Administration Interface**:

1. Type the N8800's IP address into your browser. (Default IP address is `http://192.168.1.100`)

NOTE	Your computer's network IP address must be on the same subnet as the N8800. If the N8800 has default IP address of 192.168.1.100, your managing PC IP address must be 192.168.1.x, where x is a number between 1 and 254, but not *100*.

2. Login to the system using the administrator user name and password. The factory defaults are:

   User Name: `admin`
   Password: `admin`

   If you changed your password in the setup wizard, use the new password.

Once you are logged in as an administrator, you will see the **Web Administration Interface**. From here, you can configure and monitor virtually every aspect of the N8800 from anywhere on the network.

Menu Bar

The **Menu Bar** is where you will find all of the information screens and system settings of the N8800. The various settings are placed in the following groups on the menu bar:

Menu Bar	
Item	**Description**
Status	Current system status of the N8800.
Storage	Information and settings for storage devices installed into the N8800.
Network	Information and settings for network connections, as well as various services of the N8800.

Accounts	Allows configuration of users and groups.
System	Various N8800 system settings and information.
Language	Choose your preferred language here.

Moving your cursor over any of these items will display the dropdown menu selections for each group.

In the following sections, you will find detailed explanations of each function, and how to configure your N8800.

Language Selection

The N8800 supports multiple languages, including:

- English
- French
- German
- Italian
- Traditional Chinese
- Simplified Chinese
- Japanese
- Korean
- Spanish

On the menu bar, click *Language* and the **Change Language** screen appears. This screen allows you to select preferred language for the N8800. Press *Apply* to confirm your selection.

Status Menu

The **Status** Menu on the menu bar allows you to see various aspects of the N8800. From here, you can discover the status of the N8800, and even find out other details like firmware version and up time.

Product Information

Once you login, you will first see the basic **Product Information** screen providing **Manufacturer**, **Product No.**, **Firmware Version**, and **Up Time** information.

Product Information	
Item	**Description**
Manufacturer	Displays the name of the system manufacturer.
Product No.	Shows the model number of the system.
Firmware version	Shows the current firmware version.
Up time	Displays the total run time of the system.

To access this screen again, navigate to **Status** > **About**.

System/Service Status

From the **Status** menu, choose the *System* item, and the **System Status** and **Service Status** screens appear. These screens provide basic system and service status information.
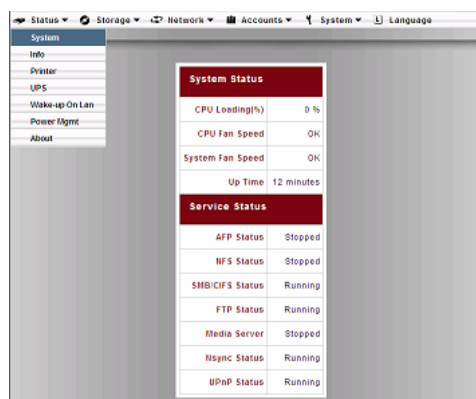
System Status	
Item	**Description**
CPU Loading (%)	Displays current CPU workload of the N8800.
CPU Fan Speed	Displays current CPU fan status.
System Fan1 Speed	Displays the current status of the system fan 1.
System Fan2 Speed	Displays the current status of the system fan 2.
Up Time	Shows how long the system has been running.

Service Status	
Item	**Description**
AFP Status	The status of the Apple Filing Protocol server.
NFS Status	The status of the Network File Service Server.

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SMB/CIFS Status	The status of the SMB/CIFS server.
FTP Status	The status of the FTP server.
Media Server	The status of the Media Server
Nsync Status	The status of the Nsync server.
UPnP Status	The status of the UPnP service.
SNMP	The status of the SNMP service.

System Information

From **Status** menu, choose the *Info* item, and the **System Information** screen appears. You can change the system information that appears on the Login page by entering the new information here and pressing *Apply* to confirm.

System Information	
Item	**Description**
System Description	Shows the system description that would also appear on the Login page.

Printer Status

From the **Status** menu, choose the *Printer* item, and the **Printer Information** screen appears. This screen provides the following information about the USB printer connected to the USB port.

Printer Status	
Item	**Description**
Manufacturer	Displays the name of the USB printer manufacturer.
Model	Displays the model of the USB printer.
Status	Displays the status of the USB printer.
Remove document from Queue	Click to remove all documents from printer queue
Restart Printer service	Click to restart printer service

If a corrupt print job is sent to a printer, printing may suddenly fail. If your print jobs seem to be locked up, pressing the *Remove All Documents* button to clear the print queue may resolve the issue.

For information on how to set up the Printer Server, refer to **Chapter 5: Additional Feature Setup > Printer Server**.

UPS Settings

The N8800 can also support various uninterruptible power supply units, providing extra data security and accessibility in the case of a power failure.

From the **Status** menu, choose the *UPS* item and the **UPS Setting** screen appears. Make any changes you wish, and press *Apply* to confirm changes. See the following table for a detailed description of each item.

UPS Settings	
Item	**Description**
UPS Monitoring	Enable or disable UPS monitoring.
Manufacturer	Choose the UPS manufacturer and model number from the dropdowns.
Battery Status	Current status of the UPS battery
Power	Current status of the power being supplied to the UPS
Seconds between power failure and first notification	Delay between power failure and first notification in seconds.
Seconds between subsequent power failure notifications	Delay between subsequent notifications in seconds.
Shutdown the system when the battery charge is less than	Amount of UPS battery remaining before system should auto-shutdown.
Apply	Press *Apply* to save your changes.

For a list of supported UPS units, see **Appendix E: UPS Compatibility List**.

Wake-Up On Lan (WOL)

The N8800 has the ability to be awoken from sleep mode via WAN port.

From the **Status** menu, choose the *WOL* item, and the **Wake-up On Lan Configuration** screen appears. From here, you can **Enable** or **Disable**.

Wake-up On Lan Configuration	
Item	**Description**
WOL Servic	**Enable** or **Disable** WOL service
Apply	Click *Apply* to save changes.

Power Management

Using the N8800's Power Management, you can save energy and money by scheduling the N8800 to turn itself on and off during certain times of the day.

From the **Status** menu, choose the *Power Mgmt* item and the **Schedule Power On/Off** screen appears.

To designate a schedule for the N8800 to turn on and off, first enable the feature by checking the **Enable Schedule Power On/Off** checkbox.

Then, simply choose an on and off time for each day of the week that you would like to designate a schedule by using the various dropdowns.

Finally, click *Apply* to save your changes.

Example - Monday: On: 8:00; Off: 16:00
System will turn on at 8:00 AM on Monday, and off at 16:00 on Monday. System will turn on for the rest of the week.

If you choose an on time, but do not assign an off time, the system will turn on and remain on until a scheduled off time is reached, or if the unit is shutdown manually.

Example - Monday: On: 8:00
System will turn on at 8:00 AM on Monday, and will not shut down unless powered down manually.

You may also choose two on times or two off times on a particular day, and the system will act accordingly.

Example - Monday: Off: 8:00; Off: 16:00
System will turn off at 8:00 AM on Monday. System will turn off at 16:00 PM on Monday, if it was on. If the system was already off at 16:00 PM on Monday, system will stay off.
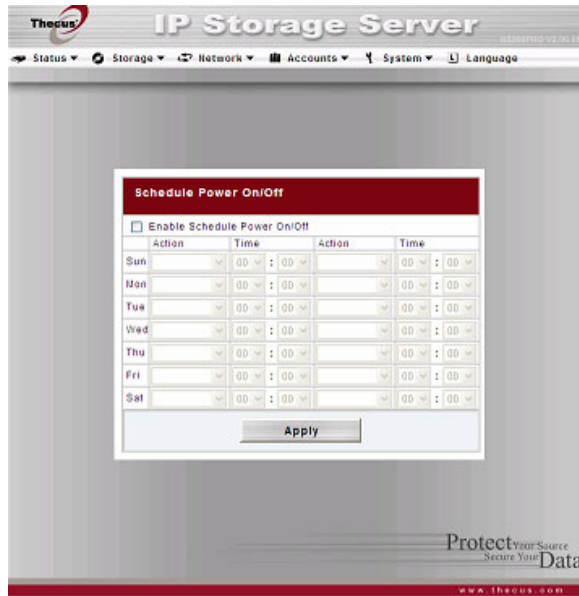
Storage Management

The **Storage Menu** displays the status of storage devices installed in the N8800, and includes storage configuration options such as RAID and disk settings, folder configuration, and Nsync settings.

Disks Information

From the **Storage** menu, choose the *Disks* item and the **Disks Information** screen appears. From here, you can see various items about installed SATA hard disks. Blank lines indicate that a SATA hard disk is not currently installed in that particular disk slot.
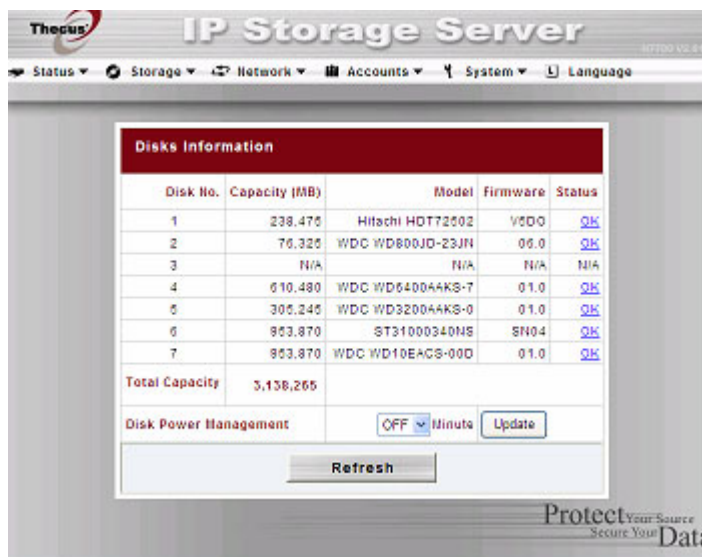
Disks Information	
Item	**Description**
Disk No.	Indicates disk location.
Capacity	Shows the SATA hard disk capacity.
Model	Displays the SATA hard disk model name.
Firmware	Shows the SATA hard disk firmware version.
Status	Indicates the status of the disk. Can read **OK**, **Warning**, or **Failed**.
Total Capacity	Shows the total SATA hard disk capacity.
Disk Power Management	The administrator can set the disk to power down after a period of inactivity.

NOTE	When the Status shows Warning, it usually means there are bad sectors on the hard disk. It is shown only as a precaution and you should consider changing the drives.

S.M.A.R.T. Information

On the **Disks Information** screen, the status of each disk will be displayed in the **Status** column. Clicking on an *OK* or *Warning* link will display the **S.M.A.R.T Information** window for that particular disk.

S.M.A.R.T. Information	
Item	**Description**
Tray Number	Tray the hard disk is installed in.
Model	Model name of the installed hard disk.
Power ON Hours	Count of hours in power-on state. The raw value of this attribute shows total count of hours (or minutes, or seconds, depending on manufacturer) in power-on state.
Temperature Celsius	The current temperature of the hard disk in degrees Celsius
Reallocated Sector Count	Count of reallocated sectors. When the hard drive finds a read/write/verification error, it marks this sector as "reallocated" and transfers data to a special reserved area (spare area). This process is also known as remapping and "reallocated" sectors are called remaps. This is why, on a modern hard disks, you can not see "bad blocks" while testing the surface - all bad blocks are hidden in reallocated sectors. However, the more sectors that are reallocated, the more a decrease (up to 10% or more) can be noticed in disk read/write speeds.
Current Pending Sector	Current count of unstable sectors (waiting for remapping). The raw value of this attribute indicates the total number of sectors waiting for remapping. Later, when some of these sectors are read successfully, the value is decreased. If errors still occur when reading sectors, the hard drive will try to restore the data, transfer it to the reserved disk area (spare area), and mark this sector as remapped. If this attribute value remains at zero, it indicates that the quality of the corresponding surface area is low.
Back	Press *Back* to go back to the **Disks Information** screen.

NOTE	If the Reallocated Sector Count or Current Pending Sector of a hard disk drive is not zero, the status of the disk will show "Warning". This warning is only used to alert the system administrator that there are bad sectors on the disk, and they should replace those disks as soon as possible.

RAID Information

From the **Storage** menu, choose the *RAID* item and the **RAID List** screen appears.

This screen lists the RAID volumes currently residing on the N8800. From this screen, you can get information about the status of your RAID volumes, as well as the capacities allocated for data and iSCSI. There is also a graph which represents how the RAID volume is currently allocated.

To configure your RAID settings, press the *RAID Config* button to go to the **RAID Configuration** screen.

RAID Information	
Item	**Description**
Select	Used to select the current RAID volume.
Master RAID	The RAID volume currently designated as the Master RAID volume.
ID	ID of the current RAID volume. **NOTE: All RAID IDs must be unique.**
RAID Level	Shows the current RAID configuration.
Status	Indicates status of the RAID. Can read either *Healthy*, *Degraded*, or *Damaged*.
Disks Used	Hard disks used to form the current RAID volume.
Total Capacity	Total capacity of the current RAID.
Data Capacity	Indicates the used capacity and total capacity used by user data.

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iSCSI Capacity	Indicates the capacity allocated to iSCSI.
RAID Config	Press this to configure RAID volumes.
Space Allocation	Press this to adjust the space allocated for data and iSCSI.

RAID Configuration

On the **RAID List** screen, press the **RAID Config** button to go to the **RAID Configuration** screen. In addition to RAID disk information and status, this screen lets you make RAID configuration settings.

For more information on RAID, see **Appendix C: RAID Basics**.

RAID Level

You can set the storage volume as **JBOD**, **RAID 0**, **RAID 1**, **RAID 5, RAID 6 or RAID 10**. RAID configuration is usually required only when you first set up the device. A brief description of each RAID setting follows:

RAID Levels	
Level	**Description**
JBOD	The storage volume is a single HDD with no RAID support. JBOD requires a minimum of 1 disk.
RAID 0	Provides data striping but no redundancy. Improves performance but not data safety. RAID 0 requires a minimum of 2 disks.
RAID 1	Offers disk mirroring. Provides twice the read rate of single disks, but same write rate. RAID 1 requires a minimum of 2 disks.
RAID 5	Data striping and stripe error correction information provided. RAID 5 requires a minimum of 3 disks. RAID 5 can sustain one failed disk.
RAID 6	Two independent parity computations must be used in order to provide protection against double disk failure. Two different algorithms are employed to achieve this purpose. RAID 6 requires a minimum of 4 disks. RAID 6 can sustain two failed disks.
RAID 10	RAID 10 has high reliability and high performance. RAID 10 is implemented as a striped array whose segments are RAID 1 arrays. It has the fault tolerance of RAID 1 and the performance of RAID 0. RAID 10 requires 4 disks. RAID 10 can sustain two failed disks.

WARNING If the administrator improperly removes a hard disk that should not be removed when RAID status is Degraded, all data will be lost.

RAID Configuration

Using **RAID Settings**, you can select stripe size, choose which disks are RAID disks or the Spare Disk. .

RAID Configurations	
Item	**Description**
RAID	Check the boxes of the hard drives you wish to add to the storage volume.
Master RAID	Check a box to designate this as the Master RAID volume. See the **NOTE** below for more information.
Disk No.	Number assigned to the installed hard disks.

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Capacity (MB)	Capacity of the installed hard disks.
Model	Model number of the installed hard disks.
Status	Status of the installed hard disks.
Member	If this is checked, current hard disk is a part of a RAID volume.
Spare	If this is checked, current hard disk is designated as a spare for a RAID volume.
Stripe Size	This sets the stripe size to maximize performance of sequential files in a storage volume. Keep the 64K setting unless you require a special file storage layout in the storage volume. A larger stripe size is better for large files.
Used Percentage	The percentage of the RAID volume that will be used to store data.
Apply	Press this button to configure a file system and create the RAID storage volume.
Remove	Click to remove the RAID volume. All user data, and iSCSI data will be removed.
Back	Press this button to exit without saving changes.
Expand	Press this button to configure a file system and create the RAID storage volume.
Migration	Press this button to migrate RAID level.

Creating a RAID

To create a RAID volume, follow the steps below:

1. On the **RAID Information** screen, click *New*.

2. On the **RAID Configuration** screen, set the RAID storage space as **JBOD**, **RAID 0**, **RAID 1**, **RAID 5**, **RAID 6**, or **RAID 10** — see **Appendix C: RAID Basics** for a detailed description of each.

3. Specify a RAID ID.

4. If this RAID volume is meant to be the Master RAID volume, tick the **Master RAID** checkbox.

> **NOTE** In a multiple RAID configuration, one RAID volume must be designated as the Master RAID volume. The Master RAID volume will store all installed modules. If the Master RAID is changed to another location (i.e. assigning HDD 2 to be the Master RAID volume after HDD 1 had been previously assigned), then all modules must be reinstalled. In addition, all system folders that were contained on the Master RAID volume will be invisible. Reassigning this volume to be the Master RAID will make these folders visible again.

5. Tick the checkboxes under the "member" heading of the hard disks you wish to use to create a RAID.

6. Specify a stripe size — 64K is the default setting.

7. Specify the percentage allocated for user data. The remaining space will be made available for iSCSI target.

8. Selected the file system you like to have for this RAID volume.

> **NOTE** Select ZFS file system while snapshot is needed. It is only one ZFS file system allowed to be created per system.
> ZFS file system is only accessible by CIFS/SMB, not for AFP and NFS users.

9. Press *Apply* to build the RAID storage volume.

NOTE	Building a RAID storage space may take time, depending on the size of hard drives and RAID mode.

WARNING	Creating RAID destroys all data in the current RAID volume. The data is unrecoverable.

With a RAID 1, RAID 5, RAID 6, or RAID 10 volume, you can also add a spare disk after the RAID is created. See **Chapter 7: Tips and Tricks > Adding a Spare Disk** for details.

Expanding a RAID

To expand a RAID 1, RAID 5, RAID 6, or RAID 10 volume, follow the steps below:

1. Replace one of the hard drives in the RAID volume and allow it to automatically rebuild.

2. Once rebuilt, you can continue to replace any remaining disks in the RAID array.

3. When you are done replacing hard drives, log on to Web Management. Navigate to **Storage** > *RAID* to open the **RAID List** screen.

4. On the **RAID List** screen, select the RAID volume by clicking on its radio button, and click *RAID Config* to open the **RAID Configuration** screen.

