



N4B1 Owner's Manual

Network Attached Storage

with built-in Blu-ray Rewriter



Safety warning



Note	
1	Do not place any objects within 15cm of the unit. The unit reaches high temperatures creating the risk of burn injuries.
2	Only use compatible devices with the system ports, or the system and devices risk being damaged.
3	Do not use damaged disks. Product can be damage.
4	Do not dismantle or change the structure of the system in any way. This may cause electric shock.
5	When dealing with system components, strictly abide by the instruction manual. Physical contact with the soldering on the backside of components may cause severe injury.
6	When transporting the system, first turn off the system and disconnect the unit from the power source. Sudden tension in cables can cause severe damage to the system. Loose cables can cause injury.
7	Take caution when handling the system so as not to corrupt the hard disk data. <ul style="list-style-type: none"> - Take caution not to bump or expose the system to extreme temperatures, as it may damage the sensitive hard disk. - Take caution when turning on the electricity, as during this time any external bumps to the system may corrupt the hard disk data. - The manufacturer disclaims all responsibility for loss of hard disk data.

8	<p>Related to damage to the HDD and data:</p> <ul style="list-style-type: none"> - During installation or disconnection of the system, ensure that the system does not experience any external physical shocks. - During the operation of the HDD, short surges and stoppages of power, which cause the system to turn off and on quickly - There may be a sudden stoppage of electricity during operation - Avoid moving the system during operation of the HDD, which may cause external physical shock - During the configuration of new volumes. <ul style="list-style-type: none"> i) If during use, existing volumes are deleted and new volumes are created, data will be lost. ii) Before configuration of new volumes, each user must back up data, as well as when creating new volumes, to ensure the possibility of restoration. - e.g. virus infections. <p>※ Always back up hard disk data to avoid accidental data loss.</p>
9	<p>In the event of the administrator forgetting the password, restoration is impossible. Hence safeguard the password.</p> <p>※ To create a new password, the system must be re-initialized. In this case, all data will be lost, and data recovery will be impossible, for security reasons. The manufacturer disclaims all responsibility in the event of this occurrence.</p>
10	<p>In the event of the cover being removed during operation, the user risks electric shock, injury, and damage to the system.</p>



Warning

1	Do not use damaged electrical cords. This may cause electric shock, and is a fire hazard.
2	Use a grounded cord and grounded socket to avoid electric shock and damage to components.
3	Do not handle the electrical cord with wet hands, as this may cause shock and injury.
4	When removing the plug from the socket, ensure that the plug is handled and not the cord. Otherwise this may cause damage to the plug and even fire.
5	Always check and use correct voltage to avoid electric shock, severe damage to the system, and fire.
6	Always use grounded cords and grounded sockets with correct capacity (voltage/current), to avoid the danger of damage, electric shock, and injury.
7	In the event of noise emanating from the electrical cords or sockets, to avoid fire and injury immediately disconnect, and contact the service centre.
8	Ensure that electrical cords are correctly plugged into the sockets to avoid fire.
9	Ensure that electrical cords are not damaged or do not have heavy objects placed on them. Keep electrical cords away from children and pets. Damaged cords may cause electrical shock or fire.
10	Keep the power cords and sockets clean at all times to avoid fire and electrical shock.
11	In the event of moisture entering the system, immediately disconnect the power and contact the service centre, to avoid the danger of system damage, electrical shock, and fire.
12	Do not block vents, as this will cause system damage.
13	Prior to cleaning the system, always disconnect the power, to avoid damage and electric shock.
14	In the event of lightning and thunderstorms, immediately physically disconnect the system from any power source, to avoid damage to the system.

15	In the event of dropping the system, contact the service centre for advice and possible service. Not doing this creates a risk of damage, fire and electric shock.
16	Keep the system away from direct sunlight to avoid overheating, and melting of the case, which may eventuate in fire and injury.
17	Do not place flammable objects, candles or cigarettes on the system, as this may cause fire.
18	In the event of a burning smell or smoke emanating from the system, immediately disconnect the power, and contact the service centre.
19	Keep heating devices and other electrical components at a distance from the system to avoid case melting, and hence the danger of damage, fire, and electric shock.
20	Before disassembling the system, always ensure the physical disconnection of the electrical cable from the socket.
21	Do not disassemble the power supply, to avoid the danger of electric shock.
22	Keep children away from the system, as consuming any parts will cause serious injury. In the event of swallowing any parts, such as screws, immediately seek medical treatment.
23	Ensure that multipoint power sockets are not overloaded to avoid the danger of fire and electric shock. Ensure that cords are always neatly arranged and are not trapped under the system or other heavy objects. When connecting and disconnecting the electrical cord, take care in handling the socket to avoid the danger of electric shock.
24	Ensure that there are no loose, or exposed metallic objects inside the case, to avoid the danger of damage, fire and electric shock.
25	Ensure that hands are never used to avoid damaging the system and electric shock. Always use screw drivers for work inside the system.

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1. Introduction

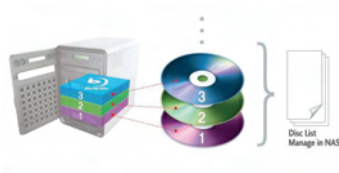
LG NAS Introduction

Thank you for purchasing the LG NAS with Built-in Blu-ray Rewriter.

1) Now the LG NAS basic data-save and share functions can be used in Windows, Mac and Linux operating systems.



2) Similarly, the internal Blu-ray rewriter can be used to efficiently save data securely for long periods.



3) Furthermore, the Blu-ray drive can be used when directly copying data from discs to LG NAS.



- 4) The LG NAS also allows for mobile synchronization, without the use of a PC, as mobile devices can be directly synchronized to the LG NAS.



This user manual contains express installation information as well as detailed options and functions.

Supported OS


LG NAS

- Windows XP, Server 2003, Vista
- Mac OS 9.x or later
- Linux (Redhat, Suse, Ubuntu)

PC S/W

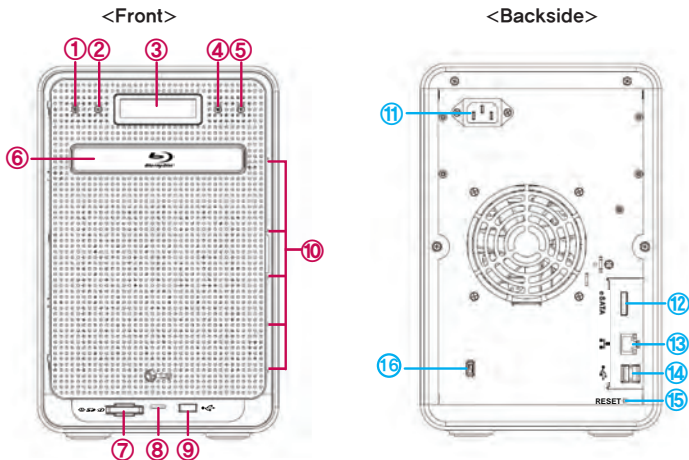
PC S/W	Back up OS
NAS Detector	Windows XP, Server 2003, Vista, Mac OS 10.x
Comnso Backup	Windows XP, Server 2003, Vista
Acrobat Reader	Windows, Mac, Linux
Flash Player	Windows, Mac, Linux

Package Contents

<ul style="list-style-type: none"> • LG NAS with built-in Blu-Ray Rewriter 	<ul style="list-style-type: none"> • 'LG NAS Installer' (LG NAS –system file installation disc)
	
<ul style="list-style-type: none"> • 'LG NAS PC Software Installer' 	<ul style="list-style-type: none"> • Product warranty
	
<ul style="list-style-type: none"> • Blank disc (BD-RE) 	<ul style="list-style-type: none"> • Quick install guide
	
<ul style="list-style-type: none"> • Power cord 	<ul style="list-style-type: none"> • LAN cable
	
<ul style="list-style-type: none"> • Hard disk fastening screw (x16) – enclosure only 	<ul style="list-style-type: none"> • Hard disk rack securing screw (x4)
	

* Photographs of images from the manual may differ depending on model components.

Name of Each Part



- ① **Power button:** : power on, off (to turn off power, hold button in for 3 seconds without release).
- ② **Disc Open button:** : opens and closes optical disc drive tray.
- ③ **LCD window:** displays current state
- ④ **Mode button:** changes mode
- ⑤ **SET button:** selects mode
- ⑥ **Blu-ray Drive**
- ⑦ **Memory card reader:** supports SD, MMC, MS and XD
- ⑦ **USB port:** USB 2.0 interface
- ⑨ **HDD/ODD state display LED:** – Blue : running correctly – Red : abnormal state
- ⑩ **Memory card Current state display LED:** – Blue : running correctly
- ⑪ **Inlet:** AC power cord connection
- ⑫ **e-SATA:** External SATA II device support
- ⑬ **LAN port:** : LAN cable connection.
- ⑭ **USB port:** USB 2.0 interface
- ⑮ **Forced shutdown switch:** Shut down system forcing switch.
- ⑯ **Kensington lock:** Antitheft lock.

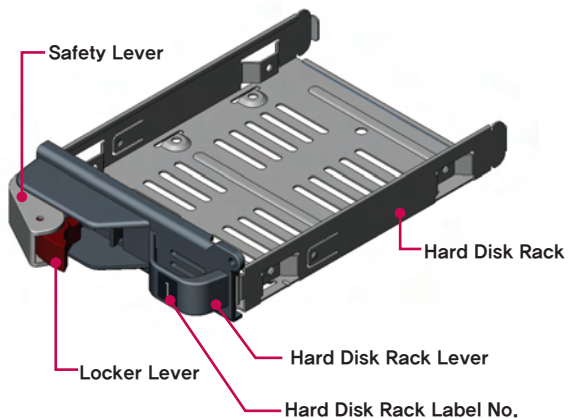
2. LG NAS Installation

Follow these instructions to install the LG NAS. If the LG NAS is internal, go to **<Hard disk installation and setup>**, otherwise go to **<LG NAS connection>**

Hard disk installation and set up

The LG NAS hard disk rack is shown below. Refer to each part while installing the HDDs.

Components of Hard Disk Rack



Note) Hard disks of size 250GB/500GB/1TB are recommended, all of which should be the same size and of the same company. If the disk sizes differ, the RAID configuration will use the smallest disk as a reference to measure all disk sizes, therefore the remainder can not be utilized and durability decreases.

2. LG NAS Installation

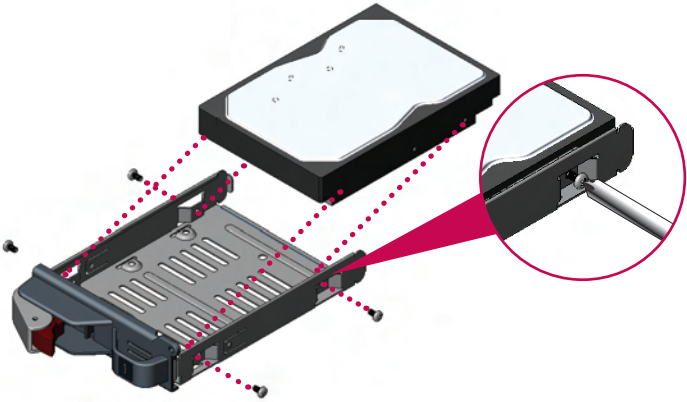
- ① First, ensure that the power is off for all components and the main system.
- ② Open the LG NAS front cover.



- ③ Unlock the hard disk rack and pull the lever to draw out the rack.

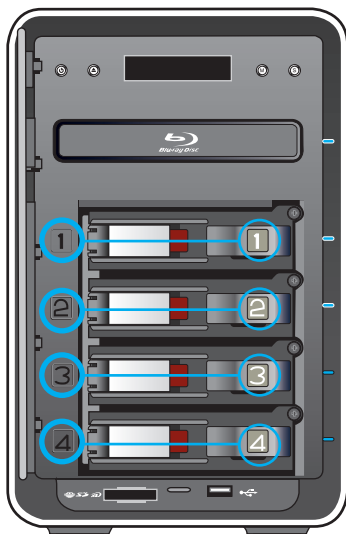


- ④ Insert the hard disk into the hard disk rack, and with a screw driver, screw the four screws into place.

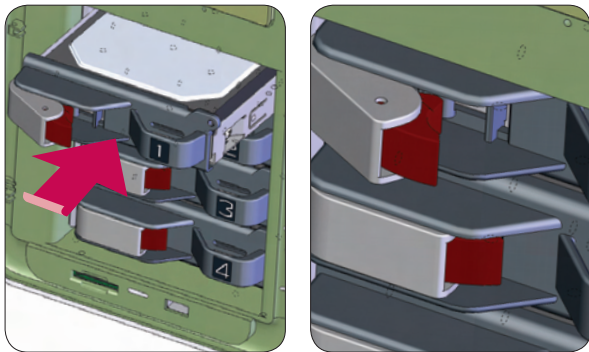


* If the Hard disk has been in use, all the data on it will be lost.

- ⑤ Match the hard disk rack label number and the NAS front panel number, to insert the hard disk rack into the slot.

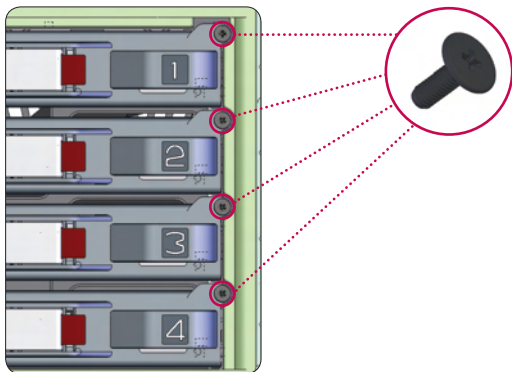


- ⑥ Keeping the locker lever out, push the hard disk rack into place, listening for the sound. When the hard disk rack is properly and completely pushed in, press the secure button to lock it.



Similarly repeat the installation procedure for all the hard disks, one by one.

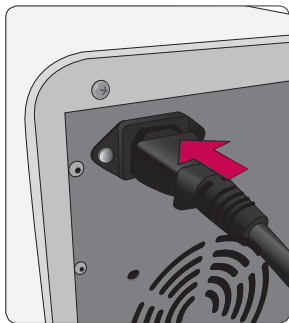
- ⑦ To prevent accidental detachment of the hard disk rack, fasten it using included bolts.



‘LG NAS Installer’ installation (LG NAS system file installation, volume and RAID configuration)

Use the included “LG NAS Installer” disc for automatic system installation and hard disk volume configuration.

- ① Plug the “power cord” into an electrical outlet.



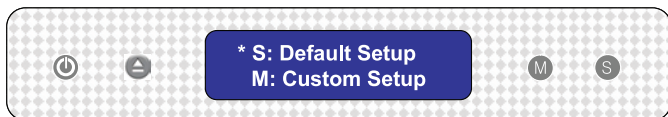
- ② While holding the ‘SET’ button, press the ‘POWER’ button to start the LG NAS.



- ③ After approximately 20 seconds the “Insert Setup Disc Please...” Message will appear and the tray will automatically open.



- ④ Insert the "LG NAS Installer" disc and push the "DISC OPEN" button to close the tray. The messages "Checking Disc Contents..." and "Boot from ODD, wait please..." indicate that the NAS is preparing to organize system files.
- ⑤ After 1 minute, the following two messages appear. Then press the 'SET' button to select 'S: Default Setup'.
'S' indicates the 'SET' button and 'M' indicates the 'MODE' button.



If manual selection of the RAID level and volume configuration are desired, press the MODE button to select 'M: Custom Setup' (User manually configures volume and RAID). The system file will be installed and LG NAS will reboot. The volume can then be configured using web menus. For detailed contents see [<Volume>](#)

The RAID disperses the data to multiple hard disks to guard from data loss due to physical damage. The default volume configuration of the LG NAS depends on the number of the installed HDDs.

The table below shows the list of the default RAID level configuration.

Default RAID Level

Hard disk numbers	1	2	3 or 4
DEFAULT RAID Level	ONLY 1 DISK (No RAID)	RAID 1 (mirroring)	RAID 5 (parity)

For detailed contents see [< Appendix A Volume and RAID Configuration >](#).

