level® one

User Manual

GNS-2000

2-Bay Gigabit Network Storage

Table of Contents

Introduction

The NAS Server

Congratulations on the purchase of GNS-2000. The NAS inserts Gigabytes of storage space into your network without the cost, space, and maintenance hassles of a full-fl edged file server. The NAS provides solid data transfer performance for multiple client connections. And you can add as many NAS Servers to your network as you like. Compared to using a standard PC as a File Server, GNS-2000 offers lower cost, easier management, and increased reliability.

Windows utility software is provided for the NAS Administrator. Also, the Web-based *Administration* interface offers a wide array of management options.

Web-based file system

WEB-based file sharing allows access and downloading of files from any PC on the network, including non-Windows PCs.

Windows users can also use Microsoft networking features to make NAS folders appear as drive letters on their PCs.

NAS Features

- Provides Gigabytes of external hard disk space.

- Supports standard USB 2.0 ports that can connect to Hard Disk Drives or USB flash Drive (USB key).

- Support NTFS (Read only) and FAT file format for USB HDD.

- Built-in Printer Server (via USB port) gives your network a fully shareable network printer.

- Provided with a Windows utility program for speedy configuration.

- WEB-based configuration and diagnostic interface is accessible from any PC on the network.

- The LAN Administrator can limit the amount of available disk space available to individual users.

- High performance file system automatically maintains itself to provide file system integrity.

- Additional NAS Servers can be added to the network at any time.

- Raid 0 for striping and Raid 1 for mirroring.

- Download function (BT, FTP and HTTP).

Package Contents

The following items should be included in the NAS packaging.

If any of these items are damaged or missing, please contact your dealer for replacements.

- GNS-2000

- Quick Installation Guide

- CD Manual / Utility

- LAN Cable

- Power Adapter and cord

System Requirements

- Windows NT 4.0, Windows 95, Windows 98, 2000, ME, XP and Vista.

- Ethernet Network employing 10/100/1000 Base.

- TCP/IP protocol.

Specifications

Hardware specifications:

CPU	Marvell 88F5182, 500MHZ
Memory	64M bytes SDRAM
Flash	16M bytes flash memory
LAN	Gigabit LAN, auto negotiation, auto MDIX
HDD interface	Support SATAII * 2
USB port	USB2.0*2
RAID	Support Soft Raid 0, 1 and LVM (JBOD)
LED	8 LED
Switch	Power on/off switch, USB eject
Size	95mm(W)*176mm(L)*180mm(H)
Max. HDD Capacity	3TB (total)
Reset button	1
Operating temperature	0°C to 40 ^{o}C
Storage temperature	-20°C to 70 ^{o}C
Related humidity	10% to 80%RH

Power: External power supply, 12V/5A.

Software specifications:

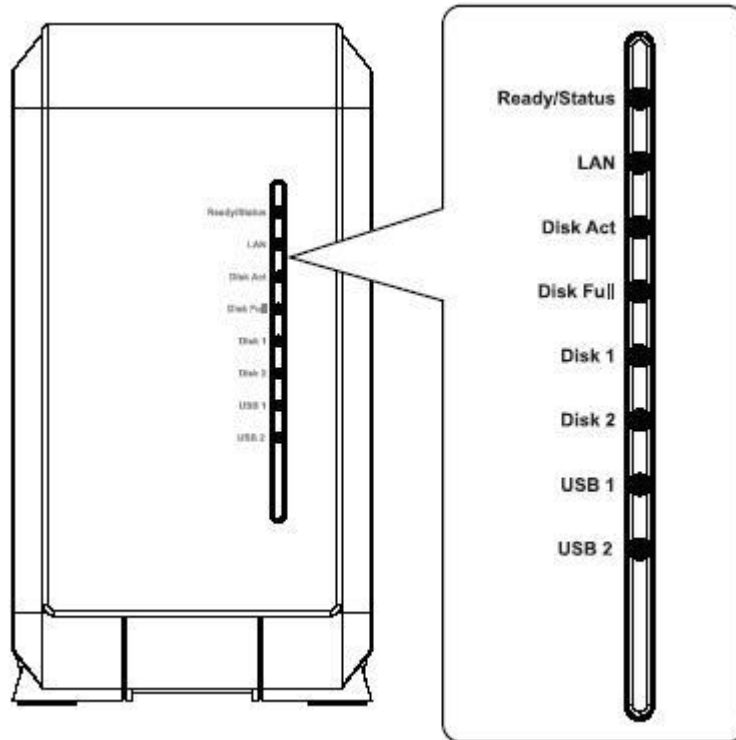| System	Description
Operation system	Linux Kernel: 2.6.12
Networking Protocols	TCP/IP, HTTP, HTTPS, FTP, FTPS
File Sharing Protocols	CIFS/SMB over TCP/IP, NFS
Network Clients	Windows 98/ME/NT/2000/2003/XP/Vista/ Mac OS Linux Unix
Web browser support	IE, Firefox, Safari
File System	Journaling file system XFS FAT16/32 (for USB device) NTFS Read Only (for USB device)
Disk Management	Format: ●Format/Prepare internal HDD (for XFS) ●Format/Prepare/Partition USB device (for FAT32, can partition up to 4 partitions) Disk Scan (Manual/Schedule) Disk S.M.A.R.T (Manual/Schedule) Disk Usage(Status Bar) HDD Standby mode Disk Full Alarm
User Management	Max user accounts: 255 Disk Quota by user Password authentication
Group Management	Max Groups: 255 Group member management Admin group or administrator
Log	System/Event log/Disk log
Language	Unicode support for CIFS Multiple language support for FTP/HTTP

System Function	E-mail Alert Date/Time/Daylight NTP
Vista support	LLTD PnP-X
DDNS	Dynamic DNS, TZO
Print Server support	Network printer sharing IPP(Internet Printing Protocol) CIFS (Samba)
Media Function support	**Media Server(UPnP/DLNA)** ● Photo ● Audio ● Video **iTune Server support** ● Audio Format: MP3, M4A, M4P, WAV, AIF ● Playlist Format: M3U, WPL **Music broadcast** **SONY PS3/Xbox360/DMA support** ● Audio Format: AAC, FLAC,M4A,MP3, Ogg Vorbis, WAV, WMA, WMA VBR, WMA PRO, WMA Lossless ● Video Format: AFP, AVI,DAT, DivX, MP4, MPEG1, MPEG2, MPEG4, VOB, WMV, XviD ● Image Format: BMP, JPG(jpe, jpeg), GIF, ICO, PNG, PSD, TIF(tiff), UFO ● Playlist Format: WPL, M3U
Photo Album	Via HTTP to review the photos
Backup	**Data backup without utility on PC** ● Full backup ● Incremental ● Synchronize Server Backup/Client Backup (Schedule) Driver Backup (Internal HDD vs. USB HDD) Up to 10 backup jobs
Recycle bin	For each share folder
FTP Server	FTP, FTPS
LAN	Jumbo Frame setting(9000)
Download Manager	BT (P2P) FTP HTTP
RAID Management	RAID 0,1 JBOD/LVM Single disk mode Auto rebuild

Disclaimer

We highly recommend that you regularly backup the files on your NAS.
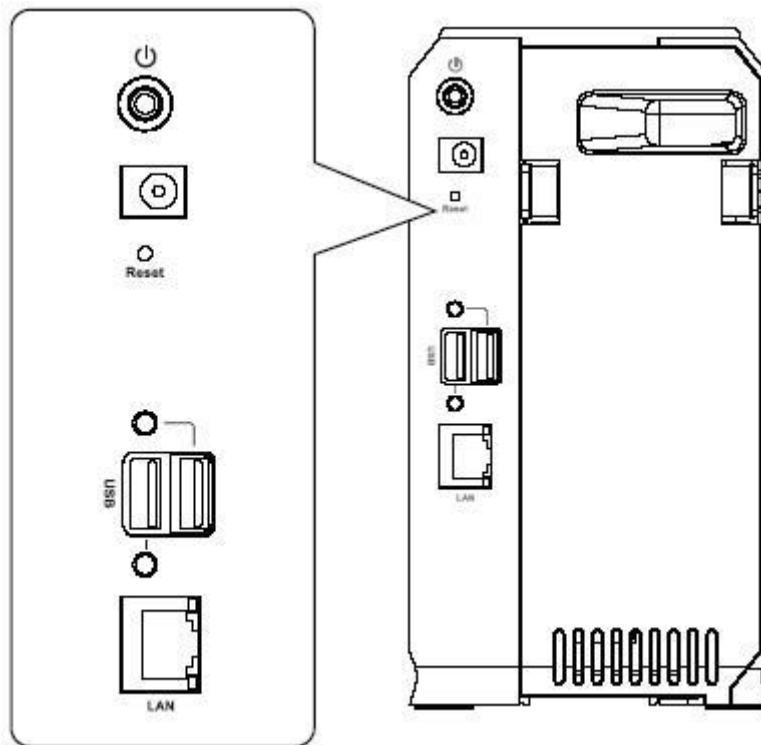
Getting Familiar with your GNS-2000

LEDs

LED	Function
Ready/Status	**Ready (Green)** • ON – Normal operation. • OFF – No power. • Blinking – This LED blinking during startup and shutdown. **Status (Amber)** • ON – This LED will be On during the Startup self-test; it will turn Off once the self-test is completed. If it stays ON, there is a hardware error. • OFF – Normal operation. • Blinking – During a software upgrade, both the Status and Ready LEDs will blink.
LAN	• ON – LAN connection established. • OFF – No LAN connection. • Blinking – Data is transmitted or received via the LAN.
Disk Active	• OFF – Idle. • Blinking – Hard disk is being accessed.
Disk Full	• ON - Disk is completely full. No more data can be stored on this disk. • OFF -Normal operation, disk is not full. • Blinking - Disk is 98% full (The Buzzer will also beep 3 times.)

Disk 1	- ON – Disk 1 installed. - OFF – Disk 1 not installed. - Blinking – Raid 1 Rebuilding.
Disk 2	- ON – Disk 2 installed. - OFF – Disk 2 not installed. - Blinking – Raid 1 Rebuilding.
USB 1	- ON - USB device connected to the USB port. - OFF - No USB device installed. - Fast Blinking - Data being transferred to or from the USB device.
USB 2	- ON - USB device connected to the USB port. - OFF - No USB device installed. - Fast Blinking - Data being transferred to or from the USB device.

Rear Panel

Rear Panel

Power Switch	This is a spring-loaded "Soft Switch". If power is Off, press once to turn On. If power is On, press once to start the Shutdown sequence. During Shutdown, the *Ready* LED will blink. When Shutdown is completed, all LEDs will turn off.
Power Input	Connect the supplied power adapter here.
Reset Button (IP/Password)	This button has 2 functions: If the NAS Server's IP Address is lost, press and hold this button for 2 seconds. The IP Address will be set to the de-

	fault (DHCP client) and it will beep once to indicate the reset has occurred
	• If the NAS administrator's password is lost, press and hold this button for 10 seconds. The password will then be cleared (no password), and the NAS will beep twice.
USB Eject Button 1	Press and release to prepare the USB device for removal. When the USB LED turns off, it is safe to remove the USB device.
USB Port 1 & 2 (Up/Down)	• Connect your USB Hard Disk Drive or USB Flash Drive here. The USB HDD support FAT and NTFS (Read only) file format. • Connect USB printer.
USB Eject Button 2	Press and release to prepare the USB device for removal. When the USB LED turns off, it is safe to remove the USB device.
LAN connector	Use this to connect the NAS to your 10/100/1000BaseT hub.

Audible Warnings

Audible warnings are given by the following signals.

|	
1 Beep	Reset button or power switch is pressed or system is ready to use
3 Beeps Repeated every 5 seconds for 3 minute.	Hard disk usage exceeds 98%

Basic Installation & Setup

The following section instructs you on how to physically connect the NAS to the network, and how to configure the NAS for basic operation in your Windows environment. Everything you need to do to get your NAS up and running is covered here.

Installation

Requirements

- Windows 95, 98, ME, NT 4.0, 2000, XP or Vista.
- Ethernet Network employing 10/100/1000Base
- TCP/IP protocol.

Procedure
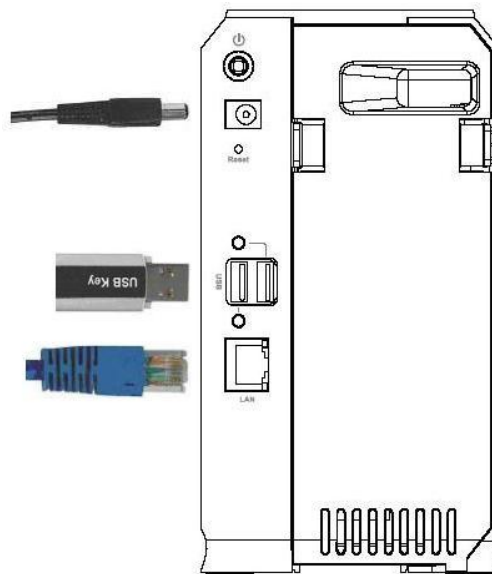
Installation

1. Connect the network cable to the GNS-2000.
    Connect the network cable to the *LAN* port on the rear of GNS-2000. Connect the other end to your hub or switch.
2. Connect the USB device to USB port.
3. Connect the supplied power adapter to a power outlet and plug the power cord into the Power input on the rear panel.
4. Power on

Locate the power switch on the GNS-2000's rear panel. Press it once to power on the NAS.

5. Self-test

    The GNS-2000 will run a brief self-test (2 or 3 seconds). During the self-test, all LEDs of the NAS will be illuminated or flashing.

6. Booting up

    When the self-test is complete, boot up will start. The Ready LED will blink continuously, and the LAN LED will blink occasionally. Boot up should take approximately 1-3 minutes.

7. Boot up completed

    When the Ready LED stops blinking, and remains on, boot up is complete. If the Status (Orange) LED stays on, or if the GNS-2000 repeatedly beeps, there is a hardware problem. Consult the Troubleshooting section of this User Guide for possible solutions

Shutdown

To shutdown GNS-2000, press the power switch to start the shutdown sequence. Wait for all LEDs to turn off.

USB Devices

You can insert either USB HDD or USB Memory Disk (Flash Memory Disk) to USB port at any time. Once the "USB 1" or "USB 2" LED on the front panel comes on and stays on, the USB device is available for use.

For USB HDD, the NAS can recognize FAT and NTFS (Read only) file format.

Removing a USB device - Method A

1. Press the USB Eject button on the rear panel (Eject 1 for USB 1, Eject 2 for USB 2). The GNS-2000 will beep.

2. Wait for the "USB" LED turn off.

3. Remove the USB device.

Removing a USB device - Method B

1. Run the Windows utility.

2. Select "Safely Remove Drive".

3. Select the desired GNS-2000.

4. Click the "Eject" button.

5. Wait for the "USB" LED turn off. (The Windows program will also display a message when it is safe to physically detach the USB device.)

6. Remove the USB device.

Note: If the USB device is not removed, it will not be re-connected. You must remove and re-insert the USB device to have it re-connected.