5. On the **RAID Configuration** screen, click *Expand*.

Migrating a RAID

Once a RAID volume has been created, you may want to move it to other physical drives or change the RAID array all together. To migrate a RAID 0, RAID 1, or RAID 5 volume, follow the steps below:

1. From the RAID Configuration screen, click Migrate RAID.

2. A list of possible RAID migration configurations will be listed. Select the desired migration scheme and click OK.

3. The system will begin migrating the RAID volume.

NOTE	Migrating a RAID volume could take several hours to complete

Below is a table listing of possible RAID migration schemes:

To➔ ⬇ From	RAID 0	RAID 5
RAID 0	[RAID 0] HDDx2 to [RAID 0] HDDx3 [RAID 0] HDDx2 to [RAID 0] HDDx4	[RAID 0] HDDx2 to [RAID 5] HDDx3 [RAID 0] HDDx2 to [RAID 5] HDDx4

	[RAID 0] HDDx2 to [RAID 0] HDDx5 [RAID 0] HDDx2 to [RAID 0] HDDx6 [RAID 0] HDDx2 to [RAID 0] HDDx7 [RAID 0] HDDx2 to [RAID 0] HDDx8 [RAID 0] HDDx3 to [RAID 0] HDDx4 [RAID 0] HDDx3 to [RAID 0] HDDx5 [RAID 0] HDDx3 to [RAID 0] HDDx6 [RAID 0] HDDx3 to [RAID 0] HDDx7 [RAID 0] HDDx3 to [RAID 0] HDDx8 [RAID 0] HDDx4 to [RAID 0] HDDx5 [RAID 0] HDDx4 to [RAID 0] HDDx6 [RAID 0] HDDx4 to [RAID 0] HDDx7 [RAID 0] HDDx3 to [RAID 0] HDDx8 [RAID 0] HDDx5 to [RAID 0] HDDx6 [RAID 0] HDDx5 to [RAID 0] HDDx7 [RAID 0] HDDx5 to [RAID 0] HDDx8 [RAID 0] HDDx6 to [RAID 0] HDDx7 [RAID 0] HDDx6 to [RAID 0] HDDx8 [RAID 0] HDDx7 to [RAID 0] HDDx8	[RAID 0] HDDx2 to [RAID 5] HDDx5 [RAID 0] HDDx2 to [RAID 5] HDDx6 [RAID 0] HDDx2 to [RAID 5] HDDx7 [RAID 0] HDDx2 to [RAID 5] HDDx8 [RAID 0] HDDx3 to [RAID 5] HDDx4 [RAID 0] HDDx3 to [RAID 5] HDDx5 [RAID 0] HDDx3 to [RAID 5] HDDx6 [RAID 0] HDDx3 to [RAID 5] HDDx7 [RAID 0] HDDx3 to [RAID 5] HDDx8 [RAID 0] HDDx4 to [RAID 5] HDDx5 [RAID 0] HDDx4 to [RAID 5] HDDx6 [RAID 0] HDDx4 to [RAID 5] HDDx7 [RAID 0] HDDx4 to [RAID 5] HDDx8 [RAID 0] HDDx5 to [RAID 5] HDDx6 [RAID 0] HDDx5 to [RAID 5] HDDx7 [RAID 0] HDDx5 to [RAID 5] HDDx8 [RAID 0] HDDx6 to [RAID 5] HDDx7 [RAID 0] HDDx6 to [RAID 5] HDDx8 [RAID 0] HDDx7 to [RAID 5] HDDx8
RAID 1	[RAID 1] HDDx2 to [RAID 0] HDDx2 [RAID 1] HDDx2 to [RAID 0] HDDx3 [RAID 1] HDDx2 to [RAID 0] HDDx4 [RAID 1] HDDx2 to [RAID 0] HDDx5 [RAID 1] HDDx2 to [RAID 0] HDDx6 [RAID 1] HDDx2 to [RAID 0] HDDx7 [RAID 1] HDDx2 to [RAID 0] HDDx8 [RAID 1] HDDx3 to [RAID 0] HDDx3 [RAID 1] HDDx3 to [RAID 0] HDDx4 [RAID 1] HDDx3 to [RAID 0] HDDx5 [RAID 1] HDDx3 to [RAID 0] HDDx6 [RAID 1] HDDx3 to [RAID 0] HDDx7 [RAID 1] HDDx3 to [RAID 0] HDDx8 [RAID 1] HDDx4 to [RAID 0] HDDx4 [RAID 1] HDDx4 to [RAID 0] HDDx5 [RAID 1] HDDx4 to [RAID 0] HDDx6 [RAID 1] HDDx4 to [RAID 0] HDDx7 [RAID 1] HDDx4 to [RAID 0] HDDx8 [RAID 1] HDDx5 to [RAID 0] HDDx5 [RAID 1] HDDx5 to [RAID 0] HDDx6 [RAID 1] HDDx5 to [RAID 0] HDDx7 [RAID 1] HDDx5 to [RAID 0] HDDx8 [RAID 1] HDDx6 to [RAID 0] HDDx6 [RAID 1] HDDx6 to [RAID 0] HDDx7 [RAID 1] HDDx6 to [RAID 0] HDDx8 [RAID 1] HDDx7 to [RAID 0] HDDx7 [RAID 1] HDDx7 to [RAID 0] HDDx8	[RAID 1] HDDx2 to [RAID 5] HDDx3 [RAID 1] HDDx2 to [RAID 5] HDDx4 [RAID 1] HDDx2 to [RAID 5] HDDx5 [RAID 1] HDDx2 to [RAID 5] HDDx6 [RAID 1] HDDx2 to [RAID 5] HDDx7 [RAID 1] HDDx2 to [RAID 5] HDDx8 [RAID 1] HDDx3 to [RAID 5] HDDx3 [RAID 1] HDDx3 to [RAID 5] HDDx4 [RAID 1] HDDx3 to [RAID 5] HDDx5 [RAID 1] HDDx3 to [RAID 5] HDDx6 [RAID 1] HDDx3 to [RAID 5] HDDx7 [RAID 1] HDDx3 to [RAID 5] HDDx8 [RAID 1] HDDx4 to [RAID 5] HDDx4 [RAID 1] HDDx4 to [RAID 5] HDDx5 [RAID 1] HDDx4 to [RAID 5] HDDx6 [RAID 1] HDDx4 to [RAID 5] HDDx7 [RAID 1] HDDx4 to [RAID 5] HDDx8 [RAID 1] HDDx5 to [RAID 5] HDDx5 [RAID 1] HDDx5 to [RAID 5] HDDx6 [RAID 1] HDDx5 to [RAID 5] HDDx7 [RAID 1] HDDx5 to [RAID 5] HDDx8 [RAID 1] HDDx6 to [RAID 5] HDDx6 [RAID 1] HDDx6 to [RAID 5] HDDx7 [RAID 1] HDDx6 to [RAID 5] HDDx8 [RAID 1] HDDx7 to [RAID 5] HDDx7 [RAID 1] HDDx7 to [RAID 5] HDDx8
RAID 5	X	[RAID 5] HDDx3 to [RAID 5] HDDx4 [RAID 5] HDDx3 to [RAID 5] HDDx5 [RAID 5] HDDx3 to [RAID 5] HDDx6 [RAID 5] HDDx3 to [RAID 5] HDDx7 [RAID 5] HDDx3 to [RAID 5] HDDx8 [RAID 5] HDDx4 to [RAID 5] HDDx5 [RAID 5] HDDx4 to [RAID 5] HDDx6 [RAID 5] HDDx4 to [RAID 5] HDDx7 [RAID 5] HDDx4 to [RAID 5] HDDx8 [RAID 5] HDDx5 to [RAID 5] HDDx6 [RAID 5] HDDx5 to [RAID 5] HDDx7 [RAID 5] HDDx5 to [RAID 5] HDDx8 [RAID 5] HDDx6 to [RAID 5] HDDx7 [RAID 5] HDDx6 to [RAID 5] HDDx8

Deleting a RAID

To delete a RAID volume, follow the steps below:

1. On the RAID List screen, select the RAID volume by clicking on its radio button, and click *RAID Config* to open the **RAID Configuration** screen.

2. On the **RAID Configuration** screen, click *Remove RAID*.

3. The confirmation screen appear, you will have to input "Yes" with exactly wording case to complete "**Remove RAID**" operation

WARNING	Removing RAID destroys all data in the current RAID volume. The data is unrecoverable.

Space Allocation

You may specify the space allocated for iSCSI volume.

To do this, under the **Storage** menu, click *RAID* and the **RAID List** window appears. Select the RAID volume you wish to reallocate by clicking on its radio button, and click *Space Allocation*. The **RAID Information** and **Volume Allocation List** windows will appear.

The Volume Allocation List displays the space allocated for **iSCSI** volumes on the current RAID volume. The N8800 supports up to **5** iSCSI volumes in each RAID volume.

Volume Allocation List	
Item	**Description**
Modify	Click this to modify the allocated space.
Del	Click this to delete the allocated space.
Type	Type of volume. Can be either USB or iSCSI.
Name	Name assigned to the volume.
Capacity	Capacity of the allocated space.
iSCSI Target	Click to allocate space to iSCSI volume.

Allocating Space for iSCSI Volume

To allocate space for an iSCSI volume on the current RAID volume, follow the steps below:

1. Under the **Volume Allocation List**, click *iSCSI Target*.
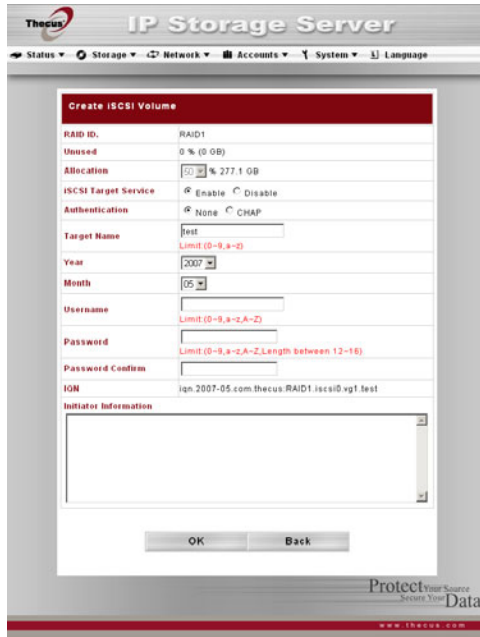
The **Create iSCSI Volume** screen appears.

Create iSCSI Volume	
Item	**Description**
RAID ID	ID of current RAID volume.
Unused	Percentage and amount of unused space on current RAID volume.
Allocation	Percentage and amount of space allocated to iSCSI volume.
iSCSI Target Service	Enable or Disable the iSCSI Target service.
Authentication	You may choose CHAP authentication or choose None.
Target Name	Name of the iSCSI Target. This name will be used by the **Stackable NAS** function to identify this export share.
Year	Select the current year from the dropdown.
Month	Select the current month from the dropdown.
Username	Enter a username.
Password	Enter a password.
Password Confirm	Reenter the chosen password
IQN	The iSCSI Qualified Name
Initiator Information	Shows the name and status of iSCSI initiators logged on the system
OK	Click *OK* to save changes.
Back	Click *Back* to exit without saving.

2. Designate the percentage to be allocated from the **Allocation** dropdown.

3. Enable the **iSCSI Target Service** by selecting *Enable*.

4. Choose to enable *CHAP* authentication or choose *None*.

5. Enter a **Target Name**. This will be used by the **Stackable NAS** function to identify this export share.

6. Choose the current year from the **Year** dropdown.

7. Choose the current month from the **Month** dropdown.

8. If you've enabled CHAP authentication, enter a **username** and a **password**. Confirm your chosen password be reentering it in the **Password Confirm** box.

9. Click *OK* to create the iSCSI volume.

Stackable NAS

The N8800's capacity can be expanded even further using the stackable function. With it, users can expand the capacity of their network storage systems with up to 5 other stack target volumes which are located in different systems. These can be stacked through single network access like SMB or AFP acting as a share folder type.

For detailed instructions on how to use this feature, please refer to the **Stackable User Guide**.

Snapshot

The N8800 is capable for snapshot version control supported. To have snapshot to work on the file system creation for RAID volume has to be "ZFS". For more information how to using snapshot, please refer to next section "Folder management".

RAID Configuration
If you lose a hard disk, data loss will occur.(JBOD,RAID0)!

RAID Level	⦿ JBOD ○ RAID 0 ○ RAID 1 ○ RAID 5 ○ RAID 6 ○ RAID 10				
RAID ID.	RAID	(Allow 0~9, a~z, A~Z) ☐ Master RAID - Take effect after checked box			
Disk No.	Capacity (MB)	Model	Status	Used	Spare
1	238,475	Hitachi HDT72502	OK	☑	☐
2	76,324	WDC WD800JD-23JN	OK	☑	☐
3	0	N/A	N/A	☐	☐
4	610,480	WDC WD6400AAKS-7	OK	☑	☐
5	305,245	WDC WD3200AAKS-0	OK	☑	☐
6	953,869	ST31000340NS	OK	☑	☐
7	953,869	WDC WD10EACS-00D	OK	☑	☐
Stripe Size	64 KB ▾				
Used Percentage	Data Percentage 95 ▾ %	*Note: Please go back to RAID Information page to allocate the unused RAID space			
File System	Ext3 File System ▾				
	Ext3 File System				
Create	ZFS File System	Remove RAID		Back	

Folder Management

From the **Storage** menu, choose *Folder*, and the **Folder** screen appears. This screen allows you to create and configure folders on the N8800 volume.
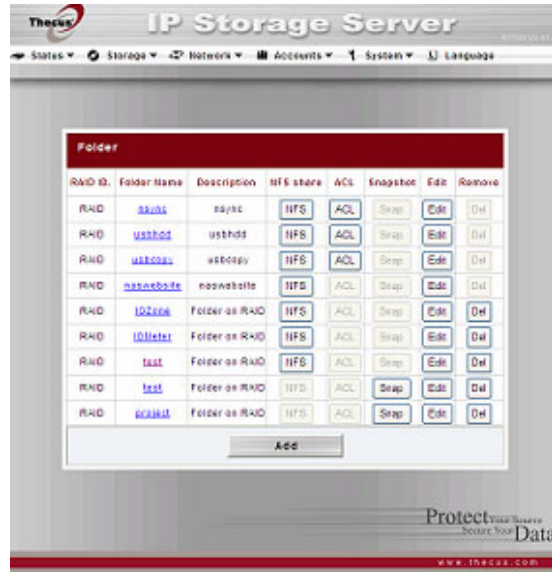
Folder		
Item	**Description**	
Folder name	Displays the name of the folder.	
Description	Provides a description of the folder.	
NFS Share	Press *NFS Share* to configure which hosts on the network are allowed to access this folder using NFS. With "ZFS" file system selected RAID volume, it is un-configurable.	
ACL	Press *ACL* (Access Control List) to configure which users have access to this folder.	
Edit	Press *Edit* to enter the **Edit** screen and modify the folder's name and description.	
Snapshot	Press **Snap** to open snapshot configuration screen, the button will be only configurable with "ZFS" file system selected RAID volume.	
Del	Press *Del* to delete the folder. A prompt appears asking to confirm the deletion.	
Add	Press *Add* to enter the **Add Folder** screen.	

NOTE   Nsync folders will be created once the RAID is created. Nsync folder is used by Nsync server. It will be used for files backed up by Nsync.

Adding Folders

On the **Folder** screen, press the *Add* button and the **Add Folder** screen appears. This screen allows you to add a folder. After entering the information, press *Apply* to create new folder. Press *Back* to return to the **Folder** screen.

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Add Folder	
Item	**Description**
RAID ID	RAID volume where the new folder will reside.
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable or disable users from browsing the folder contents. If **Yes** is selected, then the share folder will be browseable.
Public	Admit or deny public access to this folder. If **Yes** is selected, then users do not need to have access permission to write to this folder. When accessing a public folder via FTP, the behavior is similar to anonymous FTP. Anonymous users can upload/download a file to the folder, but they cannot delete a file from the folder.
Share Folder Limit	Enter the maximum size of the folder in Gigabytes (GB). The folder cannot grow beyond this limit. You can enter a 0 to turn off the share folder limit.
Apply	Press *Apply* to create the folder.
Back	Press *Back* to return to the **Folder** screen.

NOTE	Folder names are limited to 60 characters. Systems running Windows 98 or earlier may not support file names longer than 15 characters.

Editing Folders

On the **Folder** screen, press the *Edit* button and the **Edit Folder** screen appears. This screen allows you to change folder information. After entering the information, press *Submit* to apply the changes. Press *Back* to return to the **Folder** screen.

Edit Folder	
Item	**Description**
Share Name	Enter the name of the (Share) folder.
Comment	Provide a description the folder.
Browseable	Enable or disable users from browsing the folder contents. This setting will only apply while access via SMB/CIFS and web disk.
Public	Admit or deny public access to this folder.
Share Limit	Enter the maximum size of the folder. The folder will not grow beyond this limit. You can enter a 0 to turn off the share folder limit.
Submit	Press *Submit* to save your changes.
Back	Press *Back* to return to the **Folder** screen.

Deleting Folders

To delete a folder, press the *Del* button from the specified folder row. The system will confirm folder deletion. Press *OK* to delete the folder permanently or *Cancel* to go back to the folder list.

WARNING	All the data stored in the folder will be deleted once the folder is deleted. The data will not be recoverable.

NFS Share

To allow NFS access to the share folder, enable the **NFS Service**, and then set up hosts with access rights by clicking **Add**.

NFS Share	
Item	**Description**
Hostname	Enter the name or IP address of the host
Privilege	Host has either read only or writeable access to the folder.
Guest System Support	There are two selections available: • Unix / Linux System • AIX (Allow source port > 1024) Choose the one which best fits your needs.
IO Mapping	There are three selections available: • Guest system root account will have full access to this share (root:root). • Guest system root account will be mapped to anonymous user (nobody:nogroup) on NAS. • All user on guest system will be mapped to anonymous user (nobody:nogroup) on NAS. Choose the one which best fits your needs.
Apply	Click to save your changes.
Back	Click to abandon changes.

Snap (Snapshot configuration)

If added folder has located in the RAID volume with "ZFS" file system, then the folder management screen with "Snap" button will be configurable.

Clicking on "Snap" then screen appears as following.

Snapshot	
Item	**Description**
Take Shot	Click to take snapshot right away.
Schedule	Click to open snapshot schedule setup screen.
Back	Click to go back folder management screen.

Clicking on schedule button then schedule setup screen appear. Checked the enable check box to activate the snapshot scheduled operation.

The N8800 snapshot is supported total **16 versions**. Once checked "Automatically remove oldest snapshot", the oldest will be removed to let newest to added on top. Otherwise, if the check box is unchecked and snapshot versions are up to 16 then system will appear warning message and won't execute the task till available version count.

The snapshot schedule rules can be setup for monthly, weekly or daily hour.
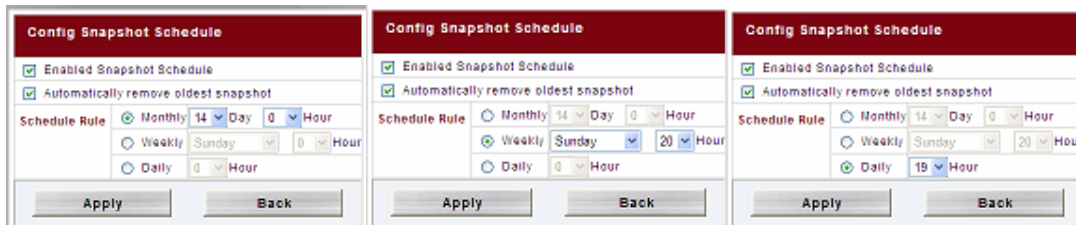
Clicking on *Apply* after firmed with desired schedule or click **back** to Snap screen.

If any snapshot has taken then it will listed in Snapshot list as example below. This example shows folder "test" has created under RAID volume in ZFS file system. It has been taken snapshot twice so far at time displayed.

These taken snapshot is only accessible though CIFS/SMB by manually type **\\NAS IP address\snapshot** and invisible from normal access. Also, the taken snapshot version is read only can not be deleted under CIFS/SMB access but only click the "Del" button showing on the screen shot above.