- ⑥ The following message indicates the accompanying system file setting start.



- ⑦ When all system files have been installed, the system will give a completion sound along with a message indicating LG NAS will reboot.¹⁾



- ⑧ When the system is first booted the system file will load. During reboot, the LG NAS system cannot be used.



After 40 seconds, a sound will indicate the completion of system set up.



- ⑨ The LG NAS will automatically begin configuration of the volume and RAID.²⁾

* At RAID configuration, the hard drive number and size will determine the RAID configuration time.

Total HDD Capacity	System File Installation ¹⁾		Volume and RAID configuration ²⁾
	System File Installation	Formatting HDDs	
1TB (250 GB x 4)	Approx. 10 minutes	Approx. 15 minutes	4~6 hours
2TB (500 GB x 4)	Approx. 10 minutes	Approx. 30 minutes	8~10 hours
4TB (1 TB x 4)	Approx. 10 minutes	Approx. 60 minutes	16~18 hours



***Note: It is recommended not to use the LG NAS while RAID configuration, as this will cause retardation.**

* The progress of configuration of the RAID volume can be checked in the [RAID SYNC STATE] by pressing SET button on the LG NAS.

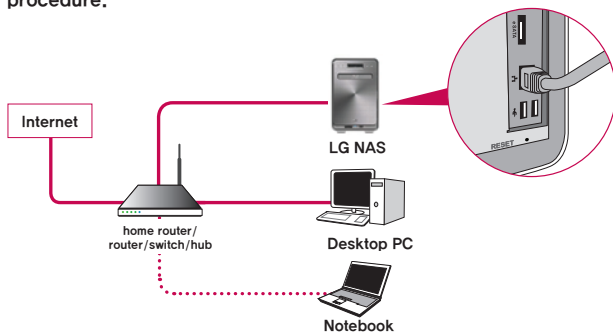
LG NAS connection

For a particular IP address allocated from the Network IP administrator, installation using an IP address, subnet mask, default gateway and allocated DNS information is simple. Otherwise the LG NAS will automatically set up the network environment.

Connect devices as follows, referring to the user's own network environment.

- ① Using the included LAN cables, connect LAN ports on LG NAS and network devices (home router/router/switch/hub) to each other or directly plug them into the LAN port on the PC.

- A.** If the network component (home router/router/switch/hub) is used to connect the LG NAS (home router/router/switch/hub) to the PC, use the following procedure.

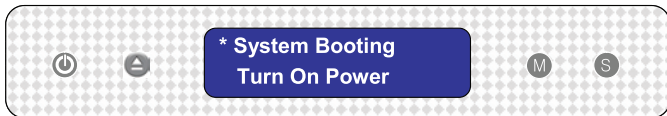


- B.** If the LG NAS is connected directly to the PC without another network device, it must be connected directly to the PC using a LAN cable, and then the IP address must be set to 192.168.1.201 and the subnet mask to 255.255.255.0.



* In this case, PC Internet may be disconnected

- ② Insure that power cord of LG NAS is connected, Press the Power Button (left most) to turn on your LG NAS.



'LG NAS PC S/W Installer' installation (PC Application program installation and usage)

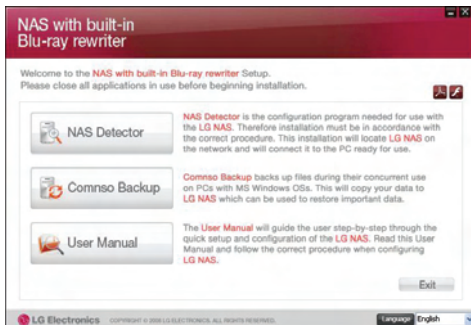
The "LG NAS PC Software Intaller" provides the "NAS Detector" which quickly and easily detects the LG NAS on the network, and the "Comnso Backup" program which can back up client PCs to the LG NAS in real-time. Additionally, Flash player and Acrobat Reader are included for access to the web menu and user manual.

The Installation process depends on the user operating system environment.

Program	Supported Operating System		
	Windows	Mac	Linux
Acrobat Reader	O	O	O
Flash Player	O	O	O
NAS Detector	O	O	-
Comnso Backup	O	-	-
User Manual	O	O	O

PC application program installation

- ① Insert the "LG NAS PC Software Installer" CD in the PC drive. This can be a CD, DVD, or Blu-ray drive. After a short while, the following menu will appear.



- ② Flash Player Installation. IF the web menu does not appear correctly, click the



icon for to installation.

* The LG NAS web menu requires the use of Flash Player.

- ③ Click the "NAS Detector" button and install "NAS Detector" on the user's PC. After installation the shortcut icon will appear.



- ④ To install the "Comnso Backup" program, click on the "Comnso Backup" button.
- ⑤ To see the LG NAS User Manual, click on the "User Manual" button.

PC Application Program Usage

This explains how to use "NAS Detector".

The "Comnso Backup" detailed guide program can be found in the program after installation.

<"NAS Detector" usage>

- ① After checking that the PC network is intact, double click the "NAS Detector" icon on the desk top to open the program.



- ② The 'NAS Detector' can search for the present user's network automatically.

When the searching is completed, the LG NAS IP Address, MAC Address, and Host Name information are displayed on the screen.

The factory default settings are shown below.

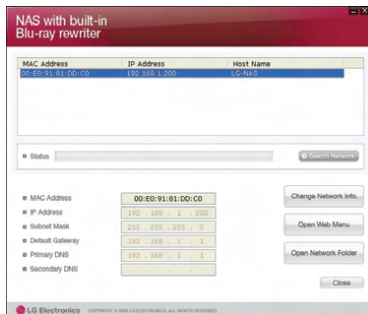
- IP Address : 192.168.1.200
- MAC Address : serial number for each LG NAS, printed in the back label.
- Host Name : LG-NAS



* If the desired LG NAS is not found, click again on the 'Search Network' button to restart the search.

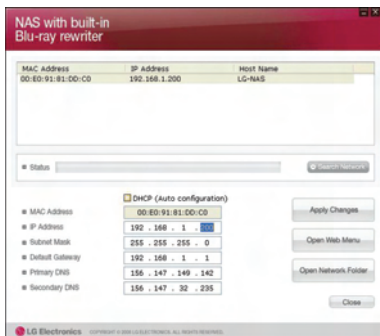
If the search on the 'NAS Detector' is unsuccessful, re-check the Network connection. For manual setup see section **<IP Setup>**.

- ③ If the search result of the LG NAS information is chosen, as well as default network information of the LG NAS, including the Subnet mask, Default Gateway and DNS, 'Change Network Info', 'Open Web Menu' and 'Open Network Folder' buttons will appear.



* For the 'NAS Detector' to properly function, the PC needs to be connected to the same home router/router / switch / hub as the LG NAS

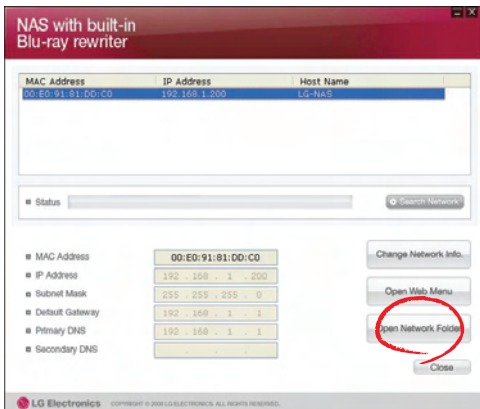
- ④ 'Change Network Info' can be selected to change the IP address.



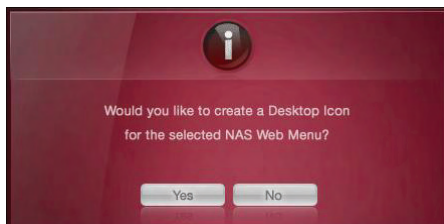
The DHCP selection option appears if a router is used or if there is a DHCP server on the network.

* If no IP address is allocated, use the IP address "NAS Detector" or check the DHCP option and automatically assign an IP address

- ⑤ If the 'Open Web Menu' button is clicked, the web menu of the selected LG NAS can be accessed.



- ⑥ If the 'Open Network Folder' button is clicked, the LG NAS network folder can be accessed.
- ⑦ In selecting "Open Web Menu" or "Open Network Folder", a pop up message appears with "Yes", which when selected will produce a shortcut icon on the desk top, and after which the LG NAS web menu and network folder can be easily accessed.



NAS web menu shortcut



NAS network folder shortcut

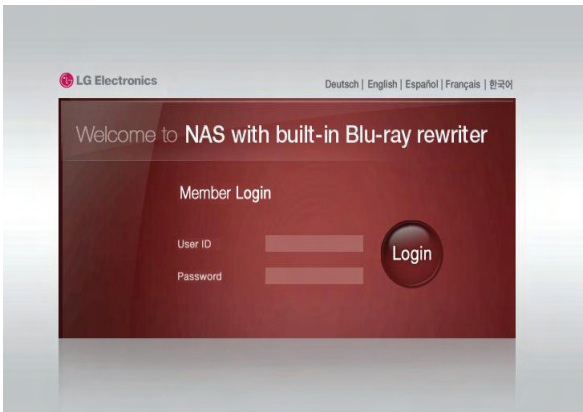
< Using the LG NAS web menu >

The web menu offers LG NAS management features such as Network Information, Share management, and Service management. It also offers menus to setup data storing using Blu-ray drive and synchronized storing of mobile devices.

- ① Double click on a shortcut



- ② The LG NAS web menu can be used, after inputting user ID and password. The administrator ID is 'admin' and initial password is 'admin'.



- ③ After logging in, use the LG NAS data setup, share management, service management, Blu-ray drive, and mobile sync. features. The detailed information can be found in **<Chapter 4 Using LG NAS Web menu>**.



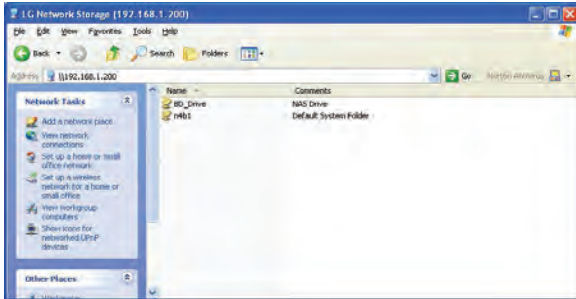
<Using LG NAS Network Folder>

File share and store can be performed, similar to the internal or external HDDs connected to the PC.

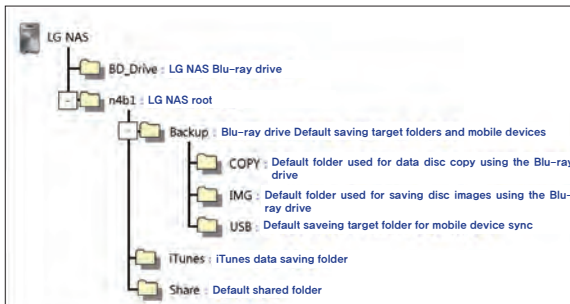
- ① Double click the LG NAS network folder shortcut.



- ② The LG NAS Blu-ray drive and default folder are shown as 'BD Drive' and 'n4b1' respectively.



- ③ To read a disc inserted in the LG NAS, double click on 'BD Drive' folder, and to access the LG NAS hard disc, double click on 'n4b1' folder.
- * If the contents of the LG NAS BD_Drive do not display correctly, please refresh.
 - * The administrator ID is 'admin' and initial password is 'admin'.
 - * < Default folders of LG NAS >



3. LCD panel and front button usage

At completion of booting the first screen will be as follows.



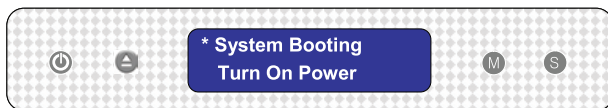
* If the LAN cable is unplugged, a [SVC_CODE: 61_00] will appear on the LCD window. In this case, ensure the LAN cable is connected.

Power Off / On (POWER button)



Power On

After pushing the POWER button on the front panel the following message appears, activating the LG NAS.



Power Off

When pressing the POWER button and holding for 5 seconds, the system will shut down, as shown below.



Tray open / close (DISC OPEN button)



Pressing the “DISC OPEN” button at the front will open the drive and draw out the tray, where the disc can be placed, and pressing the button again will push the tray in. Similarly the tray can be pushed in by hand.

Action set up (MODE button)



By pressing the “MODE” button at the front of the LG NAS, many functions become available for use.

Use the “MODE” button as follows.

There are 4 steps in the Action set up mode: **[IP Setup]** – **[ODD Backup]** – **[ODD Backup]** – **[ODD Burn]** – **[USB Backup]**. Pushing the “MODE” button allows the user to go to the next page. Using the “SET” button the user can access each of any of the functions.

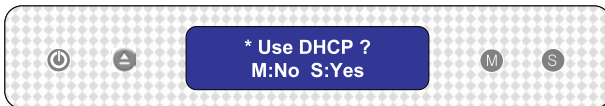
IP Setup

- ① The first time the "MODE" button is pressed will present the following display for the IP set up mode.

After the first system files are installed, the LG NAS has a default IP address of 192.168.1.200. At that time a new user IP address and network can be created.

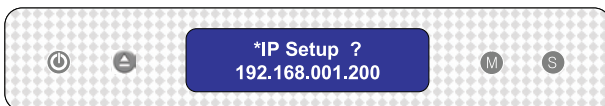


- ② The IP address set up can begin by pressing the "SET" button
- ③ By pushing the "MODE" button, the IP address can be created manually, along with default network settings, where by pressing the "SET" button, and hence the display showing "Use DHCP?", the IP address and network settings will be automatically set up.



It is recommended that the IP address of the LG NAS is set up manually to avoid future clashes with other IP address connected to the same network. Using the DHCP set up, the last IP address digit will be either a D (Dynamic), for automatic set up, or an S (Static), for manual set up.

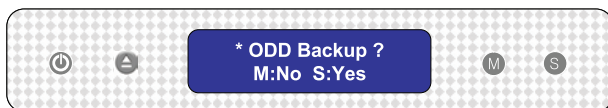
There are 3 steps in the manual set up of IP and network information: **IP Setup** -> **Subnet Mask Setup** -> **Gateway Setup**. By pressing the "MODE" button, the selected digit will be enlarged. By pressing the "SET" button, the cursor moves to the right. By pressing the "DISC OPEN" button, the cursor moves to the left. In this way digits can be changed.



Backup data on discs using LG NAS (ODD Backup)

The data saved on the disc can be backed up to the LG NAS by simple button operation.

- ① Insert the backup disc in the LG NAS Blu-ray disc drive.
- ② In the first LG NAS screen, press the MODE button to configure the ODD Backup mode.
- ③ Press the SET button to back up data on disc to the LG NAS. The ISO image file can be saved to the LG NAS default folder 'n4b1/Backup/IMG'.

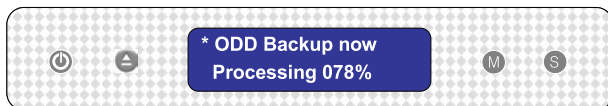


The file name is automatically created as follows.

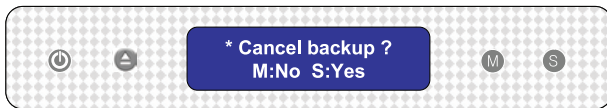
Save domain	Media type	Create file name
n4b1/Backup/ IMG	CD [DATA]	my_cd_Disc volume_backupdata.iso
	CD [AUDIO]	my_cda_disc_backupdata.bin my_cda_disc_backupdata.cue
	DVD	my_dvd_Disc volume_backupdata.iso
	BD	my_bd_Disc volume_backupdata.iso

* Does not support copy protected discs

- ④ During the process the percentage completed is displayed on the LCD.



- ⑤ During saving, pressing the MODE button will cancel the operation.



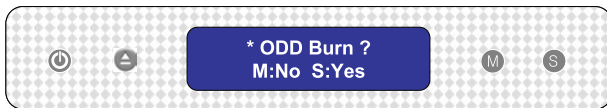
- ⑥ At the end of the process the following message will appear.