To share a printer, connect USB printer to this USB port. Install the driver of printer on your PC. GNS-2000 supports printer server function.
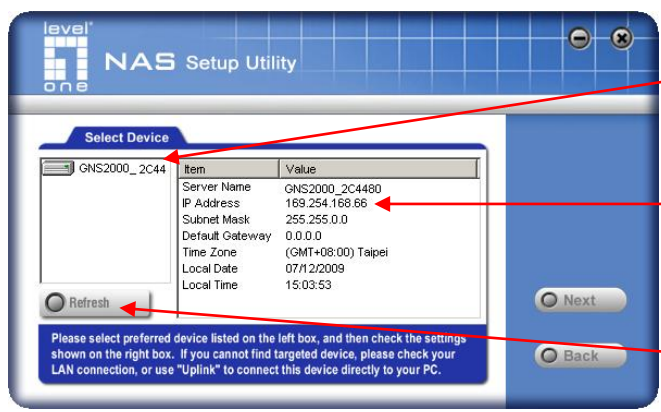
Configuring Your GNS-2000

Now that everything is connected and powered on, you are ready to configure your GNS-2000 so that it is accessible to the users on your network.

- This procedure only needs to be done ONCE, by the NAS Server's Administrator.
- Other LAN users should follow the *Client PC Setup* procedure described in the following chapter.

Quick Setup with the GNS-2000 Wizard

1. Insert the NAS CD into your CD-ROM drive of your computer.

   If the installation program does not start automatically, run the program **NAS_Setup.exe** in the root (top) folder of your CD-ROM.

2. Click "Setup" to start the Setup Utility. The Utility will begin scanning your network for installed GNS-2000 Servers, and a screen like the following will be displayed.

Detected server list.
Select preferred one to setup.

Current settings of selected server.
Please make a note.

Press " Refresh" to re-scan whole network for available interNAS/USB.

A list of all GNS-2000 Servers on your network will show on the left side. The right side displays details of the currently selected NAS.

If the desired GNS-2000 is not listed, check the following:

- GNS-2000 has finished the start up and boot process.
- Your PC and GNS-2000 are on the same LAN segment (there is no Router between your PC and GNS-2000).

Otherwise, select the desired GNS-2000, and click the "Next" button.

3. The following screen will then be displayed.
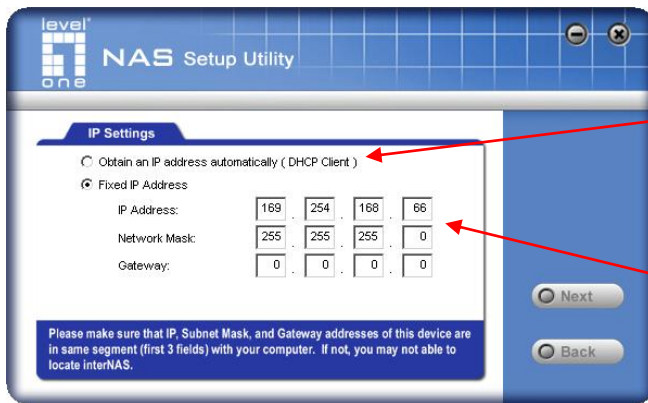
Select this if your LAN has a DHCP server, otherwise select "Fixed IP Address".

Suggested values are compatible with your LAN. Suggested IP address is currently unused.

| Obtain an IP address automatically (DHCP Client)	Select this only if your LAN has a DHCP Server. Normally, it is better for servers to use a Fixed IP address (see below)
Fixed IP Address	This option is recommended. If this option is used, the IP address or GNS-2000 will never change. You need to enter the following data.

- **IP address** - The utility will suggest an unused IP address within the address range used on your LAN. If you wish, you can change this, but you must ensure the address is unused.
- **Network Mask** - This must match the value used by PCs on your LAN.
- **Gateway** - This must match the value used by PCs on your LAN.

4. Click "**Next**" to continue. The following screen will then be displayed:
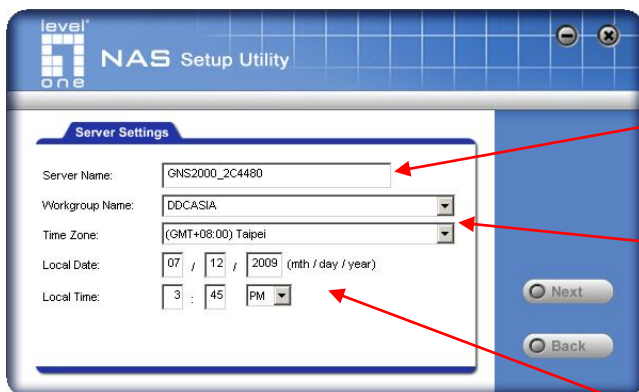
Each interNAS/USB comes with an unique server name. You may change it if you wish.

All workgroups on the network are listed. You may select one from the pull-down menu, or create a new one.

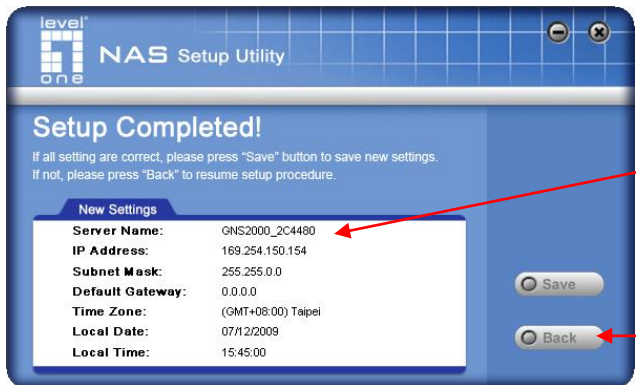Set the proper Time-Zone, Date and Time here.

The following data is required.

Server Name:	The *Default Name* is shown. Change this if you wish.
Workgroup Name:	Normally, this name should match the *Workgroup* name used by PCs on your LAN.

Time Zone	Select your time zone from the list.
Local Date/Time	Enter the local date (mm/dd/yyyy format) and time.

5. Click "Next" to continue. The following screen is displayed.
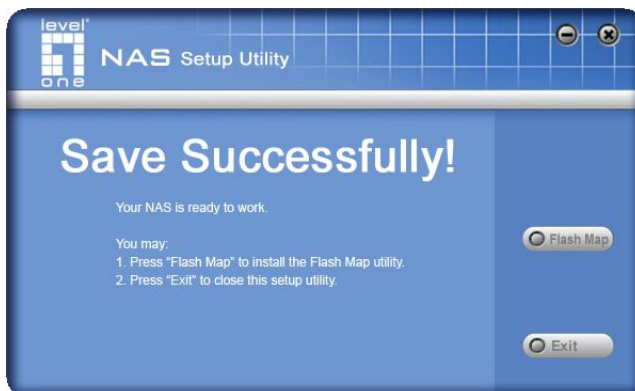
All settings are displayed.
Please confirm they are corrected, then click " Save" .

After saving, a final screen will be displayed.
Click " Exit" to close the Setup Utility.

6. Click "Save" to save your data to GNS-2000.

On the resulting screen, click "Exit" to close the Setup Utility. GNS-2000 is now operational.

Other Configuration

After the configuration above, all Windows users can access the NAS with "guest" access rights. This allows access to the public shares (by default, **DISK** and **FLASH or USB HDD**).

However, we recommend creating a GNS-2000 "User" for each person on your LAN. This will provide each person on your LAN with their own login (name and password) as well as their own personal folder on GNS-2000.

See the *Administration* chapter for details on creating users via the Web-based interface.

Client PC Setup

Supported versions of Windows are:

- Windows 95/98/ME or later

- Windows NT 4.0, Windows 2000, Windows XP and Windows Vista

The following items need to be checked or configured:

- Network Logon (Windows 95/98/ME only)

- Locating the NAS on your LAN.

- Mapping to the NAS Server's storage.

Network Logon (Windows 95/98/ME only)

If using Windows 95, Windows 98, or Windows ME, you must Logon to the Network correctly in order to use GNS-2000.

To check your Network Logon, following this procedure:

1. Check your Window logon using *Start - Settings - Control Panel - Network*.

    Ensure the *Primary Network Logon* is set to "Client for Microsoft Networks", as shown below.
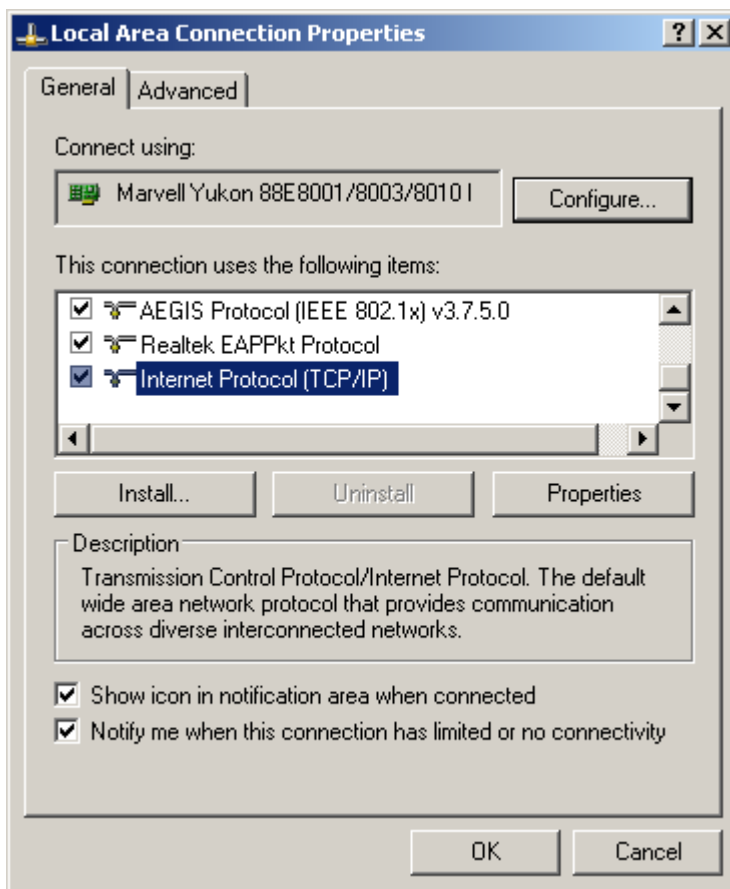
Window Logon

Windows will prompt you to Logon to the Network when it starts (boots).

You must logon!

If you press ESC, or click *Cancel*, no network resources will be available.

When you logon, you need to use a valid *User Name* and *Password*. If GNS-2000 Administrator has defined users on GNS-2000, use the *User Name* and password they supply.

Using the GNS-2000's Storage

To use GNS-2000's storage, you should "Map" a drive letter to each folder on GNS-2000 folder, which you wish to access. The "Network Drive" will then be available to all Windows programs. The procedure is as follows:

1. Open Network Neighborhood (or My Network Places).

    On the "View" menu, select *Details*. The *Comment* column will now be visible.

2. Locate GNS-2000, as shown below.

    If it is not listed, double-click *Entire Network*. Then double-click the Workgroup that the NAS is in. (By default, the NAS is in *Workgroup*.)
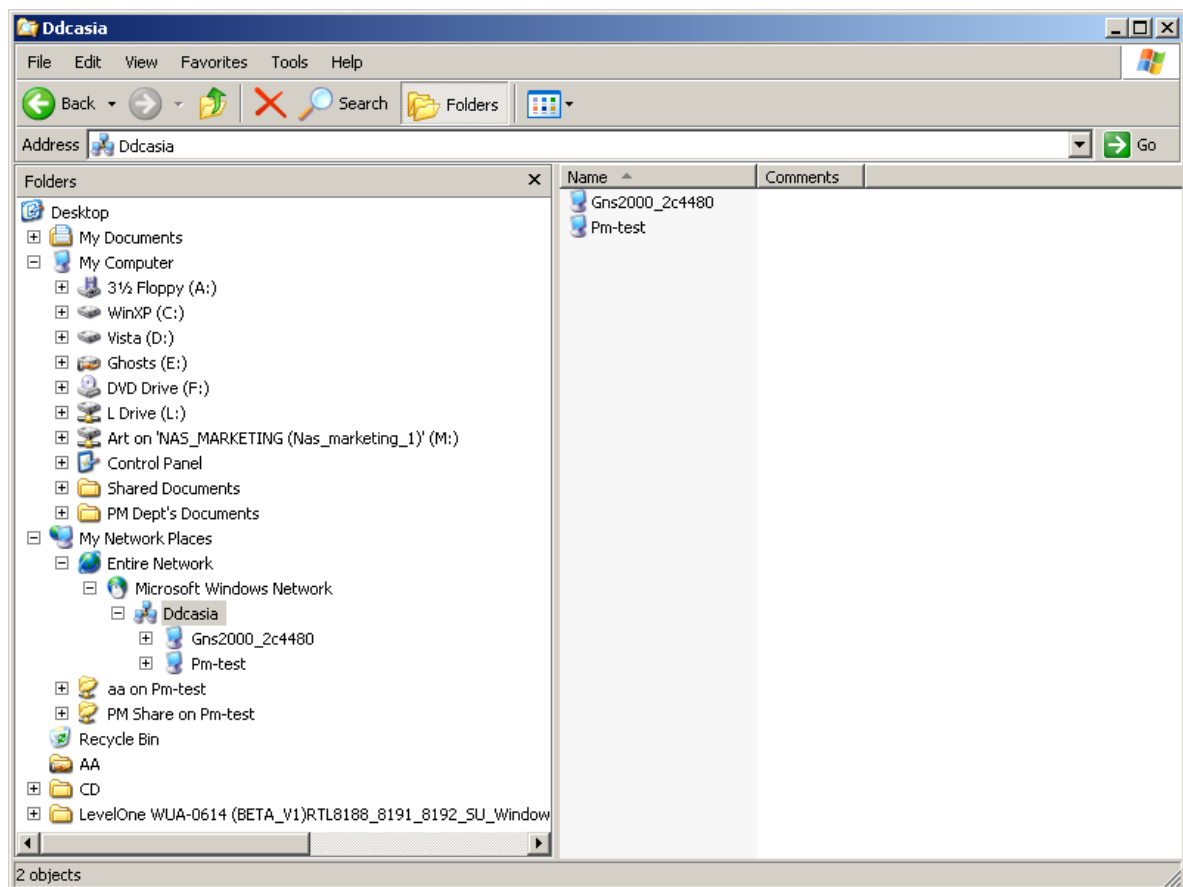
Network Browse

3. Double click on the NAS icon. You will then see a list of shares (shared folders). You can read and write files to these shares, unless the NAS administrator has blocked access.

4. To create a shortcut to GNS-2000's folder, drag its icon to the desktop, and accept Windows offer to create a shortcut.

