

**Thecus N4100+**

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 N4100+

Manual Version: 1.0













Release Date: April 2007

## **Limited Warranty**

Thecus Technology Corporation guarantees all components of Thecus N4100+ 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 N4100+.
-  Your N4100+ 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 N4100+ can operate normally under temperatures between 5°C and 40°C, with relative humidity of 0% – 80%. Using the N4100+ under extreme environmental conditions could damage the unit.
-  Ensure that the N4100+ is provided with the correct supply voltage (AC 100V ~ 240V, 50/60 Hz, 3A). Plugging the N4100+ to an incorrect power source could damage the unit.
-  Do NOT expose the N4100+ to dampness, dust, or corrosive liquids.
-  Do NOT place the N4100+ on any uneven surfaces.
-  DO NOT place the N4100+ in direct sunlight or expose it to other heat sources.
-  DO NOT use chemicals or aerosols to clean the N4100+. Unplug the power cord and all connected cables before cleaning.
-  DO NOT place any objects on the N4100+ 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.

# Table of Contents

<b>Copyright and Trademark Notice</b> .....	<b>2</b>
<b>About This Manual</b> .....	<b>2</b>
<b>Limited Warranty</b> .....	<b>2</b>
<b>Safety Warnings</b> .....	<b>3</b>
<b>Table of Contents</b> .....	<b>4</b>
<b>Chapter 1: Introduction</b> .....	<b>8</b>
<b>Overview</b> .....	<b>8</b>
<b>Product Highlights</b> .....	<b>8</b>
File Server .....	8
Media Server .....	8
FTP Server .....	8
iTunes® Server .....	8
Backup Server .....	9
Download Manager .....	9
Printer Server .....	9
<b>Package Contents</b> .....	<b>9</b>
<b>Front Panel</b> .....	<b>10</b>
<b>Hard Disk Tray</b> .....	<b>10</b>
<b>Rear Panel</b> .....	<b>11</b>
<b>Chapter 2: Getting Started</b> .....	<b>12</b>
<b>Overview</b> .....	<b>12</b>
<b>Before You Begin</b> .....	<b>12</b>
<b>Hard Disk Installation</b> .....	<b>12</b>
<b>Cable Connections</b> .....	<b>12</b>
<b>Checking System Status</b> .....	<b>13</b>
System Status OK .....	13
System Trouble .....	13
<b>Installation Wizard</b> .....	<b>13</b>
<b>First Time Setup</b> .....	<b>16</b>
Step 1: Initial Login .....	16
Step 2: System Check and Configuration .....	16
Step 3: Configure Network Settings .....	16
Step 4: Select RAID Level .....	17
Step 5: Create Local Users and Groups .....	17
Step 6: Create Folders and Set Up ACLs .....	18
Step 7: Start Services .....	18
<b>Chapter 3: System Management</b> .....	<b>19</b>
<b>Overview</b> .....	<b>19</b>
<b>Web Administration Interface</b> .....	<b>19</b>
Menu Bar .....	20
<b>Language Selection</b> .....	<b>20</b>
<b>Status Menu</b> .....	<b>21</b>
Product Information .....	21
System Status .....	21
System Information .....	22
Printer Status .....	22
<b>Storage Management</b> .....	<b>23</b>
Disk Information .....	23
RAID Information .....	23

RAID Configuration .....	24
RAID Level .....	24
Disk Settings .....	25
Creating a RAID .....	25
Deleting a RAID .....	25
Folder Management .....	26
Adding Folders .....	26
Editing Folders .....	27
Deleting Folders .....	27
Folder Access Control List (ACL) .....	27
Service Folders.....	28
<b>Network Management .....</b>	<b>29</b>
WAN Configuration .....	29
LAN Configuration.....	30
DHCP Configuration .....	30
WLAN Configuration.....	31
Web Services Configuration.....	32
Apple Network Setup .....	33
<b>User and Group Management .....</b>	<b>34</b>
Local User Configuration.....	34
Adding Users .....	34
Modifying Users.....	35
Deleting Users .....	35
Local Groups Configuration .....	35
Adding Groups .....	36
Modifying Groups .....	36
Deleting Groups .....	36
ADS/NT Configuration .....	37
<b>System Management .....</b>	<b>38</b>
System Notifications .....	38
System Logs.....	39
Time and Date Settings .....	39
System Configuration Backup and Restore .....	40
Module Management .....	40
Reset to Factory Default Settings.....	41
Upgrading System Firmware .....	41
Change Administrator Password.....	42
Reboot and Shutdown System.....	42
Scheduled Power On/Off.....	42
Logout .....	43
<b>Chapter 4: Additional Feature Setup.....</b>	<b>44</b>
<b>Overview .....</b>	<b>44</b>
<b>FTP Server.....</b>	<b>44</b>
<b>iTunes® Server.....</b>	<b>45</b>
<b>Media Server .....</b>	<b>45</b>
Media Server Module Installation .....	45
Adding Media Share Folders .....	46
Connecting DMAs to the Media Server .....	46
<b>Download Manager.....</b>	<b>47</b>
Download Manager Module Installation .....	47
Adding an HTTP Task .....	48
Adding an FTP Task .....	48
Adding a BT Task.....	49
Deleting Tasks .....	49
Scheduling Downloads.....	49
<b>Printer Server.....</b>	<b>50</b>
Printer Server Module Installation .....	50

Windows XP SP2.....	50
Windows Vista.....	51
<b>Chapter 5: Using the N4100+ .....</b>	<b>54</b>
<b>Overview .....</b>	<b>54</b>
<b>Login Page.....</b>	<b>54</b>
<b>Using WebDisk .....</b>	<b>54</b>
<b>Using iTunes® Server .....</b>	<b>55</b>
Adding Music Files .....	55
Playing Music Files .....	55
<b>File Backup .....</b>	<b>56</b>
Nsync .....	56
Adding an Nsync Task .....	57
Setting Up an Nsync Target on an Nsync Device.....	57
Setting Up an Nsync Target on Another Device .....	58
Designating N4100+ as an Nsync Target.....	58
Thecus Backup Utility .....	58
Windows XP Data Backup .....	60
Apple OS X Backup Utilities .....	60
<b>Chapter 6: Tips and Tricks .....</b>	<b>61</b>
<b>Mapping a Client PC to the N4100+ .....</b>	<b>61</b>
Windows .....	61
Apple OS X .....	62
<b>USB Storage Expansion .....</b>	<b>63</b>
<b>Adding a Spare Disk .....</b>	<b>63</b>
<b>Replacing Damaged Hard Drives .....</b>	<b>64</b>
Hard Drive Damage .....	64
Replacing a Hard Drive .....	64
RAID Auto-Rebuild.....	64
<b>Remote Administration.....</b>	<b>64</b>
Part I - Setup a DynDNS Account .....	65
Part II - Enable DDNS on the Router .....	65
Part III - Setting up Virtual Servers (HTTPS) .....	65
<b>Firewall Software Configuration .....</b>	<b>65</b>
<b>File System Check .....</b>	<b>66</b>
<b>Chapter 7: Troubleshooting Guide .....</b>	<b>68</b>
<b>N4100+ Won't Turn On .....</b>	<b>68</b>
<b>Resetting NAS IP Address and Admin Password.....</b>	<b>68</b>
<b>Forgot My Network IP Address .....</b>	<b>68</b>
<b>Can't Access N4100+ from the LAN .....</b>	<b>69</b>
<b>Can't Map a Network Drive in Windows XP .....</b>	<b>69</b>
<b>N4100+ Chassis Feels Hot .....</b>	<b>69</b>
<b>Can't Find Printer Server / Media Server / Download Manager .....</b>	<b>69</b>
<b>Restoring Factory Defaults .....</b>	<b>69</b>
<b>Problems with Time and Date Settings .....</b>	<b>69</b>
<b>Simple Problem Diagnosis Procedure .....</b>	<b>70</b>
<b>Appendix A: Product Specifications .....</b>	<b>71</b>
<b>Hardware Specifications .....</b>	<b>71</b>
<b>Software Specifications .....</b>	<b>71</b>
<b>Appendix B: Customer Support.....</b>	<b>73</b>
<b>Appendix C: RAID Basics .....</b>	<b>74</b>

<b>Overview</b> .....	<b>74</b>
<b>Benefits</b> .....	<b>74</b>
Improved Performance .....	74
Data Security .....	74
<b>RAID Levels</b> .....	<b>74</b>
RAID 0 .....	74
RAID 1 .....	75
RAID 5 .....	75
JBOD .....	75
<b>Stripe Size</b> .....	<b>75</b>
<b>Disk Usage</b> .....	<b>75</b>
<b>Appendix D: Active Directory Basics</b> .....	<b>76</b>
<b>Overview</b> .....	<b>76</b>
<b>What is Active Directory?</b> .....	<b>76</b>
<b>ADS Benefits</b> .....	<b>76</b>
<b>Appendix E: Licensing Information</b> .....	<b>77</b>
<b>Overview</b> .....	<b>77</b>
<b>Source Code Availability</b> .....	<b>77</b>
<b>CGIC License Terms</b> .....	<b>78</b>
<b>GNU General Public License</b> .....	<b>78</b>

# Chapter 1: Introduction

## Overview

Thank you for choosing the Thecus N4100+ IP Storage Server. The Thecus N4100+ 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 three Terabyte of storage is available using RAID 0. Two Gigabit Ethernet ports enhances network efficiency, allowing the N4100+ to take over file management functions, increase application and data sharing and provide faster data response. The N4100+ offers data mobility with a disk roaming feature that lets you hot swap working hard drives for use in another N4100+, securing the continuity of data in the event of hardware failure. The N4100+ allows data consolidation and sharing between Windows (SMB/CIFS), UNIX/Linux, and Apple OS X environments. The N4100+'s user-friendly GUI supports multiple languages.

## Product Highlights

### File Server

First and foremost, the N4100+ 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 5: Using the N4100+ > [Web User Interface](#)**.

### Media Server

Mediabolic's Embedded Media Server resides on the N4100+ and aggregates personal media so that it can be accessed by a variety of players, such as network TVs, IP set-top boxes, and digital media adapters. This software is DLNA Certified, which means that increased interoperability with other DLNA certified devices. The software also enables advanced digital rights management, an auto setup wizard, and auto-generating video thumbnails. Mediabolic's Embedded Media Server makes accessing, sharing, and enjoying your media files a simple affair.

To set up the Media Server, refer to **Chapter 4: Additional Feature Setup > [Media Server](#)**.

### FTP Server

With the built-in FTP Server, friends, clients, and customers can upload and download files to your N4100+ 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 4: Additional Feature Setup > [FTP Server](#)**.

### iTunes® Server

Digital music is one of the hottest trends, and with the built-in iTunes® server, you can share your digital music files with every iTunes-equipped PC on your network. The iTunes Server is also incredibly easy to set up!