Writing data to disc (ODD Burn)

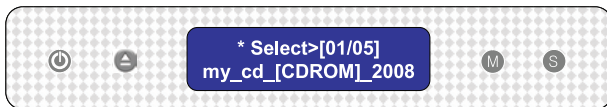
The LG NAS presents an easy and simple procedure for handling buttons and their functions, in order to write data to disc.

- ① Insert a blank disc into the LG NAS Blu-ray drive.
- ② On the first LG NAS display push the MODE button to indicate the ODD burn mode.

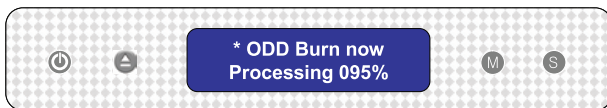


- ③ Immediately after the ISO image file selection, press the SET button.
- ④ The image can be selected by pressing the MODE button. By using the MODE button, the images saved to the default folder 'n4b1/Backup/IMG' can be scrolled through. The currently selected image is [Select ISO image file/number of all image files].
 - Tip 1) When pressing the 'MODE' button and holding for 3 seconds, the scrolling direction can be reversed.
 - Tip 2) When pressing the 'MODE' button and holding for 5 seconds, the file selection to the initial state can be exited.

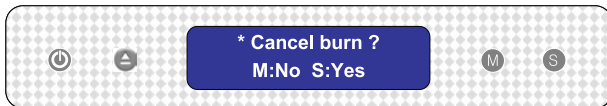
- ⑤ The required file can be found by using the MODE button and then using the SET button to begin the image file writing process.



- ⑥ The percentage completed will be displayed on the LCD.



- ⑦ During the writing process, pressing the MODE button will cancel the operation.



- ⑧ When the process is completed the following message will appear on the LCD.



USB device / memory card back up

The LG NAS allows for a simple procedure and use of buttons to back up the USB device and memory card data.



***Note: An adaptor is needed for any memory card. (Refer to the website <http://www.lge.com> for a list of compatible memory card devices. Use of incompatible devices may cause unexpected action by the LG NAS)**

- 1) Connect the USB device or memory card to the LG NAS. After a short while a sound will be heard indicating that a connection has been made, accompanied by the following message. (The message that will appear will be similar to 'Removable_Memcard_mounted')



※ The latest connection is valid, if multiple devices are connected.

- 2) By pressing the MODE button from the first screen, the USB back up mode will appear.



- 3) Pressing the SET button will save files in the default folder created by the manufacturer of the LG NAS n4b1/Backup/USB. The memory data saved in the created folder name, as indicated below will have a name in the form shown below, i.e. 'Memory data creator name_serial number-File Backup form /date created yearmonthdaytime'. Hence this will assist in the location of the file in later stages. Also, each back up file will have its own independent back up sub-folder. All data on the external device will be backed up to the LG NAS.

The file name is automatically created as indicated below.

Save folder	Created folder name
n4b1/Backup/USB/	Memory data creator name_serial number/ File Backup form /date created yearmonthdaytime



Using the button on the file backup mode the file will be automatically named 'BackupDate'. For more detailed file backup information, refer to section <USB Sync>

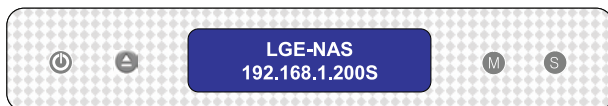
LG NAS State indication (SET button)



Pressing the SET button to the right and at the front of the panel, with pauses in between, the LG NAS state and information can be seen on the first screen display. Pressing the set button in this way will give the following information: [Host Name, IP] - [Time & Date] - [Storage Capacity] - [RAID Sync Stat] - [System Stat].

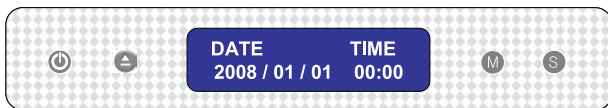
Host name and IP confirmation

Host name (Your LG NAS name) and IP address setting can be confirmed. S indicates that a Static IP address is being used, and D indicates a Dynamic DHCP setting.



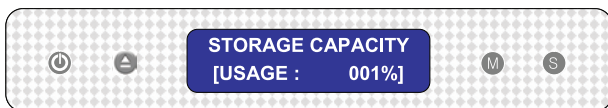
Time and date confirmation

The LG NAS current time / date settings can be confirmed.



Save capacity confirmation

Current storage capacity percentage is indicated as shown below.



* For no configured volume, '---%' will be displayed.

RAID configuration state confirmation (RAID SYNC STATE)

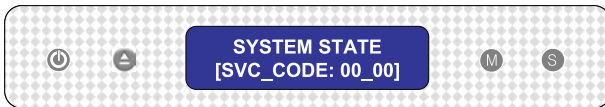
The current RAID configuration state can be confirmed. The table below describes the state of both the resynchronizing and finished states of the configuration.



STATE	Remarks
SYNC DONE	RAID configuration complete
SYNCING NOW	RAID configuration in process

System operating status check

Correct operation of the LG NAS can be confirmed.



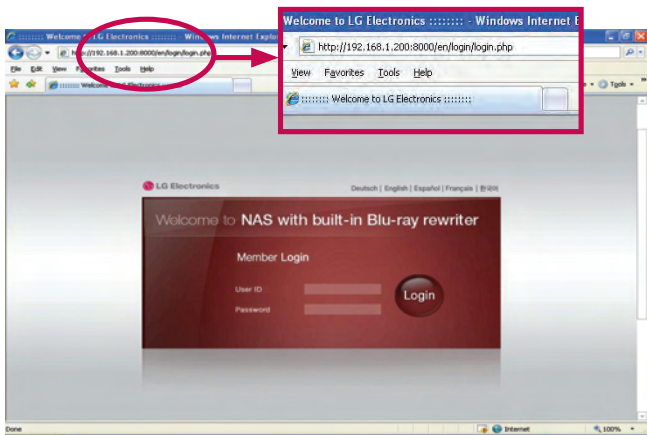
If the LG NAS detects abnormality, '[SVC_CODE: xx_xx]' will be displayed. For detailed information regarding the service code, refer to the web site, <http://www.lge.com>.

4. LG NAS Web Menu Use (for LG NAS administrators)

Support for the LG NAS to remotely connect and set the web menu is available. The LG NAS Web Menu is a webpage that users can open from their LG NAS. If the LG NAS is connecting to the network using the current IP address, the LG NAS settings can be changed on the web browser.

Administrator's Web menu access

- ① Open your web browser and input 「http://IP address」 in the address bar. If the IP address is not known, refer to <PC Application Program Usage> or <IP Setup>



* If the DDNS service offered by the LG NAS is used, log in access to <http://UserId.lgnas.com> is allowed instead of use of the IP address. For more details, refer to <DDNS>

- ② Enter ID and password.
 - * The LG NAS initial ID is admin, and the initial password is admin.
 - * For security, it is advised to change administrator's password.

Express set up wizard menu

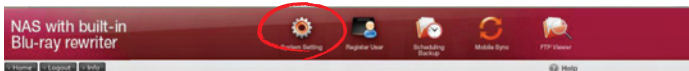
To facilitate the LG NAS set up the upper web menu contains a wizard.



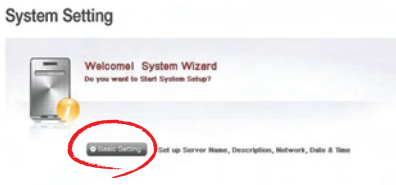
System setting

The wizard menu assists in the network set up of items such as the host name, IP address, date and time, which comprise basic network information.

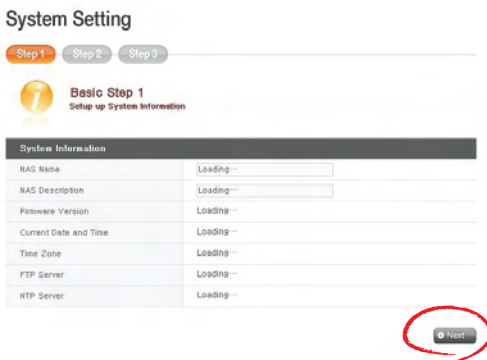
- ① Click on the upper "System Setting" icon in the administrator login state.



- ② Click the “Basic Setting” button.



- ③ In the “NAS Name” box, input the user LG NAS name, and in the “NAS Description” box, input the LG NAS information.



- ④ Clicking the “Next” button will bring the user to the IP set up step.
- ⑤ When the required IP is already known, click on the ‘Manual IP Setting’, and input network information including IP address, Subnet mask and DNS. If the network supports DHCP, choose ‘Obtain an IP address automatically (DHCP)’.

System Setting

Step 1

Step 2

Step 3



Basic Step 2

Setup up Network properties

Network Setup / IP Address Properties

Manual IP Setting	Obtain an IP Address Automatically (DHCP)			
IP Address	192	168	1	200
Subnet Mask	255	255	255	0
Default Gateway Address	192	168	1	1
DNS Server Address (Primary)	192	168	1	1
DNS Server Address (Secondary)				

Back Next

* If network information, IP address or Subnet mask or DNS address, is unknown, contact the ISP or network administrator. For router use, refer to the router manual.

- ⑥ Set the standard clock and system clock according to location.

System Setting

Step 1

Step 2

Step 3



Basic Step 3

Setup up Date & Time

Date & Time Setup

Use Local Time	
Time Zone	GMT
Date	2009 Year 01 Month 02 Day
Time	15 Hours 01 Min 51 Sec

Back Cancel Confirm

The 'Use Local Time' button can be used to import the current time from the system. Date and time can be inputted manually.

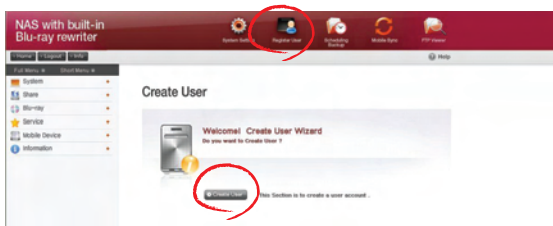
* To indicate accurate time for files in the shared folder and log files, it is encouraged to set current time with accuracy.

- When all the inputting is finished, click the 'Confirm' button. Now, the LG NAS is set up for use. For work on detail options and sharing management or mobile synchronization with a Blu-ray drive, proceed to the next menu.

User registration

There is a LG NAS create user help wizard menu.

- Click the "Register User" button.



- Input the desired user ID, Name, Password, description and email address, then click the 'Save' button.

The image shows the 'Create User' wizard, Step 1: Insert User Information. The form is titled 'User Information' and contains the following fields:

- User ID * (with a 'User ID Check' button)
- User Password *
- Confirm Password *
- User Name
- User Description
- User E-mail

A checkbox labeled 'Send Registration Info' is located below the User E-mail field. A 'Save' button is positioned at the bottom right of the form.

- ③ Click the 'Edit Group' button to set up registered user groups; Click the 'Edit Folder' button to set up folder access authorization. This will link the user to the respective pages.

Create User

Step 1 Step 2

Step 2
Confirm the created User Information

Please click the button if you want to edit Groups
Please click the button if you want to set up Folder Access.

[Edit Group](#)
[Edit Folder](#)

User ID	User Name	User E-mail	User Description
LG-NAS	NAB1		

[Confirm](#)

Scheduling backup

A help wizard menu exists for the Blu-ray drive scheduled back up and restoration.

<Scheduling Backup>

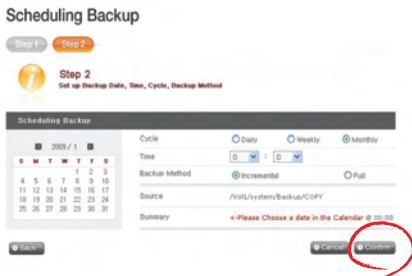
- ① Click the 'Scheduling Backup' button.



- ② Find the target folder for scheduling backup and click the 'Next' button.



- ③ Configure cycle and method, then click the 'Confirm' button

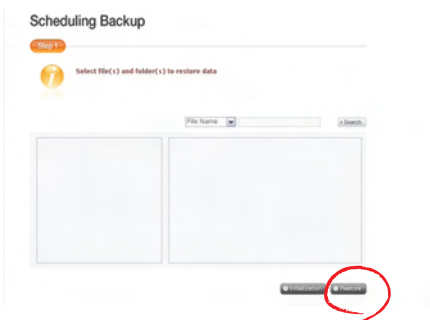


<Restoration>

- ① Click the 'Restore' button



- ② Select a file or folder from the backup list, then click 'Restore' button.



- ③ The LG NAS will locate the data and inform the user for all data, and which corresponding disc it is stored in.
- ④ As the corresponding disc is installed, data can be restored.

Mobile Sync

USB device, memory card and LG NAS Sync settings can be performed through the wizard menu which helps save data automatically.

- 1 Click on the “Mobile Sync” icon above.



- 2 Each port is indicated as the LG NAS recognizes the connecting device. When the desired device is selected, click on the 'Setting' button



- 3 Set up name, description, target folder, cycle and method. For details concerning configuration options, refer to **<USB Device & Memory Card>**.

FTP Viewer

The LG NAS offers a shortcut function, and hence allows connection to an FTP at one click and accessing files within the LG NAS.

- ① Click on the 'FTP Viewer' button above



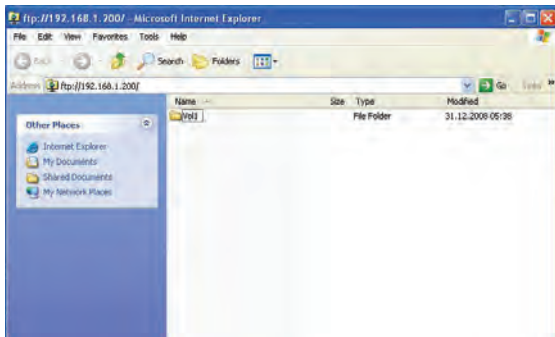
- ② Click on the 'OK' button.



- ③ Enter user name and password, then click on the 'Log On' button



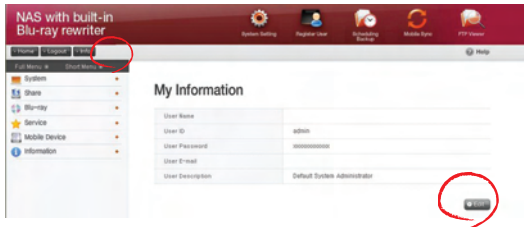
- ④ An LG NAS shared folder will appear.



* To use FTP Viewer, an FTP should be activated at 'Services > Network Server > FTP' within the web menu for the administrator. For details, refer to **<Network Server>**

Changing the administrator password and information

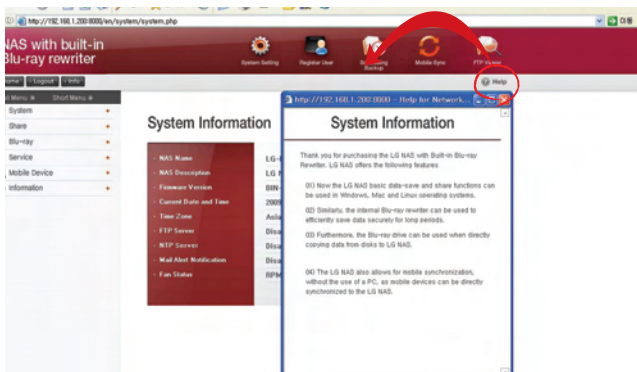
- 1 Click the "Info" button at the upper left. This will display the current user information.



- 2 Click the 'Edit' button to the right of the page.
- 3 Enter the edited information and click the 'Apply' button.

Help

By clicking the "Help" button at the top right, the help page will appear.



System Settings

You can set up network properties more in detail.