Folder Access Control List (ACL)
On the Folder screen, press the *ACL* button, and the **Access Control List** screen appears. This screen allows you to configure access to the specific folder for users and groups. Select a user or a group from the left hand column and then choose *Deny*, *Read Only*, or *Writable* to configure their access level. Press the *Submit* button to confirm your settings.
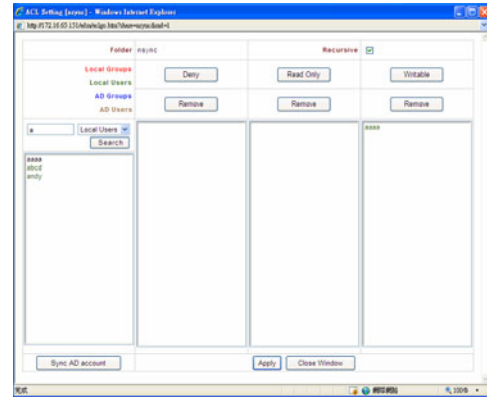
Access Control List	
Item	**Description**
Deny	Denies access to users or groups who are displayed in this column.
Read Only	Provides Read Only access to users or groups who are displayed in this column.
Writable	Provides Write access to users or groups who are displayed in this column.
Remove	Removes the selected user or group from the column in order to reset their access privileges.
Sync AD account	Press this button when there is no list from ADS/PDC or more ADS user has been added but yet appear from list.
Submit	Submits and confirms settings.
Reset	Cancel your settings and return to the **Folder** screen.

To configure folder access, follow the steps below:

1. On the **ACL** screen, all network groups and users are listed in the left hand column. Select a group or user from this list.

2. With the group or user selected, press one of the buttons from the three access level columns at the top. The group or user then appears in that column and has that level of access to the folder.

3. Continue selecting groups and users and assigning them access levels using the column buttons.

4. To remove a group or user from an access level column, press the *Remove* button in that column.

5. When you are finished, press *Submit* to submit and confirm your ACL settings.

NOTE	If one user has belonged to more than one group but different privilege than the priority Deny > Read Only > Writable

The ACL screen also allows you to search for a particular user. To do this, follow the steps below:

1. In the blank, enter the name of the user you would like to find.

2. From the drop down select the group you would like to search for the user in.
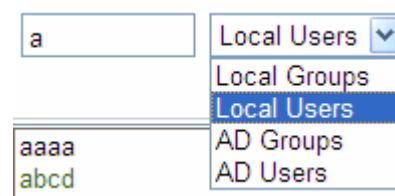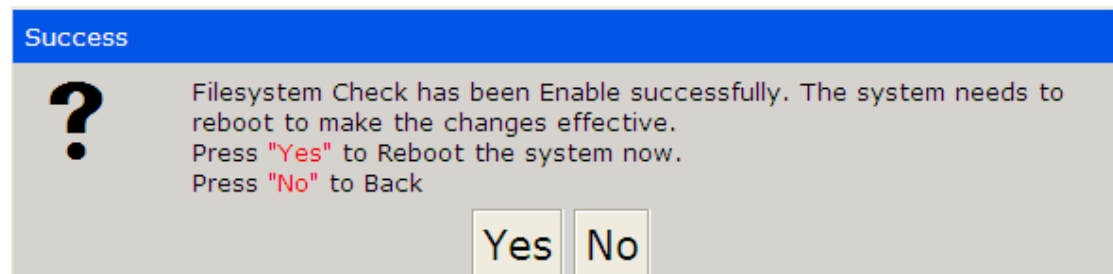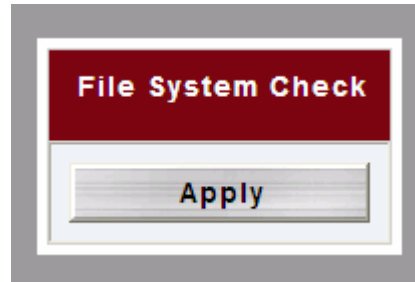

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3. Click *Search*.

File System Check

The File System Check allows you to perform a check on the integrity of your disks' file system. Under the **Storage** menu, click *Filesystm Check* and the **File System Check** prompt appears.

To perform a file system check, click *Apply*.

Once clicked, the following prompt will appear:


Click *Yes* to reboot the system.

Once the system has rebooted, you will be returned to the **File System Check** prompt. There you will see the available RAID volumes to run the file system check on. Check the desired RAID volumes and click *Next* to proceed with the file system check. Click *Reboot* to reboot without running the check.

Once you click *Next*, you will see the following screen:

Click **Start** to begin the file system check. Click **Back** to return to the previous screen. Click **Reboot** to reboot the system.

When the file system check is run, the system will show 20 lines of information until it is complete. Once complete, the results will be shown at the bottom.
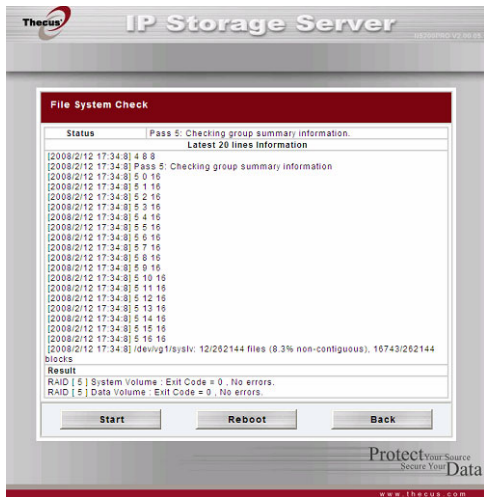
| NOTE | The system must be rebooted before the N8800 can function normally. |

Advance Option

There are 5 items is currently allow Admin to Enable/Disable to operate N8800. The details as listed in following screenshot. With the option changed, it will need to reboot system to activate.

File Access Cache

File Access Cache is default **Enable**. This option will help to increase the performance while single client access share folder in writing under SMB/CIFS protocol.

Samba Recycle Bin

The N8800 is supported recycle bin via SMB/CIFS protocol. Simply enable it then all of deleted files/folders will reside in the ".recycle" folder with hidden attribution in each share.

In general, Windows has default to invisible all of hidden folders/files. So please enable this option to view ".recycle" folder.

Samba Anonymous Login Authentication

To enable this option, no matter there is share folder has been created in public access. The user account and password is needed from system to access under SMB/CIFS protocol. On the other hand, no more anonymous logAdvance Option

iSCSI Block Size

Select the block size with 4K while the iSCSI volume size is over 2TB.

iSCSI CRC/Checksum

To enable this option, the initiator can connect with "Data digest" and "Header digest" enabled.

Network Management

Use the **Network** menu to make network configuration settings as well as service support settings.

WAN Configuration

From the **Network** menu, choose *WAN*, and the **WAN Configuration** screen appears. This screen displays the network parameters of the WAN connection. You may change any of these items and press *Apply* to confirm your settings. See a description of each item in the following table:

WAN Configuration	
Item	**Description**
Host name	Host name that identifies the N8800 on the network.
Domain name	Specifies the domain name of the N8800.
MAC Address	MAC address of the network interface.
Jumbo Frame Support	Enable or disable Jumbo Frame Support of the WAN interface on your N8800.
DHCP	Enable or disable the N8800 from obtaining in IP address via DHCP server. If you require a static IP, disable this feature and input your network configuration.
IP	IP address of the WAN interface.
Netmask	Network mask, which is generally: `255.255.255.0`
Gateway	Default Gateway IP address.
DNS Server	Domain Name Service (DNS) server IP address.
IP Sharing Mode	When enabled, PCs connected to the LAN port will be able to access the WAN. Default is Enabled.
Link Aggregation **(N8800 only)**	Specifies whether WAN and LAN ports will be aggregated and act as one port. **Failover**: When one port fails, the other one will take over. **Load Balance**: Ethernet traffic will flow alternative between two Ethernet ports. **802.3ad**: Linkage two Ethernet ports in parallel to increase throughput.

NOTE

- Only use Jumbo Frame settings when operating in a Gigabit environment where all other clients have Jumbo Frame Setting enabled.
- Enabling DHCP automatically turns on UPnP—see the Service Support Screen.
- If you are only using the WAN port, we suggest that you disable IP Sharing Mode. This will result in higher throughput.
- A correct DNS setting is vital to networks services, such as SMTP and NTP.
- To use the Link Aggregation with "802.3ad selected" feature, please make sure the networking equipment on the other end of Ethernet cable also supports 802.3ad protocol.

LAN Configuration

The N8800 supports two Gigabit Ethernet ports for higher service availability. To configure these ports, choose *LAN* from the **Network** menu, and the **LAN Configuration** screen appears. Press *Apply* to save your changes.

LAN Configuration	
Item	**Description**
MAC Address	Displays the MAC address of the LAN interface.
IP	Specifies the IP address of the LAN interface.
Netmask	Specifies the Network Mask of the LAN interface.
Jumbo Frame Support	Enable or disable Jumbo Frame Support on the LAN interface.

DHCP Configuration

A DHCP server can be configured to assign IP addresses to devices connected to the LAN port. To configure these ports, choose *LAN* from the **Network** menu.

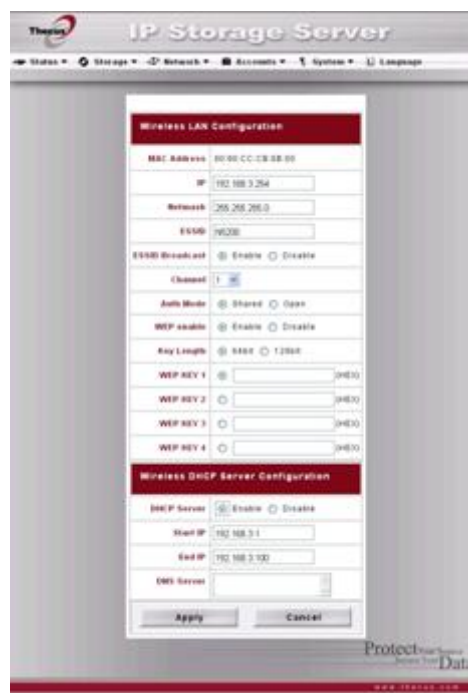| DHCP Configuration	
Item	**Description**
DHCP Server	Enable or disable the DHCP server to automatically assign IP address to PCs connected to the LAN interface.
Start IP	Specifies the starting IP address of the DHCP range.
End IP	Specifies the ending IP address of the DHCP range.
DNS Server	Displayed the DNS server IP address.

WLAN Configuration

When a compatible wireless USB dongle is installed on the N8800, the N8800 will become an access point, and the **Network** dropdown menu will contain a **WLAN** menu item. From the **Network** menu, choose *WLAN*, and the **WLAN Configuration** screen appears. This screen displays the wireless network parameters of the system. You can change any of these items and press *Apply* to confirm your settings.

| NOTE | • Currently supported USB wireless dongles are: 3Com 3CRUSB10075, Zyxel G220USB, PCI GW-US54mini.
• USB dongles have to be connected before N8800 is powered up. |

WLAN Configuration	
Item	**Description**
MAC Address	Displays the MAC Address of the USB wireless dongle.
IP	Specifies the IP address of the network connection.
Netmask	Specifies the network mask, which is generally: `255.255.255.0`
ESSID	The ESSID (Extended Service Set Identification) is the identifying name of a wireless network.
ESSID Broadcast	Specifies whether the ESSID will be broadcasted by the N8800. This will prevent the Access Point from broadcasting the ESSID. The N8800 will still respond to a wireless device that wants to communicate if it sends a matching ESSID.
Channel	The channel that the N8800 uses to communicate with client devices.
Auth Mode	Authentication mode used by the N8800. **Shared:** Shared key authentication **Open:** Open key authentication
WEP Enable	Specifies whether to use encryption for transmission or not.
Key Length	Key length specifies the level of encryption used by the N8800. 64 bit: 10 characters from 0 ~ 9 and A ~ F. 128 bit: 26 characters from 0 ~ 9 and A ~ F.
WEP KEY 1	Input up to 4 WEP keys, and select the one you wish to use. When connecting, be sure to enter the same key and select the same index number on each client machine.
WEP KEY 2	
WEP KEY 3	
WEP KEY 4	

A DHCP server can be configured to assign IP addresses to devices connected to LAN ports.

WLAN DHCP Configuration	
Item	**Description**
DHCP Server	Select to enable or disable DHCP server.
Start IP	Specifies the starting IP address of the DHCP range.
End IP	Specifies the ending IP address of the DHCP range.
DNS Server	Specifies the DNS server IP address.

| NOTE | The IP Segment of WLAN, WAN and LAN should not overlap. |

Web Services Configuration

From the **Network** menu, choose the *Service* item, and the **Web Service** screen appears. This screen displays the service support parameters of the system. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:

Web Service	
Item	**Description**
HTTP (WebDisk) Support	Enable or disable WebDisk support. Enter the port number if this option is enabled. The port number
HTTPs (Secure WebDisk) Support	Enable or disable secure WebDisk support. Enter the port if this option is enabled.
SMB/CIFS	Enable or Disable SMB/CIFS protocol for Windows, Apple, Unix drive mapping.
UPnP	Enable or disable Universal Plug and Play protocol. UPnP helps to find the IP address of the N8800.

AFP (Apple Network Setup)

From the **Network** menu, choose the *AFP* item, and the **AFP Configuration** screen appears. This screen displays the configuration items for the Apple Filing Protocol. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:

Apple Network Configuration	
Item	**Description**
AFP Server	Enable or disable Apple File Service to use the N8800 with MAC

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	OS-based systems.
Zone	Specifies Zone for Applet Talk service. If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the N8800. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting.

NFS Setup

From the **Network** menu, choose the *NFS* item, and the **NFS Server Setting** screen appears. The N8800 can act as an NFS server, enabling users to download and upload files with the favorite NFS clients. Press *Apply* to confirm your settings. A description of each item follows:

NFS Server Setting	
Item	**Description**
NFS	**Enable** or **Disable** NFS support.
Apply	Click *Apply* to save your changes.
Cancel	Click *Cancel* to abandon your changes.

User and Group Management

The N8800 has built-in user database that allows administrators to manage user access using different group policies. From the **Accounts** menu, you can create, modify, and delete users, and assign them to groups that you designate.

Local User Configuration

From the **Accounts** menu, choose the **Users** item, and the **Local User Configuration** screen appears. This screen allows you to **Add**, **Modify**, and **Delete** local users.

Local User Configuration	
Item	**Description**
Add	Press the *Add* button to add a user to the list of local users.
Modify	Press the *Modify* button to modify a local user.
Delete	Press the *Delete* button to delete a selected user from the system.

Adding Users

1. Click on the *Add* button on **Local User Configuration** screen, and **Local User Setting** screen appears.

2. On the **Local User Setting** screen, enter a name in the **User Name** box.

3. Enter a **User ID** number. If left blank, the system will automatically assign one.

4. Enter a password in the **Password** box and re-enter the password in the **Confirm** box.

5. Select which group the user will belong to. **Group Members** is a list of groups this user belongs to. **Group List** is a list of groups this user does not belong to. Use the **<<** or **>>** buttons to have this user join or leave a group.

6. Press the *Apply* button and the user is created.

NOTE	All users are automatically assigned to the 'users' group.

Modifying Users

1. Select an existing user from the **Local User Configuration** screen.

2. Click on the *Modify* button, and **Local User Setting** screen appears.

3. From here, you can enter a new password and re-enter to confirm, or use the **<<** or **>>** buttons to have this user join or leave a group. Click the *Apply* button to save your changes.

Deleting Users

1. Select an existing user from the **Local User Configuration** screen.

2. Click on *Delete* button and the user is deleted from the system.

Local Groups Configuration

From the **Accounts** menu, choose the *Groups* item, and the **Local Groups Configuration** screen appears. This screen allows you to **Add**, **Modify**, and **Delete** local groups.

Local Groups Configuration	
Item	**Description**
Add	Press the *Add* button to add a user to the list of local groups.
Modify	Press the *Modify* button to delete a selected group from the system.
Delete	Press the *Delete* button to delete a selected group from the system.

Adding Groups

1. On the **Local Group Configuration** screen, click on the *Add* button.
2. The **Local Group Setting** screen appears.
3. Enter a **Group Name**.
4. Enter a **Group ID** number. If left blank, the system will automatically assign one.

5. Select users to be in this group from the **Users List** by adding them to the **Members List** using the **<<** button.
6. Click the *Apply* button to save your changes.

Modifying Groups

1. On the **Local Group Configuration** screen, select a group name from the list.
2. Press the *Modify* button to modify the members in a group.
3. To add a user into a group, select the user from the **Users List**, and press the **<<** button to move the user into the **Members List**.
4. To remove a user from a group, select the user from **Members List**, and press the **>>** button.
5. Click the *Apply* button to save your changes.

Deleting Groups

1. On the **Local Group Configuration** screen, select a group name from the list.
2. Press *Delete* to delete the group from the system.

Batch User and Group Creation

The N8800 can also add users and groups in batch mode. This enables you to conveniently add numerous users and groups automatically by importing a simple comma-separated plain text (*.txt) file.

From the **Accounts** menu, click *Batch Mgmt* and the **Batch Create Users and Groups dialogue** will appear. To import your list of users and groups, follow these steps:

1. Click *Browse...* to locate your comma-separated text file. The information in the text file should follow this format:

   [USERNAME], [PASSWORD], [GROUP]

2. Click *Open*.
3. Click *Import* to begin the user list import.

ADS/NT Configuration

If you have a Windows Active Directory Server (ADS) or Windows NT server to handle the domain security in your network, you can simply enable the ADS/NT support feature; the N8800 will connect with the ADS/NT server and get all the information of the domain users and groups automatically. From the **Accounts** menu, choose *Authentication* item and the **ADS/NT Support** screen appears. You can to change any of these items and press *Apply* to confirm your settings. A description of each item follows:

ADS/NT Support	
Item	**Description**
WINS Server	Specifies the WINS server if necessary.
Work Group / Domain Name	Specifies the SMB/CIFS Work Group / ADS Domain Name (e.g. N8800).
ADS/NT Support	Select Disable to disable authentication through Windows Active Directory Server or Windows NT.
Authentication Method	Select ADS for Windows Active Directory Server, or select NT for Windows NT
ADS/NT Server Name	Specifies the ADS/NT server name (e.g. adservername).
ADS/NT Realm	Specifies the ADS/NT realm (e.g. example.com).
Administrator ID	Enter the administrators ID of Windows Active Directory or Windows NT, which is required for N8800 to join domain.
Administrator Password	Enter the ADS/NT Administrator password.
Confirm Password	For re-entering password to confirm.

To join an AD domain, you can refer the figure and use the example below to configure the N8800 for associated filed input:

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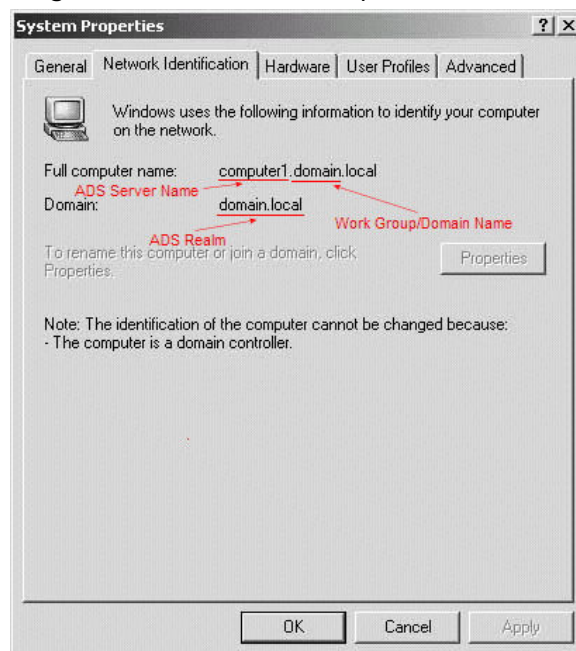
AD Domain Example	
Item	**Information**
Work Group / Domain Name	`domain`
ADS Support	`Enable`
ADS Server Name	`Computer1`
ADS/NT Realm	`Domain.local`
Administrator ID	`Administrator`
Administrator Password	`***********`
Confirm Password	`***********`

NOTE
- The DNS server specified in the WAN configuration page should be able to correctly resolve the ADS server name.
- The time zone setting between N8800 and ADS should be identical.
- The system time difference between N8800 and ADS should be less than five minutes.
- The Administrator Password field is for the password of ADS (Active Directory Server) not N8800.