To set up the iTunes Server, refer to **Chapter 4: Additional Feature Setup > iTunes Server**.

### **Backup Server**

Don't leave precious data to chance. With advanced backup capabilities, you can easily upload mission critical files to the N4100+, and even automate your backup tasks for true peace-of-mind.

To find out how to backup your files with the N4100+, refer to **Chapter 5: Using the N4100+ > File Backup**.

### **Download Manager**

Tired having downloads take up all of your bandwidth when you need it most? With the N4100+'s Download Manager, you can let the N4100+ complete your BT, HTTP, and FTP during off-peak hours. With the N4100+ lower power requirements, you can even save money off your monthly power bill.

To set up the Download Station, refer to **Chapter 4: Additional Feature Setup > Download Manager**.

### **Printer Server**

With the N4100+'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 4: Additional Feature Setup > Printer Server**.

## ***Package Contents***

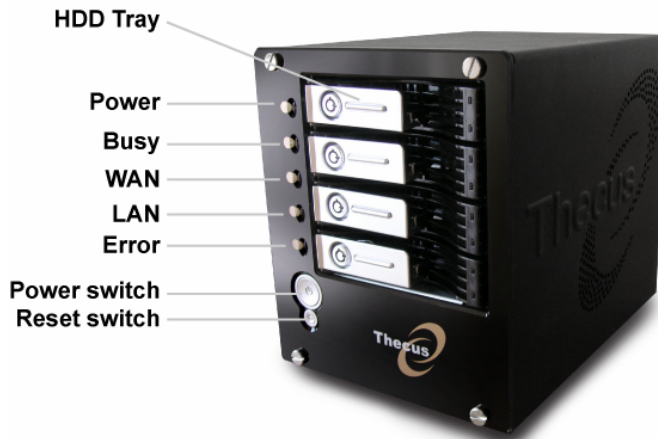
Your N4100+ package should contain the following items:

- Thecus N4100+ NAS Device
- Accessory Pack:
  - Power cord
  - RJ-45 Ethernet cable
  - hard disk screws
  - keys
  - front panel screw
  - Installation CD
  - Quick Installation Guide

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

## Front Panel

The N4100+'s front panel displays the unit's array of status LEDs, and is also where you'll find the reset and power buttons. See the table below for a detailed explanation of each:



Item	Description
HDD Trays	<ul style="list-style-type: none"> <li>There are four hard disk drive (HDD) trays. Each tray supports a 3.5-inch SATA HDD. The trays have locks for added physical security and keys are provided with the package.</li> </ul>
Power LED	<ul style="list-style-type: none"> <li><b>Solid blue:</b> N4100+ is powered on</li> </ul>
Busy LED	<ul style="list-style-type: none"> <li><b>Blinking orange:</b> system startup or maintenance; data inaccessible</li> <li><b>Off:</b> system startup complete; system operating normally</li> </ul>
WAN LED	<ul style="list-style-type: none"> <li><b>Solid green:</b> network link</li> <li><b>Blinking green:</b> network activity</li> </ul>
LAN LED	<ul style="list-style-type: none"> <li><b>Solid green:</b> network link</li> <li><b>Blinking green:</b> network activity</li> </ul>
Error LED	<ul style="list-style-type: none"> <li><b>Solid red:</b> system error detected</li> </ul>
Power Button	<ul style="list-style-type: none"> <li>Power on/off N4100+</li> </ul>
Reset Button	<ul style="list-style-type: none"> <li>Used to reset the N4100+. Please see <b>Chapter 7: Troubleshooting &gt; <a href="#">Resetting NAS IP Address and Admin Password</a></b> for reset procedure.</li> </ul>

## Hard Disk Tray

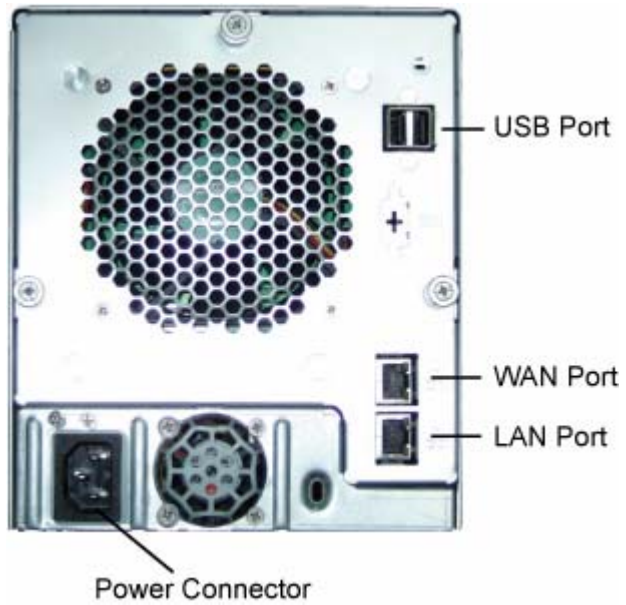
The N4100+'s hard disk trays each have a lock, a latch, and two indicators.




Item	Description
Lock	<ul style="list-style-type: none"> <li>The tray lock lets you physically secure the HDD with accessory keys.</li> </ul>
Latch	<ul style="list-style-type: none"> <li>Use the latch to open and remove or close and secure the tray.</li> </ul>
HDD Power LED	<ul style="list-style-type: none"> <li><b>Solid blue:</b> HDD is powered on</li> </ul>
Access/Error LED	<ul style="list-style-type: none"> <li><b>Blinking green:</b> data is being accessed</li> <li><b>Blinking red:</b> hard disk error</li> </ul>

## Rear Panel

The rear panel of the N4100+ houses the USB and Ethernet connections, as well as the power connector. See the table below for descriptions of each:



Item	Description
Power Connector	<ul style="list-style-type: none"><li>• Connect the included power cord to this connector</li></ul>
WAN Port	<ul style="list-style-type: none"><li>• WAN port for connecting to an Ethernet network through a switch or router</li></ul>
LAN Port	<ul style="list-style-type: none"><li>• LAN port for connecting to an Ethernet network through a switch or router</li></ul>
USB Ports	 <ul style="list-style-type: none"><li>• USB 2.0 ports for storage expansion</li></ul>

## Chapter 2: Getting Started

### Overview

Your N4100+ is designed for complete ease-of-use. To help you get started, the following chapter will help you get your N4100+ up and running in no time. 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 N4100+.
3. Be careful not to use magnetized screwdrivers around the N4100+'s electronic components.
4. The N4100+ uses its chassis to dissipate heat. Please leave your N4100+ in a well-ventilated area to prevent overheating.

### Hard Disk Installation

The N4100+ supports standard 3.5" (SATA) hard disks. To install a hard disk into the N4100+, follow the steps below:

1. Remove an HDD tray from the Thecus N4100+.
2. Slide the new HDD into the tray and fasten the screws.
3. Insert the HDD and tray back into the Thecus N4100+ until it snaps into place and lock it with a key if desired.
4. The LED blinks green when the HDD is accessed. If the Error LED flashes red it signals a problem.

#### NOTE

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

### Cable Connections

Make the following connections on the Thecus N4100+ and then power up the unit:

1. Connect an Ethernet cable from your network to the WAN port on the back panel of the N4100+.
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 protected socket.
3. Press the power button on the front panel to power on the N4100+.

## Checking System Status

### System Status OK

The system status is OK if:

1. The front panel Power LED glows blue and the WAN LED glows or blinks green.
2. The HDD Power LED on each HDD tray glows blue.

### System Trouble

The system has trouble if:

1. Any LED glows red.
2. The system emits a continuous beeping sound.

If the system has trouble, refer to [Chapter 7: Troubleshooting Guide](#).

## Installation Wizard

The handy Thecus Setup Wizard makes configuring N4100+ a snap. To configure the N4100+ 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).

#### NOTE

You must have administrator privileges to correctly install the N4100+ with the installation wizard. Please make sure that you are logged in as the administrator, or have administrator privileges.

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 1.1.6.dmg

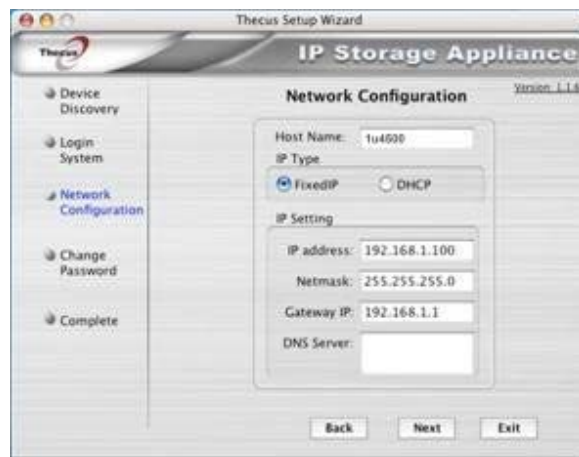
3. The Setup Wizard will start and automatically detect all Thecus storage devices on your network. If none are found, please check your connection and refer to [Chapter 7: Troubleshooting](#) for assistance.



4. Select the N4100+ that you like to configure.
5. Login with the administrator account and password. The default account and password are both "admin".



6. Name your N4100+ and configure the network IP address. If your switch or router is configured as a DHCP Server, configuring the N4100+ 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 N4100+ Web Administrator Interface by pressing the **Start Browser** button. You can also configure another N4100+ 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.*

## First Time Setup

Once the hardware is installed, physically connected to your network, and powered on, you can now configure the Thecus N4100+ so that it is accessible to your network users. Follow the steps below for initial software setup.

### Step 1: Initial Login

Make sure your network is connected to the Internet and access the N4100+ Login webpage:

1. Type in the default IP address `http://192.168.1.100` in your browser's address line. If you have changed the N4100+'s IP address, type this in instead.

#### NOTE

To access any IP address, your computer must be configured with the correct IP settings. The IP address should be `192.168.1.x`, where `x` is a number between 1 and 254.

2. The **Login** screen appears.
3. To gain initial access to the system type in the factory default administrator user name and password, which are as follows:  
  
User Name: `admin`  
Password: `admin`
4. Press **Login**.
5. The **About** screen from the **Status** menu appears showing product information.

### Step 2: System Check and Configuration

Once logged in, you are greeted with the Web Administration Interface, where you can check the N4100+'s status, as well as configure its operating parameters.

1. In the **Status** menu, choose the **System** item to go to the **System Status** screen. Check that the basic system information such as CPU loading, and system up time.
2. In the **Status** menu, choose the **Info** item to go to the **System Information** screen. Change the System Description to describe your system and press **Apply**. This information appears on the **Login** page.
3. In the **System** menu, choose the **Administrator Password** item. The screen that appears lets you change the administrator password for the system. Press **Apply** to confirm your settings.
4. In the **System** menu, choose the **Time** item and the **Time** screen appears. Set the date, time and time zone and press **Apply**.