Mapping a Network Drive

You can give a share (shared folder) on GNS-2000 a drive letter on your PC; such as "F:"
This is called "mapping" the drive letter. To do this, follow this procedure:

1. Right-click on the desired share on GNS-2000.

2. On the pop-up menu, select "Map Network Drive..."
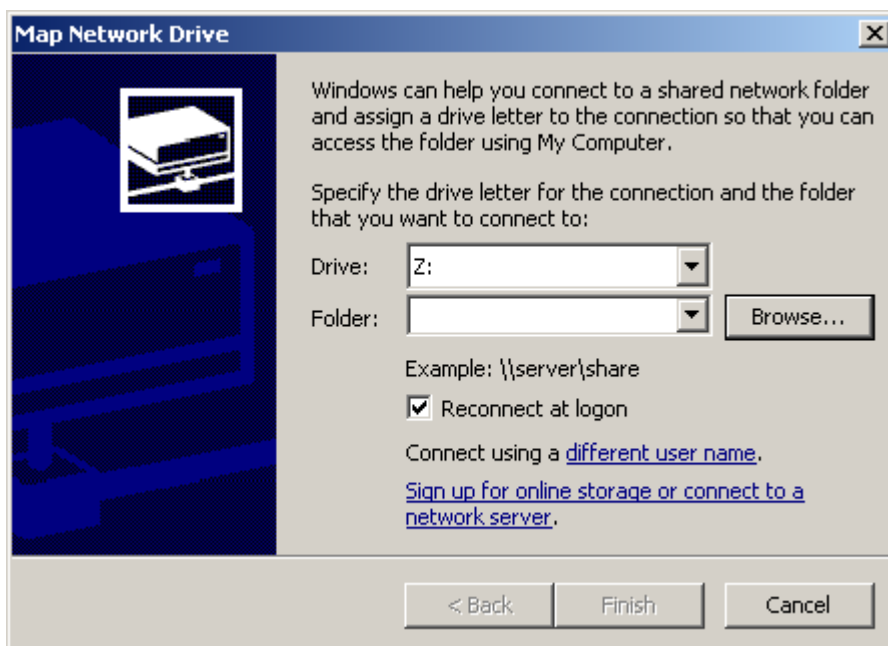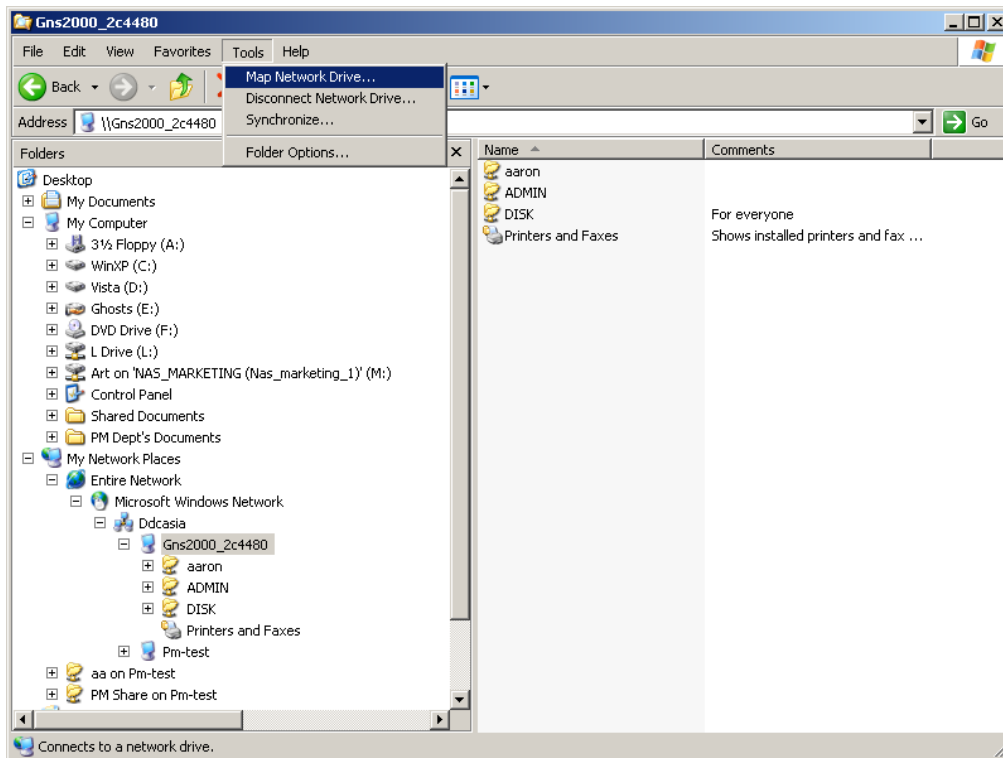
Map Network Drive

3. Select a drive letter for this folder, check the *Reconnect at Logon* checkbox, then click "OK".

4. This drive will now be available in *Windows Explorer*, and from the *File- Open* or *File-Save As* dialog in all Windows applications.

Notes:

When you try to access a folder, you may be prompted for a password, as shown below:
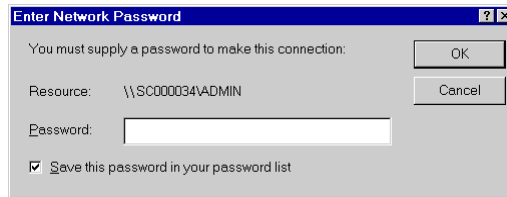
Network Resource Password Dialog

- If your Windows logon name is the same as your *user name* on GNS-2000, but the passwords are different, you can enter your GNS-2000 password here.

- But if your Windows **logon name does not exist** on GNS-2000, you will have only *guest* access rights, and **there is no password** that you can enter in this dialog. You must ask GNS-2000 administrator to create a username and password for you on GNS-2000.

- Even if your username and password are correct, you can't gain access if GNS-2000 administrator has not allowed access.

You can also use the Windows utility installed from the CD-ROM:

1. Select "Share Folder Mapping", and a screen like the following will be displayed.
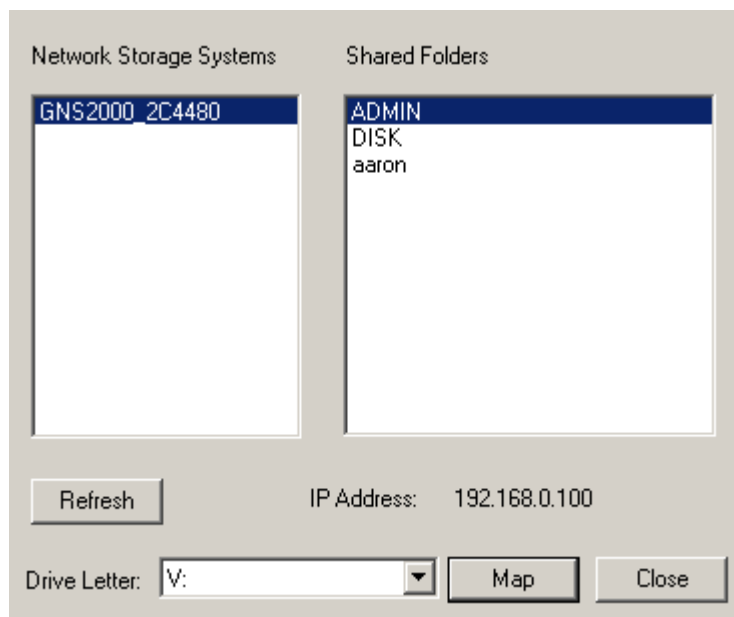
2. A list of all the NAS Servers on your network will show on the left side. The right side displays share folders of the currently selected NAS

3. Select which share folder you want to map and select a drive letter for this share folder then click "Map" button.

4. This drive will now be available in *Windows Explorer*, and from the *File- Open* or *File-Save As* dialog in all Windows applications.

Tips for Storing Data on GNS-2000

- Change your Windows logon so it matches the user name & password assigned to you on GNS-2000. This will allow you to login only once.

- You can "map" multiple folders to drive letters on your PC, as described above.

- You can backup your data to GNS-2000 by copying files from your PC to GNS-2000.

- If you have Windows ME, 2000, XP or Vista, there is a backup program supplied with Windows. You can use this backup program to automate the process of backing up your data to GNS-2000. Please read the instructions and help file supplied with this program for details of correct usage.

Using the NAS Server's Printer

1. Find out what printer is connected to the printer port on GNS-2000.

   Use *Network Neighborhood* (or *My Network Places*) to locate the NAS, as shown in Network Browse earlier.

2. Double-click the NAS icon. A printer icon should be shown.
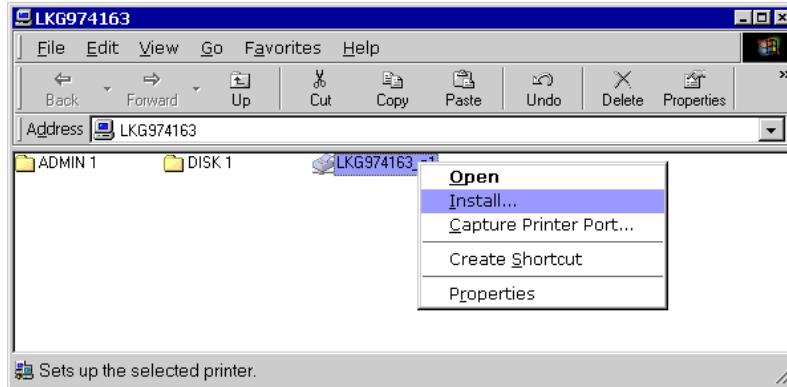
Install Printer

3. Right-click the printer icon, and select *Install*, as shown above. The *Add Printer* wizard will start.

4. Select the *Manufacturer* and *Printer* matching the printer connected to GNS-2000.

5. Follow the prompts to complete the installation.
   If prompted about sharing this printer, do NOT enable sharing.

6. The new printer will then appear in your Printer list, and can be used from any Windows application.

   • Use *Start - Settings - Printers* to list all your printers.

   • Double-click the printer to view or delete the documents in the print queue.

   • Use *File - Set as Default* to make the selected printer the default printer.

   • Use *File - Properties* to view or modify the properties of the selected printer.

Using the Web File Sharing

You can access and download files on GNS-2000 using your Web Browser, even from non-Windows platforms.

To access data stored on GNS-2000 using your Web Browser:

1. Start your WEB browser.

2. In the Address box, enter "HTTP://" and the NAS Server's IP Address.

   Note: If the port number used by GNS-2000 has been changed (on the *System* screen) from the default (80), you must specify the correct port number when you connect. For example, if the current port is 8080:

   HTTP://192.168.0.100:8080

3. The following screen will be displayed.
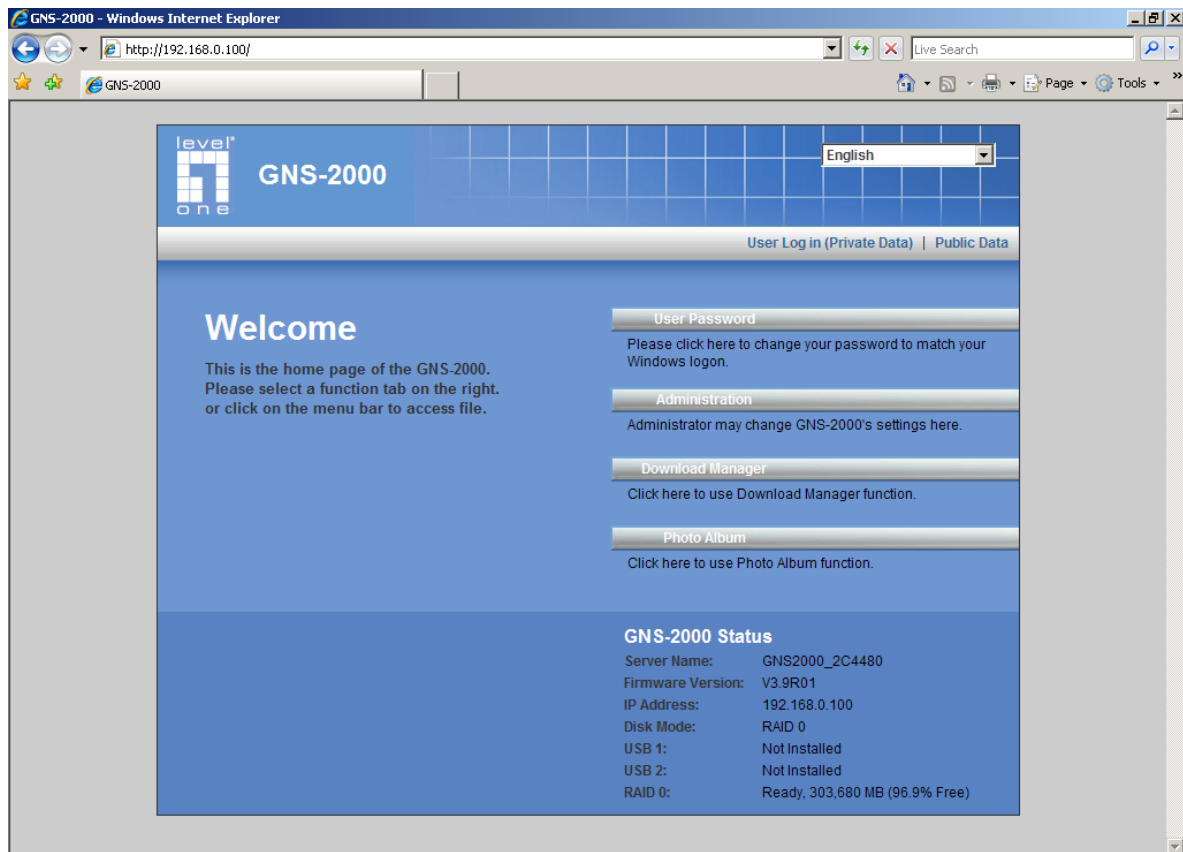
NAS Home Page

4. To browse the files and folders on GNS-2000, click **Public Data** on the home screen above.

   - Shares (Folders) to which everyone has access are listed. You can access these folders, and files by clicking on the folder name or filename.

- If your Browser displays the file when you prefer it to be downloaded, right-click on the file and choose "Save Target as…"

5. To access data which is password-protected, click the **User Login (Private Data)** link.

   - You will then be prompted for your user name and password.

     Enter the user name and password assigned to you by the Administrator of the NAS.

   - The screen will then update, and list all Shares (folders) to which you have access.

   You can now navigate through these folders by clicking on the folder name, and download any file by right clicking in and choosing "Save Target as …".

Changing your Password

Although the Administrator of GNS-2000 must create your User Name and initial password, you can then change your own password whenever you wish, as follows:

To change your password, click on the "Change Password" link on home page. The following screen will be displayed.

Change User Password

Enter the required data:

- **User name** - your login name on GNS-2000, created by the GNS-2000's adminis-trator.

- **Existing password** - your current password

- **New password** - the password you now wish to use.

- **Confirm new password** - reenter the new value to ensure it is correct.

Click "Save" to save your changes.

Click "Home" to return to the main screen.

Administration

Overview

This Chapter describes using the Web-based Administration interface.

For details on using the Windows utility, see the *Basic Installation & Setup* Chapter.