Network

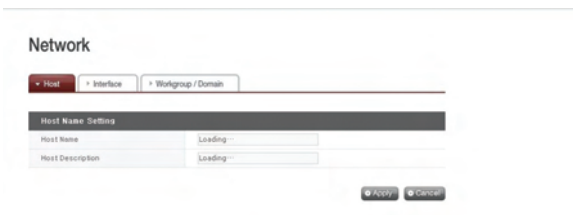
Very importantly, in the Network setting menu, the LG NAS can be connected to the network. If the set up is not performed correctly, connection problems will arise at later stages, hence care must be taken.



Host

- ① Designate an LG NAS host name.

The server name has a limit of 12 characters, this can be a combination of letters, digits, underscores and hyphens; the first characters though must be a letter or a number.



② Type in host description.

The host description has a limit of 24 characters; this can be a combination of letters, digits, underscores, hyphens and spaces. This explanation only affects the Windows client.

Interface

The Network interface's IP properties are specified. During system connection, care must be taken as restrictions may be created.

The screenshot shows the 'Network' configuration page. At the top, there are tabs for 'Host', 'Interface', and 'Workgroup / Domain'. Below this, the 'IP Address Properties' section is highlighted with a red box and labeled with a circled 1. It contains two radio buttons: 'Manual IP Setting' (selected) and 'Obtain an IP Address Automatically (DHCP)'. Below the radio buttons are input fields for IP Address, Subnet Mask, Default Gateway Address, DNS Server Address (Primary), and DNS Server Address (Secondary), each with a small '0' icon. A red box labeled with a circled 2 encompasses these input fields. Below the IP properties is the 'Ethernet Frame Size Properties' section, which has a dropdown menu for 'Ethernet Frame Size' set to '(1500 bytes (Default))', highlighted with a red box and labeled with a circled 3. At the bottom right, there are 'Apply' and 'Cancel' buttons, with the 'Apply' button highlighted by a red box and labeled with a circled 4.

- ① For an existing IP address, check 'Manual IP Setting'. If the network supports DHCP, check 'Obtain an IP address automatically (DHCP)'.
- Manual IP setup: If the absence of a DHCP server in the network, interface information must be entered manually.
 - Obtaining an IP address automatically (DHCP): This option is available when a DHCP (or a router) is connected to the server. Activation of the DHCP option will disconnect the web menu, thus the IP address must be renewed on the LCD or through the 'LAS Detector' program. The DHCP dynamically renews the IP address of the DHCP server periodically, which may trigger an unexpected change of IP address, thus the DHCP option must be handled with great caution.

- ② If 'Manual IP Setting' above has been checked, fill in the IP address, Subnet mask, default gateway and DNS address.
- IP address: Enter desired IP address.
 - Subnet Mask: Enter the subnet mask that suits the current network environment.
 - Default Gateway: Define the outgoing route. If no gateway exists on the network, enter the IP address.
 - Default DNS server address: The DNS handles conversions between domain names and IP addresses. If the DNS is not correctly configured, e-mails, DDNSs or domains will not function normally.
 - Secondary DNS server address: Enter the secondary DNS server address.



* If accurate values are unknown, please contact ISP or network administrator.

- ③ Configure ethernet frame size. If frame size is unknown, set it to 1500.
- * Ethernet Frame Size: If the Ethernet frame size is at least 1500 gigabits, specified files can be sent quickly and with ease. In this case, the LG NAS alone does not change, but so do the PC and home router/router/hub/switch frame sizes. Otherwise performance will be reduced.

Workgroup/Domain

Set up a workgroup and domains that the Windows network supports. This will allow for access to the LG NAS shared folder in Windows. In addition to this, the LG NAS domain service supports a Windows Active Directory, enabling the import of existing user information, with ease and speed.

- ① Select the appropriate 'Workgroup' or 'Domain' considering the environment where the LG NAS will run.

The screenshot shows a web interface for network configuration. At the top, there are three tabs: 'Host', 'Interface', and 'Workgroup / Domain'. The 'Workgroup / Domain' tab is selected. Below the tabs, there is a section titled 'Windows Network Type' with two radio buttons: 'Workgroup' (which is selected) and 'Domain (Active Directory)'. Below this, there are four input fields: 'Workgroup' (containing 'WORKGROUP'), 'Domain (Active Directory)', 'Domain Administrator ID', and 'Domain Administrator Password'. At the bottom right of the form, there are 'Apply' and 'Cancel' buttons.

- ② When selecting 'Workgroup', input workgroup name required. Or when selecting 'Domain', input domain name, domain administrator ID and password.

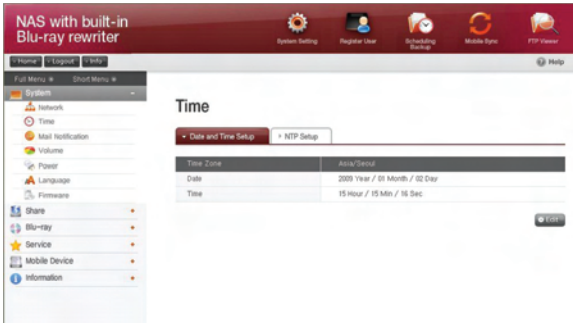
* Domain: In the active directory user environment, the domain settings should not be created in the local User/Group folder, but should be created in the domain User/Group folder.

When the domain settings are created, the network administrator must be available to provide assistance, as the user must have access to all information concerning the Name server. If wrong information is inputted, sharing and use of the LG NAS will be limited.

* In the event of unfamiliarity with the Workgroup/Domain, use of default values is recommended.

Date & Time

Set up the system time. The accurate time display of the files uploaded to the sharing folder and accurate time display of the log file must match the current a



Date and Time Setup



- ① To manually set date and time, click on the 'Edit' button
- ② Local time will be used by clicking the 'Use Local Time' button.

NTP Setup

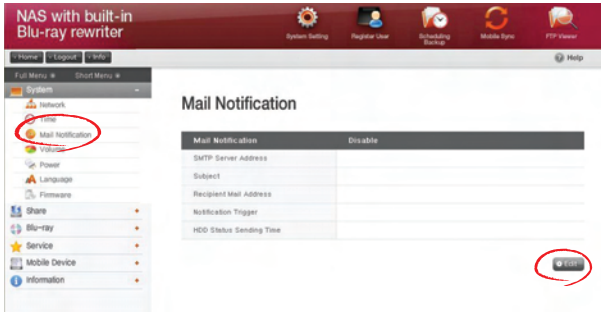
The Network Time Protocol (NTP) periodically aligns itself with an external time server to obtain and synchronize itself with accurate time. This accurate time should continuously activate the NTP. To use the Default Time Server, refer to pool.ntp.org server time.

Time

▸ Date and Time Setup		▾ NTP Setup	
NTP Server		<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
NTP Server Address		<input type="text"/>	
		<input type="checkbox"/> Use Default NTP Server (pool.ntp.org)	
NTP Synchronization Frequency		Once a Day ▾	
		<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Mail Notification

To use Mail Notification, the LG NAS usage amount can be periodically checked. Registration information and results will be sent to users subsequent to their new registration.



- ① To configure the mail notification, click on the 'Edit' button
- ② To use it check 'Disable' if 'Enable' is not used. If 'Enable' is checked, proceed with the following steps:

The screenshot shows the 'Mail Notification' configuration form with the following fields and callouts:

- ① Mail Notification: Enable (selected) / Disable
- ② SMTP Server Address: [Text input field]
- ③ SMTP Authentication: [Text input field]
- ④ SMTP Server USER ID: [Text input field]
- SMTP Server USER PASSWORD: [Text input field]
- ⑤ SMTP SSL Support: [Text input field]
- ⑥ Subject: [Text input field]
- ⑦ Recipient Mail Address: [Text input field]
- ⑧ Notification Trigger: [Text input field]
- ⑨ HDD Status Sending Time: [Text input field]

Buttons: [Apply] [Cancel]

- ③ SMTP Server Address: Input the Mail Server address. Refer to the information page in the network administrator Mail Service, and input the accurate SMTP Server Address value. (e.g. smtp.yahoo.com, smtp.gmail.com:446)

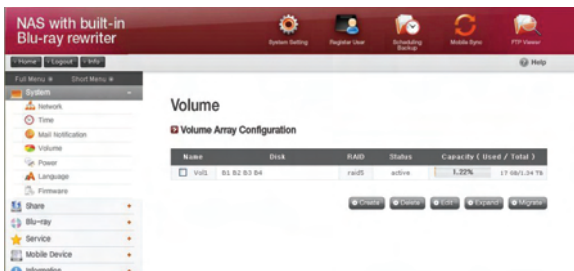
- ④ SMTP Authentication: When sending mail, dependant on the mail server, login may be required. In the case of own mail server, the SMTP Authentication must be activated. (e.g. Smtplib.Webmail SMTP servers such as yahoo.com perform certification processes. Refer to the user webmail service help).
- ⑤ SMTP SSL Support: Some mail servers' login information is encrypted and sent. At this time the SMTP SSL Support must be activated. (e.g. Smtplib.Webmail smtp servers such as gmail.com perform certification processes. Refer to the user webmail service help).
- ⑥ Subject: The information email subject can be specified or changed.
- ⑦ Recipient Mail Address: Input the mail receipt administrator's address.
- ⑧ Notification Trigger: Set up the information concerning the periodic use of the HDD. In the case of not wanting to receive message periodically, the option may be disabled.
- ⑨ HDD Status sending time: The HDD use information mail out frequency can be determined (daily/weekly/monthly).

Volume

This section describes information and functions of volume where the user stores data.

* The LG NAS uses hard disks separated in 3 areas; System, Swap and User.

- The System is where the LG NAS firmware is installed with 2GB of space allocated.
- Swap is a virtual memory area to compensate shortage of memory. 256MB are allocated.
- The user composes the LG NAS volume and the remaining space is allocated. Total available space of the volume differs according to file system pattern and RAID level.



Volume Array Configuration

This page displays information pertaining to existing state and size of the volume of the LG NAS. Configuration is possible through the volume name, configuration disk, RAID level, volume state and capacity.



1) Name

The name will be divided into a maximum of 4, i.e. Vol1/Vol2/Vol3/Vol4. The check box on the left refers to the volume.

2) Disk

The volume configuration will be divided into various hard disk locations and will be labeled B1/B2/B3/B4. The configured volume via RAID will appear on a multitude of disks.

3) RAID

The RAID level indicates NONE, JBOD, RAID0, RAID1, RAID5, RAID10.

4) Status

The volume's strange state and work are displayed. The volume's state is divided into active / none / degraded / destroyed / formatting / syncing / migrating.

- 'active' refers to no abnormality in the volume,
- 'none' refers to when no RAID is configured,
- 'degraded' refers to configuration of the abnormal or deleted hard disk process, though volume is available for use,
- 'destroyed' refers to configuration of the abnormal or deleted hard disk process, and volume is unavailable for use,
- 'formatting' refers to the process of formatting the volume,
- the 'syncing' state refers to the RAID configuration process,
- the 'migrating' state refers to the RAID reconfiguration process.

5) Capacity (Used/Total)

The amount used and total capacity of volume are displayed. The percentage of capacity used (Used/Total) is indicated by the bar on left and full capacity (Total) is indicated by the bar on the right.



- **Note 1)** Total storage represents total available storage, which is defined by file system and RAID level.

The ext3 file system of the LG NAS occupies 1.5% of the total HDD storage, thus the actual available storage in a volume is approximately 98.5% of the total user storage. When using one HDD per volume (single disk), the total storage is equal to the actual available storage of a HDD. The total storage of a RAID-based volume differs according to RAID level (JBOD / RAID0 / RAID1 / RAID5 / RAID10). For JBOD, the total available storage is the sum of the actual available storage of each HDD. For RAID0, the total available storage is the actual available storage of the smallest HDD multiplied by the number of HDDs. For RAID1, the total available storage is the actual available storage of the smallest HDD. For RAID5, the total available storage is the actual available storage of the smallest HDD multiplied by (the number of HDDs minus 1). For RAID10, which is composed of 5 HDDs, the total available storage is twice that of the actual available storage.
- **Note 2)** The represented size of the HDDs differs depending on manufacturer and OS.

HDD manufacturers use an exponent of 1000 while OSs such as Microsoft Windows use exponents of 1024. The total available storage on the LG NAS is represented by the exponent 1024.
- **Note 3)** Volume storage of the LG NAS is the total HDD storage without the system area and the swapping area.

If for example a volume is configured with a 1TB HDD, with 1×10^{12} bytes of storage, user area will be as follows: $1 \times 10^{12} - 2 \times 10^9$ (system area) - 256×10^6 (swapping area) = 997744000000 bytes. This becomes 929Gb when converted using the exponent 1024.

Volume create

Clicking the 'Create' icon opens the create window and can create the volume determining the RAID level, and is also dependant on the number of selected HDDs. The LG NAS supports JBOD, RAID0, RAID1, RAID5, RAID10, and single disk. Select the optimum RAID level according to user's request. For a detailed explanation of the RAID configuration, refer to [<Appendix A>](#).

Deleting volumes

Selecting the volume and clicking the 'Delete' icon will erase the volume. At this point the user data of the erased volume has been destroyed.

Volume edit

Selecting the volume and clicking the 'Edit' icon will correct the volume that is configured by RAID. Opening the edit box the HDD in the volume can be deleted or added. This function acts to reconfigure the volume in case of a malfunction in the HDD, or to increase the HDD capacity.

* Caution must be taken when editing; try to avoid data loss due to negligence

Volume expansion

This function can increase the capacity preserving the data of the expanding volume. The volume capacity can be extended shifting to subsequent identical drives. This function is supported in the following volumes.

- RAID1 expansion
- RAID5 expansion
- RAID10 expansion



Performing another process during the volume configuration will retard processing.

Volume Migration

This function allows adding a new hard disk and hence migration to another RAID. This option is supported in the following drive configurations.

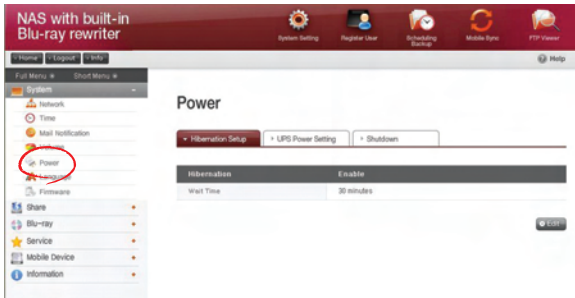
- Migration of single disk to RAID1 or RAID5
- Migration of RAID1 to RAID5
- Migration of 3 RAID5 hard disks to 4 RAID5 disks



Performing another process during the volume configuration will retard processing.

Power

Settings related to power for the LG NAS can be adjusted (Hibernation, UPS and System Shutdown).



Hibernation Setup

When the volumes of LG NAS have not been accessed for a given amount of time, all the LG NAS hard disks will enter standby mode and minimize consumption of electricity. In this hibernation state, accessing volumes will cause the LG NAS's HDD to wake up gradually, taking approximately 3 – 15 seconds.



- 1 Click on the 'Edit' button to configure hibernation.



- 2 Check 'Enable' to activate hibernation mode, or 'Disable' to deactivate. When selecting 'Enable', proceed to the next step.
- 3 Set wait time.
If there is no data traffic during the given time, the LG NAS will enter hibernation mode. Time can be set to 10/30/60/120 minutes.
- 4 Click on the 'Apply' button to dictate changes to the LG NAS. Click on the 'Cancel' button to discard changes.

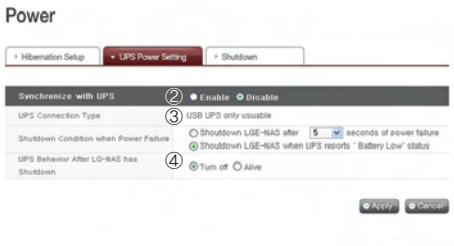
UPS Power Setting

An external UPS is effective for sudden power stoppages. When connecting an external UPS to the LG NAS, confirm the actions of the UPS.