System Settings

The **System** menu gives you a wealth of settings that you can use to configure your N8800's system administration functions. You can set up system notifications, view system logs, and even upgrade firmware from this menu.

System Notifications

From the **System** menu, choose the *Notification* item, and the **Notification Configuration** screen appears. This screen lets you have the N8800 notify you in case of any system malfunction. Press *Apply* to confirm all settings. See following table for a detailed description of each item.

NOTE Consult with your mail server administrator for email server information.

Notification Configuration	
Item	**Description**
Beep Notification	Enable or disable the system beeper that beeps when a problem occurs.
Email Notification	Enable or disable email notifications of system problems.
SMTP Server	Specifies the hostname/IP address of the SMTP server.
Port	Specifies the port to send outgoing notification emails.
Auth Type	Select the SMTP Server account authentication type.
SMTP Account ID	Set the SMTP Server Email account ID.
Account Password	Enter a new password.
Confirm Account Password	Confirm a new password.
Receiver's E-mail Address	Add one or more recipient's email addresses to receive email notifications.
Test E-Mail	Click to send out a test e-mail to make sure the settings are correct.

SNMP

From the **System** menu, choose the **SNMP** item and the **SNMP Supports** screen appears. You could enable the SNMP function and filled in the related information in each fields. With the SNMP management software could get system basic information.

System Logs

From the **System** menu, choose the **Logs** item and the **System Logs** screen appears. This screen shows a history of system usage and important events such as disk status, network information, and system booting. See the following table for a detailed description of each item:

System Logs	
Item	**Description**
Truncate All Log File	Clear all log files.
|<< < > >>|	Use the forward (> >>|) and backward (|<< <) buttons to browse the log pages.
INFO	Provides all log information including warning messages and error messages.
WARN	Shows all warning messages and error messages.
ERROR	Shows only error messages.
GO	Specify the number of lines per page and press Go.
Ascending	Shows logs by date in ascending order.
Descending	Shows logs by date in descending order.
Download All Log File	Export all logs to an external file.

Time and Date Settings

From the **System** menu, choose the **Time** item and the **Time** screen appears. Set the desired **Date**, **Time**, and **Time Zone**. You can also elect to synchronize the system time on the N8800 with an **NTP (Network Time Protocol) Server**. You can change any of these items and press *Apply* to confirm your settings.

See the following table for a detailed description of each item:

Time	
Item	**Description**
Date	Sets the system date.
Time	Sets the system time.
Time Zone	Sets the system time zone.
NTP Server	Select *Yes* to allow the N8800 to synchronize with the NTP server shown below. Select *Manually* to allow the N8800 to synchronize with an NTP server of your choice. Select *No* to not have the N8800 to synchronize with an NTP server.

WARNING	If an NTP server is selected, please make sure your N8800's network has been setup to access the NTP server.

System Configuration Backup and Restore

From the **System** menu, choose the *Config Mgmt* item and the **System Configuration Download/Upload** screen appears. From here, you can download or upload stored system configurations. See the following table for a detailed description of each item.

System Configuration Download/Upload	
Item	**Description**
Download	Save and export the current system configuration.
Upload	Import a saved configuration file to overwrite current system configuration.

NOTE	Backing up your system configuration is a great way to ensure that you can revert to a working configuration when you are experimenting with new system settings. The system configuration you have backup can be only restore in same firmware version. And the backup details have excluded user/group accounts.

Module Management

From the **System** menu, choose the *Module Mgmt* item and the **Module Management** screen appears. From here, you can install separate software modules to extend the functionality of your N8800.

Module Management	
Item	**Description**
Name	Displays the name of the module.
Version	Displays the module version.
Description	The description of the module.
Enable	Displays whether the module has been enabled or not.
Status	Displays the status of the module.
Uninstall	Click to uninstall the module.
Enable/Disable	Click to enable a module.
Check Update	Click to look for updates for the selected module.

Module File	Location of the module file.
Browse	Click to browse the folder of your PC to locate the module files.
Install	Click to install the listed module into your N8800

<table>
<tr><td>**NOTE**</td><td>Modules can potentially harm your system. Only install modules from your vendor, or publishers you can trust.</td></tr>
</table>

Reset to Factory Default Settings

From the **System** menu, choose the *Factory Default* item and the **Reset to Factory Default** screen appears. Press *Apply* to reset the N8800 to factory default settings. Press *Cancel* to go back to the main menu.

<table>
<tr><td>**WARNING**</td><td>Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.</td></tr>
</table>

Upgrading System Firmware

From the **System** menu, choose the *Firmware Upgrade* item and the **Firmware Upgrade** screen appears.

Follow the steps below to upgrade your firmware:

1. Use the *Browse* button to find the firmware file.

2. Press *Apply*.

3. The beeper beeps and the Busy LED blinks until the upgrade is complete.
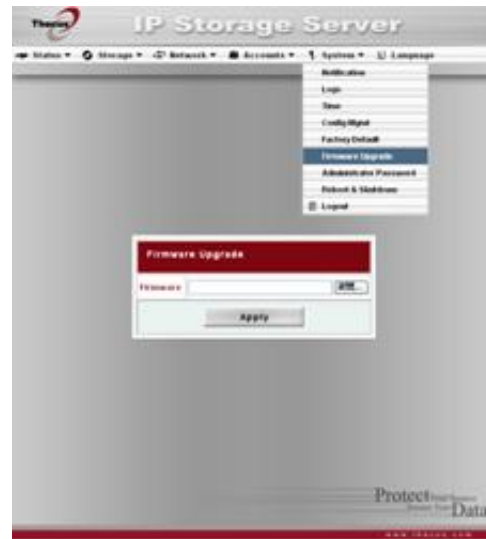
<table>
<tr><td>**NOTE**</td><td>• The beeper only beeps if it is enabled in the System Notification menu.
• Check Thecus website for the latest firmware release and release notes.</td></tr>
</table>

<table>
<tr><td>**WARNING**</td><td>Do NOT turn off the system during the firmware upgrade process. This will lead to a catastrophic result that may render the system inoperable.</td></tr>
</table>

Change Administrator Password

From the **System** menu, choose the *Administrator Password* item and the **Change Administrator Password** screen appears. Enter a new password in the **New Password** box and confirm your new password in the **Confirm Password** box. Press *Apply* to confirm password changes. See the following table for a detailed description of each item.

Change Administrator Password	
Item	**Description**
New Password	Type in a new administrator password.
Confirm Password	Type the new password again to confirm.
Apply	Press this to save your changes.

Reboot and Shutdown System

From the **System** menu, choose **Reboot & Shutdown** item, and the **Shutdown/Reboot System** screen appears. Press *Reboot* to restart the system or *Shutdown* to turn the system off.

Logout

To logout of the Web Administration Interface, navigate to *System* > *Logout*.

Chapter 5: Additional Feature Setup

Overview

The N8800 can also act as an FTP Server, allowing employees and clients to transfer files using their favorite FTP programs. The integrated Print Server allows you to share a single USB printer will all users on the network. The following section shows you how.

FTP Server

N8800 can act as a FTP server, enabling users to download and upload files with their favorite FTP programs. From the **Network** menu, choose the *FTP* item, and the **FTP** screen appears. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:

| FTP	
FTP	⊙ Enable ○ Disable
Port	21
FTP ENCODE	UTF-8
Allow Anonymous FTP Access	Upload/Download
Auto Rename	☐
Upload Bandwidth	Unlimit MB/s
Download Bandwidth	Unlimit MB/s
Apply	

FTP	
Item	**Description**
FTP	Enable FTP Service on the N8800.
Port	Specifies the port number of an incoming connection on a non-standard port.
FTP ENCODE	If your FTP client or operating system does not support Unicode (e.g. Windows® 95/98/ME or MAC OS9/8), select the same encoding as your OS here in order to properly view the files and directories on the server. Available options are BIG5, HZ, GB2312, GB18030, ISO, EUC-JP, SHIFT-JIS and UTF-8.
Allow Anonymous FTP Access	**Upload/Download:** Allow anonymous FTP users to upload or download files to/from public folders. **Download:** Allow anonymous FTP users to download files from public folders. **No access:** Block anonymous FTP user access.
Auto Rename	If checked, the system will automatically rename files that are uploaded with a duplicate file name. The renaming scheme is `[filename].#`, where # represents an integer.
Upload Bandwidth	You may set the maximum bandwidth allocated to file uploads. Selections include **Unlimited, 1, 2, 4, 8, 16** and **32 MB/s.**
Download Bandwidth	You may set the maximum bandwidth allocated to file downloads. Selections include **Unlimited, 1, 2, 4, 8, 16** and **32 MB/s.**

To access the share folder on the N8800, use the appropriate user login and password set up on the **Users** page (*Accounts* > *Users*). Access control to each share folder is set up on the **ACL** page (*Storage* > *Folder* > *ACL*).

iTunes® Server

With the built-in iTunes server capability, the N8800 enables digital music to be shared and played anywhere on the network!

From the **Network** menu, choose the *iTunes* item, and the **iTunes Configuration** screen appears. You may enable or disable the iTunes Service from here. Once enabled, enter correct information for each field and press *Apply* to save your changes. See the following table for detailed descriptions of each field:
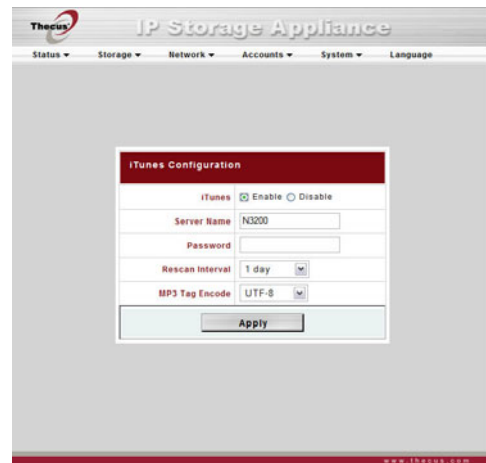
iTunes Configuration	
Item	**Description**
iTunes	Enable or disable the iTunes Service.
Server Name	Name used to identify the N8800 to iTunes clients.
Password	Enter password to control access to your iTunes music.
Rescan Interval	Rescan interval in seconds.
MP3 Tag Encode	Specify tag encoding for MP3 files stored in N8800. All ID3 tags will be sent out in UTF-8 format.

Once the iTunes service is enabled, the N8800 will make all music located in the **Music** folder available for iTunes-equipped computers on the network.

Media Server

With the built-in Media Server capability, the N8800 provides media streaming service to stand-alone networked home media adapters that support the UPnP AV protocol or are Digital Living Network Alliance (DLNA) standard compliant.

With the N8800's built-in media server capability, you can share digital media such as music, pictures, and movies with any compatible device throughout your entire home.

To configure the media server, under the Network menu, click Media Server and the Media Manager Settings window will appear. A description of each field follows:
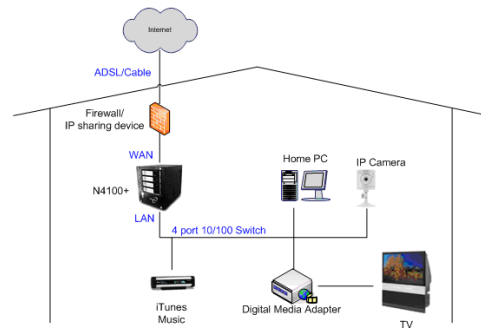
Media Manager Settings	
Item	**Description**
Media Server	Enable or disable the Media Server service.
Shared Media Folders	Select the folder(s) that contains media files to be shared.
Rescan	Click the **Rescan** button to have the N8800 for new contents in the selected media folder.

Adding Media Share Folders

Once the Media Server software is installed, you can start adding folders that contain the media that you would like to share. To create a media share folder, follow the steps below:

1. Click on *Network* > *Media Server* in the menu bar.

2. From the **Shared Media Folders** window, select the folder that contains your media files, and click its checkbox.

3. The contents in the folder will be scanned for the Media Server. The time required for scanning depends on the size of the folder.

Connecting DMAs to the Media Server

Next, it's time to connect your Digital Media Adapter (DMA) to the media server:

1. Connect your DMA to your Media Server

   a. Configure your DMA to use a Dynamic IP address. The IP address will be assigned by the router.
   b. Some DMAs are wireless enabled. You can connect the DMA to a wireless router. For instructions on how to connect your DMA to a wireless router, please refer to your DMA's user manual.

2. Connect your DMA's video output to video input of your TV set.

3. Turn on the TV and change the video signal input to DMA.

4. Setup the DMA (These steps will be different if you use a different DMA)

   a. From the Server List screen, select "**N8800:Mediabolic Server**" as the server.
   b. Go to **My Media**
   c. Click on the **Up/Down Arrow** buttons to select **Music Jukebox**, **Photo Albums**, or **Video Clips**
   d. Start enjoying the contents stored in your N8800.

Printer Server

You can configure the N8800 to act as a printer server. That way, all PCs connected to the network can utilize the same printer.

Windows XP SP2

To set up the Printer Server in Windows XP SP2, follow the steps below:

1. Connect the USB printer to one of the USB ports (preferably the rear USB ports; front USB ports can be used for external HDD enclosures).

2. Go to *Start* > *Printers and Faxes*.

3. Click on **File** > **Add Printer**.

4. The **Add Printer Wizard** appears on your screen. Click *Next*.

5. Select the "*A network printer, or a printer attached to another computer*" option.

6. Select "*Connect to a printer on the Internet or on a home or office network*", and enter "`http://N8800_IP_ADDRESS:631/printers/usb-printer`" into the URL field.

7. Your Windows system will ask you to install drivers for your printer. Select correct driver for your printer.

8. Your Windows system will ask you if you want to set this printer as "Default Printer". Select *Yes* and all your print jobs will be submitted to this printer by default. Click *Next*.

9. Click *Finish*.

| NOTE	• Not all USB printers are supported. Please check Thecus website for a list of supported printers. • Note that if a multi-function (all-in-one) printer is attached to the N8800, usually only the printing and fax functions will work. Other features, such as scanning, will probably not function.

Windows Vista

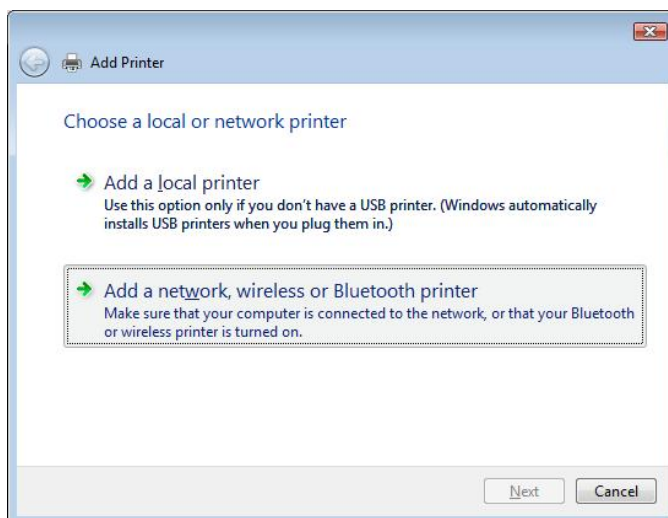To set up the Printer Server in Windows Vista, follow the steps below:

1. Open *Printer Folder* from the **Control Panel**.
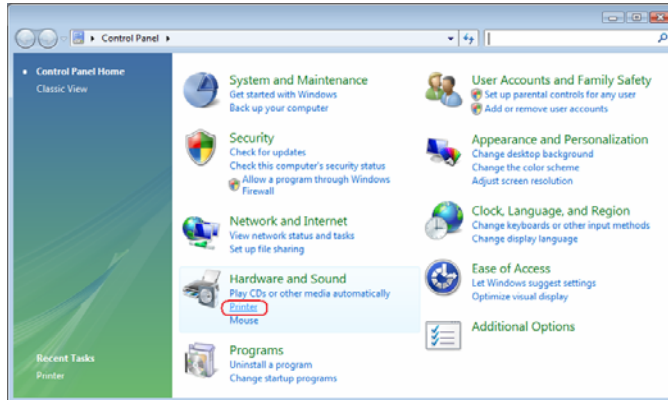
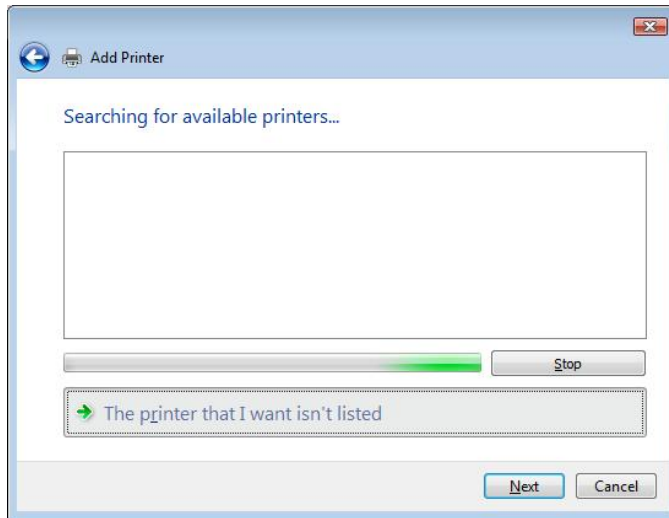

2. Click the right mouse button in anywhere on the **Printers** folder and then select *Add Printer*.
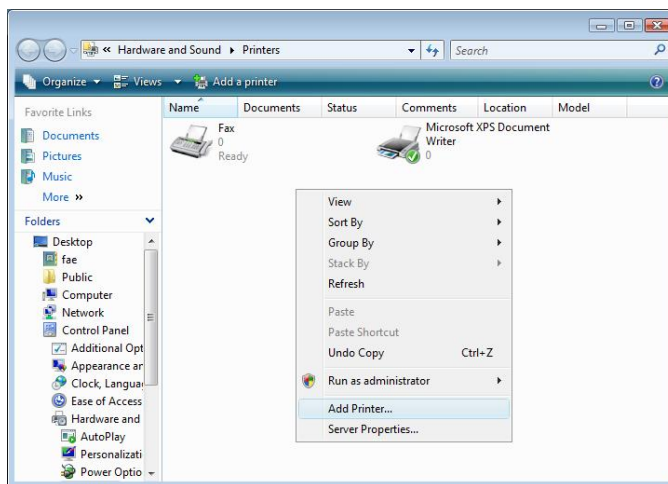
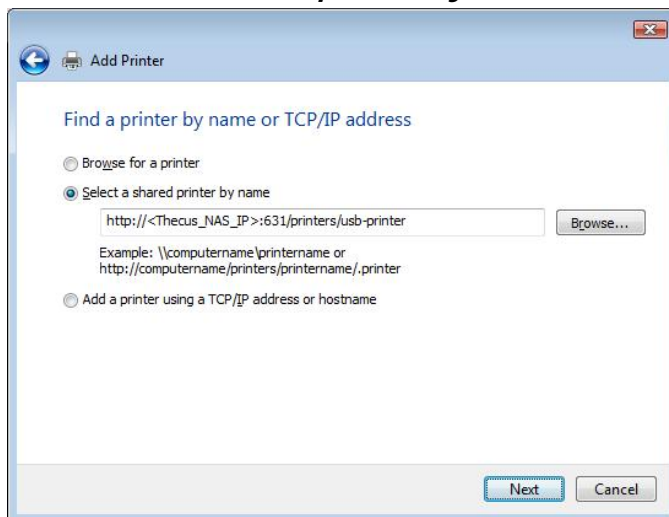3. Select *Add a network, wireless or Bluetooth printer*.
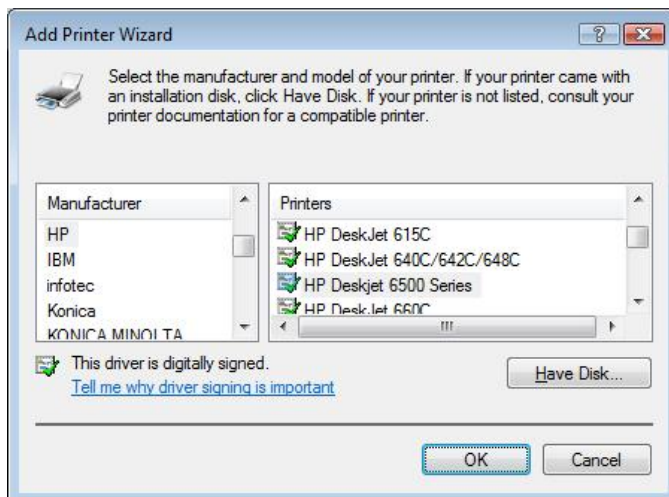
4. Select *The printer that I want isn't listed*.