The Web-based Administrative Interface

To access the *Administration* interface, click the "Administration" link on the home page. You will then be prompted for a password, as shown below.
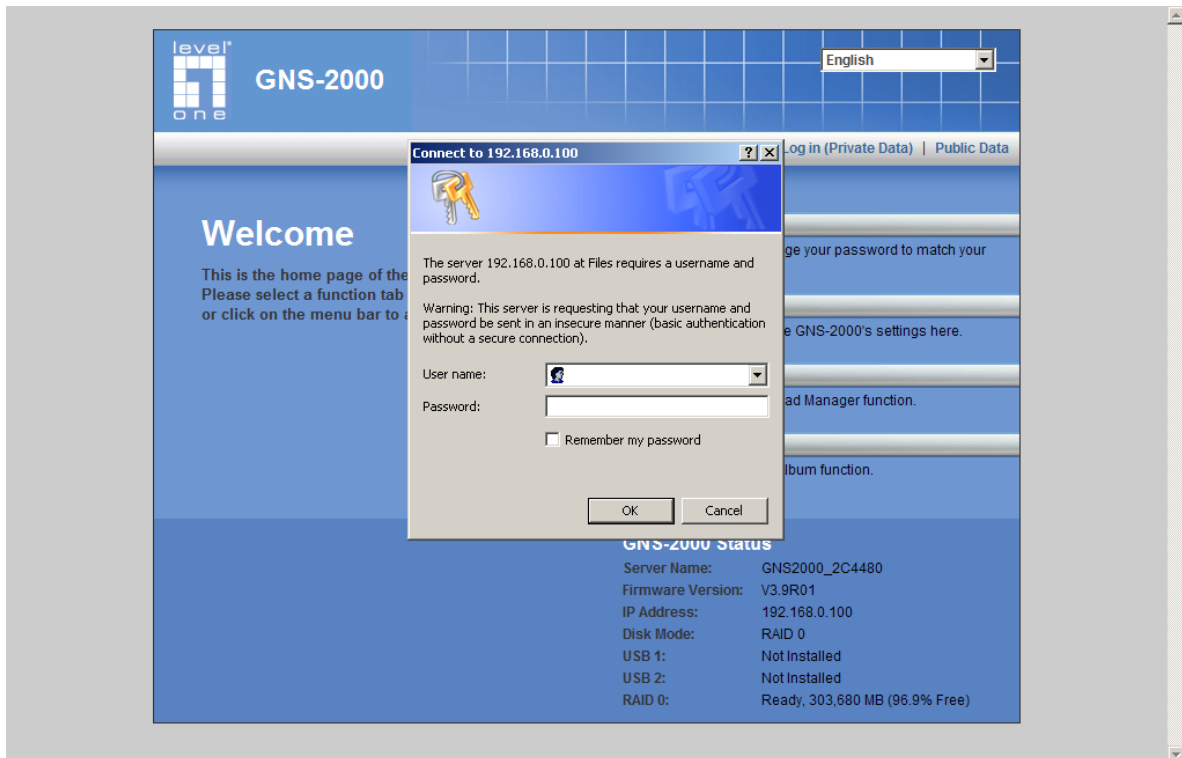
Password Dialog

Enter "admin" for the name, and leave the password blank.

- To gain access, you must enter the User Name and Password of a user in the "Administrators" User Group.

- By default, the only user in the "Administrators" User Group is "admin". (You can add other users as you wish.)

- The default password for the "admin" user is blank (no password). This should be changed. Click the *User Password* link on the Home Page to change the password.

The "**Users**" screen will be displayed, as described in the following section. Use the menu tabs to select the other screens as desired.

Users Screen

This is the first screen that appears after selecting "Administration". This screen allows you to manage the Users, which exist on GNS-2000.

- The "guest," and "admin" users are pre-defined, and cannot be deleted.

- Users can be members of many user Groups.
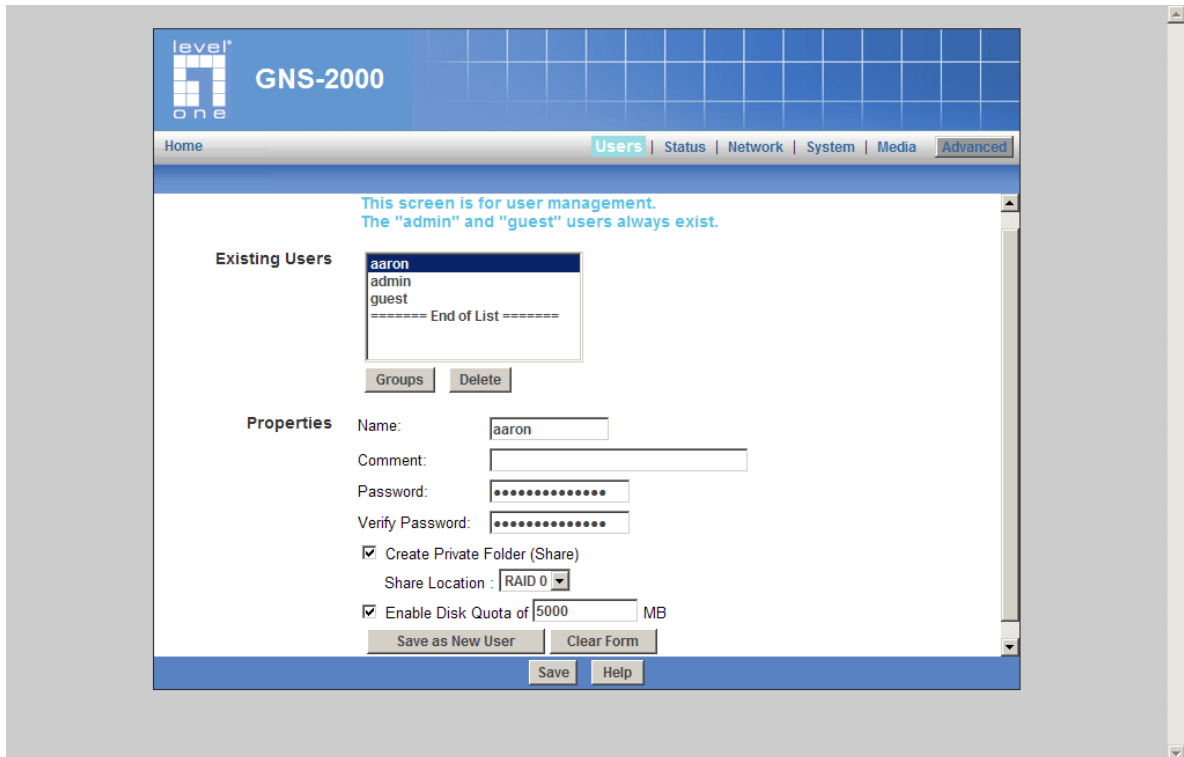
Users Screen

Existing Users

User List	This list shows all existing users. As you scroll through the list of users, details of the selected user are displayed in the "Properties" area.
Groups Button	Click this to view and/or modify the Groups which the selected user is in.
Delete Button	Use this to delete the selected user. When deleting a user, you have the option of deleting the Group and Share with the same name as the user (if they exist).

User Properties

Name	User Name. Note that punctuation and other special characters (e.g. * / | \ ) cannot be used in the name.

Comment (Optional)	Enter a comment if you wish.
Password Verify password	Enter the user's password in these fields. These fields are also used to change an existing user's password, as follows: 1. Select the desired user 2. Clear the existing values in the password fields. 3. Enter the desired password in both the "Password" and "Verify Password" fields. If no password is required, leave both fields blank. 4. Click the "Save" button. When creating a new user, enter the desired password in both of these fields.
Create Private Folder (Share)	If creating a new user: • Checking this option will create a Group and a Private Folder (Share) with the same name as the user. • Read/Write access will be granted to the Share. If changing an existing user: • The checkbox has no effect - it will neither create nor delete. This option is only available when creating a new user.
Enable Disk Quota	Enable the checkbox if you want to set the disk usage for the user, and then enter the maximum amount of disk space this user is allowed to use. **Note**! Unless the checkbox is checked, the Disk Quota field has no effect.

Buttons

Groups	Clicking this button will display the Groups of which the selected user is a member. You can then add this user to other Groups, or remove existing membership.
Delete	Click this button to delete the selected user.
Clear	Use this button to clear the form, preparing the form for the entry of a new user.
Save as New User	Use this button to create a new user, after entering their data in the "User Properties" fields.
Save	Use this Button to save any changes you have made to the "User Properties" for an existing user.

Modifying an existing user

To modify the properties for an existing user

- Select the desired user from the list. Their details will be displayed in the "User Properties" fields.

- Edit the "User Properties" fields as required. Note that you cannot change the "Create Private Folder (Share)" option when modifying a user.

- Click the "Save" button to save your changes.

Groups button

To click *Groups* button, it will pop up following screen:
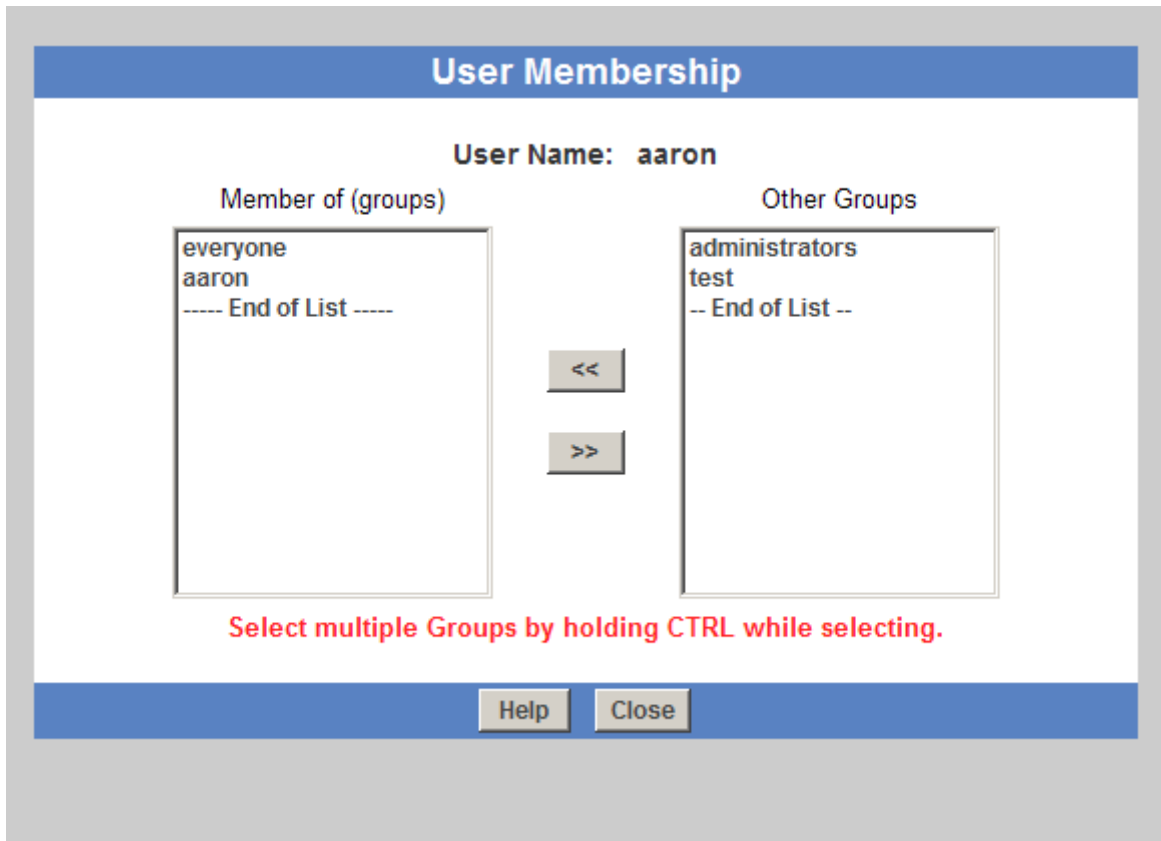
This screen allows you to check which Groups this user is a member of, and to add or revoke membership.

Data

User Name	The name of the User being modified is shown at the top of the screen.
Member of	The "Member of" column on the left shows the Groups that this user is currently in.
Other Groups	The "Other Groups" column on the right shows all other Groups. The current User is not a member of these Groups.

Operation

To Add Membership of a Group	Select the Group or Groups in the right-hand column, then click the "<<" Button. Multiple Groups can be selected by holding down the CTRL Key while selecting.

To Revoke Membership of a Group	Select the Group or Groups in the left-hand column, then click the ">>" Button. Multiple Groups can be selected by holding down the CTRL Key while selecting.
When finished, click the "Close" Button.	

Status Screen

This screen used to check the details and status of GNS-2000

Status Screen

Data

System	• Server Name - Current name of the NAS. This name will be shown in "Network Neighborhood" or "My Network Places". GNS-2000 has one default server name. Server Name is restored to default one after configuration restore.

	• Firmware Version - Current version of the firmware in the NAS. • Hardware Address - Hardware Address of the NAS. • IP Address - IP Address currently used by the NAS. • Date - Current date of the NAS. • Time - Current time of the NAS. • Current Status - Indicates the current status of the NAS. This will usually state "Ready". If the NAS is not ready, the message will say why the NAS is not ready.
Printer Server	The NAS supports USB printer, and it can share the printer after you connect one printer into one USB port. • Current Status - Possible states are *On Line, Off Line,* and *Out of Paper or No Printer*. • No. of Print Jobs - The total number of print jobs in the Print Queue, waiting to be printed.
Internal Disks	Display the status of Internal Disks. • Disk Mode - The current mode of the disk. • Disk Status – Displays the current status of the internal disks. • Free Space - Amount of the disk space still available to users. • Total Space - Total amount of the disk space. • Disk - Number of USB disk. • Model - Model name of the disk, it's provided by the manufacturer. • Capacity - Total space of the disk which can be used. • Status - The current status of the disk.
USB Disks	Display the status of USB Disks. • Model - Model name of the disk, it's provided by the manufacturer. • Partition - Partition number of USB disk. • File System – File system used in the partition. • Share - Corresponding share of the partition. • Total Size - Total size of the partition. • Free Size - Free size of the partition.

Buttons

Shutdown Now	Shutdown the Server immediately. This will break all existing connections, including this one. Clicking this button does NOT save any data you have entered.
Restart Now	Restart (reboot) the Server. This will break all existing connections, including this one. The NAS Server will immediately restart, but could take a few minutes before it is available again. Clicking this button does NOT save any data you have entered.
View Log	Click this button to view the log file in separate window. The log file is a record of activity on the NAS Server, which can help in management and troubleshooting.
Delete Current Job	Clicking this button will delete the Print Job currently being printed. Use this if the document is not printing correctly.
Delete All Jobs	Clicking this button will delete all Print Jobs in the Print Queue. Use this to clear the Print Queue.
Refresh	Click this to update the data shown on screen.

Network Screen

This screen allows you to set the IP Address and related information required for TCP/IP networks.

Network Screen

IP Address

Obtain IP Address automatically (DHCP Client)	Do NOT select this unless you have a DHCP Server on your LAN. A DHCP Server can provide an IP Address to PCs and other devices when they boot.
Fixed IP Address	Select this if your LAN does not have a DHCP Server, and enter the following data.
IP Address	The IP Address must be unused, and compatible with the PCs on your LAN.
Network Mask	Enter the same Network Mask (Subnet Mask) used by PCs on your LAN.

Gateway	If your LAN has a Router or Gateway, enter its IP Address here. Otherwise, leave this blank.

DNS

A DNS (Domain Name Server) translates Internet addresses (e.g. microsoft.com) to IP Addresses. Use the same values as on your PC, or recommended by your ISP (Internet Service Provider).

At least one (1) DNS entry is required if using either the "E-Mail Alert" feature. Otherwise, the DNS entries may be left blank.

Obtain DNS Server Addresses from DHCP Server	Select this if you want to obtain DNS Server Addresses from DHCP server when DHCP Client is enabled.
Use Fixed DNS Server Addresses	Select this if you want to specify some DNS Server Addresses.
Primary	IP Address of the first DNS Server.
Backup 1	IP Address of the DNS Server to be tried if the first server is busy.
Backup 2	IP Address of the DNS Server to be tried if the second server is busy.