### Step 3: Configure Network Settings

After setting the N4100+'s basic configuration options, the next step is to configure its network settings.

1. In the **Network** menu, choose the **WAN** item and the **Network Configuration** screen appears.



2. Set host name and specify the domain name.
3. **Enable DHCP** for setting the IP automatically or **Disable DHCP** to enter your own IP settings.
4. Repeat steps 2 and 3 for the **LAN** item under the **Network** menu to configure the LAN port.
5. In the **Network** menu, choose the **Service** item and the **Service Support** screen appears.
6. **Enable** or **Disable** each protocol according to your requirements. Press **Apply** to confirm the setting.

#### NOTE

- For normal usage, enabling all protocols is recommended.
- For added security, disable WebDisk support and enable Secure WebDisk support.
- If DHCP is enabled in the Network Settings screen, UPnP is automatically enabled.

For details on configuring your network settings, refer to **Chapter 3: System Management > Network Management**.

#### Step 4: Select RAID Level

Once the network is configured, you should then select the appropriate RAID level and build your RAID array.

1. From the **Storage** menu choose **RAID** item and the **RAID Information** screen appears. Press the **Config** button and the **RAID Configuration** screen appears.
2. Select your desired RAID mode.

#### NOTE

If security is your primary concern, for 2 disks, choose RAID 1; for 4 disks, choose RAID 5. If capacity is your primary concern, choose JBOD or RAID 0. See Appendix C for more information.

3. Check the hard disks you wish to create a RAID on. Specify a stripe size—64K is a normal setting.
4. Press the **Create** button to build the RAID storage volume. Configuring RAID is usually only required for initial setup.

#### NOTE

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

#### Step 5: Create Local Users and Groups

After your RAID is built, you can begin to create local users and groups for the N4100+.

Once the RAID is ready, you can begin to create local users for the 1U4500, 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 6: Create Folders and Set Up ACLs

Once users are introduced into your network, you can begin to create various folders on the N4100+ and control user access to each using Folder Access Control Lists.

1. From the **Storage** menu, choose the **Folder** item and the **Folder** screen appears. Press the **Add** button and the **Add Folder** screen appears.
2. Enter the name and description of the folder and choose whether it is browseable. Press **Apply** to create the folder.
3. On the **Sharing** screen press **ACL** (Access Control List) to configure which users have access to this folder.
4. On this screen, configure access to this 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 **Submit** to confirm settings.

#### NOTE

You must set the ACL for each folder for access by specific users and groups; otherwise the folder is inaccessible to all users and groups.

For more information on managing folders, see **Chapter 3: System Management > Storage Management > Folder Management**.

To find out about configuring Folder Access Control Lists, see **Chapter 3: System Management > Storage Management > Folder Management > Folder Access Control List (ACL)**.

### Step 7: Start Services

Finally, you can start to setup the different services of the N4100+ for the users on your network. You can find out more about each of these services by clicking below:

**Windows Networking**  
**Apple File Protocol (AFP)**  
**FTP Server**  
**iTunes® Server**

**Media Server**  
**Download Manager**  
**Printer Server**

## Chapter 3: System Management

### Overview

The N4100+ provides an easily accessible web management interface. With it, you can configure and monitor the N4100+ anywhere on the network.

### Web Administration Interface

Make sure your network is connected to the Internet. To access the N4100+ **Login Page**:

1. Type the N4100+'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 N4100+. If the N4100+ 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.

3. Once you are logged in as an administrator, you will see a disclaimer window.  
After agreeing to the disclaimer, check the checkbox to disable it from reappearing. Click **OK** to continue.
4. You will now see the Web User Interface, where you will be able to configure and monitor virtually every aspect of the N4100+ 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 N4100+. The various settings are placed in the following groups on the menu bar:

Menu Bar	
Item	Description
Status	Current system status of the N4100+.
Storage	Information and settings for storage devices installed into the N4100+.
Network	Information and settings for network connections and services, as well as various services of the N4100+.
Accounts	Allows configuration of users and groups.
System	Various N4100+ 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 N4100+.

### Language Selection

The N4100+ supports multiple languages. On the menu bar, click **Language** and the **Change Language** screen appears. This screen allows you to select preferred language for the N4100+. The N4100+'s interface supports the following languages:

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



Press **Apply** to confirm your selection.

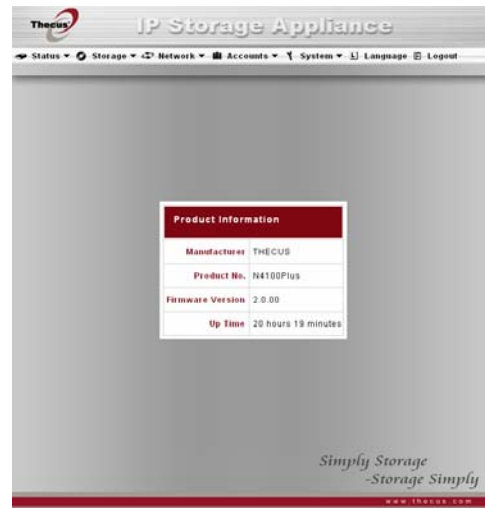
## Status Menu

The **Status** Menu on the menu bar allows you to see various aspects of the N4100+. From here, you can discover the status of the N4100+, 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.

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



## System Status

From the **Status** menu, choose the **System** item, and the **System Status** screen appears. This screen provides basic system status information.



System Status	
Item	Description
CPU Loading (%)	Displays current CPU workload of the N4100+.
Up Time	Shows how long the system has been running.

## System Information

From **Status** menu, choose the **Info** item, and the **System Information** screen appears. You can change the system information that appears on uPnP devices screens (i.e. Network Neighborhood) on Windows-based systems 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

### NOTE

*In order to use the Printer Server, you must first install the Printer Server module located on the installation CD. Once installed, the Printer Status option will appear on the Main Menu. See Chapter 4: Additional Feature Setup > Print Server for more details.*

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

Printer Information	
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.
Printer Queue	Click to remove all documents from printer queue

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

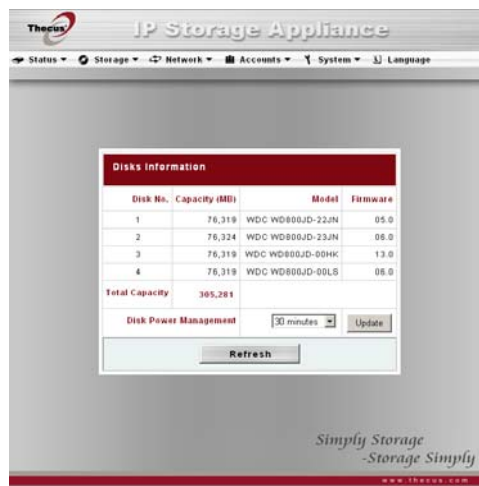
For information on how to set up the Printer Server, refer to **Chapter 4: Additional Feature Setup > Printer Server**.

## Storage Management

The **Storage Menu** displays the status of storage devices installed or connected to the N4100+, including disk and RAID information.

### Disk 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.



SATA 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.
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

Some services will scan the content directories, and this will keep the hard disk drive from spinning down.

### RAID Information

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



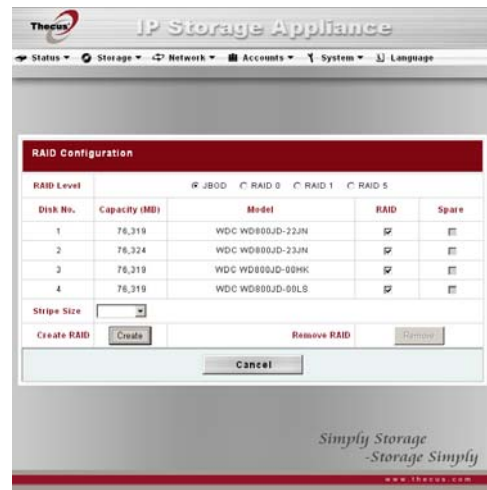
RAID Information	
Item	Description
RAID Level	Shows the current RAID configuration.
Total Capacity	Shows total capacity of the RAID configuration.
Status	Indicates status of the RAID. Can read either <b>Healthy</b> or <b>Failed</b> .
Used Percentage	Displays percentage of used RAID capacity.
Stripe Size	Shows the current disk stripe size.
Remaining Time	Indicates time remaining until the RAID is finished building.
Rebuild Speed	There are two speed settings you can select when rebuilding RAID: <b>Low</b> - longer rebuild time, faster system response <b>High</b> - shorter rebuild time, slower system response

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

### RAID Configuration

On the **RAID Information** screen, press the **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 either **None**, **JBOD**, **RAID 0**, **RAID 1** or **RAID 5**. 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
None	There is no existing storage volume.
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. Excellent performance and good fault tolerance. RAID 5 requires a minimum of 3 disks. RAID 5 can sustain one failed disk.

### WARNING

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



## Disk Settings

Using **Disk Settings**, you can select stripe size, choose which disks are RAID disks or the Spare Disk, as well as enter a name for each disk.

Disk Settings	
Item	Description
RAID	Check the boxes of the hard drives you wish to add to the storage volume.
Spare	Check a box to designate the replacement HDD for the storage volume. This becomes the backup for any damaged hard drives.
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.
Add Spare	Press this button to add a new Spare disk.
Create RAID	Press this button to configure a file system and create the RAID storage volume.
Remove	Click to remove the RAID volume. All user data will be removed.

## Creating a RAID

To create a RAID volume, follow the steps below:

1. On the **RAID Configuration** screen, set the RAID storage space as **JBOD**, **RAID 0**, **RAID 1**, or **RAID 5** — see [Appendix C: RAID Basics](#) for a detailed description of each.
2. Tick the checkboxes of the hard disks you wish to use to create a RAID.
3. Specify a stripe size — 64K is the default setting.
4. Press **Create** 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. The data is unrecoverable.*

With a RAID 5 array, you can also add a spare disk after the RAID is created. See [Chapter 6: Tips and Tricks > Adding a Spare Disk](#) for details.

## Deleting a RAID

To delete a RAID volume, follow the steps below:

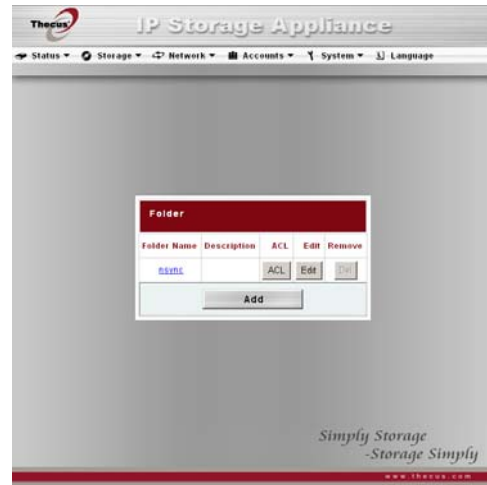
1. On the **RAID Configuration** screen, click **Remove RAID**.
2. The system automatically rebuilds and you can create a new RAID.