- Click on the 'Edit' button to configure UPS



- Check 'Enable' to activate UPS, or 'Disable' to deactivate. When selecting 'Enable', proceed to the next step



* LG NAS supports APC Style USB UPS only

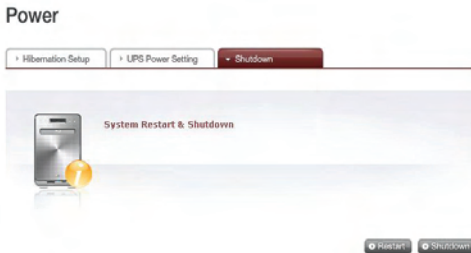
- Decide whether to shut down LG NAS after designated time interval or when UPS power becomes low in case of unexpected external power cut.

* When setting it to shut down depending on remaining power of LG NAS, The time interval might differ from one UPS type to another.

- ④ Decide whether to maintain UPS power when LG NAS shuts down due to unexpected power cut.
* If another device is connected to UPS, Please do not turn off UPS but keep the power on.
- ⑤ Click on the 'Apply' button to enter changes to the LG NAS. Click on the 'Cancel' button to discard changes.

Shutdown

Do not go directly to the LG NAS, as the LG NAS can be started and stopped via the web.

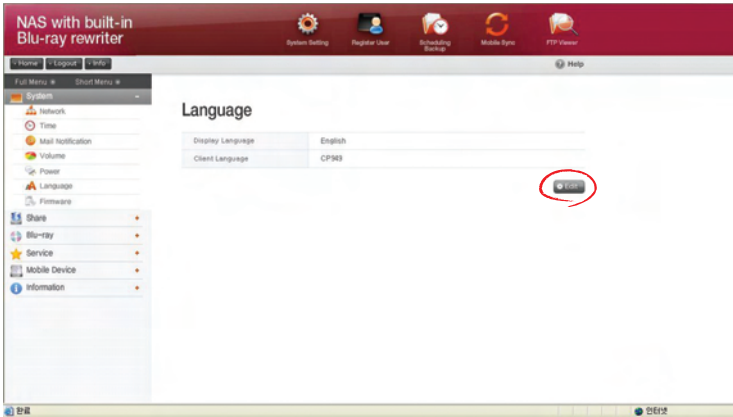


- **Restart**
 - Ends all current operations and restarts the LG NAS.
 - A warning will appear when clicking the button, and the system can be restarted by clicking on the 'OK' button.
 - During restart web access is not available.
- **Shutdown**
 - Ends all current processes and shuts down the LG NAS.
 - A warning will appear when clicking the button, and the system can be restarted by clicking on the 'OK' button.
 - During restart web access is not available

Language Setting

The web menu indicates a language selection capability.

- ① Click on the 'Edit' button to set language.



- ② Select a desired language out of Korean, English, French, Spanish, and German and click on the 'Apply' button.

*Client language:

Select the language that fits user's client environment. (e.g.: FTP available).

For use of multiple languages, select unicode. Unicode can be selected only if user's program supports it.

Firmware

LG NAS firmware settings can be changed (Upgrade, Initialization, Configuration and Backup/Restore).

NAS with built-in Blu-ray rewriter

System Setting Register User Scheduling Backup Mobile Sync FTP Viewer

Home Logout Info Help

Full Menu Short Menu

System

- Network
- Time
- Mail Notification
- Volume
- Power
- Upgrade
- Firmware
- Share
- Blu-ray
- Service
- Mobile Device
- Information

Firmware

Upgrade Initialization Configuration Backup

System Info

Please install the downloaded file to upgrade your system

Category	Version Information	Last Updated	
System	2348	0812291922	Upgrade
Blu-ray	1.00	0810151010	Upgrade

To upgrade the system, please check if the newest version is available for your system first

Upgrade

LG NAS system and Blu-ray Driver firmware can be downloaded from the product web site, and can be used for upgrading.

Systems with a fire wall do not allow upgrades to be installed

Firmware

Upgrade Initialization Configuration Backup

System Info

Please install the downloaded file to upgrade your system

Category	Version Information	Last Updated	
System	2348	0812291922	Upgrade
Blu-ray	1.00	0810151010	Upgrade

To upgrade the system, please check if the newest version is available for your system first

1) System Firmware Upgrade

- ① Verify connection to the Internet and download system firmware for the LG NAS from the product site linked below.
<http://www.lge.com>
- ② Select the system firmware downloaded from the product site.
- ③ Install selected system firmware to the LG NAS.
- ④ When upgrade is finished, it will indicate the version of installed system firmware.

2) Blu-ray Drive Firmware Upgrade

- ① Verify connection to the Internet and download drive firmware for the Blu-ray attached to the LG NAS from the product site linked below.
<http://www.lge.com>
- ② Select the Blu-ray drive firmware downloaded from the product site.
- ③ Install selected Blu-ray drive firmware.
- ④ When upgrade is finished, the version of installed Blu-ray drive firmware will be indicated



*** For stability of data, a backup of the LG NAS is strongly recommended before upgrading. Installation takes between 1 to several minutes. Advance access of other client users to the LG NAS while upgrading firmware is forbidden.**

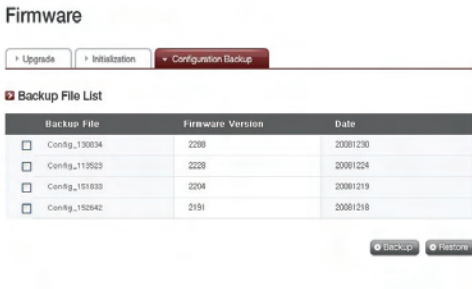
Initialization

LG NAS initialization function. Clicking on the 'Initialization' will Initialize the system



-
- * Caution must be taken when changing the settings, for post Initialization all-user information and data will be deleted
 - * Initialization will take about 10 minutes
-

Configuration Backup



<Backup>

Save the current user configuration.

* 5 backup files can be saved at maximum.

<Restore>

- ① Select the backup file of the time point to restore.
- ② Click on the 'Restore' button and reconfigure the user configuration.

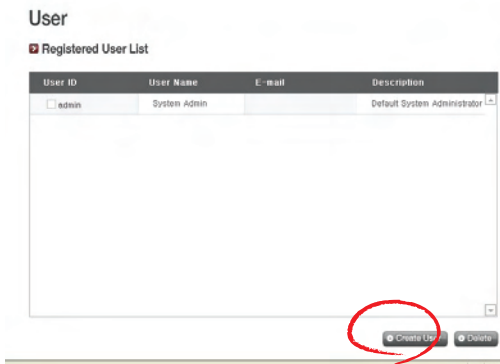
LG NAS Share Management

This function allows you to create users and groups as well as folders, and hence change settings for their access authorization.



User

Current registered users appear, so new users can be created and registered user information can be modified or deleted.



Create User

- ① Click on the 'Create User' button.
- ② Enter user ID. User ID cannot be overlapped.

User

Create User

User Information

②	User ID *	<input type="text"/>
③	User Password *	<input type="password"/>
④	Confirm Password *	<input type="password"/>
⑤	User Name	<input type="text"/>
⑥	User Description	<input type="text"/>
⑦	User E-mail	<input type="text"/>

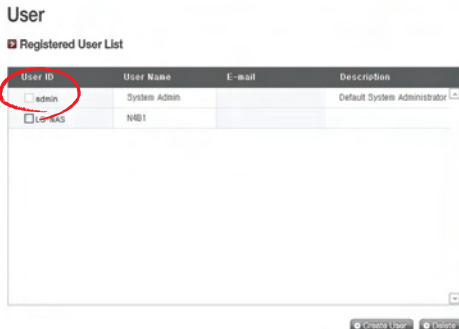
Send Registration Info

- ③ Enter user password.
- ④ Enter user password again for confirmation.
- ⑤ Enter user's name.
- ⑥ User description can be added.
- ⑦ Enter user e-mail

As long as mail server settings are correct, the registration result will be sent to the entered e-mail address. For details concerning mail server settings, refer to [<Mail Notification>](#).

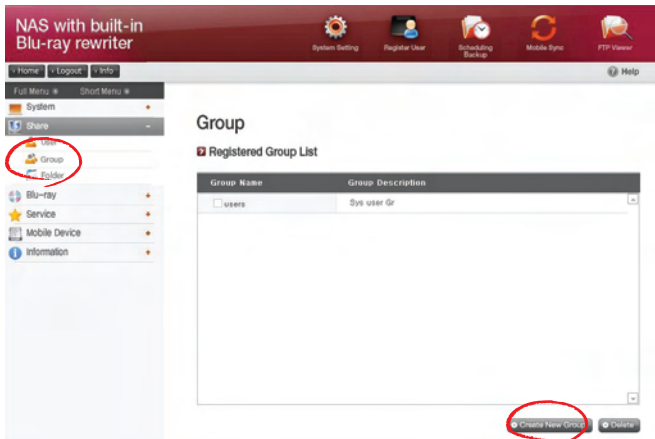
Edit User

Entering editing mode by clicking on the user name in the registered user list, with the exception of the ID, all user information can be altered



Group

Current registered groups are displayed. Groups can be created and deleted, as well as the addition or removal of users in registered groups.



Creating a New Group

- ① Click on the 'Create New Group' button.
- ② Enter group name.

Group

Create New Group

Group Name	Group Description
②	③

Choice of Group Member

User ID	User Name	Description
<input type="checkbox"/> LG-NAS	NAS1	
<input checked="" type="checkbox"/> admin	System Admin	Default System Administrator
<input type="checkbox"/> njavn	ni lee	tester2
<input type="checkbox"/> tsulimura	Tsulimura	

⑤ Save Cancel

- ③ Enter group description.
- ④ Select user to be added to the group by clicking on the corresponding checkbox. To remove a user from the group, deselect the user by clicking on the the checkbox again.
- ⑤ When user selection is done, click on the 'Save' button to create the group.

Editing Groups

By clicking on the 'Group Name' link in the registered group list, group attributes can be altered.

Group

Registered Group List

Group Name	Group Description
<input type="checkbox"/> users	Sys user Gr

Buttons: Create New Group, Delete

Folder

Current registered folders are displayed. A folder can be created/changed/deleted for file sharing and/or authorization settings access changed to the created folder.

NAS with built-in Blu-ray rewriter

System Setting Register User Scheduling Backup Mobile Sync FTP Viewer

Home Logout Info Help

Full Menu Short Menu

System

Share

User

Folder

Group

Blu-ray

Service

Mobile Device

Information

Folder

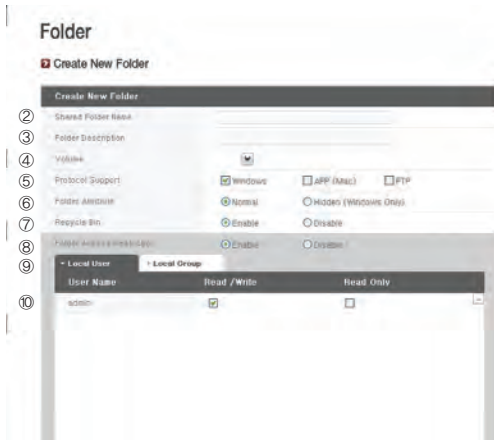
Registered Folder List

Shared Folder Name	Shared Folder Description
--------------------	---------------------------

Buttons: Add Folder, Delete

Create New Folder

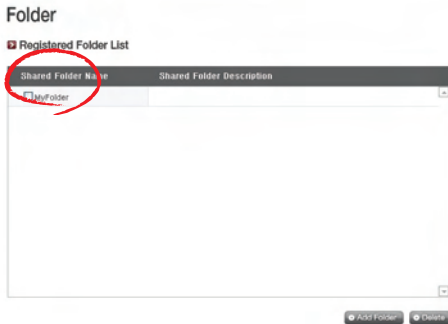
- ① Click on the 'Add Folder' button.
- ② Enter the shared folder name.



- ③ Enter folder description.
- ④ Set the volume where the folder will be created if there is more than one.
- ⑤ Decide whether to permit folder sharing through SMB, AFP and FTP protocol.
 - Windows: Activates folder sharing through SMB protocol on Windows/Mac/Unix. Refer to chapter 6 for connection details .
 - AFP (Mac): Activates folder sharing through AFP on Mac client.
 - FTP: Activates folder sharing through FTP.
- ⑥ Currently shared folder can be hidden from the network search.
 - * This is irrelevant to AFP/FTP, thus when 'Hidden (Windows Only)' is checked, the folder cannot be shared through AFP/FTP.
- ⑦ Create a trash box within the folder.
 - When deleting data while the trash box is active, all the deleted files will go to 'trash box' folder within the shared folder.
- ⑧ Set folder access restriction. If 'Disable' is checked, users can access/use without restriction.
- ⑨ Assign user/group to use the folder. Unassigned users do not have access to the folder.
 - * When a directory is activated at the 'Network > Workgroup/Domain' menu on the left, additional users and groups will appear.

Folder Attributes

By clicking on the folder name in the registered folder list, with the exception of the folder name, all its information can be altered



Blu-ray (CD/DVD/BD)

The built in Blu-ray Drive allows direct copy of data from discs to LG NAS. Furthermore, secondary backup of data using the Blu-ray drive makes data management safer and more efficient.

Storing - Saving Disc Data to the LG NAS

Reading disc data from the Blu-ray drive is a LG NAS storage function.



Disc Data Copy

Storage of disc data using the LG NAS is a data disc copy function.

- ① Insert the data disc in to the Blu-ray Drive and press the 'Next' button. If the disc is completely recognized, it will appear as 'Data Disc' on the 'Media Type' cell.
 - i) If the disc loading function has not finished, a 'Blu-ray Drive is busy. Try again later.' Message will appear. Try again after a short while.
 - ii) If there is no disc in the Blu-ray drive, or if an incompatible disc is used, a 'Please insert a data disc into Blu-ray drive' message will appear.



- ② Set the destination folder to save date
- ③ Click on the 'Copy' button to start copying.

Disc Image Backup

The disc information from the Blu-ray Drive is stored on the LG NAS as an image file (*.iso, *.cue, *.bin). For Data Discs, files with extension iso are created, and for Audio and Video CDs, files with extensions cue and bin respectively are created. For copy-protected discs, image saving is not possible.

- ① Place the disc in the Blu-ray Drive, and click the 'Next' button.



A "Blu-ray Drive is busy. Try again later" message appears to indicate that loading is not yet completed. Try again after a short while.

- ② Set the destination folder to save data



- ③ Click on the 'Backup' button to start the task. At start up, a progress bar will appear.

Burning

Burning the LG NAS data to disc is possible using the Blu-ray Drive.

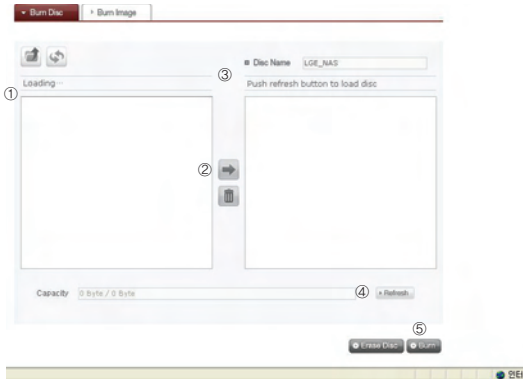
The screenshot displays the LG NAS web interface. At the top, a red banner reads "NAS with built-in Blu-ray rewriter". Below this, a navigation bar includes icons for System Setting, Register User, Scheduling Backup, Mobile Sync, and FTP Viewer. A sidebar on the left contains a menu with categories: Full Menu, Short Menu, System, Share, Blu-ray (highlighted with a red box), Service, Mobile Device, and Information. The Blu-ray category is expanded to show sub-items: Storing, Burning, and Scheduling Backup. The main content area is titled "Burning" and features two tabs: "Burn Disc" (selected) and "Burn Image". Below the tabs, there is a file browser showing the contents of "/Vol1/system/Share/". The file list includes:

Name	Size	Time
1.FW_Release	86.9	2009/12/24 1:43:55
2.Enclosure_Release	195.1	2009/12/24 1:43:56
3.NS1_Firmware	2.2G	2009/12/24 1:59:50
4.Package	1.7G	2009/12/24 2:15:18
885*6Dot	9.0M	2009/12/30 8:00:56





To the right of the file list, there is a "Disc Name" field containing "LGE_NAS" and a "Push refresh button to load disc" instruction. A "Burn Disc" button is visible below the file list.