DHCP Server

GNS-2000 can act as a DHCP (Dynamic Host Configuration Protocol) Server, providing IP Addresses and related data to PCs and other devices.

Enable	Use this to Enable/Disable the DHCP Server. If you already have a DHCP Sever, do not enable this feature.
Start Address	Enter the beginning of the range of IP Addresses to be allocated by the DHCP Server.
Finish Address	Enter the last address of range of IP Addresses to be allocated by the DHCP Server.
DHCP Client Table	Click this button to open a sub-screen which displays the IP Addresses which have been allocated by the DHCP Server function.

WINS

Enable WINS	Enable this if your LAN has a WINS Server. If enabled, this device will register with the WINS Server. This will allow users on the LAN to locate this device through a Router. (Without WINS, "Network Neighborhood" or "My Network Places" only scans the local LAN segment.)
WINS Server	If WINS is enabled, enter the IP Address of your WINS Server. Normally, this will be a Windows NT/2000/XP Server.

Jumbo Frame

Frame Size	The NAS support large frame, you select different frame size for your need.

System Screen

This screen contains some basic information about your GNS-2000. After initial configuration, no changes should be required.

System Screen

Identification

Server Name	If you wish, you can change the name of the NAS Server. Note that punctuation and other special characters (e.g. * " / \ [ ] : ; | = , + ? < > ' ` ( ) # $ %) cannot be used in the name.
Comment	Enter a comment if you wish (e.g. the location of the NAS Server). Note that special characters (e.g. | \ , ' : ") cannot be used in it.
Workgroup	This should match the "Workgroup Name" on your PCs. If the Workgroup name does not match, access to the NAS Server is still possible, but the NAS Server will not appear when you click the "Browse Network" button (for example, when adding a Network Printer). Note that punctuation and other special characters (e.g. /] \ [: ; | = , + * ? " > < ' `) cannot be used in the name.
Printer Name	Specify one name for the Printer Server. After you plug one printer into one USB port, the Printer Name will occur in Network Neighborhood and you can click it to install the Printer Server.

Date & Time

Time Zone	Select the correct time zone for your location.
Change System Date and Time as Following	Check this box for data and time update. The date and time setting is not sent to the server without check this box.
Date	Enter the local date. The NAS Server will set it own calendar according to the date you provide.
Time	Enter the local time at your location. The NAS Server will set its own clock according to the time you provide. Remember that this is not sent to the Server until you click "OK".

NTP (Network Time Protocol)

Synchronize with Time Server	If enabled, the NAS Server will synchronize its clock with a NTP (Network Time Protocol) Server.
NTP Server	Enter the domain name or IP address of the NTP server you wish to use. The NTP server can be a public server (on the Internet) or a local server (on your own network). Note that special characters (e.g. " / \ [ ] : ; | = , + * ? < > ' `) cannot be used in it.
Status	This shows the status of the NTP update procedure.
Synchronize ...	Select how often you want the NAS Server to synchronize its clock with the specified NTP server. You can also specify the time of the next synchronization. This allows you to specify that the synchronization should be performed (for example) at 11.00 pm each day.
Sync Now	Use this button to synchronize with the NTP server immediately.

Language

Language Environ-ment	Specify the language environment for FTP clients and Download Manager.

DDNS

DDNS Service	Select the desired DDNS service provider form the drop-down list and enter the required data in the following fields. The default is Disabled.
E-Mail Address	Enter the E-Mail address of the TZO service.
TZO Key	Enter the key here.
User Name	Enter the user name for the DynDNS service.
Password	Enter the password here.
Domain Name	Enter the Domain Name of the DDNS service.
Update Period	Select the interval to update the DDNS service.
Status	Displays the update status of the DDNS service.

Download Manager

Enable Download Manager	If enabled, you can use Download Manager function on homepage to download files with FTP and HTTP URLs. If a special language exists in the URLs, you must make sure the Language Environment above is correct, or they possibly fail to be downloaded.
Maximum Running BT Tasks	Specify maximum number of BT tasks that can run at same time. It's up to 5 tasks.
Maximum Running HTTP/FTP Tasks	Specify maximum number of HTTP/FTP tasks that can run at same time. It's up to 10 tasks.
Enable Schedule	If enabled, Download Manager only runs on the specified time period. If disabled, Download Manager always runs. The option only takes effect when Download Manager is enabled.
Day	Day of the schedule. If you want Download Manager to run in specified period every day, you need select "Every Day", or you can select others to limit Download Manager to run on one specified day.
Time	Time of the schedule. If selection of Day is not "Every Day", the End Time cannot be after Start Time.

E-Mail Alert

Send E-Mail...	Check this to enable the sending of e-mail alerts by the NAS. Alerts will be sent when there is some problem requiring the Administrator's attention.

E-Mail Address	Enter from 1 to 3 E-Mail Addresses. The messages generated by the NAS will be sent to these destinations. Note that special characters (e.g. " / \ [ ] : ; | = , + * ? < > ' `) cannot be used in them.
From Address (Optional)	Specify one E-Mail Address that appear in the "From" field of e-mail alert generated by the NAS. Usually it's helpful for e-mail alerts to avoid being filtered as junk mails.
Subject (Optional)	Enter the text you wish to appear in the "Subject" field of e-mail alert generated by the NAS. Note that special characters (e.g. " / \ [ ] : ; | = . , + * ? < > ' `) cannot be used in it.
Send Test Mail	Send test mail to specified e-mail address to verify whether the e-mail address can be reached.
Use Specified SMTP Mail Server	You can specify one SMTP (Simple Mail Transport Protocol) server to be used to send E-Mail. It's optional.
SMTP Mail Server	Specify the address of the SMTP Mail Server.
SMTP Port Number	Specify the port number used by SMTP server. It's 25 by default.
Mail Server requires Authentication	If the SMTP Server requires a "login" in order to send mail, check it and enter your login name and password for the SMTP server. This is usually the same as the POP3 server used to receive e-mail. Meanwhile, you need specify the "From Address" as the E-Mail Address that is correlative with the Account Name.
Account Name	Specify the login name that is used to login the SMTP server.
Password	Specify the password that is used to login the SMTP server.
Result of Test Mail	Displays the result of the test mail.

Options

Enable 'guest' account	If enabled, then user can use "guest" as user ID to login to the NAS. If disabled, then "guest" will not be accepted as a login. If enabled, you can configure following options:
	• **Allow anonymous Login for Windows Networking** If enabled, then all Windows users will be able to access the NAS via Network Neighborhood/My Network Places, with "guest" access rights. By default, the "guest" user has Read/Write permission for all USB disks.
	• **Allow anonymous access to "Public Data"** If enabled, then user can access files on Public Data on homepage anonymously.
Enable NFS Server	If enabled, then it will be possible for users to access files using a NFS (Network File System) client.
Enable AFP Server	If enabled, then it will be possible for users to access files using a Mac OS through AFP(Apple Filing Protocol).
Enable FTP Server	If enabled, then it will be possible for users to upload and download files using a FTP client program on their PC. The FTP server supports UTF-8.

	If the FTP clients don't support UTF-8, please specify right Language Environment above.
Allow anonymous FTP login	The FTP server will prompt for a Username and Password when clients attempt to connect. If this option is Enabled, users will be able to enter "anonymous" as the Username, and any string as the Password. If this option is Disabled, users must provide their correct Name and Password.
Support SSL	Enable SSL encryption support for the FTP server. To use this function, you must use FTP clients with SSL supported also.
Bandwidth Limit	Limit the maximum speed of data transfer for every FTP client. Value must be equal to or larger than 0. 0 means no limit.
Enable UPnP Support	If enabled, the NAS will broadcast its availability. For LAN users with systems which support UPnP (e.g. Windows ME, Windows XP), an icon for the NAS will be automatically generated.
Enable HTTPS	If enabled, you can access the NAS Server's web pages with HTTPS (HTTP over SSL). This function can make sure all connections are encrypted and secure.
Enable Recycle Bin	If enabled, deleted files are removed to folders 'Recycle Bin' in every share. If you want to delete the files permanently, you need delete them from folders 'Recycle Bin' again.
Clear Recycle Bin Termly	Set up a schedule to clear files that exist in the Recycle Bin termly.
Port Number	This port number is used for HTTP (Web Browser) connections to this Server. The default is 80, as used by Web Servers. If this is changed, you should use a number greater than 1024 (8080 is often used). Also, if the port is not 80, you must specify the port in your Web browser, in order to connect. To do this, add a ":" and the port number after the address: e.g. HTTP://192.168.0.100:8080 This example assumes the NAS Server's IP Address is 192.168.0.100, and the port number is 8080.

Buttons

Save	Click this button to save the settings on the page.
Cancel	Click this button to cancel the modifications on the page.
Restore to Default	Click this button to restore all system and network settings to default.
Clear Now	Click this button to delete all files that exist in the Recycle Bin immediately.

Media Screen

This screen allows you to configure the settings for media functions.

Media Screen

Photo Album

Enable Photo Album	If enabled, then the user can enjoy the photos that stored in the NAS Server.
Content Directory	Specify the location in which photos are stored.

iTunes Server

Enable iTunes Server	If enabled, then the user can listen music that stored in the NAS via iTunes client. This iTunes Server supports files with extensions .mp3, .m4a, and .m4p. And the iTunes Server uses port number 3689.
Server Name	Specify the name of the iTunes Server.

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Content Directory	Specify the location in which music need be served iTunes Server.

MP3 Broadcast

Enable MP3 Broadcast	If enabled, then the NAS will broadcast MP3 in specified folder, and user can listen to them by music players such as WinAMP etc. This MP3 Broadcast supports files with extension .mp3.
Server Name	Specify the name of the MP3 Broadcast.
Port Number	This port number is used for HTTP connections to MP3 Broadcast. The default is 1234. If this is changed, you should use a number greater than 1024. In order to connect to the music broadcast via WinAMP etc, need add a ":" and the port number after the address, e.g.: HTTP://192.168.0.100:1234 This example assumes the NAS Server's IP Address is 192.168.0.100, and the port number is 1234.
Play by	Specify the order that MP3 should be broadcasted. • Order - Play by order. • Shuffle - Play by shuffle.
Content Directory	Specify the location in which MP3 need be broadcasted.

Media Server

Enable Media Server	If enabled, the NAS can be located by compatible Media Adapters, using the UPnP AV standard developed by Intel and its partners. Media content on the NAS (in the Content Directories specified below) can then be accessed and played by the Media Adapters.
Server Name	Name of the Media Server that is displayed on client devices.
Content Directory	Directories where the Media Server shall scan for media content. You can specify four Content Directories at most. You should click the "Browse" button to select the desired folder. Each directory can be limited to a certain media type. The default setting will scan for all content types.

Buttons

Browse	Click this button to select Content Directory.
Save	Click this button to save the settings on the page.
Cancel	Click this button to cancel the modifications on the page.

Advanced Menu

Groups Screen

This screen allows you to manage the User Groups that exist on GNS-2000.
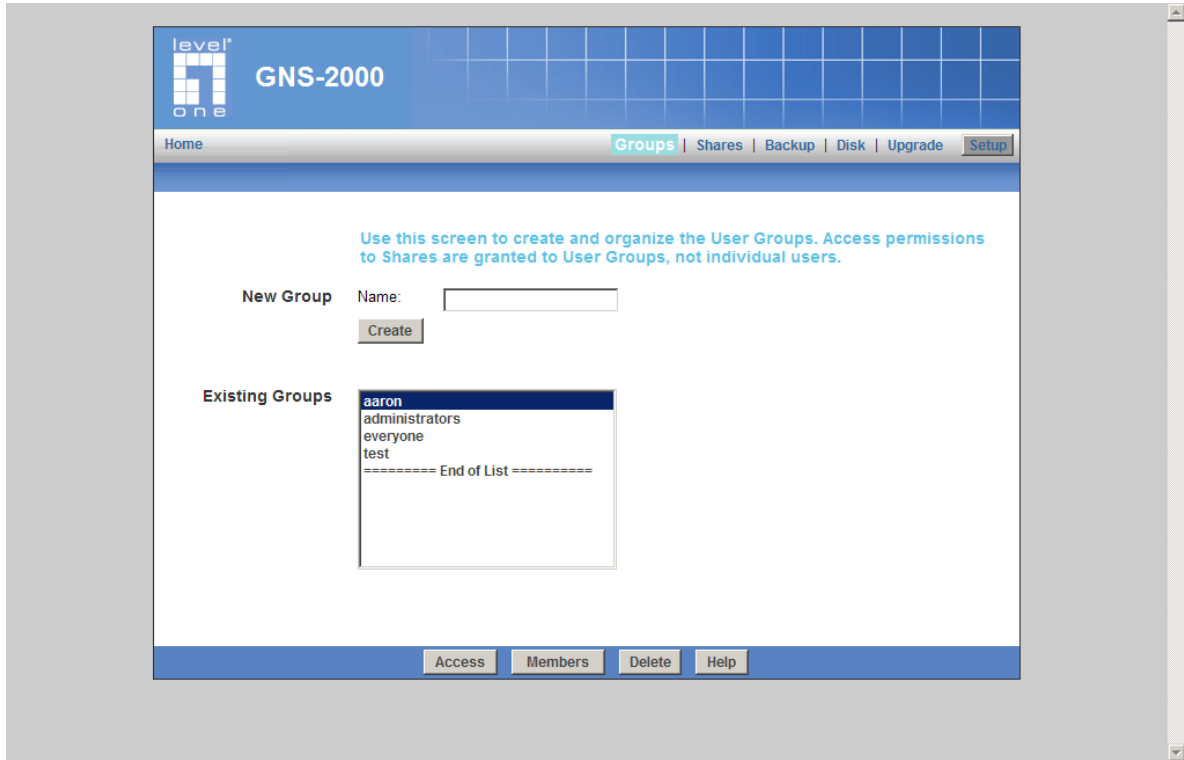
Groups Screen

Data

New Group	Use this area to create a new group.
Existing Groups	This shows the list of all Groups. Two groups - "everyone" and "administrators" - always exist. These groups cannot be deleted.

Buttons

Create	Use this Button to create a new Group. Enter the desired name for the new Group in the "Name" field, then click this button.
Access	Clicking this will display the shares which members of the current Group are able to access. You can then assign, remove or modify access rights for this Group. **Note:** The "administrators" Group ALWAYS has Read/Write access to ALL Shares.
Members	Clicking this will display the users who are members of the selected Group. You can then add or delete members. **Note:** The "everyone" Group ALWAYS contains all users. You cannot add or

	remove members.
Delete	Click this Button to Delete the selected Group. **Note:** The "administrators" and "everyone" Groups can not be deleted.

Access Rights Screen

This screen allows you to view and modify the Groups which can access this Share.

Note: The administrators group ALWAYS has Read/Write (R/W) access to ALL shares.

Groups Access Rights Screen

Data

Group Name	The name of the Group being modified is shown above the 2 lists of shares.
Accessible Shares	The "Accessible Shares" column on the left shows which Shares this Group can currently access. The type of access is shown in brackets. (R = Read Only, R/W = Read-Write). **Note:** The "administrators" Group has R/W access to ALL shares.
Other Shares	The "Other Shares" column on the right shows all other Shares. The current Group has no access to these Shares.

Operation

To Add Access Rights:	Select the Share or Share in the right-hand column, then click the "<< Read Access" to provide Read-Only access, or the "<< R/W Access" Button to provide Read-Write access. Multiple Shares can be selected by holding down the CTRL Key while selecting.