### WARNING

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

## Folder Management

From the **Storage** menu, choose **Folder**, and the **Folder** screen appears. This screen allows you to create and configure folders on the N4100+ volume.



Folder	
Item	Description
Folder name	Displays the name of the folder.
Description	Provides a description of the folder.
ACL	Press <b>ACL</b> (Access Control List) to configure which users have access to this folder.
Edit	Press <b>Edit</b> to enter the <b>Edit</b> screen and modify the folder's name and description.
Del	Press <b>Del</b> to delete the folder. A screen appears asking to confirm the deletion.
Add	Press <b>Add</b> to enter the <b>Add Folder</b> screen.

## 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.



Add Folder	
Item	Description
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable users to browse the folder content.
Public	Admit or deny public access to this folder.
Apply	Press <b>Apply</b> to create the folder.
Reset	Press <b>Reset</b> to clear entered data.

### 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 **Apply** to apply the changes. Press **Back** to return to the **Folder** screen.

Edit Folder	
Item	Description
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable users to browse the folder content.
Public	Admit or deny public access to this folder.
Apply	Press <b>Apply</b> to save your changes.
Reset	Press <b>Reset</b> to clear entered data

## 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.

## 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.
Submit	Submits and confirms settings.

## Service Folders

The N4100+ automatically creates folders for its built-in applications.



Service Folders	
Folder Name	Description
Photos	Default directory for your photos.
Music	Music for the iTunes Server is located here. The iTunes server will share the music located in this directory.
Video	Default directory for your video files.
USBHDD	Contents copied from USB hard disks are stored here.

To manage these service folders, select **Service Folder** from the **Storage** menu. Press **Edit** to edit these folders. Press **ACL** to control access to these folders via the **Access Control List**.

## 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. You can see a description of each item in the following table:



WAN Configuration	
Item	Description
Host name	Host name that identifies the N4100+ on the network.
Domain name	Specifies the domain name of the N4100+.
MAC Address	MAC address of the network interface.
Jumbo Frame Support	Enable or disable Jumbo Frame Support of the WAN interface on your N4100+.
WAN Port	The WAN IP can be set to a Static IP address or Dynamic IP address. <b>Static:</b> Administrator has to enter IP, Netmask, Gateway, DNS Server fields. <b>Dynamic:</b> If there is already a DHCP server on your network, you can let the DHCP server assign an IP address to your N4100+. NOTE: If this is set to Dynamic, but a DHCP server is not detected on the WAN network, the IP address of the N4100+ will reset to the default setting of 192.168.1.100.
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, traffic on the LAN will be directed to the WAN. Default is <b>Disabled</b> .

#### NOTE

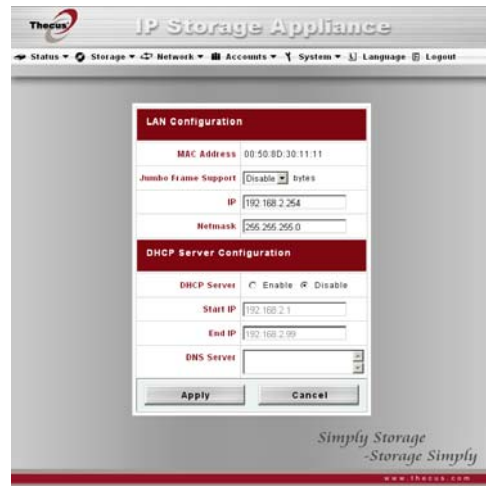
- Only use Jumbo Frame settings when operating in a Gigabit environment where all other clients have Jumbo Frame Setting enabled.
- Enabling DHCP automatically turns on UPnP — See the **Service Support** Screen.
- If you are only using the WAN port, we suggest that you disable IP Sharing Mode. This will result in higher throughput.
- A correct DNS setting is vital to networks services, such as SMTP and NTP.

#### WARNING

Most Fast Ethernet (10/100) Switches/Routers do not support Jumbo Frame and you will not be able to connect to your N4100+ after Jumbo Frame is turned on. If this happens, turn off the N4100+. Then, power on the N4100+ and immediately press and hold the Reset button on the front of the unit for 10 seconds. This will reset your network settings, password, and turn off Jumbo Frame Support.

## LAN Configuration

The N4100+ supports a second Ethernet port 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.

### NOTE

*Before enabling Jumbo Frame Support, please make sure your network equipment supports Jumbo Frame. If your equipment is incompatible, you might not be able to connect to your N4100+. In this case, you have to reset the system back to default by the holding down front panel reset button for 5 seconds during boot up process.*

## 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 addresses to PCs connected to the LAN interface. Default is <b>Disabled</b> .
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 WAN and LAN should not overlap.*

### WARNING

*The IP address of the LAN interface should not be in the range of the Start IP address and End IP address.*

## WLAN Configuration

When a compatible wireless USB dongle is installed on the N4100+, the N4100+ 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 to 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 N4100+ 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 N4100+. This will prevent the Access Point from broadcasting the ESSID. The N4100+ will still respond to a wireless device that LAN1ts to communicate if it sends a matching ESSID.
Channel	The channel that the N4100+ uses to communicate with client devices.
Auth Mode	Authentication mode used by the N4100+. <b>Shared:</b> Shared key authentication <b>Open:</b> 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 N4100+. 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 wirelessly connected devices.

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.

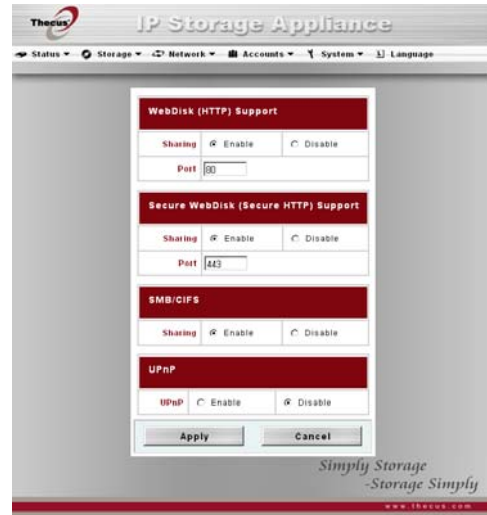
## NOTE

Users should obey the international RF regulatory rules as they set up the wireless RF channel on the N4100+. The RF operating channels for different regions have been specified as following. Thecus has no responsibility for users attempting to violate the international RF regulation.

11	N. America
14	Japan
13	Europe (ETSI)
2	Spain
4	France

## 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.
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 N4100+.

## NOTE

Disable HTTP support and Enable Secure HTTP support to guarantee secure access.

## NOTE

- SMB/CIFS service also allows file sharing from Mac OSX and Linux platforms.
- Once a Mac OS accesses a share folder, it will create a file named `.DS_Store`, and directories named `Temporary Items`, `Network Trash Folder`, `.Apple Double`, `Apple Desktop` and `AppleDB` in the share folder.



## Apple Network Setup

From the **Network** menu, choose the **Apple Network** item, and the **Apple Network 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
Apple File Service	Enable Apple File Service to use the N4100+ on MAC OS-based system.
MAC CHARSET	If your operating system does not support Unicode (e.g. MAC OS9/8), select the same language as your OS here in order to properly view the files and directories on the server.
Zone	Specifies Zone for Appletalk service. If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the N4100+. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting.

## User and Group Management

The N4100+ 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 <b>Add</b> button to add a user to the list of local users.
Modify	Press the <b>Modify</b> button to modify a local user.
Delete	Press the <b>Delete</b> 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 password in the **Password** box and re-enter the password in the **Confirm** box.
4. 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.
5. 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 <b>Add</b> button to add a user to the list of local groups.
Modify	Press the <b>Modify</b> button to delete a selected group from the system.
Delete	Press the <b>Delete</b> 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**, and select users to be in this group from the **Users List** by adding them to the **Members List** using the << button.
4. 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.

## 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 N4100+ 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 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. N4100Plus).
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 N4100+ to join domain.
Administrator Password	Enter the ADS/NT Administrator password.

To join an AD domain, you can use the example below to configure the N4100+:

AD Domain Example	
Item	Information
Work Group / Domain Name	Thecus
ADS Support	Enable
ADS Server Name	ADServer
ADS/NT Realm	thecus.com
Administrator ID	Administrator
Administrator Password	*****

For more information on ADS, see [Appendix D: Active Directory Basics](#).

### 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 N4100+ and ADS should be identical.
- The system time difference between N4100+ and ADS should be less than five minutes.
- The Administrator Password field is for the password of ADS (Active Directory Server) not N4100+.

## System Management

The **System** menu gives you a wealth of settings that you can use to configure your N4100+'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 N4100+ notify you in case of any system malfunction. Press **Apply** to confirm all settings. See following table for a detailed description of each item.

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.

#### NOTE

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

## System Logs

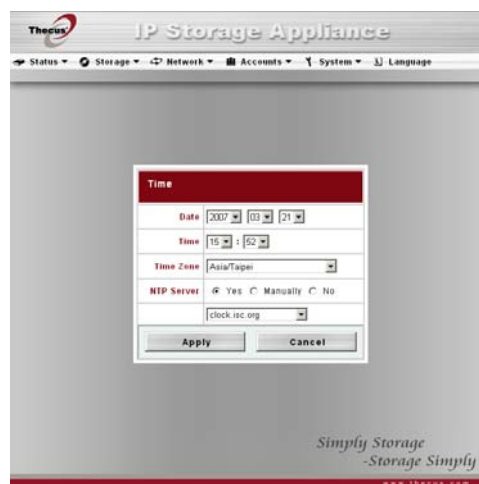
From the **System** menu, choose the **Logs** item and the **System Logs** screen appears. This screen shows a history of system usage and important events such as disk status, network information, and system booting. See the following table for a detailed description of each item:



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 N4100+ 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 <b>Yes</b> to allow the N4100+ to synchronize with the NTP server shown below. Select <b>No</b> to not have the N4100+ to synchronize with an NTP server. Select <b>User Specified</b> to allow the N4100+ to synchronize with an NTP server of your choice.

## WARNING

If an NTP server is selected, please make sure your N4100+'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.
Browse	Click to browse the folder of your PC to locate the configuration files.
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.

## 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 N4100+.





Module Management	
Item	Description
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 N4100+.
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.
Uninstall	Click to uninstall the module.
Enable	Click to enable a module.
Disable	Click to disable a module.

## NOTE

*Modules can potentially harm your system. Only install modules from your vendor, or publishers you can trust.*

## 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 N4100+ to factory default settings. Press **Cancel** to go back to the main menu.