You can press *The printer that I want isn't listed* to go into next page without waiting for **Searching for available printers** to finish.

5. Click *Select a shared printer by name*.

Type `http://<Thecus_NAS>:631/printers/usb-printer` in the box, where `<Thecus_NAS_IP>` is the IP address of the N8800. Click *Next*.
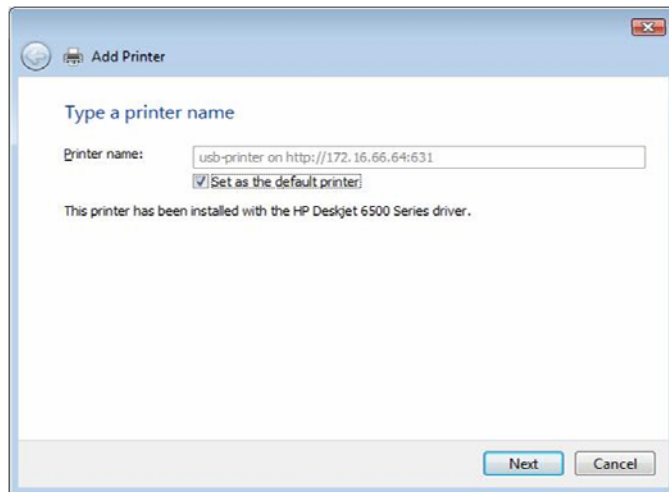
6. Select or install a printer and then press *OK*.

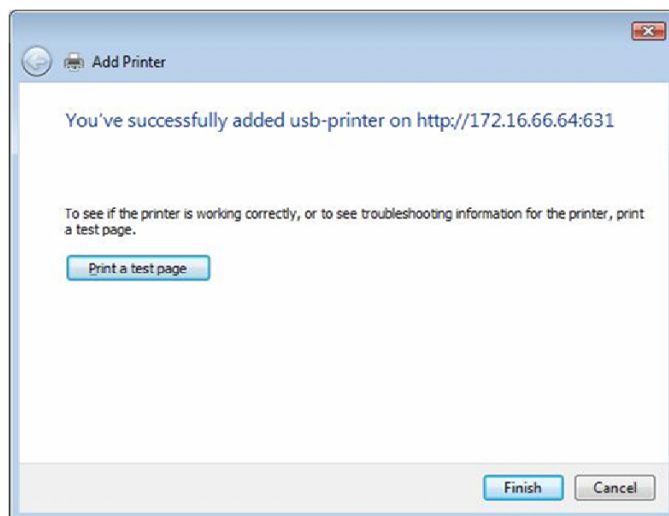If your printer model is not listed, please contact your printer manufacturer for help.

7. Windows will attempt to connect to the printer.
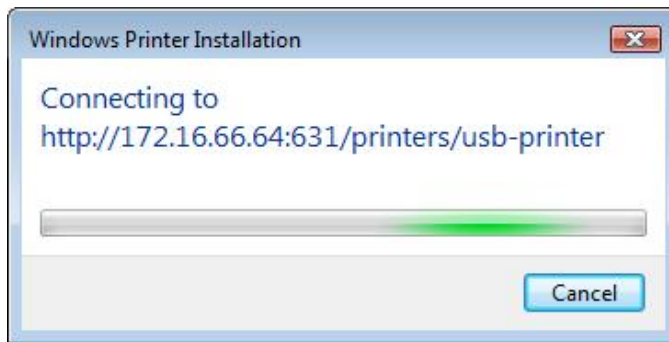
8. You can choose to set this printer as the default printer by checking the *Set as the default printer* box. Click *Next* to continue.


9. Done! Click *Finish*.

Download Manager

With the built-in Download Manager, you can have the N8800 download HTTP, FTP, and BT files without having full PC powered on. What's more, you can even schedule your downloads for off-peak hours, ensuring efficient use of bandwidth. To access the Download Manager, go to **Network**, choose the *Download Manager* option, and the **Download Tasks** and **Download Schedule** windows appear.
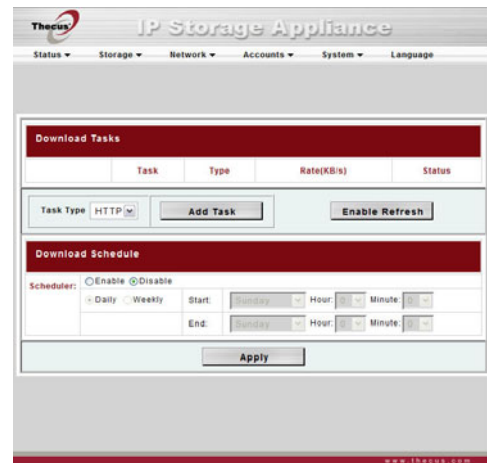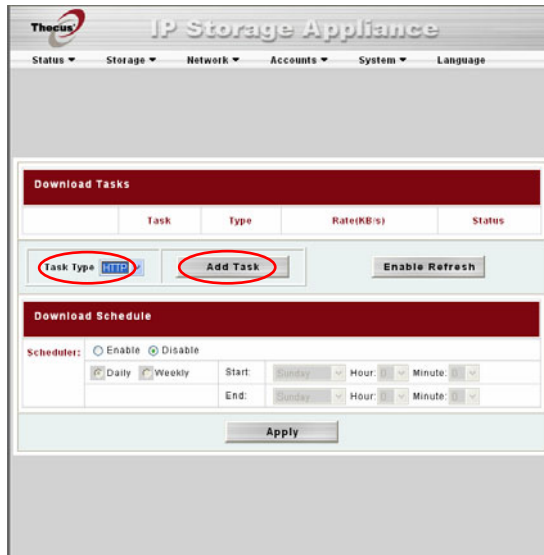
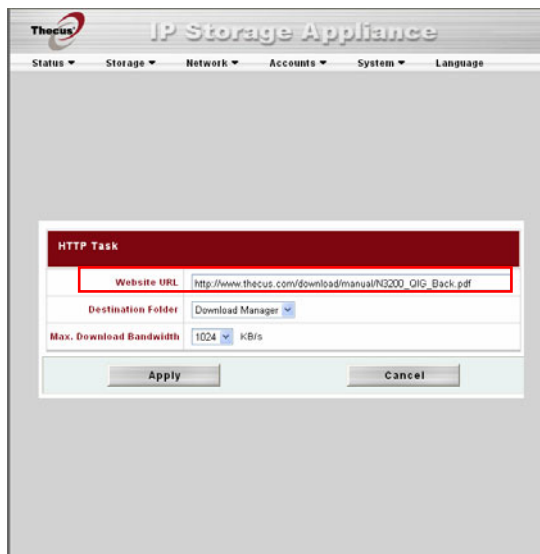| Download Tasks	
Item	**Description**
▶	Click to start the specified task.
❚❚	Click to pause the specified task.
✖	Click to delete the specified task. A prompt will appear asking you if you would like to delete the task itself, or the task and all related downloaded files.
Task	Name of the task. Click to see more information about this task.
Type	Type of transfer. Can be **HTTP**, **FTP**, or **BT**.
Rate	Transfer rate of the task in kilobytes per second (KB/s). **DL:** Download rate **UL:** Upload rate
Status	Status of the task. **Complete:** Percentage complete (%) **Completed / Total download size**
Task Type	Use this dropdown to select the type of transfer. **HTTP**, **FTP**, and **BT** are available.
Add Task	Click to add the kind of task specified beside "**Task Type**".
Enable Refresh	Click to refresh the task list.

Adding an HTTP Task

To add a new HTTP task to the Download Manager, follow these steps:
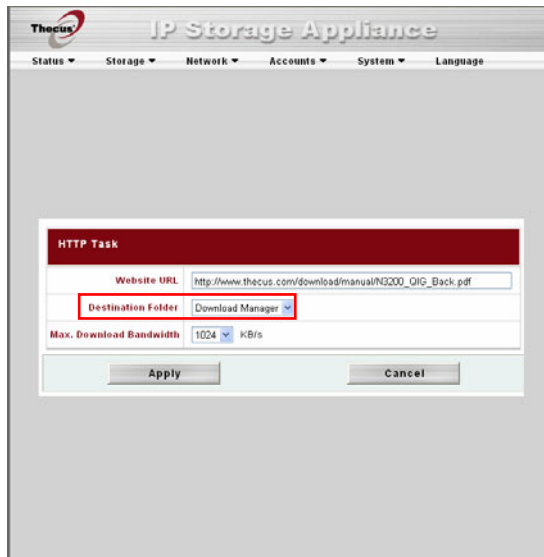
1. Using the **Task Type** dropdown, select *HTTP* and click *Add Task*.

2. In the **HTTP Task** window, start by inputting the target URL in the **Website URL** box. This is the link to the download you want to queue.

3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.

4. Select the maximum download bandwidth from the **Max. Download Bandwidth** dropdown.

5. Press *Apply* to add the task.

6. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.

7. The download status will continually update in the **Download Tasks** window. To pause the download, click the **Pause** icon (❚❚).

Adding an FTP Task

To add a new FTP task to the Download Manager, follow these steps:

1. Using the **Task Type** dropdown, select *FTP* and click *Add Task*.
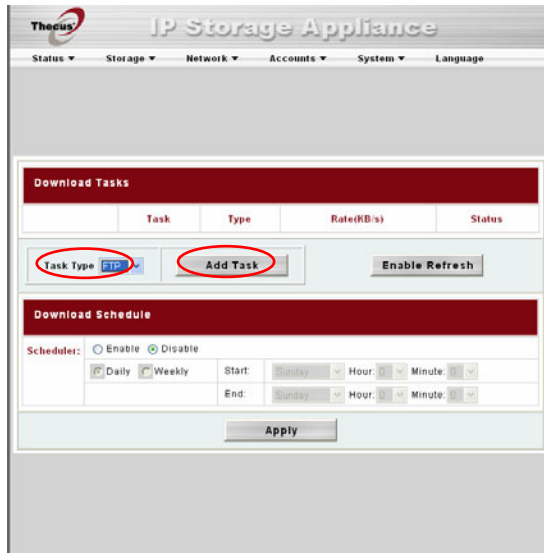
2. In the **FTP Task** window, start by inputting the target URL in the **FTP File** box. This is the link to the download you want to queue.

3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.
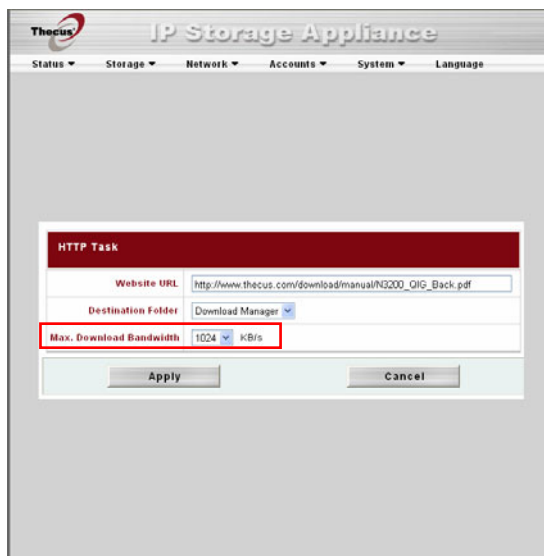

4. The next step depends if you are using an anonymous login for your FTP download. If you are logging in anonymously, select *Anonymous Login* and move on to step 5.

If you are required to login with a user name and password, select **Username** and input your user name and password into the appropriate fields.

5. Select the maximum download bandwidth from the **Max. Download Bandwidth** dropdown.

6. Press **Apply** to add the task.

7. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.


8. The download status will continually update in the **Download Tasks** window. To pause the download, click the **Pause** icon (❚❚).

Adding a BT Task

To add a new BT task to the Download Manager, follow these steps:

1. Using the **Task Type** dropdown, select *BT* and click *Add Task*.
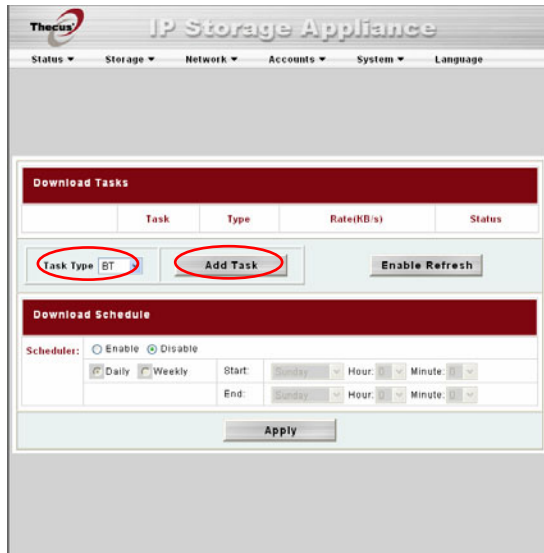
2. In the **BT Task** window, start by clicking *Browse...* and selecting the torrent file you wish to start.
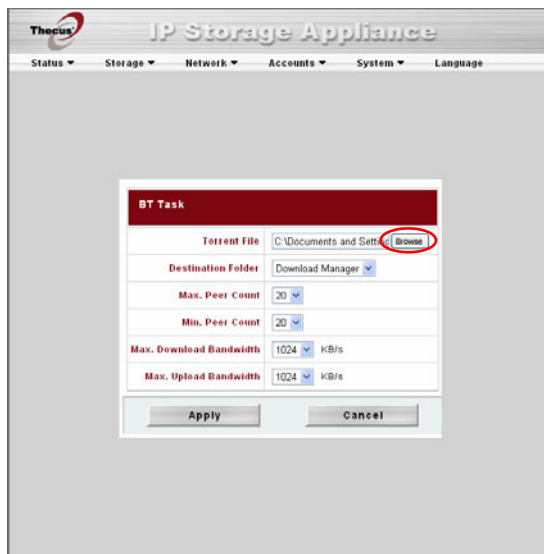
3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.
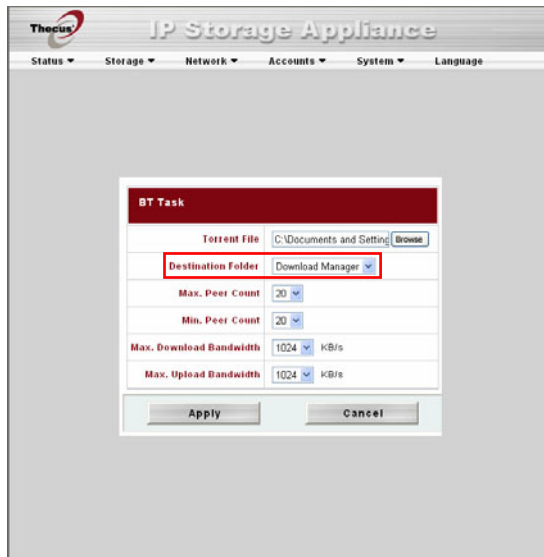
4. Next, you can select the maximum and minimum number of peers from selecting the counts from the appropriate dropdowns.
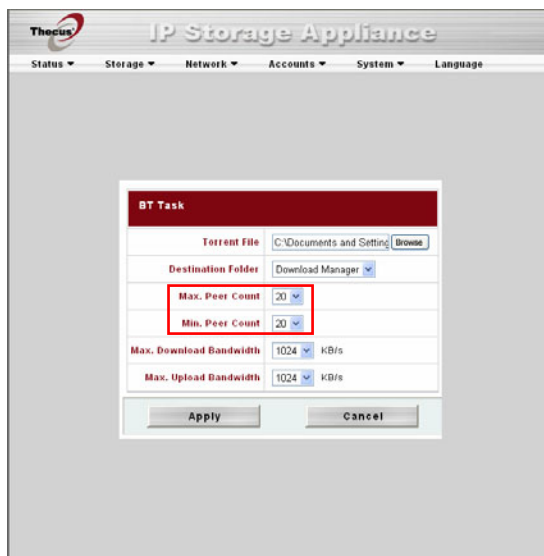
5. Next, you can set the maximum download and upload bandwidths from the dropdowns below.

6. Press *Apply* to add the task.

7. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.
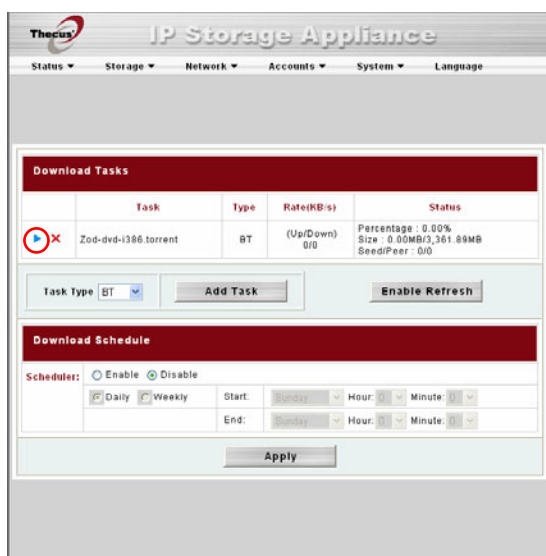
8. The download status will continually update in the Download Tasks window. To pause the download, click the **Pause** icon (▐▌).
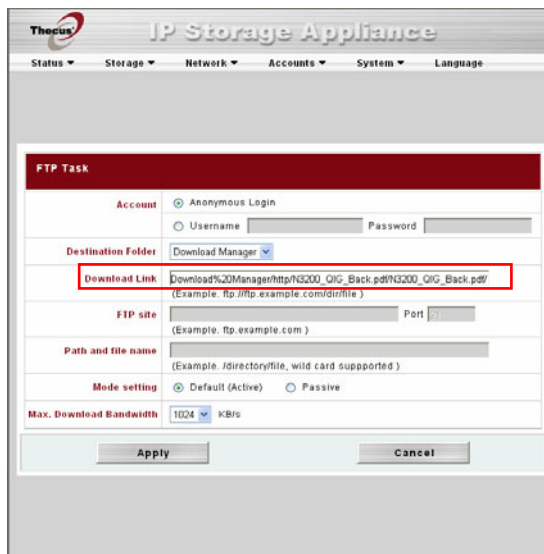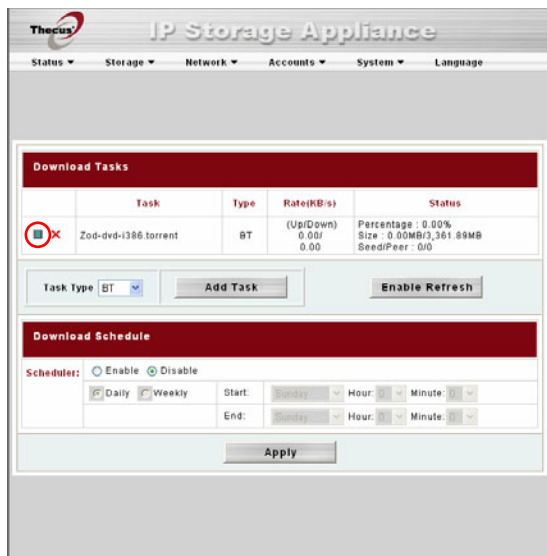

Deleting Tasks

To delete a task, simply follow the steps below:

1. Click the delete icon (✗) beside the task that you wish to delete. The **Delete Task** dialogue box will appear.

2. Select *Delete Task only* if you wish to remove only the torrent file and all transient files, leaving the unfinished download files intact.