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To Remove Access Rights:	Select the Share or Shares in the left-hand column, then click the "No Access >>" Button. Multiple Shares can be selected by holding down the CTRL Key while selecting.
When finished, click the "Close" Button.	

Group Members

This screen allows you to check which users are members of the group, and to add or revoke membership of this group.

Note: The "everyone" Group ALWAYS contains all users. You cannot add or remove members.

Group Members Screen

Data

Group Name	The name of the Group being modified is shown at the top of the screen.
Members (users)	The "Members" column on the left shows the users who are currently members of this Group.
Other Users	The "Other Users" column on the right shows users who are not currently members of this Group.

Operation

To Add a Member:	Select the User or Users in the right-hand column, then click the "<<" Button. Multiple Users can be selected by holding down the CTRL Key while selecting.
To Delete a Member:	Select the User or Users in the left-hand column, then click the ">>" Button. Multiple Users can be selected by holding down the CTRL Key

	while selecting.
When finished, click the "Close" Button.	

Shares Screen

This screen allows you to manage the Shares that exist on the NAS Server. A "Share" is a folder (directory) on the NAS Server that a User Group can access.

- Only the NAS Server Administrators can create Shares. However, within a Share, users who have access to that Share can create other folders (directories) as well as files.

- A Share can be accessed by many User Groups, and a User Group can access many Shares.

- If a folder within a Share is also a Share, then all users with access to the outer share will ALWAYS have the same access to the inner share.
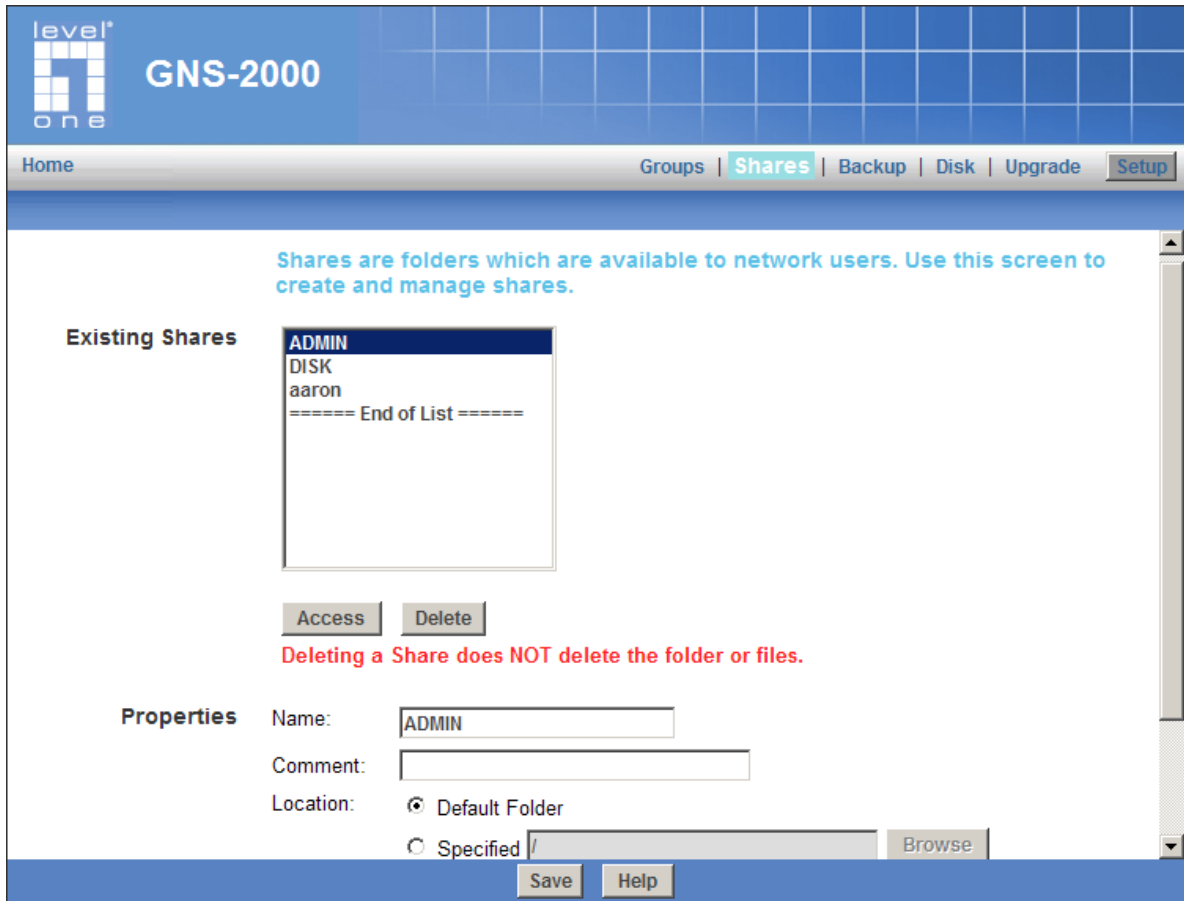
Shares Screen

Existing Shares

Share List	All existing shares are listed. When an existing Share is selected in the list of Shares, its details are displayed in the "Share Properties" area.
Access Button	Click this Button to view the Groups that have access to the selected Share, and change these access rights as required.

Delete Button	Click this Button to Delete the selected Share. Deleting a Share does NOT delete its folder or any data. The folder and its data are still accessible by the "administrators" group.

Properties

Name	The current name will be displayed. The Share Name can be changed if you wish. This does not change the name of the folder (directory) associated with the Share. Note that punctuation and other special characters (e.g. " / \ [ ] : ; | = , + * ? < > ' ` $ % @ #) cannot be used in the name.
Comment (Optional)	Change or enter a comment if you wish. Note that special characters (e.g. " \ : , | ') cannot be used in it.
Location	The Location associated with the Share. Note that once a Share is created, its location can not be changed. Option regarding location: • If "Default Folder" is selected, the share is created in the root folder (directory). • If "Specify" is selected, you can specify the folder (directory) where you want the share. If the folder does not exist, it will be created. Note that special characters (e.g. " : ; | = , + * ? < > ' `) cannot be used in it.

Operations

Access	Click this button to view the Groups, which have access to the selected Share, and change these access rights as required.
Delete	Click this Button to delete the selected Share.
Save as New Share	After entering the required data in the "Share Properties" area, use this Button to create a new Share.
Clear Form	Clear the form, preparing it for the creation of a new Share.
Save	Use this Button change the properties of a Share, as follows: 1. Select the desired Share in the Share list. Its details will be displayed in the "Share Properties" area. 2. Change the Share properties as required. Note that you can NOT change the location. 3. Click the "Save" button to save your changes.

Share Access

This screen allows you to view and modify the Groups, which can access this share.

Note: The *administrators* group ALWAYS has R/W access to ALL shares

Share Access Rights

Data

Share Name	The name of the Share being modified is shown above the 2 lists of Groups.
Groups with Access	The "Groups with Access" column on the left shows, which group, can currently access this Share. The type of access is shown in brackets. (R = Read Only, R/W = Read-Write). **Note:** The "administrators" Group has R/W access to ALL shares.
Other Groups	The "Other Groups" column on the right shows all other Groups on the current Disk Drive. The current Share cannot be accessed by these Groups.

Operation

To Add Access Rights	Select the Group or Groups in the right-hand column, then click the "<< Read Access" to provide Read-Only access, or the "<< R/W Access" Button to provide Read-Write access. Multiple Groups can be selected by holding

	down the CTRL Key while selecting.
To Remove Access Rights	Select the Group or Groups in the left-hand column, then click the "No Access >>" Button. Multiple Groups can be selected by holding down the CTRL Key while selecting.

When finished, click the "Close" Button.

Backup Screen

There are 3 types of backup:

- Configuration Backup - This facility allows you to Backup (Download) and Restore (Upload) the NAS Server's configuration file. The configuration file contains all network information, as well as the User, Group, and Share information. It does NOT include any information about the files stored on GNS-2000

NOTE: Using this feature will overwrite (destroy) any existing configuration information.

- USB Backup - Backed up data from specified USB disk into specified folder in Internal Disk by pushing the USB Eject buttons.

NOTE: Push the Eject buttons and then release after GNS-2000 beeps twice. GNS-2000 will beep three times if backup succeeds, and beep once if backup fails.

- Data Backup - Data files can be backed up from GNS-2000 to another network device, or from another network device to the NAS.
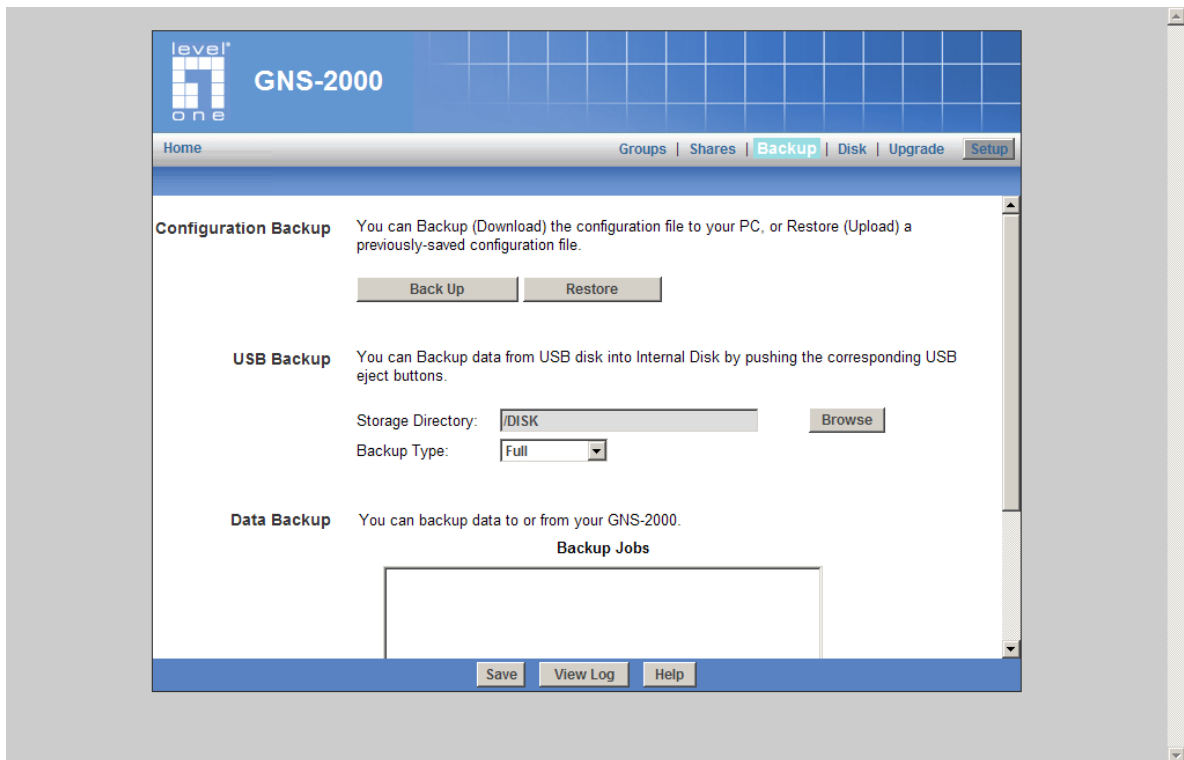
Backup Screen

Configuration Backup

Back Up Button	Click this to download the configuration file and save it on your PC.
Restore Button	Use this to restore a previously-saved configuration file from your PC to GNS-2000

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USB Backup

Storage Directory	Specify the folder which data in USB disks will be backed up. Click 'Browse' button to select the desired folder.
Backup Type	Select the desired backup type: • Full - One new folder will be created in the specific folder of the USB disk in the Storage folder, and then all files will be backed up into the new folder. But if no file changes from last backup, files will not be backed up. Specific folder of the USB disk is created according to its model name and the new folder's format is "YYYYMMHHmm". • Incremental - Only changed files will be backed up and files are always backed up into the specific folder of the USB disk in the Storage folder. Specific folder of the USB disk is created according to its model name.

Data Backup

Backup Jobs	This lists any Backup jobs you have defined. If you have not defined any jobs, the list will be empty. For each job which has been defined, the following data is shown: • Name - the name you assigned to this backup job. • Source & Destination - The name of the source and destination devices are shown in the form Source => Destination. • Date/Time - The date and time of the last backup are shown.
Backup Now	Run the selected backup job immediately.
Stop	Click this button to stop the selected backup job.
Status	This button will open a sub-window that shows the status of all Backup jobs.
Add New Job	This button will open a sub-window where you can define a new backup job.
Modify	This button will open a sub-window where you can change the settings of the selected backup job.
Delete	Delete the selected backup job.
View Log	View the log of completed backup jobs in a sub-window.

Add Backup Job

From this screen, you can add new backup jobs, which be displayed on the Backup screen.

Add Backup Job Screen

Data

Name	Enter a suitable name for this job.
Backup Type	Select the desired backup type. • Full - all files will be backed up. • Incremental - only changed files will be backed up. • Synchronize - all files are backed up, then any files on the destination which do not exist on the source are deleted.
Direction	Select the desired option: • From this NAS to another device. • From another device to this NAS
Local Location	Select the desired folder in this NAS. Click 'Browse' button to select the desired folder. • If backing up from this NAS, select the folder you wish to backup. • If backing up from another device to this NAS, select the folder where you want the backed-up data to be stored.

Remote Location	Enter the details of the remote device.
	• Server Name - enter the name of the other device, as seen on the network.
	• Shared Folder - Enter the name of the shared folder. Depending on the direction of the backup, this is either the share to be backed up, or the destination for the backed-up data.
	• The Server Requires Authentication - If the share is password-protected, enable this checkbox and enter the **User Name** and **Password** required to gain access to the share.
Schedule	Select the desired option from the list:
	• Never - This will disable this backup job.
	• Every Day - Select this to have the backup job performed each day, at the specified time.
	• Every Monday, Every Tuesday, ... Select this to have the backup performed once per week, on the specified day.
	Use the time fields (hour, minute, am/pm) to specify when the backup job should be performed.

Buttons

Browse	Click it to select one folder in GNS-2000.
Save	Click it to apply modifications in this window.
Close	Close the window.

Disk Screen

This screen allows you to maintain the disks in GNS-2000

Disk Mode - Disk mode select: Separate Disk, JBOD/LVM, Raid 0 and Raid 1. **Any data on the disk will be lost it if change disk mode.**

- **Format Disk** - use this after installing a new disk. The disk will be partitioned and quick-formatted. **Any data on the disk will be lost!**

- **Scandisk** - running the Scandisk (Disk Check) program will check the file system, and correct any errors found. This program should be run regularly. The Scandisk program will also run automatically if an error condition is detected, such as an abnormal shutdown due to loss of power.

- **S.M.A.R.T.** - S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) can warn of impending problems with the Hard Disk, before it actually fails. This test should be performed regularly.