## 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.*

## 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.

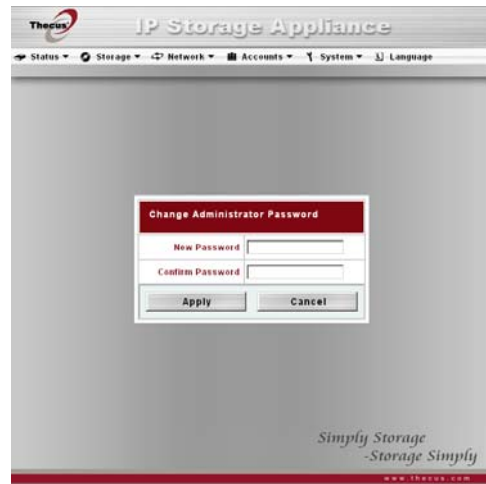


## NOTE

- The beeper only beeps if it is enabled in the System Notification menu.
- Check Thecus website for the latest firmware release and release notes.

## 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.



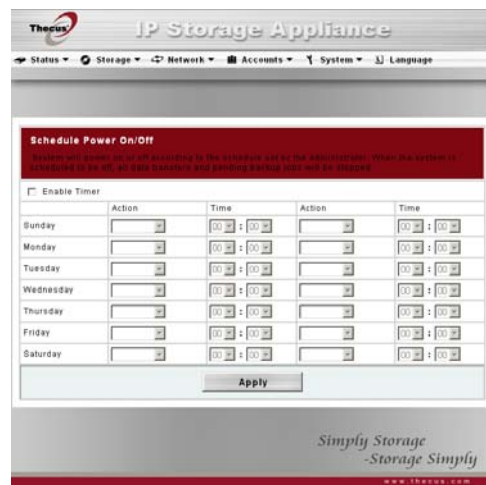
## Scheduled Power On/Off

You may also designate a schedule for the N4100+ to turn on and off. To do this, simply choose an on and off time for each day of the week that you would like to designate a schedule.

### 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.

**Logout**

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

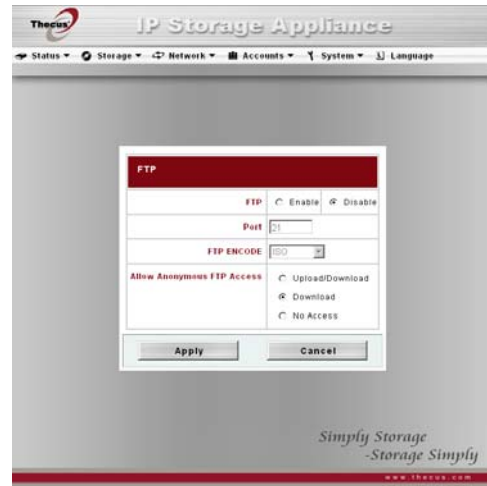
## Chapter 4: Additional Feature Setup

### Overview

With a bevy of additional features and services, the N4100+ is so much more than a mere external hard disk. The sections below show you how you can utilize your N4100+ to serve files, music, movies, pictures, and more.

### FTP Server

N4100+ 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	
Item	Description
FTP	Enable FTP Service on the N4100+.
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	<b>Upload/Download:</b> Allow anonymous FTP users to upload or download files to/from public folders. <b>Download:</b> Allow anonymous FTP users to download files from public folders. <b>No access:</b> Block anonymous FTP user access.

#### NOTE

Anonymous users are not able to delete files on the N4100+. To delete files, users must login and be granted write access on the Access Control List.

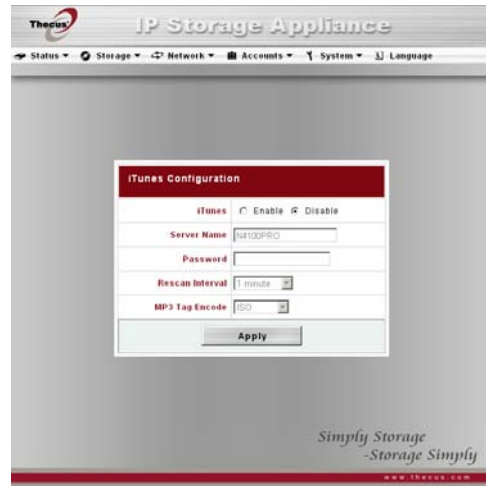
To access the share folder on the N4100+, use the appropriate user login and password set up on the **Users** page (**Accounts** > **Users**). Access control to each share folder is set up on the **ACL** page (**Storage** > **Folder** > **ACL**).

When trying to access N4100+ anonymously, just enter "**anonymous**" as the user name.

## iTunes® Server

With the built-in iTunes server capability, the N4100+ 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 iTunes Service.
Server Name	Name used to identify the N4100+ 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 N4100+. All ID3 tags will be send out in UTF-8 format.

Once the iTunes service is enabled, the N4100+ will make all music located in the **Music** folder available for iTunes-equipped computers on the network.

## Media Server

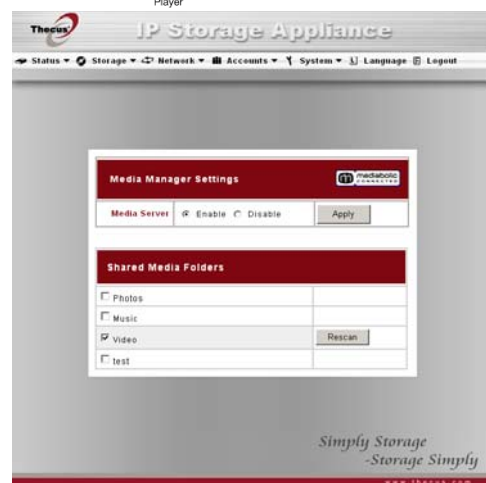
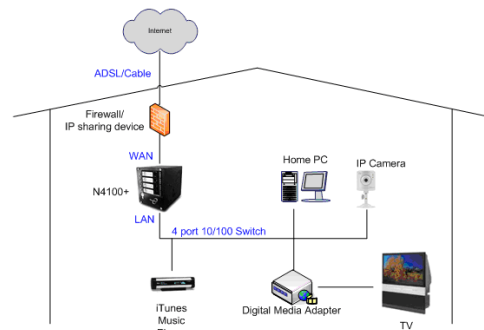
With the built-in Media Server capability, the N4100+ provides media streaming service to stand-alone networked home media adapters that support the UPnP AV protocol or are Digital Living Network Alliance (DLNA) standard compliant.

With the N4100+'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.

In order to use the Media Server, the Media Server module will first need to be installed. To do this, follow the steps below:

### Media Server Module Installation

1. Place the Installation CD into your CD-ROM drive.



2. Login to the N4100+ with the administration user name and password.  
The defaults are:  
  
Username: admin  
Password: admin
3. Once logged in, navigate to **System > Module Mgmt.**
4. From the Module Management screen, click **Browse...** Browse the Installation CD and locate the Module > **Media Server** directory.
5. Inside the **Media Server** directory, double-click the Media Server module.
6. Click **Install** to install the Media Server module.
7. After installation, access the Media Server by going to **Network** and choosing the **Media Server** option. The **Media Server Configuration** window will then appear.

Media Server Configuration	
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.
Add	Click the <b>Add</b> button to designate the selected media folder as a Media Server sharing folder.
Rescan	Click the <b>Rescan</b> button to have the N4100+ for new contents in the selected media folder.
Remove	Click the <b>Remove</b> button to delete the selected folder from the Media Server database. The content in this folder will not be accessible by the Media Server. This will not delete the contents of the 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. Select the folder that contains your media files, and click the 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 “**N4100+ :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 N4100+.

## Download Manager

With the built-in Download Manager, you can have the N4100+ 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.



In order to use the Download Manager, the Download Manager module will first need to be installed. To do this, follow the steps below:



## Download Manager Module Installation

1. Place the Installation CD into your CD-ROM drive.
2. Login to the N4100+ with the administration user name and password. The defaults are:  
  
Username: admin  
Password: admin
3. Once logged in, navigate to **System > Module Mgmt.**
4. From the Module Management screen, click **Browse....** Browse the Installation CD and locate the Module > **Download Manager** directory.
5. Inside the **Download Manager** directory, double-click the Download Manager module.
6. Click **Install** to install the Download Manager module.
7. After installation, access the Download Manager by going to **Network** and choosing the **Download Manager** option. The **Download Tasks** and **Download Schedule** windows will then appear.

### Download Tasks

Item	Description
	Click to start the specified task.
	Click to pause the specified task.

<b>×</b>	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.
Rate	Transfer rate of the task in kilobytes per second (KB/s). <b>DL:</b> Download rate <b>UL:</b> Upload rate
Status	Status of the task. <b>Complete:</b> Percentage complete (%) <b>Completed / Total download size</b>
Task Type	Use this dropdown to select the type of transfer. <b>HTTP</b> , <b>FTP</b> , and <b>BT</b> are available.
Add Task	Click to add the kind of task specified beside " <b>Task Type</b> ".
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**.
2. Click **Add Task**.
3. Input the target URL in the **Website URL** box.
4. Select the destination folder from the **Destination Folder** dropdown.
5. Select the maximum download bandwidth from **Max. Download Bandwidth**.
6. Press **Apply** to add the task.

### 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**.
2. Click **Add Task**.
3. Input the target FTP address in the **FTP File** box.
4. Select the destination folder from the **Destination Folder** dropdown.
5. Enter a username in the **Username** box. You may also use "anonymous" if the FTP server supports anonymous users.
6. Enter a password in the **Password** box. If you entered "anonymous" for a user name, enter an email address.
7. Select the maximum download bandwidth from **Max. Download Bandwidth**.
8. Press **Apply** to add the task.



## 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**.
2. Click **Add Task**.
3. Click **Browse** and locate the torrent file.
4. Select the destination folder from the **Destination Folder** dropdown. The default folder is **Music**. The administrator can select any other share folder.
5. Select the desired **Sharing Time After Completion**, **Max Peer Count**, **Min Peer Count** options from the corresponding dropdowns.
6. Select the **Max Download Bandwidth** and **Max Upload Bandwidth** from the corresponding dropdowns.
7. Press **Apply** to add the task.

## Deleting Tasks

To delete a task, simply follow the steps below:

1. Click the delete icon (X) 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.*

## Printer Server

You can configure the N4100+ to act as a printer server. That way, all PCs connected to the network can utilize the same printer. To set up the Printer Server, follow the steps below:

### Printer Server Module Installation

1. Place the Installation CD into your CD-ROM drive.
2. Login to the N4100+ with the administration user name and password. The defaults are:  
  
Username: admin  
Password: admin
3. Once logged in, navigate to **System > Module Mgmt.**
4. From the Module Management screen, click **Browse....** Browse the Installation CD and locate the Module > **Printer Server** directory.
5. Inside the **Printer Server** directory, double-click the Print Server module.
6. Click **Install** to install the Printer Server module.
7. After installation, the Printer Status item will be visible under **Status > Printer Status**

### Windows XP SP2

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://N4100+\_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**.