Burn Disc

Burning LG NAS files to disc is possible.



<Button functions>

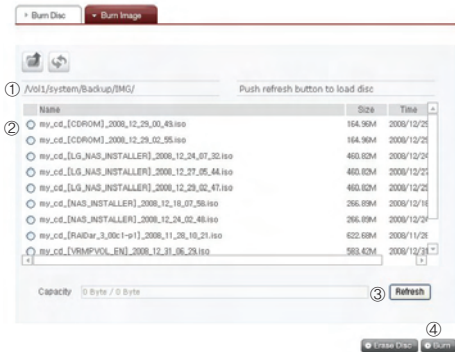
-  : Moves to upper folder.
-  : Refreshes the current folder
-  : Files or folders selected on the left window are sent to the right window to organize a list for recording.
-  : Deletes selected files or folders from the list organized for recording on the right window.

- ① Move the intended folder or file to the destined location.
- ② Selecting a folder or file to record and move to the right side produces a configuration data list
- ③ Specify disc name in the "Disc Name" window
- ④ Click on the 'Refresh' button and confirm that disc writing is possible as indicated in the disc status box.
- ⑤ Pressing the 'Burn' button begins the burning process. The burning process is accompanied by a progress bar display. To cancel the process, click on the 'Cancel' button, which appears with the progress bar.
- ⑥ At the end of the burning process, the tray ejects and the disc can be removed.

* By clicking on the 'Erase Disc' button, re-writable discs can be initialized. This action will delete all the existing data.

Burn Image

The image file of the disc used to save LG NAS data can be burnt to disc.



- ① Go to the folder where the intended is located
- ② Selecting an image file to record
- ③ Click on the 'Refresh' button and confirm that disc writing is possible as indicated in the disc status box.
- ④ Pressing the 'Burn' button begins the burning process. The burning process is accompanied by a progress bar display. To cancel the process, click on the 'Cancel' button, which appears with the progress bar
- ⑤ At the end of the burning process, the tray ejects and the disc can be removed

* By clicking on the 'Erase Disc' button, re-writable discs can be initialized. This action will delete all the existing data.

Scheduling Backup & Restore

Saving data to the LG NAS through the Blu-ray drive, allows for backup and restoration of disc data.



Scheduling Backup

Creation, Removal and deletion of scheduled backup from the scheduling backup list are possible.

The scheduled backup is placed in the folder. If a scheduled back up is created, the backup folder file information, saving frequency information, and back up file properties must be inputted. Many scheduled back ups are possible to one back up disc.

In the first back up, a blank of initialized disc must be used. Initialization must use the 'Initialization' button in the Restore menu.

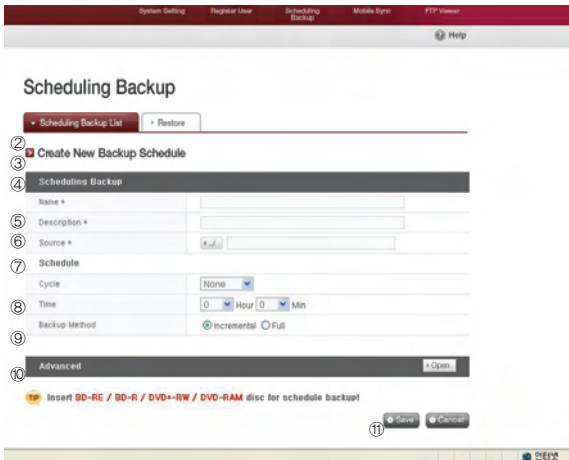
The media that can be used in the scheduled backup includes the BD-RE and BD-R, DVD-RAM and DVD+/-RW discs.

<Create New Backup Schedule>

- ① To create a Scheduling Backup Task, click on the 'Create'.



- ② Input name.



- ③ Input content description.
- ④ Select the folder on the LG NAS to back up from.
- ⑤ Choose the backup cycle frequency: Daily, Weekly, Monthly.
Specify appropriate 'Date' for monthly back up cycles. Specify appropriate 'Day' for weekly back up cycles.

- ⑥ Specify the backup time.
- ⑦ Select the Backup Method
The backup is configured by the file unit back up, and a set of incremental back ups, as well as a full backup are available. In executing a backup, a new folder is produced with name in the form of 'Yyyymmddhhmmss', where the folders and files specified within the folder can be backed up.
* If incremental back up is selected, only files that have been prior altered will be backed up.
- ⑧ Click the 'Open' button in the advanced settings table to activate scheduled back up advanced settings option.
- ⑨ In a backup, active files can have their extensions specified.
If the 'Picture Ext' or 'Document Ext' Check Boxes are selected, the selected image and text files can be backed up. If nothing is specified, all files will automatically be backed up.
- ⑩ Files not included in the backup can have their extensions specified.
Back up is not necessary for files with extensions such as temporary, etc (*.bak, *.tmp).
- ⑪ Click on the 'Save' button to save the backup schedule.
- ⑫ Selecting the check box of the relevant item in the schedule backup list, and clicking on the 'Backup' button, immediately activates the backup process.



<Edit Backup Schedule>

After selecting a desired backup schedule from the scheduling backup list, click on the 'Edit' button to edit or click on the name to alter specific properties.

<Delete Back Schedul>

After selecting a desired backup schedule from the scheduling backup list, click on the 'Delete' button to delete.

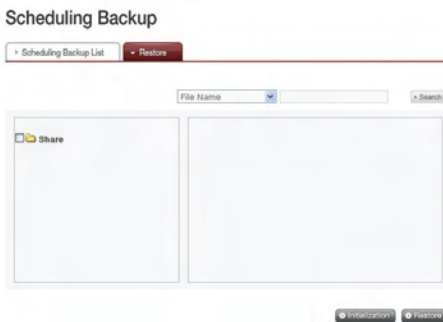
Restore

The specified file or folder can be restored in the LG NAS from the back up disc. Fixed folders (/Share/Restore) can be restored: when restoring, standard date and time will be used in the folder name, and the folder shall be restored. For example, "081027_162040".

Restoration can be achieved on a folder or file level.

<Folder restoration>

- ① Select folders to restore from the window on the left.



- ② Click on the 'Restore' button to start.

<File restoration>

- ① Select files to restore from the window on the right.
- ② Click on the 'Restore' button to start.

Tip 1)

When there are several versions of one file due to different backup dates, the latest file or all files can be selected and unselected.

Tip 2)

Restored files can be searched for in the restore box on the right. Input the name of the desired file in the search box, the search becomes active when the 'Search' button is clicked.

Service

DDNS (Dynamic DNS)

Using DDNS and connecting the LG NAS externally by domain name is possible. To record and connect the server IP address to the in the case of using a fixed IP is possible, though the DDNS allows for a convenient connection in a dynamic IP environment, where IP changes in time. Variation of IP address is monitored and mapped to a domain name in real time. Therefore, there is no need to remember IP address as there will be a fixed address. (e.g. myname.lgnas.com)

DDNS

①	DDNS: <input checked="" type="radio"/> Enable <input type="radio"/> Disable
②	Domain Name: <input type="text" value="lgnas.com"/>
③	DDNS Password: <input type="password"/>
	Status: Service stopped

- ① Select 'Enable' for DDNS.
- ② Input domain name to be used.
- ③ Input password.

* This is necessarily needed when re-registering the domain name for system initialization or LG NAS replacement or other reasons. Do not forget password.

- ④ Click on the 'Apply' button.

* If 'Disable' is selected after a domain name is registered, the previous domain will be removed, thus the domain name cannot be registered in other LG NAS devices.

Caution must be taken when setting this.

Network Server

Access to the LG NAS through FTP or AFP is configured with this function.

* For router use, the router settings need to be changed. Please refer to port-forwarding of DMZ settings in the router's manual.

FTP

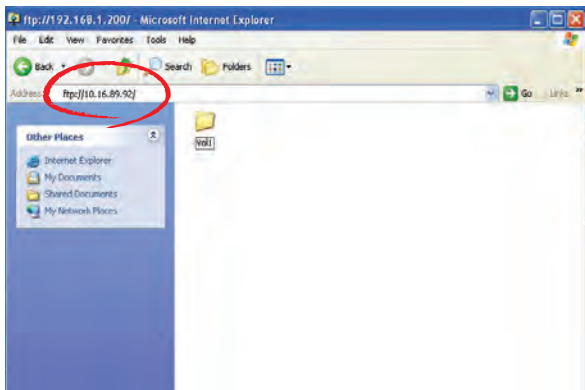
An FTP offers a handy environment when accessing LG NAS on the Internet.

Network Servers



The use of FTP service can be established through "Enable". The Windows image is explained here. The method below is applicable to other OSs.

- ① Use the FTP connection program, or open explorer and input the address ftp://[address]. If the IP address is not known, refer to **<PC Application Program Usage>** or **<IP Setup>**.

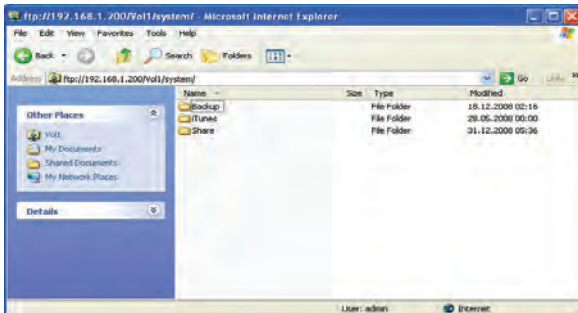


* Use of a DDNS service offered by the LG NAS allows connection to ftp://UserID.lgnas.com, in place of an IP address. For more details, please refer to **<DDNS>**

- ② Input the user name and password and login



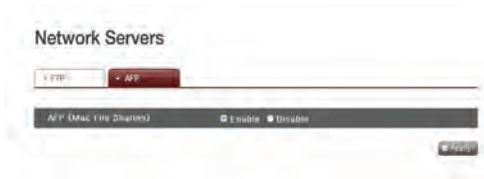
- ③ Look at the sharing folder. Folders and files can be managed via drag and drop, allowing for name change and delete.



Depending on the local network environment, use of the firewall in the FTP server may be prohibited. For FTP server problems, consult the router's manual or contact the network administrator.

AFP

The AFP offers a similar environment to Windows folder sharing.



- * AFP is available within networks with the installed LG NAS, but not for external access without network setting changes due to firewall and other restrictions.
- * If there are no special reasons Windows Sharing is recommended, as the Mac OS X basically supports Windows Folder Sharing

Network Printer

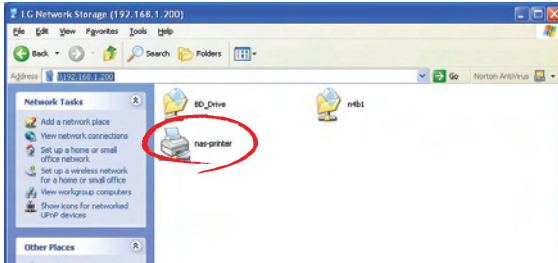
The network printer can be used by connecting the USB printer to the LG NAS.

- ① Select Service > Network Printer from the administrator's web menu.
- ② Check "Enable", click the "Apply" button.



1) Windows users

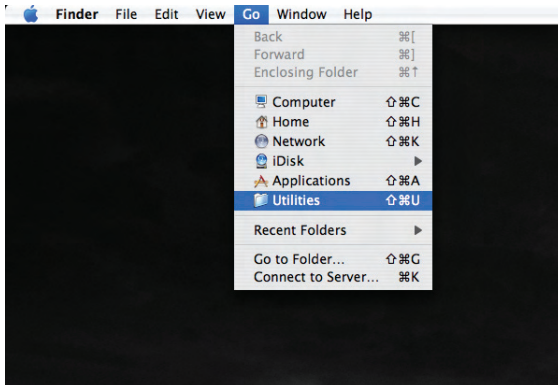
- ① In the web menu go to “Enable” to connect the network printer, after which an LG NAS printer icon appears.



- ② Doubling clicking on the icon shows the progress of the printer driver installation. For installation issues refer to the printer manual.
- ③ If installation is unsuccessful use the network printer service.

2) Mac users

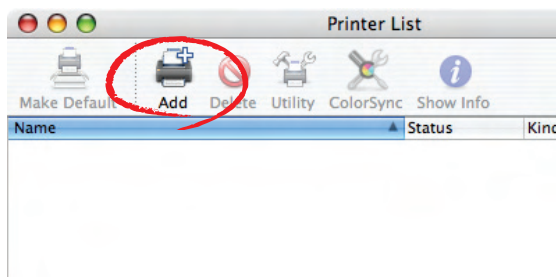
- ① Click on Go/ Utilities in the tool menu.



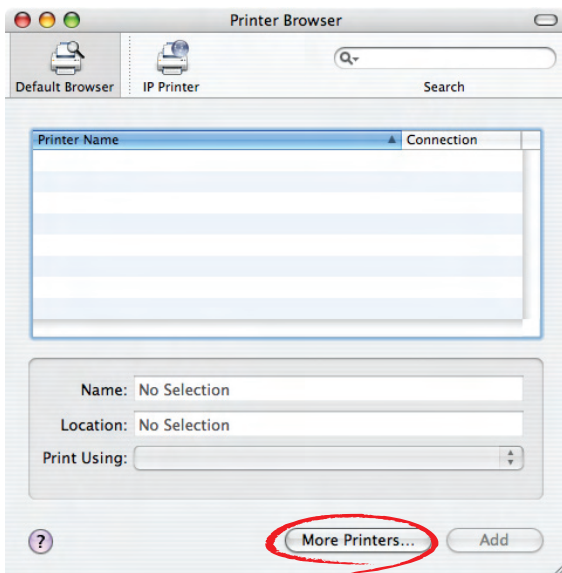
- ② Click on the Printer Setup Utility.



③ Click on Add.

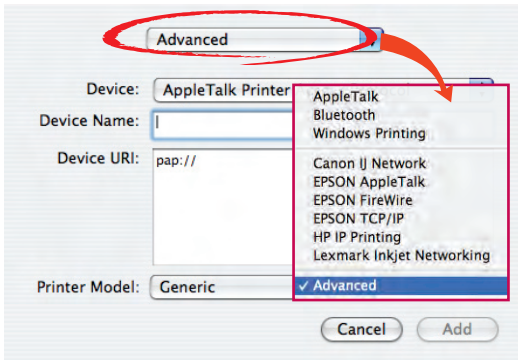


- ④ Hold the alt key down while clicking on More Printers.

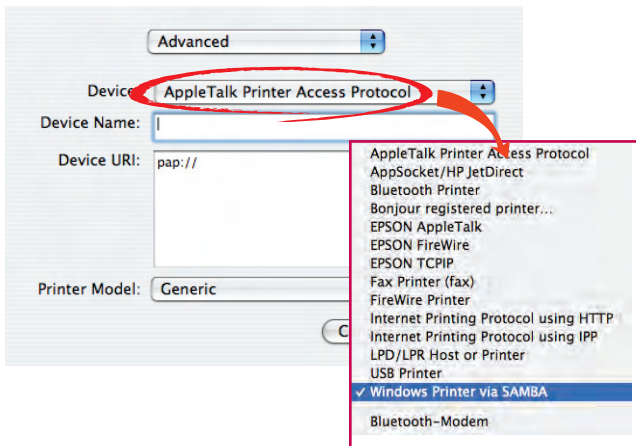


⑤ In the pop up window:

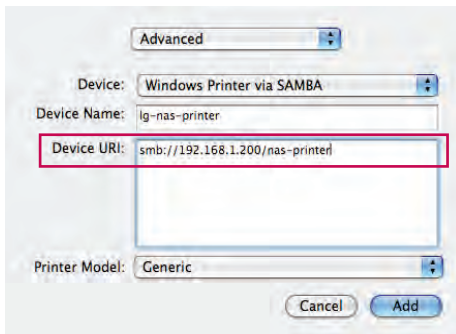
i) Select Advanced.*



ii) Select Windows Printer via SAMBA.



iii) Input the printer URI. The form name is smb: /LG NAS IP/printer. The printer name can be found in the Device Configuration(device config)/ USB Printer page.