3. Select *Delete Task and Files* if you wish to remove the torrent file and all transient files, and the unfinished download files.

4. Click *OK* to delete the task. Click *Cancel* to return to the **Download Manager**.

Scheduling Downloads

With the Download Manager, you can schedule your downloads to begin at different times of the day. This is useful if you wish to complete your downloads during off-peak hours, reserving your bandwidth for other applications. A table describing the Download Schedule window appears below:

Download Schedule	
Item	**Description**
Scheduler	Enable or disable the Download Scheduler.
Daily/Weekly	Choose to have the Download Scheduler activate on a daily or weekly basis.
Start: Day/Hour/Minute	Specify the start day/hour/minute for the download task.
End: Day/Hour/Minute	Specify the end day/hour/minute for the download task.

To schedule downloads, follow these steps:

1. Under **Download Schedule**, set **Scheduler** to *Enable*.
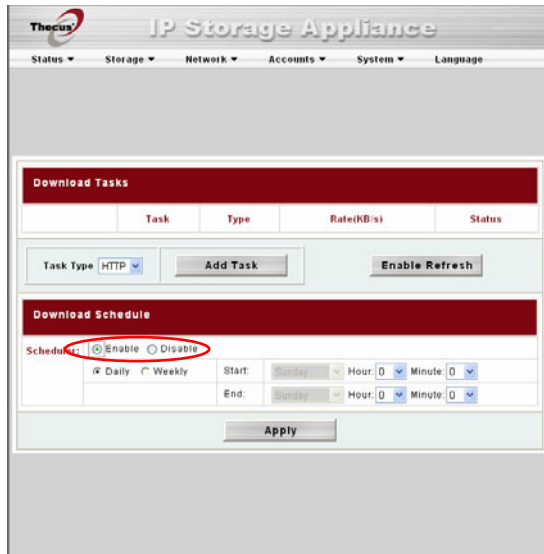
2. To schedule a daily download period, select *Daily* and select a start time and end time.
   To schedule a weekly download period, select *Weekly* and select a start day/time and end time/day.
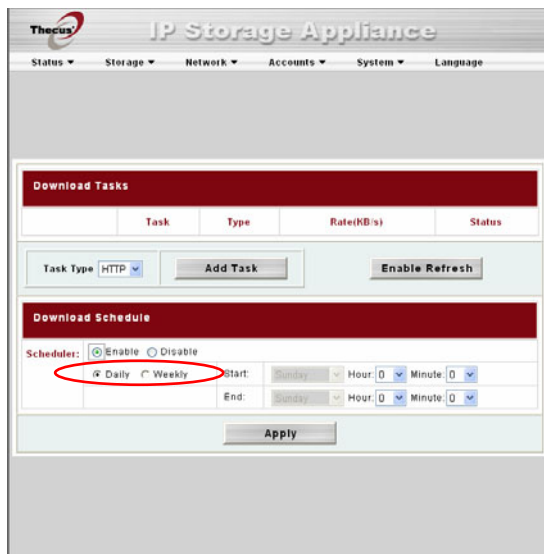
3. Click *Apply* to save your changes.

NOTE	If the Download Scheduler is enabled, ALL download tasks will adhere to the designated schedule.

Chapter 6: Using the N8800

Overview
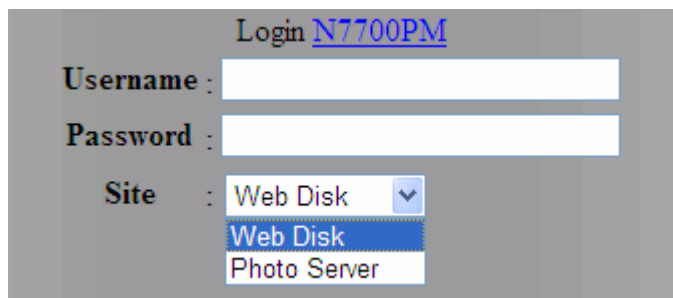
Once the N8800 is setup and operating, users on the network may manage all varieties of digital music, photos, or files by simply using their web browsers. To manage your personal files or access public files on the N8800, just enter its IP address into your browser (default IP address is `http://192.168.1.100`), and you will be taken to the **N8800 Login** page.

> **NOTE**
>
> Before proceeding, make sure that WebDisk Support or Secure WebDisk Support is enabled in the Service Support screen in the system's **Network** menu. See Service Support in Chapter 4: System Management > Network Management > Web Services Configuration.

Login Page

To login to the system, enter your user name and password, and select Web Disk or Photo server then click **Login** to log into the system. You will be taken to the **selected** interface.

Login N7700PM

Username :

Password :

Site : Web Disk

Web Disk
Photo Server

Using WebDisk

The N8800 provides a WebDisk function that allows you to access the system over the Internet from any browser.

1. In the Login page, type in the User ID and password that were previously set for you in the Accounts menu. See **Chapter 4: System Management > User and Group Management > Local User Configuration**.

2. The WebDisk page appears showing folders made currently available to you via the **Access Control List (ACL)**.

3. Click on a folder name to enter the folder.

4. The folder's page appears displaying files and folders. Click on a file to download the file.

Folder Page	
Item	**Description**
Name	Displays the names of folders and files.
Size	Shows the size of folders and files.
Type	Displays the type of folders and files.
Modified Date	Shows the time of most recent modification of folders and files.

5. Buttons on the folder page allow you to create a new folder, upload files and delete files in the folder.

Folder Page Buttons	
Button	**Description**
Up	Goes to the previous folder level.
New folder	Creates a new folder.
New file (upload)	Uploads a file from your computer to the current folder.
Delete Selected Items	Deletes selected files and folders.

6. To create a new folder within the current folder, press the New folder button. When the screen appears enter a name for the folder. Press OK to create the folder.

7. To upload a file from your computer to the current folder, press the New file (upload) button. When the screen appears, press Browse and locate the file to upload. Press **OK** and the file is uploaded to the current folder.

8. To delete a file or folder, select the file or folder's check box. Press the Delete selected items button. You can also check the check box as the red circle indicates to select all files and folders in this folder.

To access folders with access control, you must first login with a local user account.

For more information on how to setup user rights to the folders, please check *Chapter 4: System Management > Folder Management > Folder Access Control List (ACL).*

Photo Server

Using the Photo Server, users can view and share photos, and even create their own albums right on the N8800.

You will see your own Photo Gallery and all public Photo Albums on the network.

To manage any picture files, you must first select the item by clicking the box.

Windows XP Publishing Wizard

There are many ways for a local user to upload pictures into their photo album. Users of Windows XP can upload their pictures using the Windows XP Publishing Wizard.

1. Click on the *XP Publishing Wizard* icon on top right corner.

2. The **XP Web Publishing Wizard Client** screen appears. Click on the link to install the Publishing Wizard.
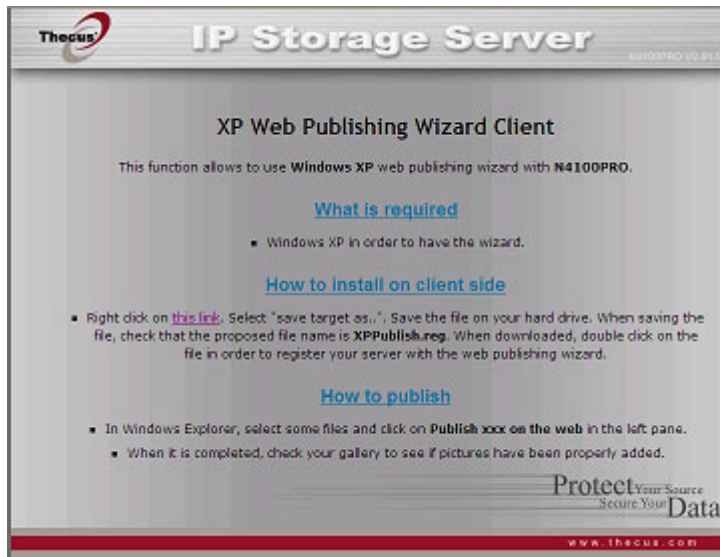
3. Windows XP will ask whether you want to run or save this file. Click Save to save the register file. .
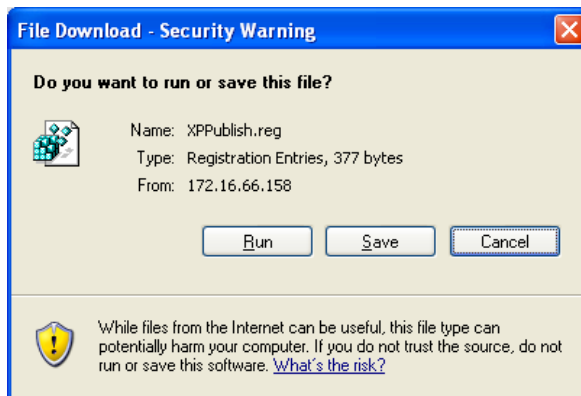
4. Once the register file is installed, use the Windows file manager to browse the folder that contains the picture you want to publish. On the left pane, there will be an icon labeled "**Publish this folder to the Web**".
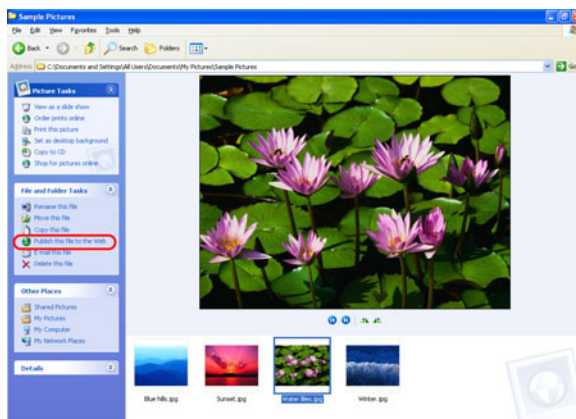
5. Click on this icon and **Web Publishing Wizard** will start.

6. Select the pictures you want to publish to the Photo Web Server by placing a check mark on the top left hand corner of the picture. Click *Next*.

7. Your PC will start to connect to the Photo Web Server.

8. Select **N8800 Photo Gallery Wizard** to publish your pictures to the N8800.
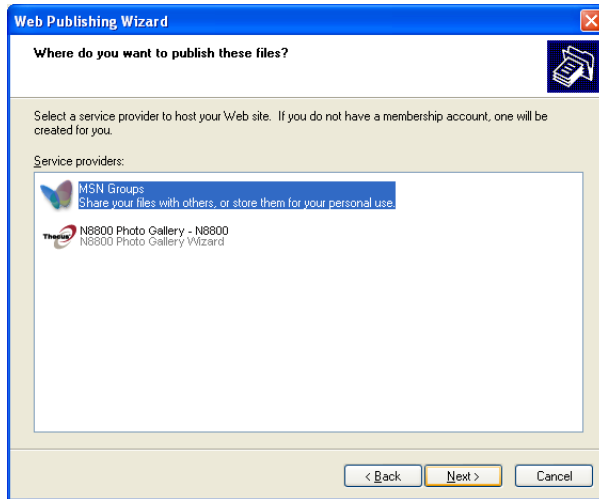
9. Login into the N8800 with your local user name and password.
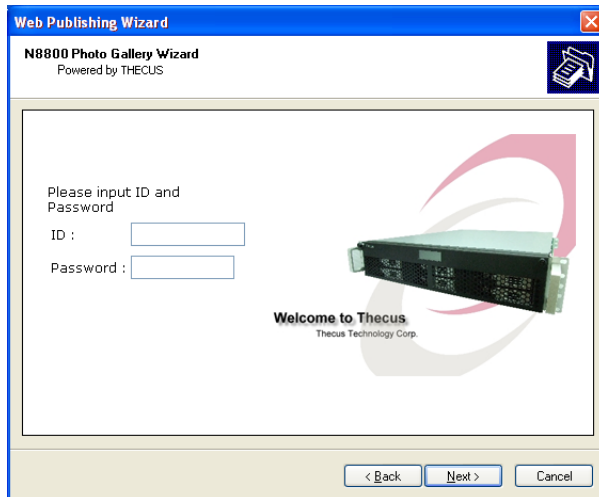
10. Create your album by entering an album name and clicking on the **Create Album** button.

11. Select the album you want to upload your pictures to.

12. Confirm the target album.

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13. Windows will show you that the picture upload is in progress.
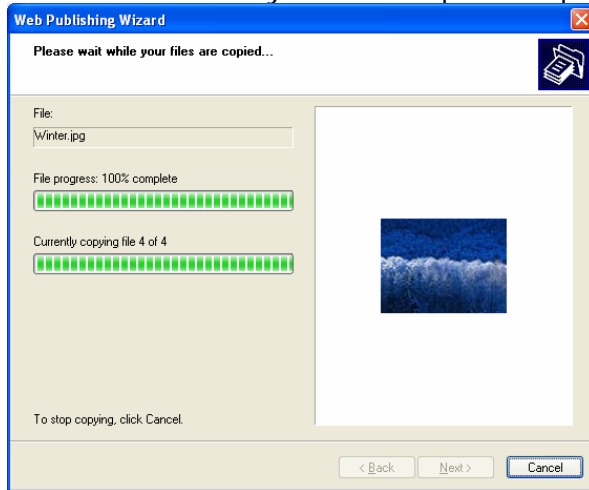
14. When the upload is finished, the Wizard will ask you whether if you want to go to the website. Click **Finish** to go to your Photo Web Server.
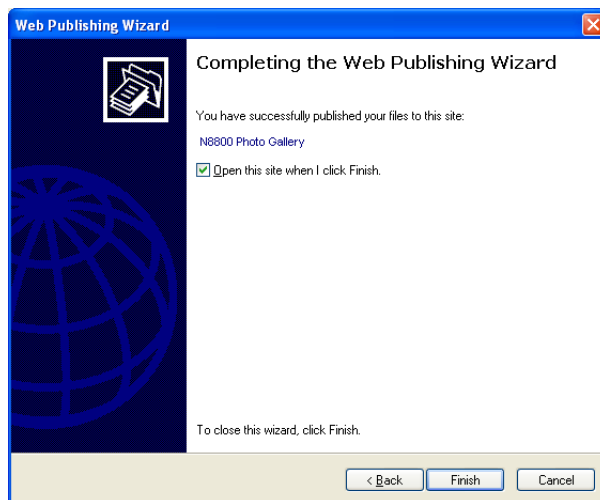
15. Click on the user's icon to go to that user's album.
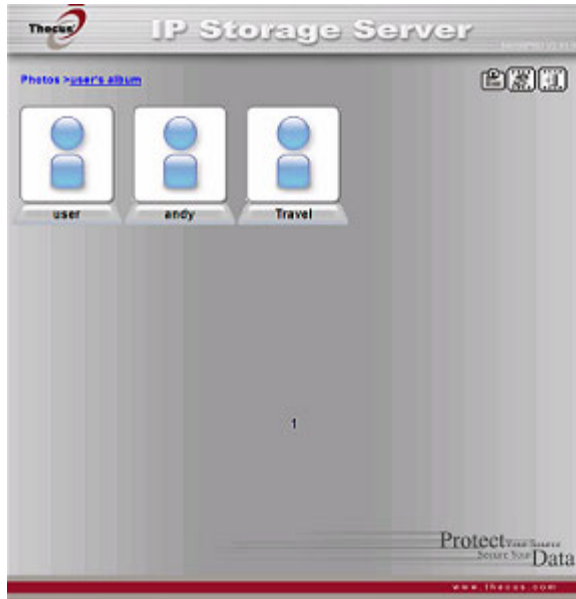
16. You will see the user's album list. Click on **Album**.

17. Finished! You will see the pictures just selected in the album.

Managing Albums and Photos

Photo		
Icon	**Function**	**Description**
Cover	Make Cover	Make selected photo your cover picture.
	Back	Return to the previous screen.
	Add	Add a new album or photos.
	Modify	Edit the name and description of the selected album or photo. Each name is limited to 20 characters and each description is limited to 255 characters.
	Delete	Delete the selected albums or photos.

NOTE	• Only logged in users will see these icons.
	• To prevent system errors, the N8800 sets the following limitations on photo files:
	  • Each file upload is limited to a size of 4MB. Files exceeding 4MB will NOT be uploaded and no error message will appear.
	  • Only these photo file types will be uploaded: *.jpg, *.gif, *.bmp, *.png, *.pcx, *.psd, *.bmp.
	  • If duplicate file names exist during upload process, system will add a number in front of the original file name (abc → 1abc).

Creating Albums

To create a photo album, follow the steps below:

1. Click the *Add* button to create a new album.

2. Enter a name for the album, and enter a description if you wish. Then, click on the *Create Album* button.

Password Protecting Albums

If you would like to put a password on a particular album, follow these steps:

1. Select the album to be protected, click on the *Edit* button, and the **Album Edit** screen will appear.

2. The owner of the album can enter an album password to protect the album, so that only people with the correct password can view the album.

Uploading Pictures to Albums

Uploading pictures to albums using the Web User Interface is easy:

1. When the album is created, click the album icon to enter the album. Initially the album is empty.

2. Click the *Add* button to upload pictures into the album. The **Upload Photos** screen will appear. Users can select and upload up to 8 pictures at a time.

3. Once the picture is uploaded, you can view it in the album. The owner of the album can delete or modify the pictures with the *Delete* or *Modify* buttons on the top right hand corner

EXIF Information

While viewing pictures, you can also have the N8800 display the EXIF information for each photo.

Simply click the *EXIF* button to display EXIF information. To hide this information, click the *EXIF* button again.

Slide Shows

Slide shows are a great way to enjoy pictures stored on your N8800.

You can click on the *Start Slide Show* icon on the top right hand corner to start the slide show.

To stop the slide show, click on the ***Stop Slide Show*** icon on the top right hand corner.

Mapping a Client PC to the N8800

You can map share folders on the N8800 so that you can access them as if they were drives on your computer. You can connect to the shared network folders on the N8800 as follows:

Windows

1. Go to the **My Computer** folder in Windows.

2. *In the menu bar, select **Tools** and then **Map Network Drive...***

3. The **Map Network Drive** window appears.

4. Assign a drive letter for the share folder.

5. Click the ***Browse*** button to find the folder over your network. Alternatively, you may enter the folder name you wish to connect to or enter its IP address. (i.e. `\\192.168.1.100\share`)

6. Click ***Finish***. When the **Connect As...** window appears, enter your user name and password.

7. Click ***OK***. The share folder appears as the drive you assigned. You can now access this folder as though it were a drive on your computer.

Apple OS X

On an Apple computer, you can connect to shared computers and servers using a network address.

1. Choose ***Go*** > ***Connect to Server...***

2. Enter the network address for the server in the Server Address text box.

When connecting using SMB/CIFS protocol, type:
`smb://192.168.1.100/Folder1`
When connecting using AFP protocol, type:
`afp://192.168.1.100/Folder1`
Click **Connect**.