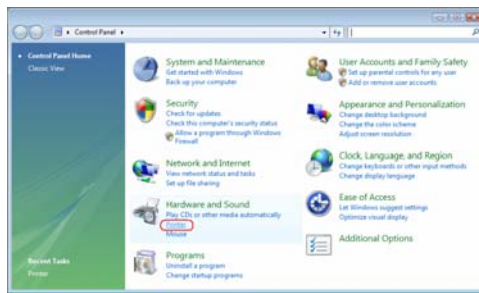
## NOTE

- *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 N4100+ YES Box, usually only the printing and fax functions will work. Other features, such as scanning, probably will not function.*

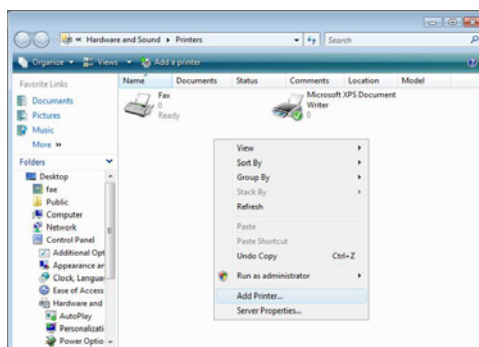
## Windows Vista

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

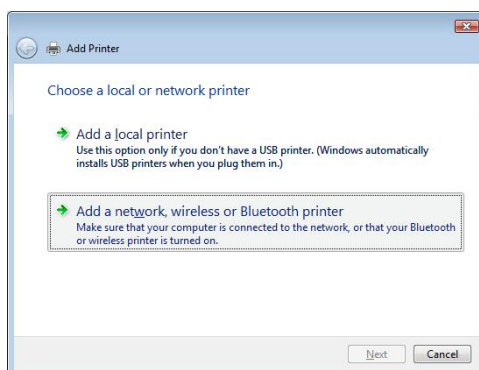
1. Open **Printer Folder** from the **Control Panel**.



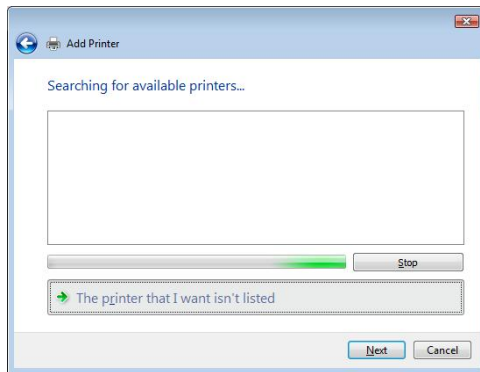
2. Click the right mouse button in anywhere on the **Printers** folder and then select **Add Printer**.



3. Select **Add a network, wireless or Bluetooth printer**.

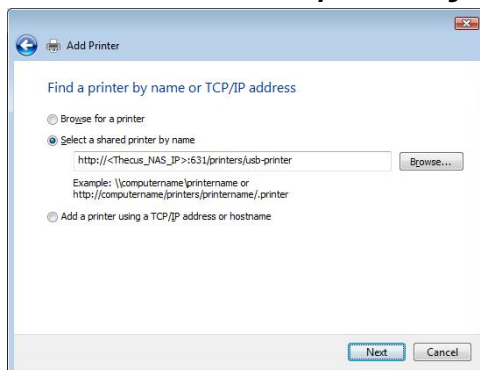


4. Select **The printer that I want isn't listed**.



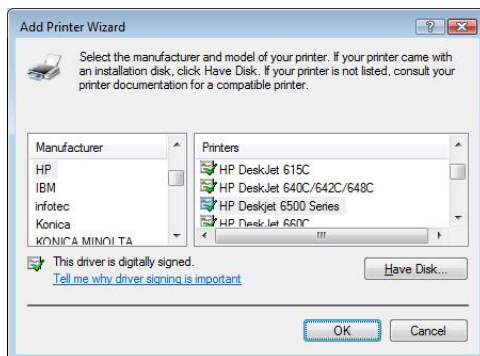
You can press **The printer that I want isn't listed** to go into next page without waiting for **Searching for available printers** to finish.

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



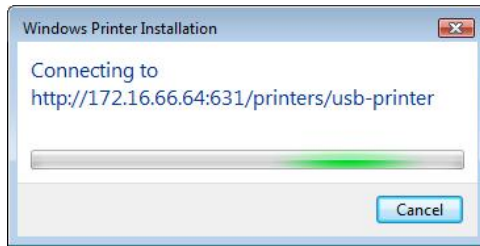
Type `http://<Thecus_NAS>:631/printers/usb-printer` in the box, where `<Thecus_NAS_IP>` is the IP address of the 4100+. Click **Next**.

6. Select or install a printer and then press **OK**.

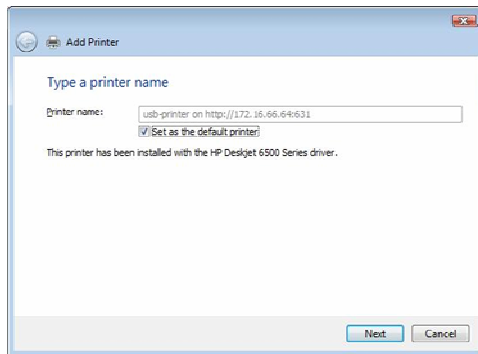


If your printer model is not listed, please contact your printer manufacturer for help.

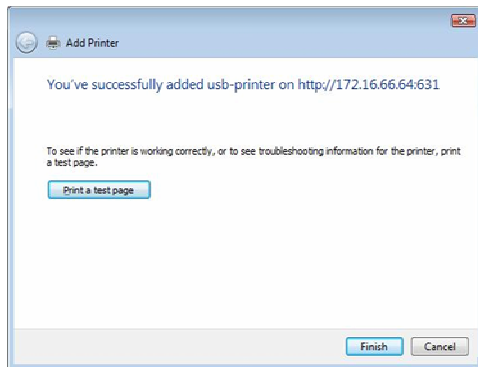
7. Windows will attempt to connect to the printer.



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**.



## Chapter 5: Using the N4100+

### Overview

Once the N4100+ 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 N4100+, just enter its IP address into your browser, and you will be taken to the **N4100+ Login** page.

### Login Page

On the login page, simply enter your **User ID** and **Password** and click **Login** to log into the system.



Once logged in, you will be taken to the **WebDisk** where you can see the directories and files stored on the N4100+.

### Using WebDisk

1. From the WebDisk folder list, users will see all public folders and all folders which they have sufficient access rights.

#### WebDisk Folder List

Item	Description
Name	Name of folder
Comments	Comments about folder
Change Password	Click to change your password
Logout	Click to logout of the WebDisk

2. When they click on the name of a folder, they will be brought to the Folder Screen, where they will see the files within that folder.

#### WebDisk Folder Screen

Item	Description
Name	Name of folder
Type	File type
Size	Size of file
Modified Date	Date file was last modified
Change Password	Click to change your password
Logout	Click to logout of WebDisk

Up	Click to go up one directory level
New Folder	Click to create a new folder
New File (upload)	Click to upload a new file to this folder
Delete Selected Items	Click to delete all checked items

3. When user clicks on a file name, the file will be downloaded.

#### NOTE

*The Delete Selected Items, New Folder, and New File (upload) options are only visible if the user has write access to the specific folder.*

For more information on how to setup user rights to the folders, please check **Chapter 3: System Management > Storage Management > Folder Management > Folder Access Control List (ACL)**

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

## Using iTunes® Server

The N4100+ has a built-in iTunes® Server that allows you to stream music stored on the N4100+ to any iTunes-ready device on your network.

You can use the WebDisk function to manage your digital music, or you can manage through SMB/CIFS (see SMB/CIFS Setup section).

### Adding Music Files

You could add music files into iTunes Server through Web User Interface; however, if you have lots of folders and files to upload, there is a simpler way.

1. Open a Windows Explorer and type the N4100+ IP address in the address bar (i.e. \\192.168.1.100).
2. Double click the **Music** folder to enter it, then drag and drop music folders and files here.
3. The N4100+ iTunes server will take some time to cache the ID3 tag of every file. Once the process is done, you will see all the music files from iTunes clients.

### Playing Music Files

Once your music files are added to the N4100+, playing them on any iTunes-equipped computer connected to the network is easy:

1. Open iTunes.
2. You should see **N4100Plus** under the **SHARED** heading in the left hand menu.
3. Click **N4100Plus** and all shared music will be displayed, ready to be enjoyed right from iTunes.

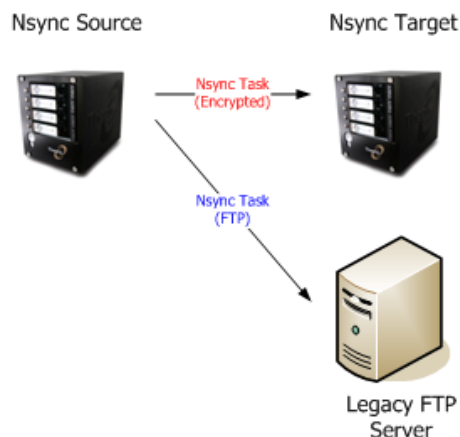
## File Backup

There are a number of ways to back up your data to your N4100+.

### Nsync

You can backup a share folder to another N4100+ (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 N4100+'s, you have the option to transmit files securely between two N4100+'s.

If the files on your N4100+ are lost for any reason, you can restore those files from the target N4100+. 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.



Nsync	
Item	Description
Task	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.
Add	Click to add a Nsync task
Modify	Click to modify an Nsync task.
Delete	Click to delete an Nsync task. Backup files on Nsync target is also deleted.
Restore	Restore share folder from an Nsync target.
Bandwidth Setting	Bandwidth control on Nsync tasks.



## Adding an Nsync Task

From the **Storage** menu, click **Nsync** and the **Nsync Information** screen appears. 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. N4100+) 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 Server	The password for the username on the target 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. <b>Daily:</b> input the time of day to execute Nsync task. <b>Weekly:</b> input which day of the week to execute the task. <b>Monthly:</b> decide which day of the month to execute the task.
Apply	Click to submit the task.

### NOTE

Before starting an Nsync Task, make sure the target server's Nsync Server (or FTP Server) is enabled.

## 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 N4100+, see **Chapter 3: 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 3: System Management > Storage Management > Folder Management > Folder Access Control List (ACL)**.