The screenshot shows a web form for adding a printer. At the top, there is a dropdown menu set to 'Advanced'. Below it, the 'Device' dropdown is set to 'Windows Printer via SAMBA'. The 'Device Name' text field contains 'lg-nas-printer'. The 'Device URI' text field, which is highlighted with a red rectangular border, contains 'smb://192.168.1.200/nas-printer/'. Below this is a large empty text area. At the bottom, the 'Printer Model' dropdown is set to 'Generic'. There are 'Cancel' and 'Add' buttons at the bottom right of the form.

iv) In Printer Model, select Generic.

v) Click Add.

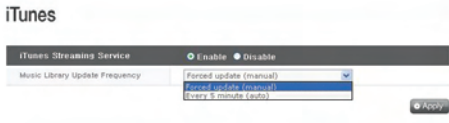
* By pressing the alt key while clicking on More Printers, a range of printers can be seen. There are no other options.

vi) The printer appears in the printer list. Now the printer is ready for use.

* Linux users must consult the OS manual, or inquire at the printer company.

iTunes

Using the iTunes services and recreating music files stored to the LG NAS through PC/Mac iTunes programs is possible. Music does not affect the PC/Mac storage space as transfer is done through streaming.



- ① For required use, select 'Enable' for iTunes Streaming Service.
 - ② Set Music Library Update Frequency
 - Forced update (manual): Activate once the music file service for Streaming to begin the service. To create a music file, time is needed hence manual updates are recommended.
 - Every 5 minutes (auto): Every 5 minutes, the music file list is updated periodically. For updated music lists, the client program must be restarted.
- * Itemizing a music file list may be time consuming, the Foced update option is recommended unless music files are updated frequently.

USB Sync

This function enables data transfer between USB devices, memory cards or external e-SATA devices and the LG NAS.

*Note: Some particular devices may require an adapter. (For a compatible memory card list, please refer to the homepage, <http://www.lge.com>. Use of an incompatible device may cause malfunction of the LG NAS.)

USB Device & Memory Card

USB device and memory card data can be backed up with the LG NAS. A separate process can be created for each USB device. One task can be performed using the USB device ID, target folder and back up method information, as well as back up period information.

Mobile Sync



Create Setting Information for each External Device

Current USB List

USB Sync Setting

USB Part	Manufacturer	Product
USB3	LG	X TRICK

[Create](#)

Current USB List

USB device and memory card lists on the LG NAS are displayed.

<Back Configuration Procedures>

- ① Connect a USB or memory device to the LG NAS.
 - * On the back panel of the LG NAS there are 2 USB ports, on the front panel of the LG NAS there is 1 USB port and 1 memory slot.
- ② Refresh the list to itemize.
 - Depending on which ports they are plugged in, USB1, USB2, USB3 and MemCard will appear.
- ③ Select the device for backup and click on the 'Create' button.
- ④ Specific options for Backup are listed.

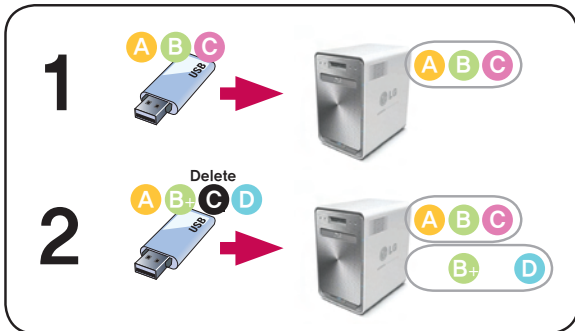
The screenshot shows the 'Create New Backup Schedule' form in the LG NAS web interface. The form is divided into three main sections: 'USB Name', 'Schedule', and 'Advanced'. The 'USB Name' section includes fields for Name, Description, Control Number, Device, and Destination. The 'Schedule' section includes fields for Cycle, Time, and USB auto sync. The 'Advanced' section includes fields for Backup Method, File & Folder Extension, and Backup File Extension. The form is annotated with numbered circles from 5 to 18, corresponding to the numbered list items below.

- ⑤ The task name is saved.
- ⑥ The task information description is specified.
- ⑦ The selected device's unique ID is displayed. ID specific to the manufacturer information, product information, etc. are displayed.
- ⑧ The port with the device is displayed.
- ⑨ The backup information stored target folder is specified. When selecting the device, a default folder is created automatically. The target folder can be changed to a folder other than the default folder.
- ⑩ The backup schedule is specified. Daily, Weekly, Monthly options are possible. If the monthly cycle is chosen, the date will be specified. If the weekly option is chosen, the day will be specified.
- ⑪ The backup time will be specified.
- ⑫ an automatic back up every time a USB is connected is created.
- ⑬ For incremental backups, the incremental back up option is selected. This is possible only when the 'Incremental' back up method option is valid.
 - File date folder: Executes incremental back up from original file creation/ modification date. A backup folder is created with name in the form "yyyyymmdd" according to the folder's original creation date.

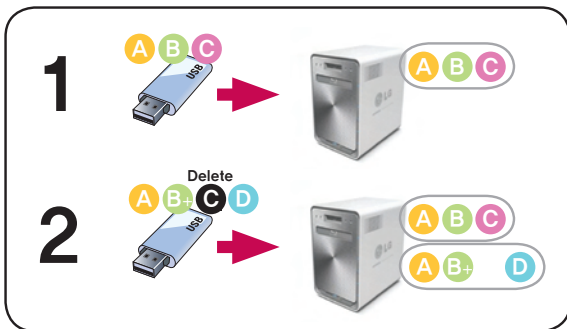
- Backup date folder: Executes incremental back up from original file backup date. A backup folder is created with a name in the form "yyyymmdd" according to the folder's original creation date.

⑭ Select the Backup Method

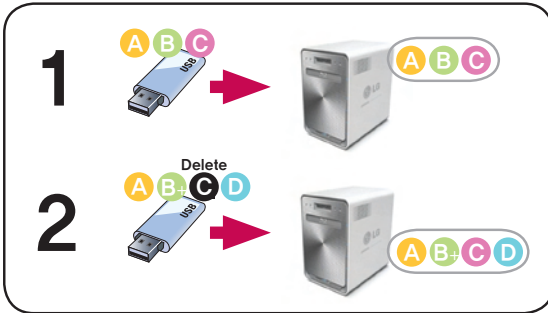
- Incremental: From the last back up and onwards, all information is added to the original data. File date and back up date folders are created according to the prescribed method.



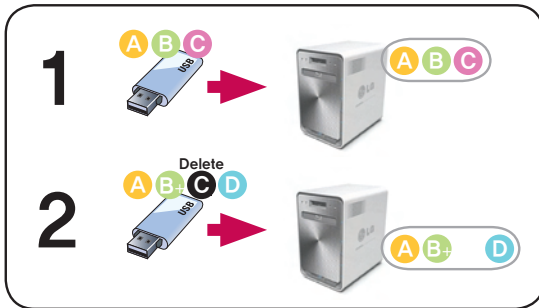
- Full: The whole original file is backed up. A backup folder with the name in the form "Full Device ID" is created and another folder beneath it with name in the form "yyyymmdd" is created according to the creation date.



- Copy: The original data can be synchronized. The backup target basic folder name is created from the "Device ID". The backup is saved in the original file folder.



- One: The basic function is commensurate to the 'Copy' option. Information deleted from the original is also deleted from the back up differently from the previous version.



- ⑮ For advanced setting options, click on the 'Open' button.
- ⑯ The extension on the back up file can be specified. If the 'Picture Ext' or 'Document Ext' Check Boxes are selected, only files with image file extensions or text file extensions can be backed up. Otherwise all files will be backed up.
- ⑰ The files that are not backed up can also have their extensions specified. Temporary files etc with extensions (*.bck, *.tmp), and files that are not useful will not be backed up.
- ⑱ Click on the 'Save' button to save the task.

USB Sync Setting

The current task list is indicated and tasks may be created, edited, deleted or synched.

- Clicking on the 'Create' button allows for a new task to be created.
- If the task name is selected, and the 'Delete' button is clicked, the task is deleted.
- If the list task name is clicked, editing is possible.
- If the task name is selected, the 'Sync' button can be clicked to instigate the sync process.









e-SATA

This function enables data transfer between external e-SATA devices and the LG NAS.



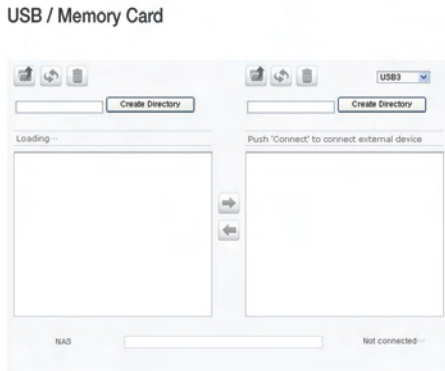
The LG NAS folders are displayed on the left window and folder structure of e-SATA devices on the right.

<Button Functions>






-  : Moves to upper folder.
-  : Refreshes the current folder
-  : Deletes selected files or folders.
-  : Copies selected LG NAS folders/files to e-SATA device folder
-  : Copies selected e-SATA device folders/files to LG NAS folder
-  : checks e-SATA device's connection status and loads connected e-SATA device

USB / Memory Card

This function enables data transfer between USB devices, memory cards and the LG NAS.



<Button functions>

-  : Moves to upper folder.
-  : Refreshes the current folder
-  : Deletes selected files or folders.
-  : Copies selected LG NAS folders/files to USB device / memory card folder
-  : Copies selected USB device / memory card folders/files to LG NAS folder

Information

This shows network, volume, device status of the LG NAS and information about system log, connection log and self-diagnosis.

Status

LG NAS Network, Volume and external Device state can be viewed.

The screenshot shows the 'Status' page of the LG NAS web interface. At the top, there are seven numbered tabs: ① Network, ② Volume, ③ Hard Disk, ④ Blu-ray, ⑤ USB, ⑥ e-SATA, and ⑦ Access Status. The 'Network' tab is selected and highlighted in red. Below the tabs is a table displaying network configuration details.

Status	
MAC Address	00E0917F0B1F
IP Address	192.168.1.200
Subnet Mask	255.255.255.0
Default Gateway Address	192.168.1.1
DNS Server Address (Primary)	192.168.1.1
DNS Server Address (Secondary)	
Ethernet Frame Size	1500
Link Speed	100 Mbps (full duplex)
Packets Received	3979003
Packets Received with Errors	0
Packets Transmitted	2994525
Packets Transmitted with Errors	0

At the bottom of the screenshot, there is a 'Network menu' section with a small icon and a horizontal bar.

- ① Mac Address, IP, Subnet Mask, Gateway, DNS Server, Ethernet Frame Size, link Speed, etc information can be viewed.
- ② Configured volume list and usage/RAID state information etc can be viewed.
- ③ All hard disk information connected to the LG NAS can be viewed by Bay position
- ④ The information pertaining to the Blu-ray drive connected to the LG NAS can be viewed.
- ⑤ The information pertaining to the USB device and memory card connected to the LG NAS can be viewed.
- ⑥ The information pertaining to the e-SATA device connected to the LG NAS can be viewed.
- ⑦ User state currently connected to the LG NAS can be viewed.

Log

The LG NAS service history can be displayed/saved.

The screenshot shows the LG NAS web interface. The top navigation bar includes 'Home', 'Logout', and 'Info'. Below this is a 'Full Menu' and 'Short Menu' section with options like System, Share, Blu-ray, Service, and Mobile Device. The 'Log' option is circled in red. The main content area is titled 'Log' and has four tabs: 'System Log', 'Samba Log', 'FTP Log', and 'Self-diagnose'. The 'System Log' tab is selected, showing a table of log entries with columns for 'Date & Time' and 'Log Information'. A 'Save' button is visible at the bottom right of the log table.

Date & Time	Log Information
Jan 2 15:39:42	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/sbin/iptables
Jan 2 15:39:42	(none) last message repeated 3 times
Jan 2 15:39:41	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/bin/cat /etc/ssh/sshd_config
Jan 2 15:39:41	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/sbin/iptables
Jan 2 15:39:41	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/sbin/iptables
Jan 2 15:39:41	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/sbin/route -n
Jan 2 15:39:40	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/usr/bin/awk 'NR==1 {print \$3} /etc/resolv.conf
Jan 2 15:39:40	(none) sudo: nobody: TTY=unknown: PWD=/usr/local/apache/htdocs/en/ptb: USER=root: COMMAND=/usr/bin/awk 'NR==1 {print \$3} /etc/resolv.conf

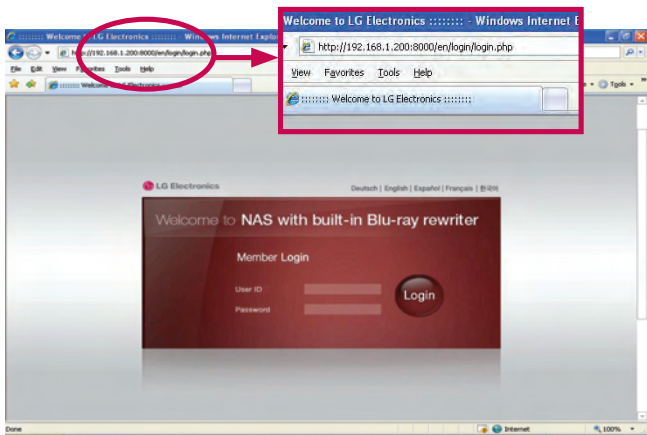
- ① The system use history can be viewed
- ② The share folder use history can be viewed
- ③ The FTP use history can be viewed.
- ④ The diagnosis is und and the result can be viewed
 - The service code for proper functions is displayed as [SVC_CODE: 00_00].
- ⑤ Selected tab log can be downloaded to the client PC.

5. LG NAS web menu usage (Regular users)

The LG NAS supports possible web menu remote connections. The LG NAS web menu can be called from the user's LG NAS. In the case that the LG NAS is linked to the network and uses a valid IP address, the LG NAS settings can be changed through the web browser.

User web menu access

- ① Open the web browser and input the address 「http://IP address」. If the address is not known, please refer to <PC Application Program Usage> or <IP Setup>.



* If a DDNS service offered by the LG NAS is used, connection to 「http://UserID.Ignas.com」 is possible instead of using IP address. Inquire with the network administrator concerning availability of the service.

- ② Input ID and password.

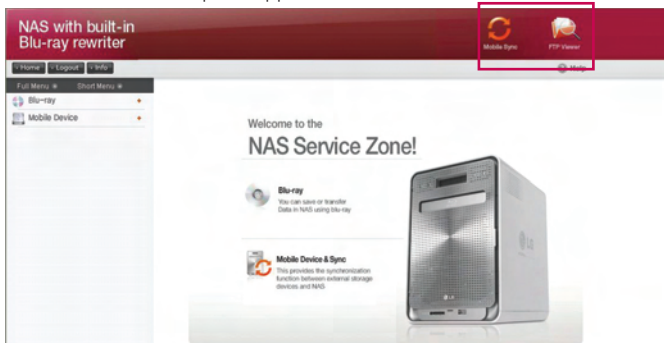
* Inquire with the network administrator if password is lost.

LG NAS usage

The LG NAS administrator and user menus can both be used through the web. The user supports the mobile synchronization function that can easily store information that uses the Blu-ray drive for the mobile device data.

Express setup menu

To facilitate the LG NAS set up the upper web menu contains a wizard.



Mobile Sync

Sync settings to automatically save data between USB device, memory card and LG NAS can be performed through the wizard menu.

① Click on the "Mobile Sync" icon above.



- Click the "Mobile Sync" button at the bottom of the page.
- port is indicated as the LG NAS recognizes the connecting device. Select device to be configured for sync and click on the 'Setting' button.