3. When MAC OS X is trying to connect N8800, it will ask for a User Name and Password which has access to the folder.

4. When MAC OS X has connected to the N8800 successfully, an icon representing the folder will appear on the MAC OS X desktop. You can access the folder by double clicking on the icon.

Mapping the N8800 as an iSCSI Drive

With the N8800, you are able to map it as an iSCSI drive. With iSCSI, you can remotely access the N8800 at great speeds, as if it were installed as a local drive in your computer.

To do this, simply follow the steps below:

Windows 2000/XP

1. First, download the iSCSI Initiator from the Microsoft website (http://www.microsoft.com). You can find this software by entering `iSCSI Initiator` into the search box on their homepage.

2. Once the download is complete, install the iSCSI Initiator by double-clicking the EXE file. You may be presented with the following security warning. Click **Run** to continue.
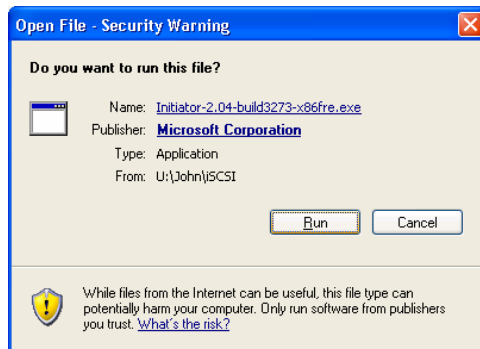
3. You will now install the iSCSI Initiator using the Setup Wizard. Click **Next** to continue.
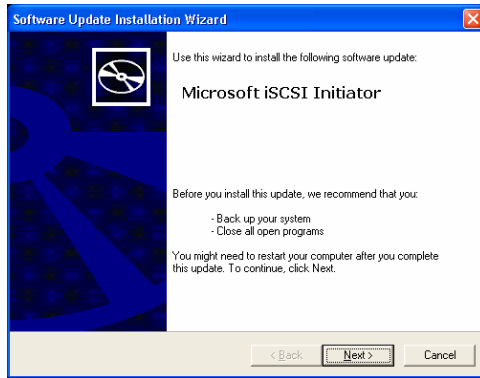
4. Leave the default selections and click **Next**.
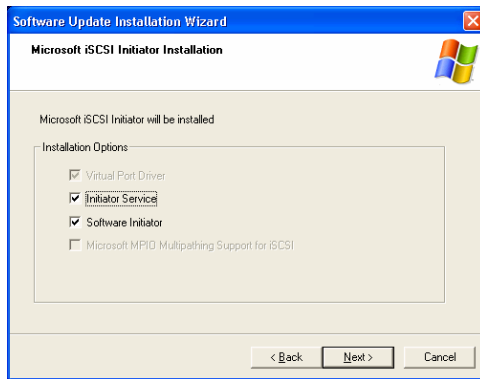
5. Read the license agreement. To continue with the installation, click **I Agree** and then click **Next**.
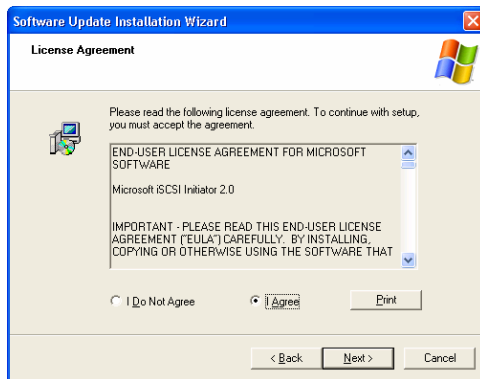
6. The iSCSI Initiator will now install automatically. Click **Finish** once completed.

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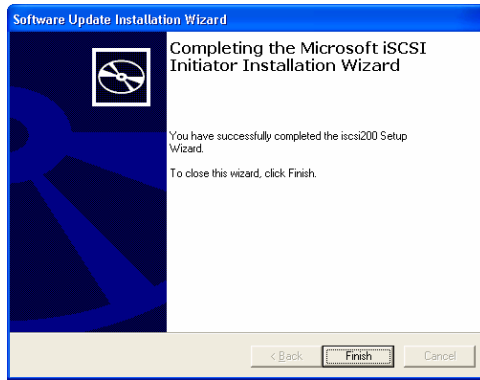
7. Start the iSCSI Initiator by double-clicking its icon on the desktop. The iSCSI Initiator properties window will appear.

Microsoft iSCSI
Initiator

8. Select the *Discovery* tab. Under **Target Portals**, click *Add*.
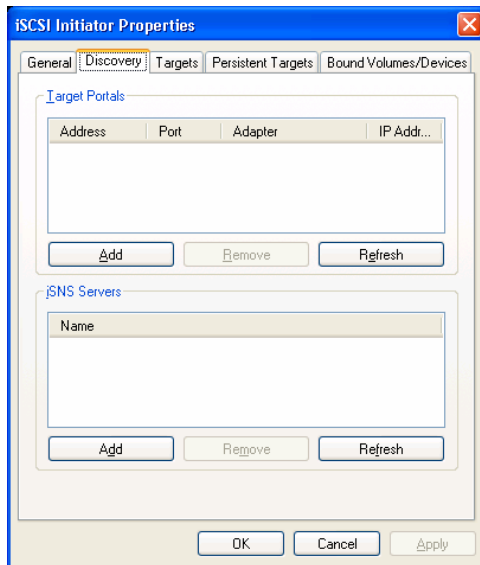
9. Enter the IP address of the N8800. Click *OK*.
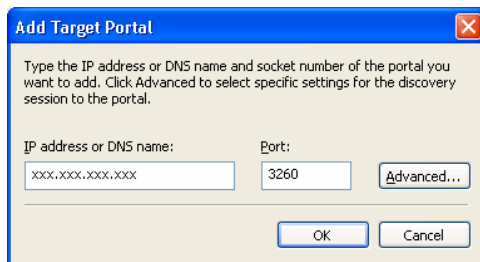
10. On the **iSCSI Initiator Properties** window, select the *Targets* tab. With the iSCSI target highlighted, click *Log On*. The **Log On to Target** dialogue will appear.
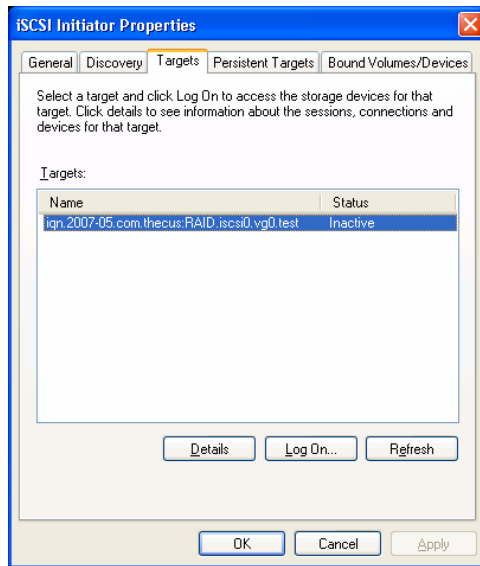
11. If you have not enabled CHAP, click *OK* to continue.
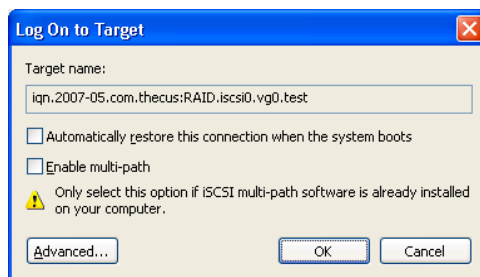
If you have enabled CHAP, click *Advanced*. Under Advanced Settings, check the **CHAP login information** checkbox and enter your username and password. Click *OK*.
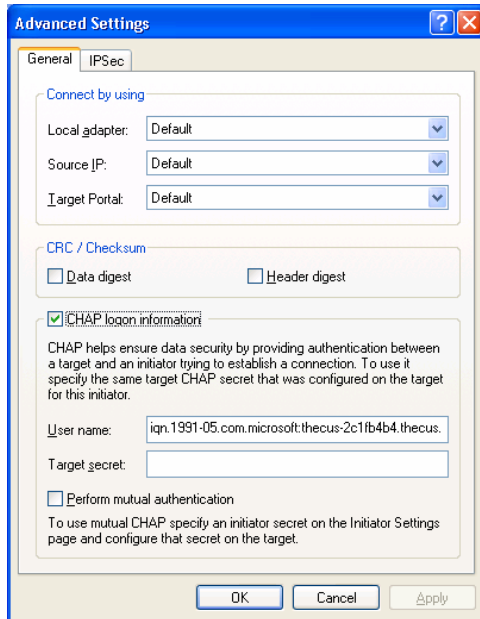
12. Right click **My Computer** on the desktop and select **Manage**.
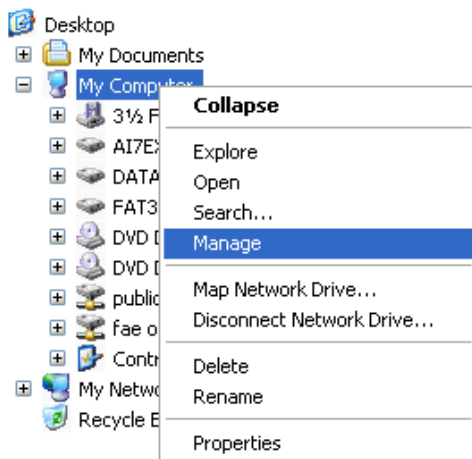
13. Click on Disk Management and you will see a new hard disk listed.
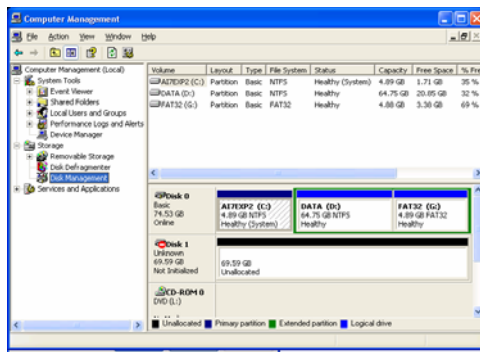
14. Initialize the new hard disk and you will then be able to use the iSCSI target as a local drive.

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Windows Vista

Because Windows Vista has the Microsoft iSCSI Initiator pre-installed, you will not have to install this piece of software. Instead, start the iSCSI Initiator and follow steps 8-14 to map the N8800 as an iSCSI drive.

File Backup

There are a number of ways to back up data with the N8800.

Nsync

You can backup a share folder to another N8800 (Nsync Target) or any FTP server for safe keeping as long as you have appropriate access right on that target. When using Nsync between two N8800s, you have the option to transmit files securely between two N8800s.

If the files on your N8800 are lost for any reason, you can restore those files from the target N8800. To backup files regularly, you can set up a scheduled task to run only once, daily, weekly, or monthly. You can also limit the bandwidth of your Nsync tasks, so other users on the network can share the bandwidth equally.

Under the **Storage** menu, click *Nsync* and the **Nsync** window appears. Below is a description of each field:

Nsync	
Item	**Description**
Task name	The name of your Nsync task.
Server	The IP address of your target server
Share folder	The share folder you would want to backup.
Last Time	The time when the last Nsync task was executed.
Last Status	The status of your last Nsync task.
Action	Administrator can run or stop an Nsync task by pressing the action button.
Bandwidth Setting	Bandwidth control on Nsync tasks.
Add	Click to add a Nsync task
Modify	Click to modify an Nsync task.
Restore	Restore share folder from an Nsync target.
Delete	Click to delete an Nsync task. Backup files on Nsync target is also deleted.

Adding an Nsync Task

From the **Nsync Information** screen, click *Add* to display the **Add Nsync Task** screen.

Add Nsync Task	
Item	**Description**
Task Name	The name of your Nsync task.
Manufacturer	Select whether the target is a Thecus Product (e.g. N8800) or FTP server.
Target Server IP Address	The IP address of your target server.
Source Folder	The share folder you want to backup.
Nsync Task Name	The name of your Nsync task.
Authorized Username on Target Server	The account name on the target server.
Password on Target	The password for the username on the target server.

Server	
Test Connection	Click to check the connection to the Target Server.
Schedule	Schedule backup of your share folders.
Time	The time when the Nsync task will run.
Type	Select whether to run the Nsync task daily, weekly, or monthly. **Daily**: input the time of day to execute Nsync task. **Weekly**: input which day of the week to execute the task. **Monthly**: decide which day of the month to execute the task.
Apply	Click to submit the task.

<table>
<tr><td>**NOTE**</td><td>Before starting an Nsync Task, make sure the target server's Nsync Server (or FTP Server) is enabled.</td></tr>
</table>

Setting Up an Nsync Target on an Nsync Device

On the Nsync target server, the administrator of that server has to set up a user account with a folder named "nsync" and grant write access.

1. On the Nsync server, add a user for Nsync source (ex. nsyncsource1). For instructions on how to add a user on the N8800, see **Chapter 4: System Management > User and Groups Management > Local User Configuration > Adding Users**.

2. On the Nsync server, grant that user (ex. nsyncsource1) write access to the **nsync** folder. For instructions on how to set up a folder's ACL, see **Chapter 4: System Management > Folder Management > Folder Access Control List (ACL)**.

3. Once this is done, the target server will start accepting Nsync tasks from server using that ID and password.

Setting Up an Nsync Target on Another Device

If you selected "Other Device" when setting up your Nsync task, the N8800 will use the FTP protocol to back up the share folder. On the external storage device, make sure there is a folder named "nsync", and the Auth ID has writable permission in that folder.

Designating N8800 as an Nsync Target

The N8800 can act as an Nsync server, enabling another Nsync-equipped Thecus NAS at a remote location backup their files to this N8800. From the **Network** menu, choose the *Nsync Target* item, and the **Nsync Target Server Setting** screen appears.

Nsync Target Server Setting	
Item	**Description**
Nsync Target Server	Enable or Disable Nsync Target support.

<table>
<tr><td>**NOTE**</td><td>To enable Nsync task to go thru firewall, you have to open port TCP/1194 on your firewall in both directions.</td></tr>
</table>

Thecus Backup Utility

The Thecus Backup Utility is on your Installation CD. When you click on the CD, the Backup Utility will be installed under **Program Groups** > **Thecus** > **Thecus Backup Utility**. If it is not installed, you can copy the file (**Thecus Backup**

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Utility.exe) to a convenient location on your hard disk and double click to execute it.

Thecus Backup.exe

When you execute this utility for the first time, it will ask you whether to create a DB file. Click *Yes*.

1. Click *Add* to create a Backup task. The **Add New Task** dialog box appears.

Add New Task	
Item	**Description**
Task	Specifies a name for the current task.
Source	Click to specify the source folder/file location.
Incremental	Click to specify whether the backup will be incremental. If unchecked, the backup will be a full backup.
Destination	Click to specify the destination folder/file location.
Excluded extensions	Files with these file name extensions will be skipped and not back up to the destination.
Comments	If you wish, enter comments here for your records.

2. To schedule the task to run at regular intervals, click on the *Schedule* icon for that task. You can schedule the task to run **Monthly** or **Weekly**.

3. To check the log for that task, click on the *Log* icon for that task.

Windows XP Data Backup

If you use Windows XP Professional, you can also use the Windows Backup Utility (Ntbackup.exe) to backup your files.

If you use Windows XP Home Edition, follow these steps to install the utility:

1. Insert the Windows XP CD into a drive and double-click the *CD* icon in **My Computer**.

2. When the Welcome to Microsoft Windows XP screen appears, click *Perform Additional Tasks*.

3. Click *Browse this CD*.

4. In Windows Explorer, navigate to *ValueAdd* > *Msft* > *Ntbackup*.

5. Double-click *Ntbackup.msi* to install the backup utility.

Once installed, you can use the Windows Backup Utility by following the steps below:

1. Click *Start*, and point to *All Programs* > *Accessories* > *System Tools* > *Backup* to start the wizard.

2. Click *Next* to skip past the opening page. Choose **Backup files and settings** from the second page, and then click *Next*.

3. Select which option you want to back up.

4. Click *Next* and in the Backup Type, Destination, and Name page, specify a back up location using the *Browse* button.

5. Find and select the drive that specifies your N8800 as your backup destination and click *Next*.

6. Click *Next* to display the wizard's final page and click *Finish* to start backing up.

Apple OS X Backup Utilities

Mac OS X does not include any backup software. However, there are a number of backup solutions available for the Mac OS X, including: iBackup, Psyncx, iMSafe, Rsyncx, Folder Synchronizer X, Tri-BACKUP, Impression, Intego Personal Backup, SilverKeeper, and Apple's dotMac Backup utility to name just a few. To find even more freeware and shareware backup utilities to choose from, go to VersionTracker or MacUpdate and search on "backup".

Chapter 7: Tips and Tricks

USB and eSATA Storage Expansion

The N8800 supports external USB hard disks through its four USB ports. Once a USB hard disk has successfully mounted, the entire volume will be copied automatically to the default USB HDD folder. The N8800 supports up to 4 USB external storage devices. All file names on the USB disk volume are case sensitive.

The N8800 also supports eSATA hard disks with its eSATA port.

Before attaching an eSATA or USB disk drive to N8800, you have to partition and format it on a desktop computer or a notebook first. The attached device will be located at \\192.168.1.100\usbhdd\sdf1 where 192.168.1.100 means the IP address of N8800 and sdf1 stands for the first partition on disk #6, the eSATA or USB disk drive. If it is an NTFS partition, NAS users can open or copy files from \\192.168.1.100\usbhdd\sdf1 but cannot add new files or modify existing files.

NOTE If you want to write to an USB storage device, the file system must be FAT32.

USB Storage	FAT32 Partition	NTFS Partition
Read	OK	OK
Write	OK	-

Adding a Spare Disk

With a RAID 1, RAID 5, RAID 6, or RAID 10 volume, you can add a spare disk after the initial RAID is setup. To add a spare disk, follow the steps below:

1. On the **RAID Configuration Screen**, tick the checkbox of the hard disk you wish to designate as a spare disk.

2. Click ***Add Spare***. The disk will be configured as a spare disk. The system automatically rebuilds the spare disk when one of the disks in the RAID set fails.

Remote Administration

You can set up your N8800 for remote administration. With remote administration, you can access your N8800 over the Internet, even if your N8800 is behind a router. This is especially useful if you are traveling and suddenly need a file from your N8800.

Setting up remote administration is a three-part process, and will require the following equipment:

- Thecus N8800 NAS device
- Cable/DSL Router with Dynamic DNS support
- Home PC
- Internet Connection

NOTE Router setup will differ slightly depending on router used. For this example, we will use the Asus WL500g because it has support for Dynamic DNS. Contact your router hardware vendor for setup help.

Part I - Setup a DynDNS Account

1. Go to `http://www.dyndns.org` from your home PC.
2. Click on the ***Sign Up Now*** link.
3. Check the Check boxes, select a user name (i.e.: N8800), enter your email address (i.e.: xxx@example.com), check ***Enable Wildcard***, and create a password (i.e.: xxxx).
4. Wait for an email from www.dyndns.org.
5. Open the email and click on the link to activate your account

Part II - Enable DDNS on the Router

1. Go to the router setup screen and select ***IP Config*** > ***Miscellaneous DDNS Setting*** from your Home PC.
2. Click on ***Yes*** for **Enable the DDNS Client?**
3. Select `www.dyndns.org`.
4. Go to router setup screen, and enter the following information:
    a. User Name or E-mail Address: **xxx@example.com**
    b. Password or DDNS Key: **xxxx**
    c. Host Name: `www.N8800.dyndns.org`
    d. Enable wildcard? Select ***Yes***
    e. Update Manually: Click ***Update***

Part III - Setting up Virtual Servers (HTTPS)

1. Navigate to ***NAT Setting*** > ***Virtual Server***.
2. For **Enable Virtual Server?**, select ***Yes***
3. Setup the HTTPS Server
    a. **Well-Known Applications**: Select **User Defined**
    b. **Local IP**: Enter `192.168.1.100`
    c. **Port Range**: `443` (the default HTTPS port setting on the N8800)
    d. **Protocol**: select **TCP**
    e. Click ***Add***.
    f. Click ***Apply***.
4. Test the HTTPS connection from another computer on the Internet
    a. From a remote computer, open your browser and enter `https://www.N8800.dyndns.org`
    b. You should see the login page of N8800.