- 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 N4100+ 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 N4100+ as an Nsync Target

The N4100+ can act as an Nsync server, enabling another Nsync-equipped Thcus NAS at a remote location backup their files to this N4100+. From the **Network** menu, choose the **Nsync Target** item, and the **Nsync Target Server Setting** screen appears.



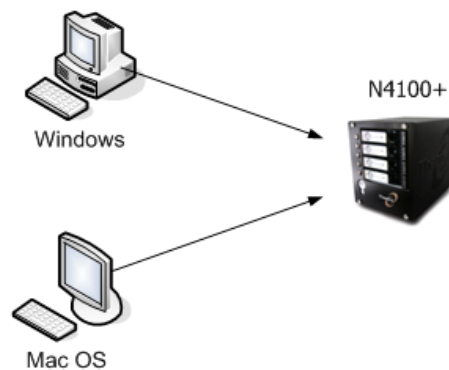
Nsync Target Server Setting	
Item	Description
Nsync Target Server	Enable or Disable Nsync Target support.

#### NOTE

To enable Nsync task to go thru firewall, you have to open port TCP/1194 on your firewall in both directions.

### Thecus Backup Utility

Thecus Backup Utility is used to backup files on your PC or MAC to a Thcus storage device. 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 Utility.exe) to a convenient location on your hard disk and double click to execute it.



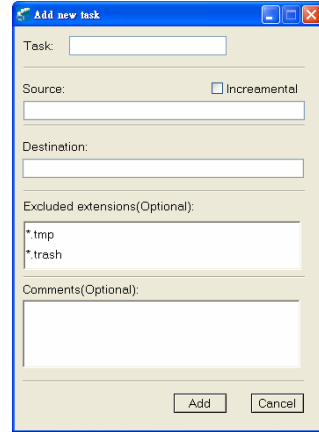
On Mac OS X, just click **Thecus Backup Utility.1.0.0.dmg** to start the Thecus Backup Utility.

**NOTE**

If you can not find Thecus Backup Utility on your CD, please download it from the Thecus website (<http://www.thecus.com>).

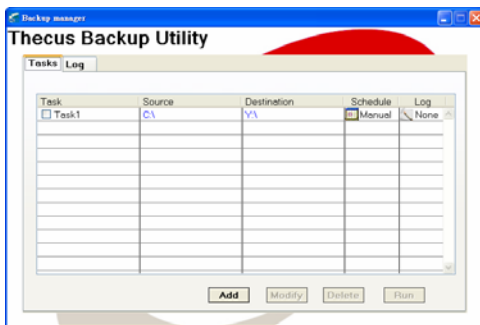
When you execute this utility for the first time, it will ask you whether to create a DB file. Click **Yes**.

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.

**NOTE**

Thecus Backup Utility also supports MAC OS X. Just copy the Thecus Backup Utility.dmg to your MAC OS X machine and double click to execute it.

## Windows XP Data Backup

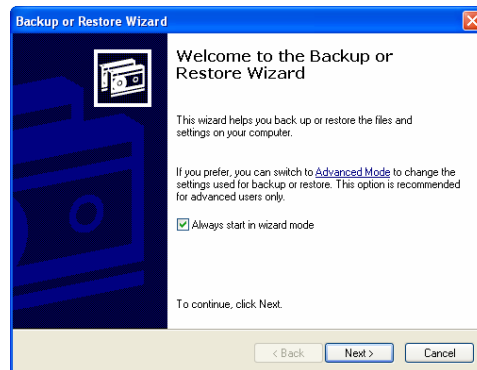
If you use Windows XP Professional, you can also use the Windows Backup Utility (Ntbackup.exe) to backup your files.

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 N4100+ 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".

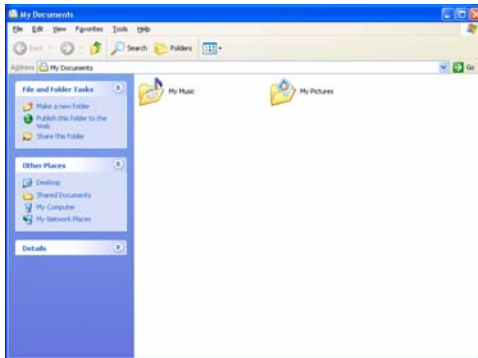
## Chapter 6: Tips and Tricks

### Mapping a Client PC to the N4100+

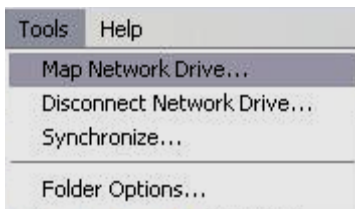
You can map share folders on the N4100+ so that you can access them as if they were drives on your computer. You can connect to the shared network folders on the N4100+ as follows:

#### Windows

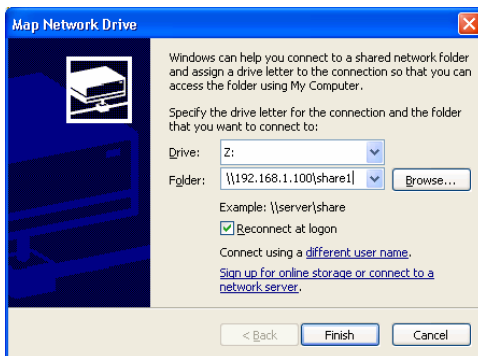
1. Go to the **My Computer** folder in Windows.



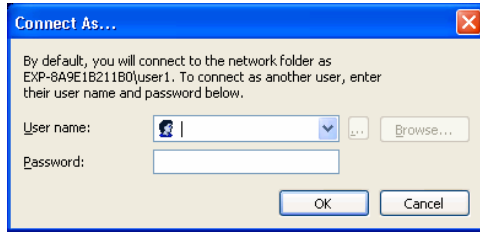
2. In the menu bar, select **Tools** and then **Map Network Drive...**



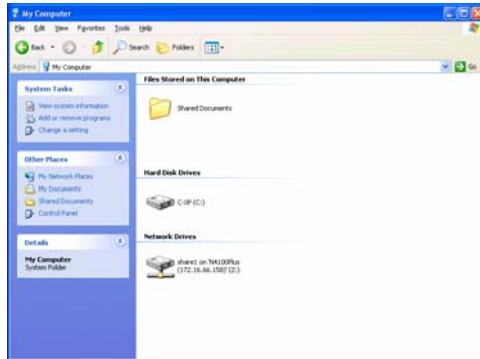
3. The **Map Network Drive** window appears.



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 a user name and password.



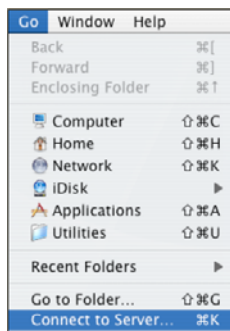
7. Click **OK**. The share folder appears as the drive you assigned. You can now access this folder as though it were a drive on your computer.



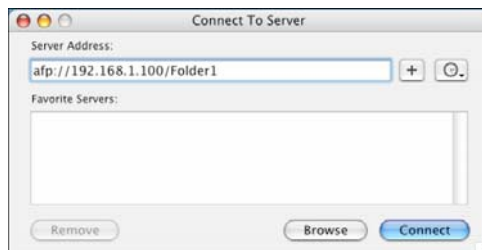
## Apple OS X

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:

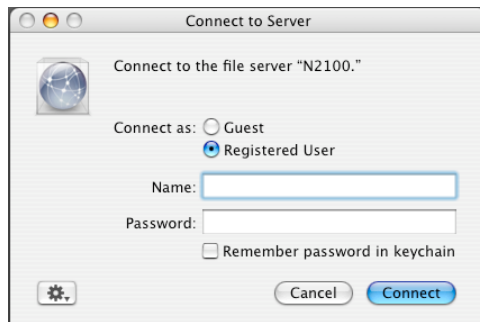
smb://192.168.1.100/Folder1

When connecting using AFP protocol, type:

afp://192.168.1.100/Folder1

Click **Connect**.

- When MAC OS X is trying to connect N4100+, it will ask for a User Name and Password which has access to the folder.



- When MAC OS X has connected to the N4100+ 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.



## USB Storage Expansion

The N4100+ supports external USB hard disks through its two USB ports. Once a USB hard disk has been successfully mounted, users can access the files on the USB hard disk under the **USBHDD** folder. The N4100+ supports up to 6 USB external storage devices. All file names on the USB disk volume are case sensitive.

Before attaching a USB disk drive to N4100+, 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\usb1\1\` where 192.168.1.100 means the IP address of N4100+, `usb1` stands for the first USB device, and 1 stands for the first partition on disk #1, the USB disk drive. If it is an NTFS partition, NAS users can open or copy files from `\\192.168.1.100\usbhdd\usb1\1` 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 5 array, you can add a spare disk after the initial RAID is setup. To add a spare disk, follow the steps below:

- On the **RAID Configuration Screen**, tick the checkbox of the hard disk you wish to designate as a spare disk.
- Click **Add Spare**. The system automatically rebuilds.

## ***Replacing Damaged Hard Drives***

If you are using RAID 1 or RAID 5, you can easily replace a damaged hard drive in the Thecus N4100+ while keeping your data secure with the system's automatic data recovery.

### **Hard Drive Damage**

When a hard drive is damaged, its bottom LED glows a steady red. If there is data in the RAID volume, the system LED also glows red and the system beeps.

### **Replacing a Hard Drive**

To replace a hard disk drive in the N4100+:

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 N4100+ 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. If the Error LED flashes red, it signals a problem.

### **RAID Auto-Rebuild**

When using RAID 1 or 5 on the N4100+, 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 hard disk error LEDs 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.

## ***Remote Administration***

You can set up your N4100+ for remote administration. With remote administration, you can access your N4100+ over the Internet, even if your N4100+ is behind a router. This is especially useful if you are traveling and suddenly need a file from your N4100+.

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

- Thecus N4100+ 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.: N4100+), 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.N4100+.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 N4100+)
  - 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.N4100+.dyndns.org**
  - b. You should see the login page of N4100+.

### Firewall Software Configuration

If you are using a software firewall (i.e. Norton Internet Security) and are having trouble connecting to the N4100+, 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 N4100+ IP address (i.e. 192.168.1.100) to the **Trusted** list.

## File System Check

The N4100+ has a built-in utility that allows you to check the N4100+'s file system for errors. To use the File System Check utility, follow the steps below:

### WARNING

The File System Check utility works only with LAN 1 and not LAN 2.