Disk Screen

Data

Disk Mode	This indicates the current working mode of Internal Disks. It can be one following modes: • Separate Disks Disk 1 and Disk 2 work separately (Recommended). • JBOD/LVM Disk 1 and Disk 2 are bound into one logical volume. Total capacity is equal to the capacity of the existing drive(s). To work in this configuration, at least one drive must exist. If this configuration is selected with only one drive installed, the second drive will be configured to extend the capacity of the logical volume when it is installed. • Mirroring (Raid 1) Disk 1 is mirrored into Disk 2. Total capacity is equal to the capacity of smaller drive. To select this mode, both drives must exist. • Striping (Raid 0) Disk 1 and Disk 2 are striped into one logical volume. Total capacity is equal to two times the smaller capacity of the two drives. To select this mode, both drives must exist.
Format	This includes status of Internal Disk and USB Disks. Internal Disk: • No Installed - No disk is inserted, or connection or disk has failed. • Not Formatted - Disk has been detected, but it is not ready for use. Use the "Format" button to prepare the disk for use. • Formatting - This message will only be displayed after you have clicked the "Format" button. (See below for details of this button.) • Formatted - Disk is ready for use. USB Disks: • No Installed - No disk is inserted into this USB port. • Not Formatted - This USB disk hasn't been formatted into FAT or NTFS file system. You can click "Format" button to format it. • Formatted - Disk is ready for use.
Scandisk	This can have any of the following values: • N/A - No disk is available. • No Scanned - No Scandisk has been performed recently on this drive. • Scanning - Scandisk operation is in progress. The disk cannot be used while a Scandisk is in progress. If required, use the "Stop" button to terminate the Scandisk operation and gain access to data on the disk. (To see the results of the Scandisk operation, use the "View Disk Log" button.) • Completed - The last Scandisk operation has been completed. You

	can use the "View Disk Log" button to view the results. • Terminated - The last Scandisk operation was cancelled by the Administrator before it was completed. Schedule Use these fields to set up a schedule to run Scandisk regularly, if desired. The available options are: • Never - Scandisk will not be scheduled to run. • Every Day - select this to have scandisk run each day, at the specified time. • Every Monday, Every Tuesday, ... - Select this to have the scandisk run once per week, on the specified day. Use the time fields (hour, minute, am/pm) to specify when the scandisk operation should be performed.
S.M.A.R.T.	This can have any of the following values: • Not Installed - No disk is available. • Not Checked - No S.M.A.R.T. check has been performed on this drive since system boots up. • OK - No errors were found in the last test. • Going to fail - The S.M.A.R.T. check found errors on the drive and the disk is going to fail. Schedule Use these fields to set up a schedule to run S.M.A.R.T. check regularly, if desired. The available options are: • Never - S.M.A.R.T. check will not be scheduled to run. • Every Day - Select this to have S.M.A.R.T. check to run each day, at the specified time. • Every Monday, Every Tuesday, ... - Select this to have the scandisk run once per week, on the specified day. Use the time fields (hour, minute, am/pm) to specify when the S.M.A.R.T. check should be performed.
Standby	Use the "Set Hard Disk to standby mode…" setting to determine if and when the hard disk drives should be switched to "Standby" mode. Use the "Turn off the fan…" setting to determine if and when the fan should be turned off.

Buttons

Change	Click this button to enter the screen of changing Disk Mode.
Format	Use this button to format the disk. This will partition and quick-format the new disk. **WARNING!** This will destroy any data on the disk. Once started, this process can NOT be halted or reversed.
Scandisk	• Start - Click the button to start the Scandisk. The Scandisk could take

	long time, and the disk is unavailable to users while the Scandisk is in progress. • Stop - If a Scandisk is in progress, click this button to terminate the Scandisk immediately.
S.M.A.R.T.	• Check - Click this button to run the S.M.A.R.T. check immediately.
Save	Click it to save the modifications in this window.
Cancel	Restore the settings on the screen to their values after the last "Save" operation. Clicking "Cancel" has NO EFFECT on any operations in progress.
View Log	View the log messages of disk maintenance.

Upgrade Screen

The Upgrade facility allows you to upgrade the software of GNS-2000. You need to obtain the upgrade file from your dealer or supplier.

Note that GNS-2000 is unavailable during the upgrade process, and all connections will be lost, including this one.

GNS-2000 will reboot once the upgrade installation is completed. The procedure may take from 5 to 10 minutes.
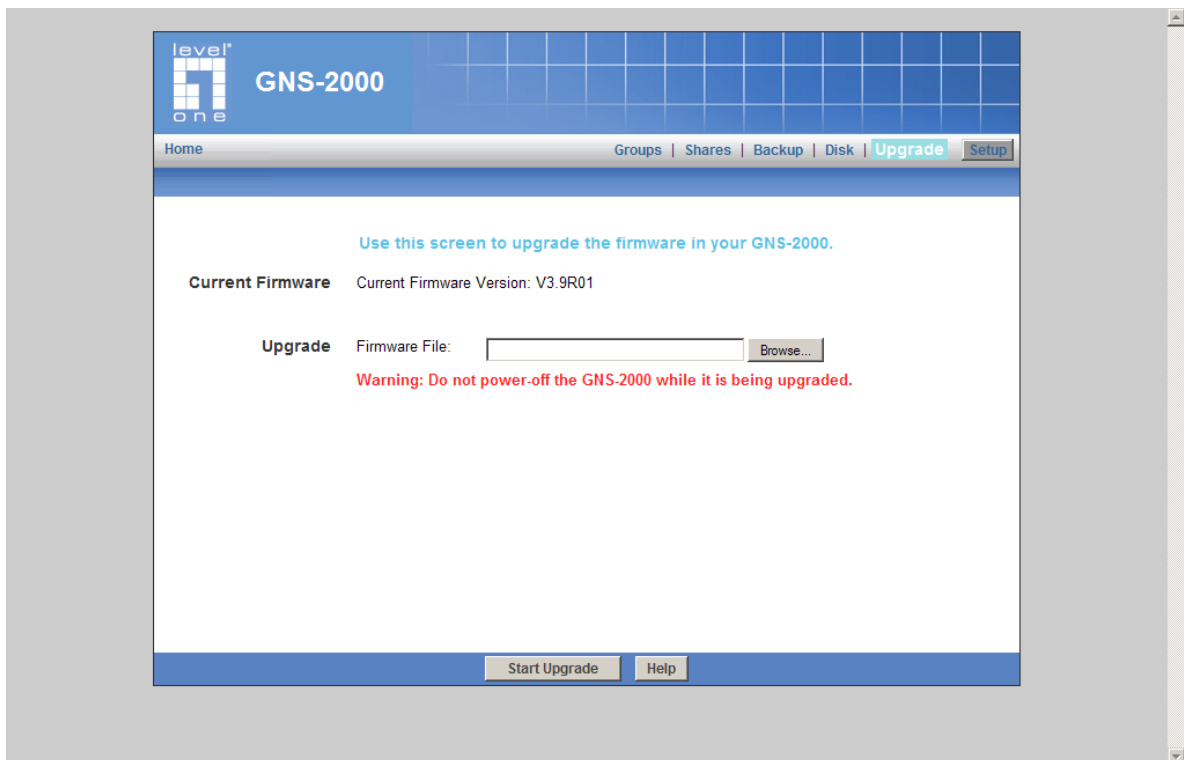
Upgrade Screen

Data

Current Firmware Version	This displays the version number of the NAS Server's current firmware.
Firmware File	Click the "Browse" button to browse the folders on your PC and select the Firmware file (e.g. C:\downloads\NAS SERVER_V36R01.bin). **Note:** Implementation of this feature is Browser-dependent.

Buttons

Start Upgrade Button	Click this button to start upgrading the firmware.

Download Manager

Overview

Download manager allow you to download file via FTP, HTTP or BT without PC. Just set on GNS-2000 and will base on your setting to download file automatically.

The Web-base Download Management Interface

To access the Download Manager interface, click the "*Download Manager*" link on the home page. You will then be prompted for a password, as shown below.
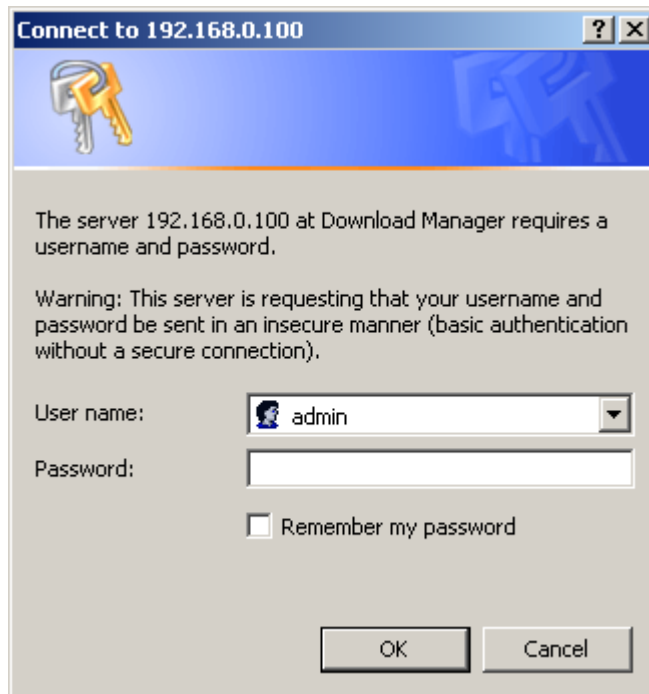
Password Dialog

Enter "admin" for the name, and leave the password blank or user ID and password which registered on GNS-2000

Download Management Screen

This screen allows you to manage your download tasks.

Download Management Screen

Data

Manager Status	Status of the Download Manager, it can be 'Enabled' or 'Disabled'.
Owner	Name of the user that logins the Download Manager.
File Name	Name of the saved file in the NAS for the task.
File Size	Total size of the downloaded file for the task.
Speed	Download speed of the task.
Percent	Completed percentage of the downloaded file from the URL.
Status	Download status of the URL, it can be "Waiting", "Connecting", "Failed", "Stopped", "Transferring" or "Done".
Admin	Select the operation on the task.

Action

Task Details	View the detailed information of the task.
Run Task	Start to run the selected task.

Stop Task	Stop the selected task.
Delete Task	Delete selected tasks.
Move Up	Increase the priority of the task.
Move Down	Decrease the priority of the task.
Logout	Leave the screen of Download Manager.
Add New Task	Open the window to add new task.
Refresh	Refresh the status of tasks.
Help	Click it to view on-line help.

Add New Task Screen

This screen allows you define download task of Download Manager.

Add New Task Screen

Source

Type	Specify type of the file to be downloaded. It can be HTTP/FTP or BT (Bit Torrent).
URL (HTTP/FTP)	Specify the URL if type is HTTP/FTP.
Torrent File	Specify the torrent file with which you need download files. You can upload it from local pc or provide one HTTP/FTP URL for it.

Authentication

Authentication Required (Optional)	If authentication is needed to access the URL, need enable it and input the account and password.

Account	Account name that is used to access the URL if necessary.
Password	Password that is used to access the URL if necessary.

Destination

Share Folder	Select name of the share where downloaded file will be saved.
Subdirectory	Select the subdirectory under the selected share where downloaded file will be saved.

Action

Save	Save the new task.
Cancel	Cancel the modifications on the web page.
Close	Close the window.

Photo Album

Overview

GNS-2000 allows you to share photos with select users on the Internet. **You must enable this feature in the *Media* screen**, then you will be able to share photos located in your pictures folder.

The Web-base Photo Album Interface

To access the Photo Album interface, click the "*Photo Album*" link on the home page. You will then be prompted for a password, as shown below.

Password Dialog

Enter "admin" for the name, and leave the password blank. or user ID and password which registered on GNS-2000.

Photo Album Screen

This screen allows you to manage your photos.
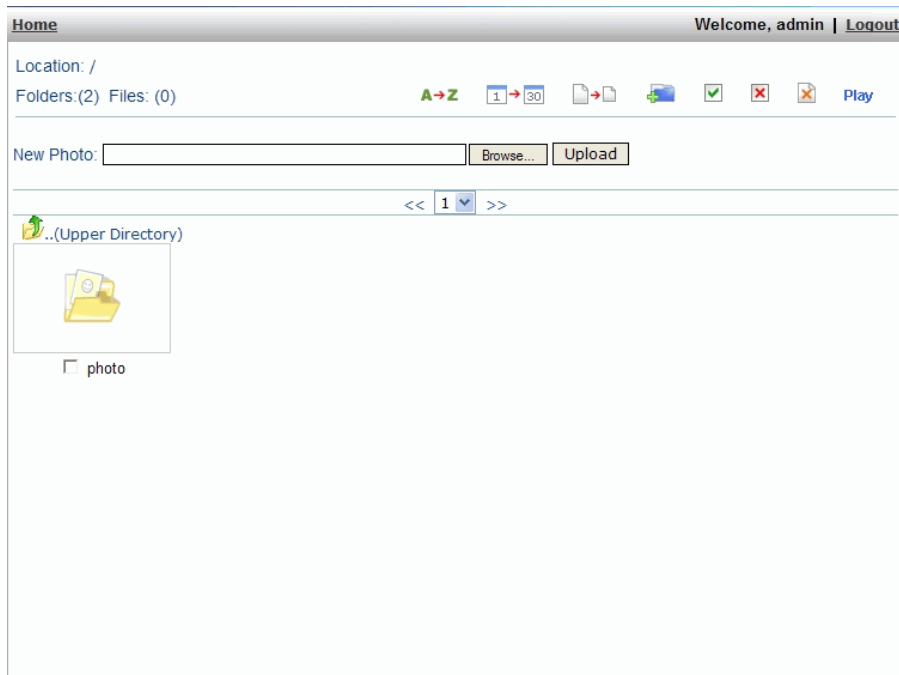
Photo Album Screen

Data

Folders	The number of the folders currently exists.
Files	The number of the files currently exists.
Sort by Name	Click this button to sort the files by name (A~Z).
Sort by Date	Click this button to sort the files by date.
Sort by Size	Click this button to sort the files by the photo's size.
New Folder	Add a new folder in the current location.
Select All	Select all the files by clicking this button.
Unselect All	Unselect all the files by clicking this button.
Delete	Select the image and click this button to delete.
Play	Click this button to continue playing the images in the folder.
New Photo	Use the "Browse…" button to find the photo image you want to add, then click the "Upload" button.
Page	Use these buttons to change pages.

NAS via the Internet

Overview

If your LAN is connected to the Internet, typically by a Broadband Gateway/Router and Broadband modem, you can make GNS-2000 available via the Internet. Features available to Internet users include:

- Using a Web browser to view and download files.
- Remote management

Making the NAS available via the Internet

If your LAN is connected to the Internet via a Router or Gateway, you can make GNS-2000 available from the Internet.

No changes to the NAS configuration are required, unless you wish to use a port number other than the default value of 80 for Web connections.