Firewall Software Configuration

If you are using a software firewall (i.e. Norton Internet Security) and are having trouble connecting to the N8800, you can try the following steps:

1. Double click the **NIS** icon on system tray, and then configure the **Personal Firewall**.

2. On the **Programs** page, find the **SetupWizard.exe** and change its permission to "Permit All". If it's not in the program list, use the **Add** or **Program Scan** buttons to find it.

3. On the **Networking** page, manually add N8800 IP address (i.e. `192.168.1.100`) to the **Trusted** list.

Replacing Damaged Hard Drives

If you are using RAID 1, RAID 5, RAID 6, or RAID 10, you can easily replace a damaged hard drive in the Thecus N8800 while keeping your data secure with the system's automatic data recovery.

Hard Drive Damage

When a hard drive is damaged and data in the RAID volume, the system LCD will display warning message also the system beeps.

Replacing a Hard Drive

To replace a hard disk drive in the N8800:

1. Remove the tray with the damaged hard disk.
2. Unscrew the damaged hard disk and remove it from the tray.

3. Slide a new hard disk into the tray and fasten the screws.

4. Insert the hard disk tray back into the N8800 until it snaps into place. You can also lock it with a key if desired.

5. The LED blinks green when the HDD is accessed.

RAID Auto-Rebuild

When using RAID 1, 5, 6, or 10 on the N8800, you can use the auto-rebuild function when an error is detected.

1. When a hard disk fails the system beeps and/or an email notification is sent to specified receivers.

2. Check the LCD to see which disk has failed.

3. Follow the steps mentioned above to replace the failed hard disk.

4. The system automatically recognizes the new hard disk and starts the auto-rebuild sequence to resume its status before the hard disk crash.

Chapter 8: Troubleshooting

Forgot My Network IP Address

If you forget your network IP address and have no physical access to the system, you can find out the IP address by either looking directly onto the N8800's LCD panel, or by using the setup wizard to retrieve the IP of your N8800.

1. Start the Setup Wizard, and it will automatically detect all Thecus IP storage products on your network.

2. You should be able to find the IP address of the N8800 which you have forgotten in the **Device Discovery** screen.

Can't Map a Network Drive in Windows XP

You may have problems mapping a network drive under the following conditions:

1. The network folder is currently mapped using a different user name and password. To connect using a different user name and password, first disconnect any existing mappings to this network share.

2. The mapped network drive could not be created because the following error has occurred: **Multiple connections to a server or shared resource by the same user, using more than one user name, are not allowed.** Disconnect all previous connections to the server or shared resource and try again.

To check out existing network connections, type `net use` under the DOS prompt. You may refer the URL below for more network mapping information.

http://esupport.thecus.com/support/index.php?_m=downloads&_a=viewdownload&downloaditemid=57&nav=0

Restoring Factory Defaults

From the **System** menu, choose the *Factory Default* item and **the Reset to Factory Default** screen appears. Press *Apply* to reset the N8800 to factory default settings.

WARNING	Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.

Problems with Time and Date Settings

The administrator is able to select an NTP Server to keep the N8800's time synchronized. However, if the N8800 can not access the Internet, you may encounter a problem when setting the Time and Time Zone. If this happens:

1. Login to the Web Administration Interface.

2. Navigate to *System* > *Time*.

3. Under **NTP Server**, select *No*.

4. Set the **Date**, **Time**, and **Time Zone**.

5. Click *Apply*.

In addition, if the N8800 is able to access the Internet and you want to keep the NTP Server clock.isc.org by default, please make sure the DNS Server is correctly entered, thereby allowing the NTP Server name to correctly resolve. (See *Network* > *WAN* > *DNS Server*)

Appendix A: Product Specifications

Hardware Specifications

Product Model	N8800
Network Interfaces	
WAN	Gigabit RJ-45 connector
LAN	Gigabit RJ-45 connector
Storage	
HDD Bays	8 x 3.5″ SATA II HDD, hot-swappable
HDD Support	SATA II HDDs up to 1000GB
eSATA	1 x eSATA connector for capacity expansion
I/O Interfaces	
USB Ports	4 x USB type A ports (Host mode)
System Information	
LCD Control Panel	For basic configurations and status display
System LED Display	2 x LED (Power, System fan failed)
Physical	
Height	87 mm
Width	430 mm
Depth	600 mm
Power Supply	Server-rated AC redundant power supply 100/220V AC, 50/60Hz, Auto-detect
Security	Lockable disk trays
Environment	
Temperature	5 ~ 40°C
Humidity	20 ~ 85% relative humidity (non-condensing)
Certifications	CE, FCC, BSMI, C-Tick, RoHS Compliant

Software Specifications

Network File Protocols	Microsoft Networks (CIFS/SMB) Apple Filing Protocol (AFP 3.0) Network File System (NFS v3) File Transfer Protocol (FTP) Hyper Text Transfer Protocol (HTTP) Secure Hyper Text Transfer Protocol (HTTPs)
Authentication	Local User Account Microsoft Active Directory Authentication (AD)*
Network Client Type	Microsoft Windows NT/2000/XP/2003/Vista Unix/Linux/BSD MAC OS X/9
Network Configuration	Fixed IP address Dynamic IP address 802.3ad based failover and link aggregation
Disk Management	Disk status monitoring (S.M.A.R.T.) Disk idle spin-down
RAID	RAID 0, 1, 5, 6, 10 and JBOD Supports multiple RAID modes – users can create multiple RAID volumes with different RAID levels in one system

	Auto rebuild
	Hot swappable
	Hot spare
	Disk roaming
	RAID level migration
	RAID expansion
iSCSI Target	Supports:
	Microsoft iSCSI Initiator v2.0.4
	StarPort Initiator V3.5.2
	MAC OS: globalSAN iSCSI initiator version 3.0 (1150)
	Linux: open-iscsi 2.0-865
Folder Management	Share folder level permission
	Public folder
Quota Management	Share folder quota control
Backup	Thecus Backup Utility (Windows XP/2000 and MAC OS X)
	Thecus Nsync
System Management	Web GUI
	Multilingual support (English, French, German, Italian, Traditional Chinese, Simplified Chinese, Japanese, Korean, and Spanish)
	NTP support
	Wake-on-LAN
	Scheduled Power On/Off
Event Notification	Email notification
	Buzzer notification
	LCD
UPS Support	UPS monitoring via RS-232 and system shutdown on low battery
Printer Server	USB Printer (IPP support)
Supported USB Devices	USB Printer
	External HDD/flash disk
	USB IEEE 802.11 b/g dongle w/AP mode support**
Setup Utility	Windows 2000/XP/2003
	MAC OS X

*AD support: Works as a client member in a Microsoft Active Directory domain, allowing the N8800 to utilize the domain users and groups setting for authentication to the system and authorization to the share folders.

**For supported USB dongles, please contact sales@thecus.com

Appendix B: Customer Support

If your N8800 is not working properly, we encourage you to check out **Chapter 8: Troubleshooting**, located in this manual. You can also try to ensure that you are using the latest firmware version for your N8800. Thecus is committed to providing free firmware upgrades to our customers. Our newest firmware is available on our Download Center:

http://www.thecus.com/download.php

If you are still experiencing problems with your N8800, or require a Return Merchandise Authorization (RMA), feel free to contact technical support via our Technical Support Website:

http://www.thecus.com/support_tech.php

Customers in the US should send all technical support enquiries to this email address:

support-us@thecus.com

For Sales Information you can e-mail us at:

sales@thecus.com

Thank you for choosing Thecus!

Appendix C: RAID Basics

Overview

A Redundant Array of Independent Disks (RAID) is an array of several hard disks that provide data security and high performance. A RAID system accesses several hard disks simultaneously, which improves I/O performance over a single hard disk. Data security is enhanced by a RAID, since data loss due to a hard disk failure is minimized by regenerating redundant data from the other RAID hard disks.

Benefits

RAID improves I/O performance, and increases data security through fault tolerance and redundant data storage.

Improved Performance

RAID provides access to several hard disk drives simultaneously, which greatly increases I/O performance.

Data Security

Hard disk drive failure unfortunately is a common occurrence. A RAID helps prevent against the loss of data due to hard disk failure. A RAID offers additional hard disk drives that can avert data loss from a hard disk drive failure. If a hard drive fails, the RAID volume can regenerate data from the data and parity stored on its other hard disk drives.

RAID Levels

The Thecus N8800 supports standard RAID levels 0, 1, 5, 6, 10, and JBOD. You choose a RAID level when you create a system volume. The factors for selecting a RAID level are:

- Your requirements for performance
- Your need for data security
- Number of hard disk drives in the system, capacity of hard disk drives in the system

The following is a description of each RAID level:

RAID 0

RAID 0 is best suited for applications that need high bandwidth but do not require a high level of data security. The RAID 0 level provides the best performance of all the RAID levels, but it does not provide data redundancy.

RAID 0 uses disk striping and breaking up data into blocks to write across all hard drives in the volume. The system can then use multiple hard drives for faster read and write. The stripe size parameter that was set when the RAID was created determines the size of each block. No parity calculations complicate the write operation.

RAID 1

RAID 1 mirrors all data from one hard disk drive to a second one hard disk drive, thus providing complete data redundancy. However, the cost of data storage capacity is doubled.

This is excellent for complete data security.

RAID 5

RAID 5 offers data security and it is best suited for networks that perform many small I/O transactions at the same time, as well as applications that require data security such as office automation and online customer service. Use it also for applications with high read requests but low write requests.

RAID 5 includes disk striping at the byte level and parity information is written to several hard disk drives. If a hard disk fails the system uses parity stored on each of the other hard disks to recreate all missing information.

RAID 6

RAID 6 is essentially an extension of RAID level 5 which allows for additional fault tolerance by using a second independent distributed parity scheme (dual parity) Data is striped on a block level across a set of drives, just like in RAID 5, and a second set of parity is calculated and written across all the drives; RAID 6 provides for an extremely high data fault tolerance and can sustain two simultaneous drive failures.

This is a perfect solution for mission critical applications.

RAID 10

RAID 10 is implemented as a striped array whose segments are RAID 1 arrays. RAID 10 has the same fault tolerance as RAID level 1.
RAID 10 has the same overhead for fault-tolerance as mirroring alone. High I/O rates are achieved by striping RAID 1 segments.
Under certain circumstances, RAID 10 array can sustain up to 2 simultaneous drive failures

Excellent solution for applications that would have otherwise gone with RAID 1 but need an additional performance boost.

JBOD

Although a concatenation of disks (also called JBOD, or "Just a Bunch of Disks") is not one of the numbered RAID levels, it is a popular method for combining multiple physical disk drives into a single virtual one. As the name implies, disks are merely concatenated together, end to beginning, so they appear to be a single large disk.

As the data on JBOD is not protected, one drive failure could result total data loss.

Stripe Size

The length of the data segments being written across multiple hard disks. Data is written in stripes across the multiple hard disks of a RAID. Since multiple disks are accessed at the same time, disk striping enhances performance. The stripes can vary in size.

Disk Usage

When all 8 disks are of the same size, and used in RAID, N8800 disk usage percentage is listed below:

RAID Level	Percentage Used
RAID 0	100%
RAID 1	20%
RAID 5	80%
RAID 6	60%
RAID 10	50%
JBOD	100%

Appendix D: Active Directory Basics

Overview

With Windows 2000, Microsoft introduced Active Directory (ADS), which is a large database/information store. Prior to Active Directory the Windows OS could not store additional information in its domain database. Active Directory also solved the problem of locating resources; which previously relied on Network Neighborhood, and was slow. Managing users and groups were among other issues Active Directory solved.

What is Active Directory?

Active Directory was built as a scalable, extensible directory service that was designed to meet corporate needs. A repository for storing user information, accounts, passwords, printers, computers, network information and other data, Microsoft calls Active Directory a "namespace" where names can be resolved.

ADS Benefits

ADS lets the N8800 integrate itself with the existing ADS in an office environment. This means the N8800 is able to recognize your office users and passwords on the ADS server. Other major benefits ADS support provides include:

1. Easy integration of the N8800 into the existing office IT infrastructure

   The N8800 acts as a member of the ADS. This feature significantly lowers the overhead of the system administrator. For example, corporate security policies and user privileges on an ADS server can be enforced automatically on the N8800.

2. Centralized user/password database

   The N8800 does not maintain its own copy of the user/password database. This avoids data inconsistency between the N8800 and other servers. For example, without ADS support, an administrator might need to remove a specific user privilege on the N8800 and each individual server. With ADS support, the change on an ADS server is known to all of its ADS members.

Appendix E: UPS Compatibility List

Brand	Series	Model	Notes
Ablerex	MS-RT		
ActivePower	1400VA		
AEC	MiniGuard UPS 700 M2501 cable		
APC	Back-UPS Pro		
	Matrix-UPS		
	Smart-UPS		
	Back-UPS	940-0095A/C cables, 940-0020B/C cables, 940-0023A cable	
	Back-UPS Office	940-0119A cable	
	Masterswitch Not a UPS - 940-0020 cable		
	Back-UPS RS 500 custom non-USB cable		
Belkin	Regulator Pro serial		
	Resource		
	Home Office	F6H350-SER, F6H500-SER, F6H650-SER	
	Universal UPS	F6C800-UNV, F6C120-UNV, F6C1100-UNV, F6H500ukUNV	
Best Power	Fortress (newer)		
	Fortress Telecom		
	Axxium Rackmount		
	Patriot Pro		
	Patriot Pro II		
	Patriot INT51 cable		
	Micro-Ferrups		
	Fortress/Ferrups f-command support		
Centralion	Blazer		
Clary	ST-800		
Compaq	T1500h		
Cyber Power Systems		320AVR, 500AVR, 650AVR, 700AVR, 800AVR 850AVR, 900AVR, 1250AVR,. 1500AVR, Power99 550SL, 725SL, CPS825VA, 1100AVR, 1500AVR-HO	
Deltec	PowerRite Pro II		
Dynex	975AVR		
Effekta	MI/MT/MH 2502 cable		
Energy Sistem	(various)		
ETA	mini+UPS WinNT/Upsoft cable		
ETA	mini+UPS PRO UPS Explorer cable		
Ever UPS	NET *-DPC		
	AP *-PRO		
Ever-Power	625/1000		
Exide	NetUPS SE		
Fenton Technologies	PowerPal P-series		
	PowerPal L-series		
	PowerOn		
	PowerPure		
Fairstone		L525/L625/L750	
Fideltronik	Ares 700 and larger		
	Other Ares models		

Brand	Series	Model	Notes
Fiskars	PowerRite MAX		
	PowerServer	10, 30	
Gamatronic	All models with alarm interface		
	MP110/210		
	MS-T		
	MS		
	µPS3/1		
Gemini	UPS625/UPS1000		
HP	R3000 XR		
	R5500 XR		
INELT	Monolith 1000LT		
Infosec	iPEL	350, 500, 750, 1000	
Ippon	(various)		
Liebert	UPStation GXT2 contact-closure cable		
Masterguard	(various)		
Meta System	HF Line	1..4 boards, /2 5..8 boards	
	HF Millennium	810, 820	
	HF TOP Line	910, 920, 930, 940, 950, 960, 970, 980	
	ECO Network	750, M1000, M1050, M1500, M1800 M2000, M2100, M2500, M3000	
	ECO	305, 308, 311, 511, 516, 519, 522	
	ally HF	800, 1000, 1250, 1600, 2000, 2500	
	Megaline	1250, 2500, 3750, 5000, 6250, 7500, 8750, 10000	
MGE UPS SYSTEMS	NOVA AVR 600 Serial		
	NOVA AVR 1100 Serial		
	Pulsar Ellipse	USBS Serial cable, S, Premium USBS Serial cable, Premium S	
	Ellipse Office	600 Serial cable, 750 Serial cable, 1000 Serial cable, 1500 Serial cable	
	Pulsar EXtreme C / EX RT		
	Comet EX RT	Serial port, 3:1 Serial port	
	Pulsar Esprit		
	Evolution S	1250, 1750, 2500, 3000	Serial Port
	Pulsar M	2200, 3000, 3000 XL	Serial Port
	Pulsar	700, 1000, 1500, 1000 RT2U, 1500 RT2U, MX 4000 RT, MX 5000 RT Evolution, EXtreme C, ES+, ESV+, SV, ESV, EX, EXL, PSX, SX, Extreme	Serial Port
	Comet EXtreme		
	Comet / Galaxy (Serial)	Utalk Serial Card (ref 66060), HID COM Serial Card (ref 66066)	
MicroDowell	B.Box BP	500, 750, 1000, 1500	
Microsol	Solis	1.0 1000VA, 1.5 1500VA, 2.0 2000VA, 3.0 3000VA	
	Rhino	6.0 6000VA, 7.5 7500VA, 10.0 10000VA, 20.0 20000VA	
Mustek	Various		
	Powermust	400VA Plus, 600VA Plus, 800VA Pro 1000VA Plus, 1400VA Plus, 2000VA USB	
Nitram	Elite	500, 2002	
Oneac	EG/ON Series advanced interface		
Online	P-Series		
OnLite	AQUA 50		
Orvaldi	various not 400 or 600		
Powercom	SMK-800A		
	ULT-1000		

Brand	Series	Model	Notes
Powercom	TrustTrust 425/625		
	BNT-1000AP		
	Advice Partner/King Pr750		
	BNT-2000AP		
PowerGuard	PG-600		
PowerKinetics	9001		
PowerTech	Comp1000 DTR cable power		
Power Walker	Line-Interactive VI1000		
Powerware		3110, 3115, 5119, 5125, 5119 RM, PW5115 PW5125PW9120, PW9125, 9120, 9150, 9305	
Powerwell	PM525A/-625A/-800A/-1000A/-1250A		
Repotec	RPF525/625/800/1000		
	RPT-800A		
	RPT-162A		
SMS (Brazil)	Manager III		
SOLA		325, 520, 610, 620, 330	
SOLA/BASIC Mexico	various ISBMEX protocol		
Socomec Sicon	Egys 420 VA		
Soltec	Winmate 525/625/800/1000		
Soyntec	Sekury C	500, 800	
SquareOne Power	QP1000		
SuperPower	HP360, Hope-550		
Sweex	500/1000 smart - shipped with SafeNet		
	500/1000 contact closure - shipped with UPSmart		
	BC100060 800VA		
Sysgration	UPGUARDS Pro650		
Tecnoware	Easy Power 1200		
Tripp-Lite	SmartUPS		
	SmartOnline		
	(various) Lan 2.2 interface - black 73-0844 cable		
Trust	UPS 1000 Management PW-4105		
UNITEK	Alpha	500 IC, 1000is, 500 ipE	
UPSonic	LAN Saver 600		
	Power Guardian		
Victron/IMV	(various)		
	Lite crack cable		

NOTE
- The UPSes marked Blue have been tested and work well
- If your UPS is not in the support list, be sure that the UPS supports one of following protocols:
  - SEC protocol
  - Generic RUPS model
  - Generic RUPS 2000 (Megatec M2501 cable)
  - PhoenixTec protocol
  - Safenet software

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Overview

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