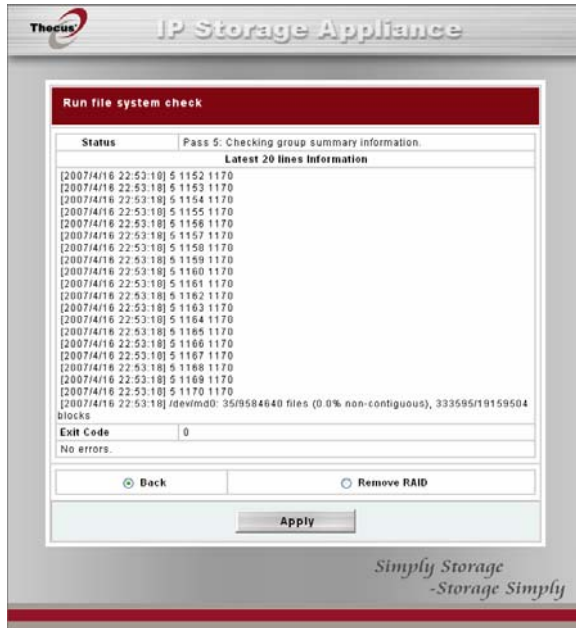
1. Power off the N4100+.
2. With the unit powered off, press and hold the reset button.
3. With the reset button held down, power on the system by pressing the power button. You can release the reset button after 30 seconds. After that, the N4100+'s WAN IP address will be reset to 192.168.1.100 temporarily. Please note that all file services at this time will be stopped.
4. When you point your browser to 192.168.1.100, you will see the following screen.



5. If you select "Run file system check" option, the file system check utility will be started, and last 20 lines of the result will be displayed in your browser.



6. When the file system check is finished, the result will be displayed in your browser.



## NOTE

If the file system is corrupted beyond repair, you may have to remove RAID and recreate the file system.

## Chapter 7: Troubleshooting Guide

### ***N4100+ Won't Turn On***

In the event that the N4100+ won't turn on, check to see that the power cable is correctly plugged in to the N4100+. Also check to see if the electrical outlet is functioning.

### ***Resetting NAS IP Address and Admin Password***

If you've forgotten the admin password, or if you need to reset the unit's IP address, first make sure that the unit is powered off. With the unit powered off, press and hold the reset button. With the reset button held down, power on the system by pressing the power button. You can release the reset button after 30 seconds. After that, the N4100+'s WAN IP address will be reset to 192.168.1.100 temporarily. Please note that all file services at this time will be stopped.

1. When you point your browser to 192.168.1.100, you will see the following screen.



2. If you select **Reset to Factory Default** option, the system will be reset. Below are the default system settings:  
Admin password → admin  
WAN IP address → 192.168.1.100  
WAN IP Gateway → 192.168.1.1  
WAN Jumbo Frame Support → Off  
LAN IP → 192.168.2.254  
LAN Jumbo Frame Support → Off  
HTTP Port → 80  
HTTPS port → 443

### ***Forgot My Network IP Address***

If you forget your network IP address and have no physical access to the system, you can use the setup wizard to retrieve the IP of your N4100+.

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 N4100+ which you have forgotten in the **Device Discovery** screen.

## **Can't Access N4100+ from the LAN**

If you cannot access the N4100+ from the LAN, make sure that its network cable is correctly plugged in. Also, check to see if the N4100+'s WAN and LAN settings are configured correctly.

## **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.

## **N4100+ Chassis Feels Hot**

The N4100+ uses its chassis to dissipate heat, and feeling warm to the touch is completely normal. As such, make sure that the N4100+ is left in a well-ventilated area to avoid overheating the unit.

## **Can't Find Printer Server / Media Server / Download Manager**

To use these functions, you must first install their respective modules. Once installed, these will appear on the Main Menu. For installation instructions, refer to the sections below:

Chapter 4: Additional Feature Setup > [Media Server Module Installation](#)

Chapter 4: Additional Feature Setup > [Download Manager Module Installation](#)

Chapter 4: Additional Feature Setup > [Printer Server Module Installation](#)

## **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 N4100+ 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 N4100+'s time synchronized. However, if the N4100+ 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 N4100+ 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, thereby allowing the NTP Server name to correctly resolve. (See **Network > WAN > DNS Server**)

## **Simple Problem Diagnosis Procedure**

This procedure is meant to provide a simple and quick way to identify which part of the N4100+ has failed.

1. Don't insert a hard disk into the N4100+. Attach the power cord and then reset the IP address and admin password to the default settings by doing the following:
  - a) Power on the N4100+ and immediately press the **Reset** button for 10 seconds. (The Reset button is near the LAN connector)
  - b) This resets the N4100+ to its default IP address and password settings.
    - Default IP: 192.168.1.100
    - Default admin password: admin
2. Attach the power cord and connect the LAN cable between the N4100+ and a PC. Don't use a hub.
3. Turn on the N4100+ and check the front panel. The **Power LED** should glow blue after power button is pressed. Then, the **Busy LED** starts blinking orange for around 60 seconds. After that, the **Busy LED** turns off. If the Busy LED keeps blinking orange for more than 3 minutes, the firmware may be corrupted during improper firmware upgrade procedures. It means that the motherboard has malfunctioned and needs to be repaired.
4. Set the IP address of the PC as 192.168.1.111, and then access the **Login** page. Make sure the N4100+ and the PC is directly connected through a LAN cable, and not through a hub or a router.
5. Check if the Web Administration Interface shows up and works fine. Then, check if the system status is normal and the **HDD Power LED** works fine. If the results are positive, it means that the N4100+ is functioning normally. Otherwise, the N4100+ may be damaged.
6. Suppose that the N4100+ has been damaged. If the **Power LED** glows blue and both system and power fans work fine after power button pressed, the motherboard needs to be checked and repaired. Otherwise, the power supply unit has problems.

# Appendix A: Product Specifications

## Hardware Specifications

Core Processors / Memory		
Processor	IOP80219 (600MHz)	
SATA Controller	Silicon Image 3114	
NOR Flash	16MB	
Memory	128MB	
Network Interfaces		
WAN	1 x 10/100/1000 Mbps Ethernet Port	
LAN	1 x 10/100/1000 Mbps Ethernet Port	
Wireless (optional)	IEEE 802.11b/g AP mode (using approved USB Dongles)	
Storage		
HDD Bays	4 x 3.5" SATA HDD	
HDD Capacity	80/120/160/200/250/300/400/500/750GB (HDDs larger than 750GB will be verified upon availability)	
USB 2.0	USB 2.0 ports for easy storage expansion	
IO Interfaces		
USB	2 x USB 2.0 port	
System Information		
LED Indicators	Power LED, System Fail LED, System Busy LED (booting, upgrade, shutdown), Network LED x 2, HDD Power LED x 4, HDD Activity LED x 4	
Buzzer	System alert	
Physical		
Width	167 mm	
Height	199 mm	
Depth	223 mm	
Security	Lockable disk trays	
Power Supply		
PSU	200W ATX	
External Adaptor	AC 100 ~ 240 Volt, 50/60 Hz	
Environment		
Temperature	5 °C to 40 °C	
Humidity	0 ~ 80 % R.H. Non-condensing	

## Software Specifications

Network		
Configuration	Fixed IP address, dynamic IP address	
Network File Protocols	Microsoft Networks (CIFS/SMB ) Apple Filing Protocol (AFP 3) File Transfer Protocol (FTP) WebDisk (HTTP/HTTPS)	
Client Platform Support	Windows NT/2000/XP UNIX/Linux/BSD (by CIFS) Apple OS X/9/8 (by CIFS, AFP)	
DHCP Server	Assigning IP addresses on LAN/WLAN ports	
RAID		
RAID Levels	0, 1, 5, JBOD	
Auto Rebuild	Rebuild new hard drives while inserting to an existing RAID system	
Hot Swap	Hard drives can be removed and inserted on the fly and N4100+ will still provide service during swap	
Hot Spare	Designated hard drives will be in standby mode in RAID	
Disk Roaming	All installed drives can be put into another N4100+ and all data will remain intact	

<b>Multimedia Support</b>		
	Media Server	Works with DLNA-certified players. Supported File Types: MPEG, RMP, WPL, PLS, M3U, ASX, WAV, PNG, BMP, AVI, WMV, WMA, MP3, LPCM, JPEG
	iTunes Server	Supported File Types: AAC, MP3, WAV
<b>Share Management</b>		
	User Authentication	Microsoft NT Domain Controller (PDC)* Microsoft Active Directory Authentication (AD)* Supports built-in user accounts and groups
	Folder Management	Share Folder Level Permission File Level Permission Public Folder
	Permission Management	Read, Write or Deny options on individual users or groups
<b>File System</b>		
	File System Type	Journaling File System
	Language Support	Unicode Support
<b>System Management</b>		
	Web-based Administration	Multilingual Support English, French, German, Italian, Traditional Chinese, Simplified Chinese and Japanese
	Setup Wizard	MS Windows, MAC OS X device discovery and setup utility program
	Email Notification	Send system message via Email to specified Email accounts
	HDD Spin Down	Thecus N4100+'s HDDs can spin down after certain amount of inactivity
	Schedule On/Off	The system will be powered on/off at designated time
<b>Backup</b>		
	Thecus Backup Program	Thecus Backup Utility (Client backup utility; supports Microsoft Windows XP/2000/MAC OS X)
	Nsync	A file-based remote backup service; also supports legacy FTP servers
<b>Miscellaneous</b>		
	Print Server	Network printing through Internet Printing Protocol (IPP)
	Download Manager	Supports BT, FTP, HTTP scheduled downloads
	Safety and Environment	CE, FCC, BSMI, C-Tick, RoHS Compliant

\* PDC/AD support: Works as a client member in a Microsoft NT 4.0 domain/Active Directory domain, allowing the N4100+ 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](mailto:sales@thecus.com)



## Appendix B: Customer Support

If your N4100+ is not working properly, we encourage you to check out **Chapter 7: Troubleshooting Guide**, located in this manual. You can also try to ensure that you are using the latest firmware version for your N4100+. 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 N4100+, 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](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](mailto:support-us@thecus.com)

If you would rather receive support over the phone, you can contact Thecus FAE Support at:

+886-2-26981788

Please note that our headquarters are in Taipei, Taiwan, and our office hours are Monday to Friday, 9:00 to 17:00.

For Sales Information you can e-mail us at:

[sales@thecus.com](mailto: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 N4100+ supports standard RAID levels 0, 1, 5, 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 good performance. 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.

## **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 4 disks are of the same size, and used in RAID, the N4100+'s disk usage percentage is listed below:

<b>RAID Level</b>	<b>Percentage Used</b>
RAID 0	100%
RAID 1	20%
RAID 5	80%
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 N4100+ integrate itself with the existing ADS in an office environment. This means the N4100+ 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 N4100+ into the existing office IT infrastructure

The N4100+ 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 N4100+.

2. Centralized user/password database

The N4100+ does not maintain its own copy of the user/password database. This avoids data inconsistency between the N4100+ and other servers. For example, without ADS support, an administrator might need to remove a specific user privilege on the N4100+ and each individual server. With ADS support, the change on an ADS server is known to all of its ADS members.

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