Your Router or Gateway must be configured to pass incoming HTTP connections (and optionally, IPP connections) to the NAS. This feature is normally called *Port Forwarding* or *Virtual Servers*, and is illustrated below.
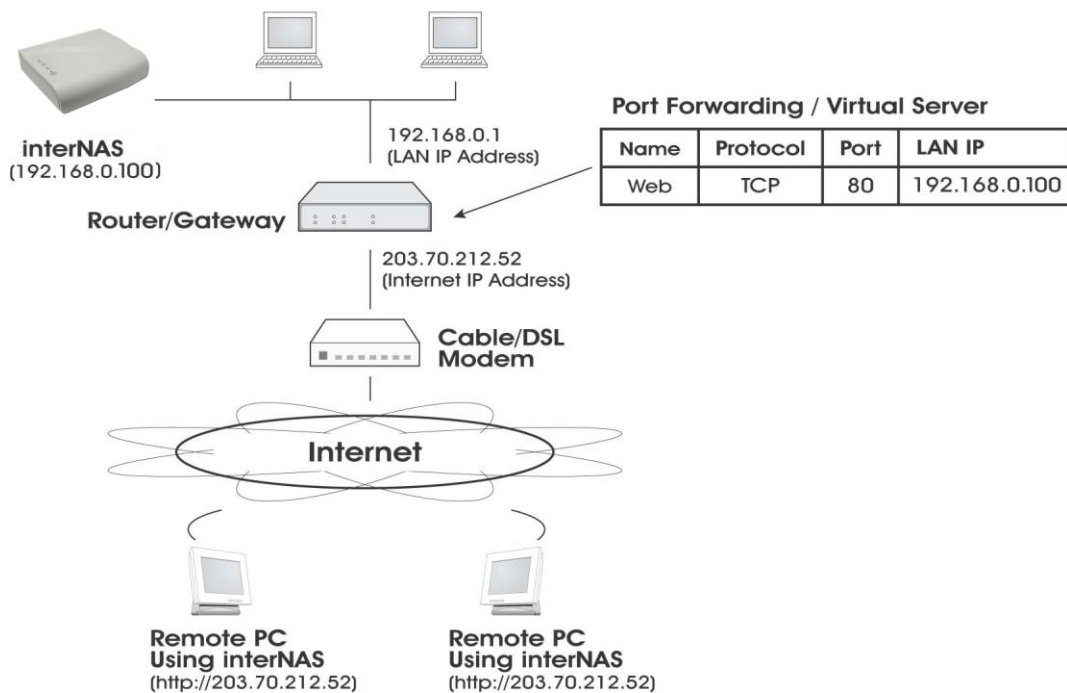
Connecting via the Internet

- The default port number for Web browser connections is 80. If you prefer to use a different port number, you can specify the port number on the NAS *System* screen. The "Web" entry for */Port Forwarding / Virtual Server* must then use the port number specified on the NAS *System* screen.

- To connect to the NAS, Internet users need to know and use the Internet IP address of your Router/Gateway. (If the port number is not 80, they also need to know the port number.)

- If you have a domain name, users can connect using the domain name instead of the IP address. If your Router/Gateway supports *Dynamic DNS*, you can use a domain name even if you get a different IP address every time you connect to your ISP. Check the documentation of your Router/Gateway for further information.

Using your Web Browser from the Internet

This is identical to using your Web browser from the LAN. See "*Using the Web File Sharing*" for details.

But remember:

- You must use the **Internet** IP address to connect to the NAS, NOT the LAN IP address.

- If the port number used by the NAS has been changed from the default (80), you must specify the correct port number when you connect.

  For example, if the port is 8080, and the Internet IP address is 203.70.212.52, enter the following as your browser's *Address* or *Location*:

      HTTP://203.70.212.52:8080

Printing via IPP (Internet Printing Protocol)

To print to GNS-2000 via the Internet, the port used for IPP (TCP port 631) must be asso-
ciated with GNS-2000. See *Making* the *NAS available via the* Internet earlier in this chapter
for details.

The NAS is an IPP **Server**. To use IPP, your PC must be an IPP **client**. Windows 2000
and XP have built-in support for IPP, so there is no need to use the provided IPP client
program.

IPP Setup - Windows 2000/XP

1. Start the *Add Printer* wizard.

2. Select *Network Printer*, and click "Next" to see the *Locate your Printer* screen, as
   shown below.
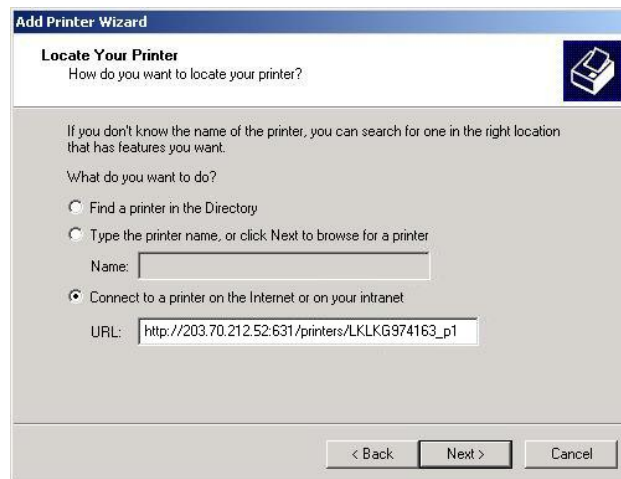
Windows 2000 - Locate your Printer

3. Select *Connect to a printer on the Internet or on your Intranet*, and enter the URL of
   GNS-2000 as follows.

   http://**ip_address**:631/printers/**printer_name**

   Where:

   - **ip_address**   represents the IP Address used to access the NAS. (As explained
     earlier, this may be the Internet address of a Gateway, rather than the NAS itself.)

   - **printer_name**   is the name of the printer, as set on the NAS *System* screen.

   - The other text is fixed, and can NOT be changed. It must be entered exactly as
     shown, including the same case. (The path is case sensitive.)

   Example:

http://203.70.212.52:631/printers/LKLKG974163_p1

4. Click "Next"

   If the connection can be established, and the printer on that port is on-line, the following dialog will be displayed.
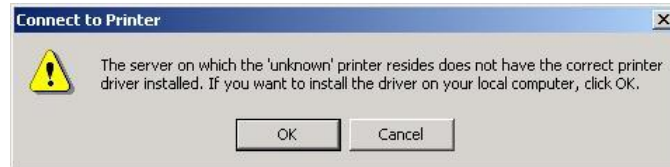
Windows 2000: No printer driver

5. Click "OK", and then select the printer manufacturer and model to match the printer connected to the port on the IPP Server.

6. Click "Next", and complete the Wizard.

   The IPP printer is now ready for use.

IPP Client Setup (Windows 9x, ME)

You need to install the supplied IPP client program, as follows:

1. Insert the NAS CD-ROM in your drive. If the program does not start automatically, run the NAS_Setup.exe program in the top-level folder.

2. On the first screen, click the icon for *IPP Client*.

3. Follow the prompts to complete the installation.

IPP Client Configuration

1. Click the "Add IPP Port" icon. (In future, you can use the program entry created in the *Start Menu*)

2. A screen like the following will be displayed.
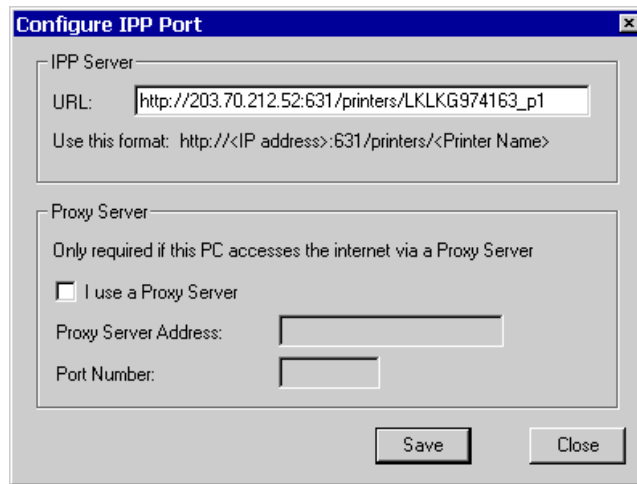
IPP Port

3. Configure this screen as follows:

| IPP Server	Enter the Internet IP address used to connect to GNS-2000, as follows. http://**ip_address**:631/printers/**printer_name** Where: • **ip_address** represents the IP Address used to access the NAS. (As explained earlier, this may be the Internet address of a Gateway, rather than the NAS itself.) • **printer_name** is the name of the printer, as set on the NAS *System* screen. • The other text is fixed, and can NOT be changed. It must be entered exactly as shown. **Example:** http://203.70.212.52:631/printers/LKLKG974163_p1
Proxy Server	If Internet access from your PC is via a Proxy Server, check *Access IPP Server via Proxy Server*, and enter details of your Proxy Server. (These will be the same as your Browser configuration, so check your Browser settings.)

4. Click *Save* to create the IPP port on your system. You will see the following dialog:
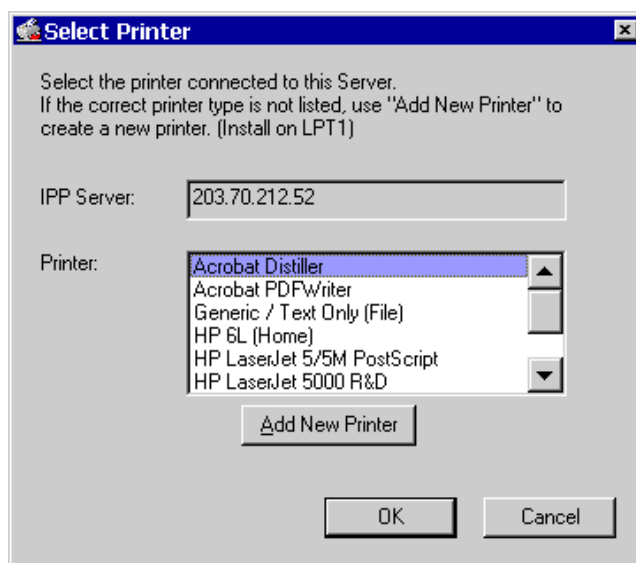
Select Printer for IPP Port

5. Either selects an existing printer to use the new port, and click OK.

    OR

    a) Click the "Add New Printer" button to start the *Add Printer* wizard.

    b) Complete the Wizard, installing the desired printer as a local printer on your PC.

    c) When returned to this screen, select the new printer and click OK.

6. The selected printer is now associated with the remote NAS, and installation is complete.

Changing the IPP Port Settings

After the IPP port is created, you can reach the **IPP Port** screen via the Windows *Port Settings* button:

1. Open the Printers folder (Start - Settings - Printers)

2. Right-click the IPP Printer, and select *Properties*.

3. Locate and click the *Port Settings* button (on the *Details* or *Port* tab, depending on your version of Windows).

Using the IPP Printer

The IPP Printer can be selected and used like any other Windows printer, but your Internet connection needs to be active.

An NAS may be unavailable for IPP printing for any of the following reasons:

*   It is powered off.
*   The IP Address of the Router/Gateway for the remote LAN has changed.

- The Internet connection used by the IPP Server is down.

- Network congestion causes the connection attempt to time out.

Remote Management

Connection via your Web browser from the Internet is the same as connecting via the LAN.

Remember:

- You must use the **Internet** IP address to connect to the NAS, NOT the LAN IP address.

- If the port number used by the NAS has been changed from the default (80), you must specify the correct port number when you connect.

  For example, if the port is 8080, and the Internet IP address is 203.70.212.52, enter the following as your browser's *Address* or *Location*:

      HTTP://203.70.212.52:8080

Once connected to the NAS via the Internet, all the Web-based management features are available.

However, the "Browse" button on the ***Shares*** screen only allows Web-based file browsing. (If using Internet Explorer on Windows, LAN users can browse shares using Windows Explorer.)

Troubleshooting

This chapter lists some common problems, and the solution to them.

Problem 1:   **The NAS Utility doesn't list any NAS Servers.**

Solution 1:   Check the following:

- The NAS is installed, LAN connections are OK, and it is powered ON and startup is complete.
- Ensure that your PC and the NAS are on the same network segment. (If you don't have a router, this must be the case.)
- Ensure that your PC has the TCP/IP network protocol loaded. In Windows, this is done by using *Control Panel-Network*. If an entry for TCP/IP -> Network card is not listed, use *Add - Protocol - Microsoft - TCP/IP* to add it. You then need to select the new entry (TCP/IP -> Network card), click *Properties*, and configure the *IP Address* tab.

    - If your LAN has a DHCP Server, you can select "Obtain an IP Address automatically".

    - Otherwise, you must select "Specify an IP Address", and enter values for *IP Address* and *Subnet Mask*. The *IP Address* range commonly used is 192.168.0.1 to 192.168.0.254, with a *Subnet Mask* of 255.255.255.0. (The NAS Server's default IP Address is 192.168.0.2, with a Subnet Mask of 255.255.255.0). Remember that each device needs a **unique** IP Address, and the **same** Subnet Mask.

Problem 2:   **The NAS is configured, but I can't find it in *Network Neighborhood*.**

Solution 2   Try using *Start - Find - Computer*, and enter the NAS Server's name. If this does not work, use **Control Panel - Network** to check the following:

- TCP/IP protocol is installed. If not, use *Add - Protocol - Microsoft - TCP/IP* to install it.
- Check the network Bindings:
    - Ensure the TCP/IP protocol is bound to your Network card (NIC). Select your Network card, click *Properties*, and then the *Bindings* tab. If TCP/IP is not bound (checked), check it.

    - Ensure the **TCP/IP -> Network card** entry is bound to the *Client for Microsoft Networks* service. Select the *TCP/IP* entry for your Network Card, click *Properties*, and then the *Bindings* tab. If *Client for Microsoft Networks* is not bound (checked), check it.

- If you don't have a router, check that your IP Address is compatible with the NAS Server's. This means it needs to be from the same address range (e.g. 192.168.0.1 to 192.168.0.254) and using the same *Subnet Mask* (e.g. 255.255.255.0)
- If you DO have a router, check that your *Gateway IP Address* is set correctly. Ask your LAN administrator for the correct value.

Problem 3   When I click on an NAS folder icon in *Network Neighborhood*, I get prompted for a password.

Solution 3   This can happen in the following situations:

- The Logon name you used on your PC is recognized by the NAS, but the password is not. Simply enter your NAS password, or make your Windows password the same as the NAS password.

- The logon name you used on your PC is NOT recognized by the NAS, and was converted to *guest*, with *guest* access rights. Ask the NAS Administrator to create a *user name* for you. (Use the same name as on your PC.)

- You do NOT have access permission for this share.
  Ask the NAS Administrator to grant you access.

Note: Windows uses the *Computer name*, as shown on *Control Panel - Network - Identification*, as the default *Logon Name*. But you can create a new Windows logon name by merely entering a new name and password at the Logon prompt.

FCC Statement

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the distance between the equipment and the receiver.

• Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

• *Consult the dealer or an experienced radio/TV technician for help.*

Appendix A - Licenses

Overview

Many software components are covered by the GNU GPL (General Public License). Some are covered by the BSD License.

- The following table provides details of the various components.
- The text of both Licenses is below.

Package Name	*License*
bash	GPL
bftpd	GPL
BusyBox	GPL
CUPS	GPL
e2fsprogs	GPL
gawk	GPL
gdbm	GPL
glibc	LGPL
hdparm	BSD
Kernel	GPL
libtermcap	LGPL
Lilo	BSD
LPRng	GPL
mod-utils	GPL
net-tools	GPL
openssl	BSD
pam	BSD or GPL
quota	BSD
Samba server	GPL
sh-util	GPL
smtpclient	GPL
sysVinit	GPL
telnet-server	BSD
textutils	GPL
thttpd	BSD
Tinylogin	GPL

Ucsc-smartsuite	GPL
udhcp	GPL
upnpsdk	BSD
util-linux	GPL
vixie-cron	Distributable
XFS patch	GPL
xfsdump	GPL
xfsprogs	GPL
xinetd	Distributable

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