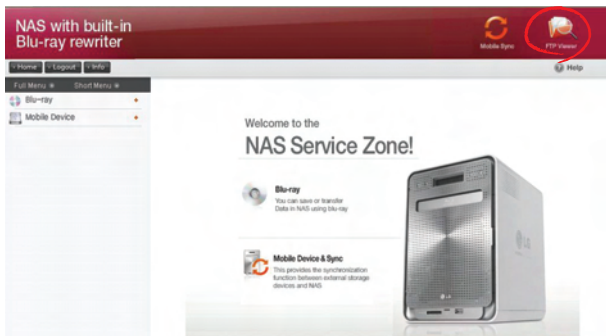


- Name, respective file/folder, Sync method, Frequency log etc can be set up. For setting options, please refer to [<USB Sync>](#).

FTP Viewer

The LG NAS a shortcut function which helps access files at one click to files within the LG NAS from the web menu.

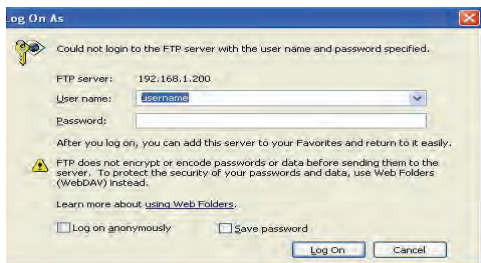
- Click on the 'FTP Viewer' icon above.



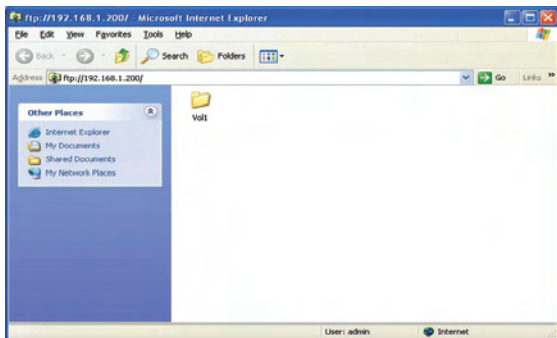
- ② Click on the 'OK' button.



- ③ Input ID and password, then click on the 'Log On' button



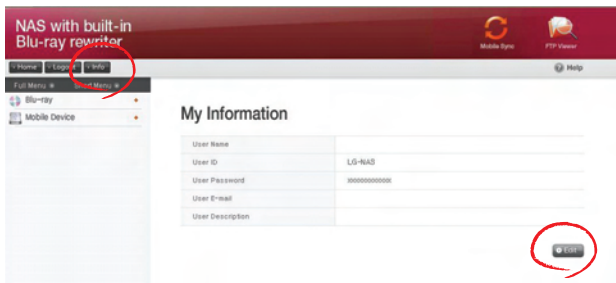
- ④ The LG NAS shared folder will display.



* Contact the LG NAS administrator if you cannot use FTP Explorer.

Changing user passwords

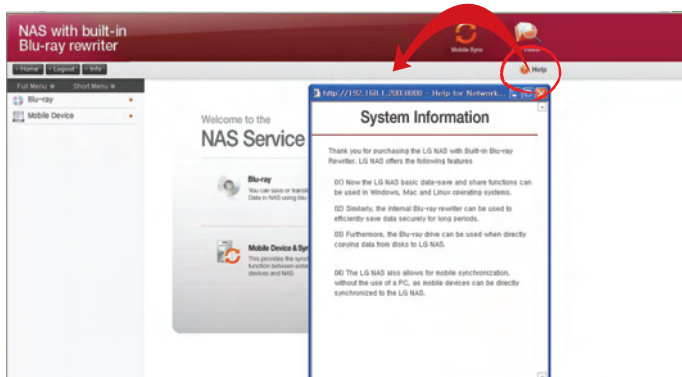
- 1 Click the 'Info' button at the upper left. This will display the current user information.



- 2 Click the 'Edit' button to the right of the page.
- 3 Enter the edited information and click the "OK" button.

Help

By clicking the 'Help' button at the top right, the help page will appear.

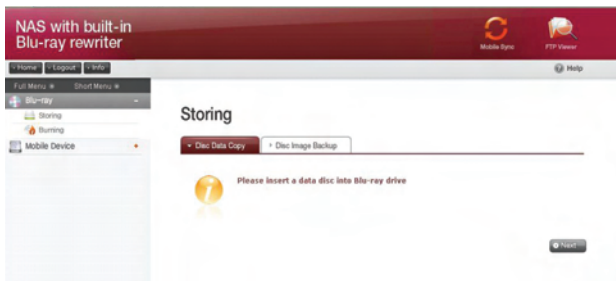


Blu-ray(CD/DVD/BD)

The built in Blu-ray Drive allows direct copy of data from discs to the LG NAS. Furthermore, secondary backup of data using the Blu-ray drive makes data management safer and more efficient.

Storing

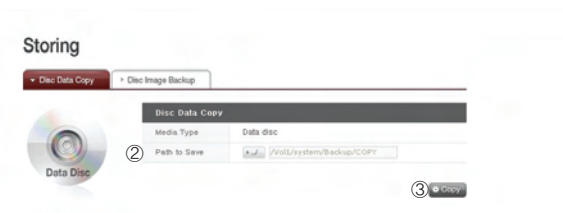
Reading disc data from the Blu-ray drive is an LG NAS storage function.



Disc Data Copy – Writing Disc Data to the LG NAS

Storage of disc data using the LG NAS is a data disc copy function.

- ① Insert the data disc in to the Blu-ray Drive and press the 'Next' button. If the disc is completely recognized, it will appear as 'Data disc' on the 'Media Type' cell.
 - i) If the disc loading function has not finished, a "Blu-ray Drive is busy. Try again later." Message will appear. Try again after a short while.
 - ii) If there is not disc in the Blu-ray drive, or if an incompatible disc is used, a "Please insert a data disc into Blu-ray drive" message will appear.



- ② Set the destination folder to save data
- ③ Click on the 'Copy' button to start copying.

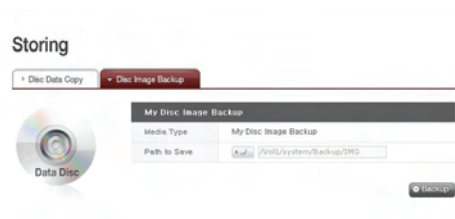
Disc Image Backup

The disc information from the Blu-ray Drive is stored on the LG NAS as an image file (*.iso, *.cue, *.bin). For Data Discs, files with extension iso are created, and for Audio and Video CDs, files with extensions cue and bin respectively are created. For copy-protected disks, image saving is not possible.

- ① Place the disc in the Blu-ray Drive, and click the 'Next' button. A "Blu-ray Drive is busy. Try again later." message appears to indicate that loading is not yet completed. Try again after a short while.



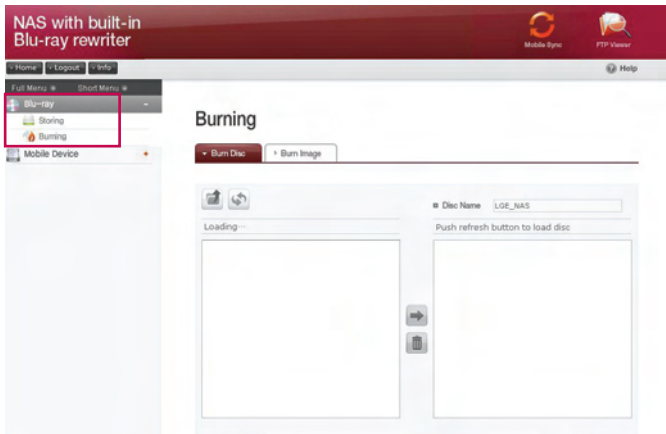
- ② Set the destination folder to save data



- ③ Click on the 'Backup' button to start the task. At start up, a progress bar will appear.

Burning

Burning the LG NAS data to disc is possible using the Blu-ray Drive.







Burn Disc

Burning LG NAS files to disc is possible.



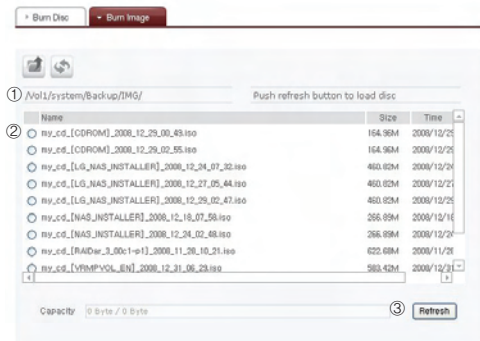
<Button functions>

-  : Moves to upper folder.
 -  : Refreshes the current folder
 -  : Files or folders selected on the left window are sent to the right window to organize a list for recording.
 -  : Deletes selected files or folders from the list organized for recording on the right window.
- ① Move the intended folder or file to the destined location.
 - ② Selecting a folder or file to record and move to the right side produces a configuration data list
 - ③ Specify disc name in the 'Disc Name' window.
 - ④ Click on the 'Refresh' button and confirm that disc writing is possible as indicated in the disc start box.
 - ⑤ Pressing the 'Burn' button begins the burning process. The burning process is accompanied by a progress bar display. To cancel the process, click on the 'Cancel' button, which appears with the progress bar.

- ⑥ At the end of the burning process, the tray ejects and the disc can be removed.
- * By clicking on the 'Erase Disc' button, re-writable discs can be initialized. This action will delete all the existing data.

Burn Image

The image file of the disc used to save LG NAS data can be burnt to disc.



- ① The selected image file can be moved to the destined folder.
 - ② Select the image file to be burnt.
 - ③ Click on the 'Refresh' button to confirm whether the disc can be burnt, as indicated in the disc state window.
 - ④ The burn function is activated by clicking the 'Burn' button. The burn process is accompanied by a progress bar.
 - ⑤ Click on the 'Cancel' button, which appears with the progress bar, to cancel the burn.
 - ⑥ At the completion of the burn, the tray ejects and the disk/disc may be removed.
- * If the 'Erase Disc' button is selected, rewriteable discs can be selected. This action will cause deletion of all the existing data.

Mobile Device & Sync

This function enables data transfer between USB devices, memory cards or external e-SATA devices and the LG NAS.

*Note: Some particular devices may require an adapter. (For a compatible memory card list, please refer to the homepage, <http://www.lge.com>. Use of an incompatible device may cause malfunction of the LG NAS.)

USB Sync

USB device and memory card data can be backed up with the LG NAS.

A separate process can be created for each USB device. One task can be performed using the USB device ID, target folder and back up method information, as well as back up period information.

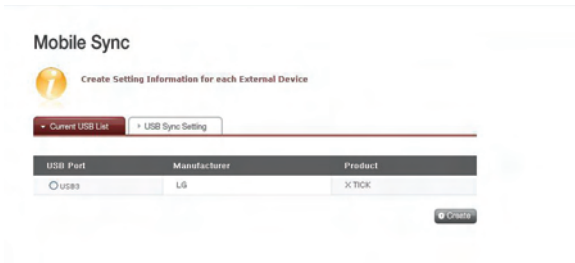
The screenshot shows the 'Mobile Sync' configuration page in the LG NAS web interface. The page has a dark red header with the text 'NAS with built-in Blu-ray rewriter' and icons for 'Mobile Sync' and 'FTP Viewer'. A navigation menu on the left includes 'Home', 'Logout', 'Info', 'Full Menu', and 'Short Menu'. The main content area is titled 'Mobile Sync' and contains a sub-header 'Create Setting Information for each External Device'. Below this, there are two tabs: 'Current USB List' (selected) and 'USB Sync Setting'. A table displays the current USB list with the following data:

USB Part	Manufacturer	Product
/usb3	LG	X-TICK

A 'Create' button is located at the bottom right of the table area.

Current USB List

USB device and memory card lists on the NAS are displayed.



<Backup Configuration Procedures>

- ① Connect a USB device or memory card to the LG NAS.
* On the back panel of the LG NAS there are 2 USB ports, on the front panel of the LG NAS there is 1 USB port and 1 memory slot.
- ② Refresh the list to itemize.
Depending on which ports are used, the USB1, USB2, USB3 and MemCard will appear.
- ③ Select the device for backup and click on the 'Create' button.
- ④ Specific options for Backup are listed.

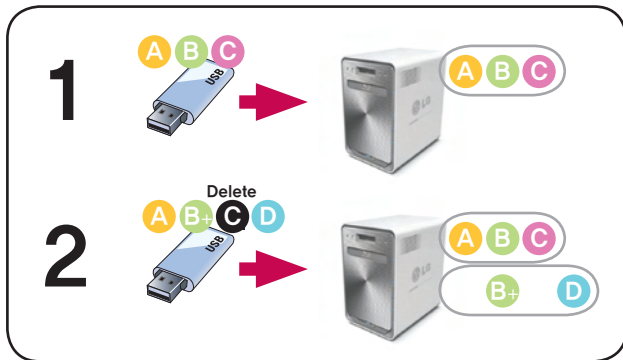
The screenshot shows the 'Create New Backup Schedule' web interface. It is divided into several sections:

- Basic Information:**
 - 5: Name field
 - 6: Description field
 - 7: Control Number field (value: smation_bch221a11)
 - 8: Source dropdown menu (value: USB3)
 - 9: Destination field (value: /mnt2/system/Backup/USB/smation_bch221)
- Schedule:**
 - 10: Cycle dropdown menu (value: None)
 - 11: Time dropdown menu (value: Hour)
 - 12: USB auto sync checkbox (checked)
 - 13: File & Folder Arrangement radio buttons (File Date selected)
 - 14: Backup Method radio buttons (Incremental selected)
- Advanced:**
 - 15: Advanced section header
 - 16: Include File Extension field (value: *.format)
 - 17: Exclude File Extension field (value: *.format)
- Buttons:**
 - 18: OK and Cancel buttons

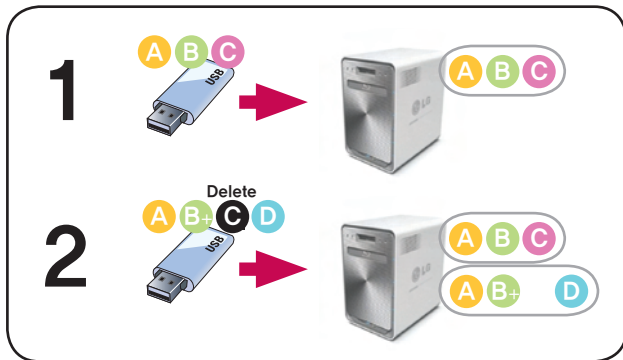
- ⑤ The task name is saved.
- ⑥ The task information description is specified.
- ⑦ The selected device's unique ID is displayed. ID specific to the manufacturer information, product information, etc., are displayed.
- ⑧ The port with the device is displayed.
- ⑨ The backup information stored target folder is specified. When selecting the device, a default folder is created automatically. The target folder can be changed, which is different to the default folder.
- ⑩ The backup schedule is specified. Daily, Weekly, Monthly options are possible. If the monthly cycle is chosen, the date will be specified. If the weekly option is chosen, the day will be specified.
- ⑪ The backup time will be specified.
- ⑫ Creates an automatic back up every S6 time a USB is connected.
- ⑬ For incremental backups, the incremental back up option is selected. This is possible only when the 'Incremental' back up method option is valid.
 - File date folder: Executes incremental back up from original file creation/ modification date. Backup folder is created with name of the form "yyyymmdd" according to the folder's original creation date.
 - Backup date folder: Executes incremental back up from original file backup date. Backup folder is created with name of the form "yyyymmdd" according to the folder's original creation date.

⑮ Select the Backup Method.

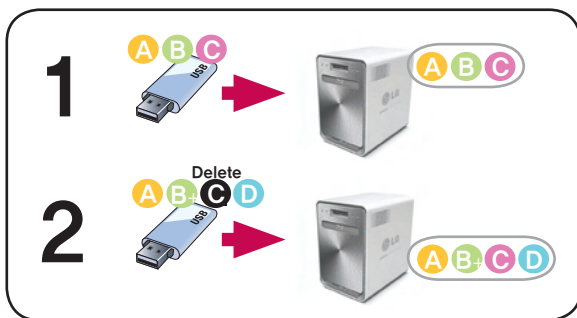
- Incremental: From the last back up and onwards, all information is added to the original data. File date and back up date folders are created according to the prescribed method.



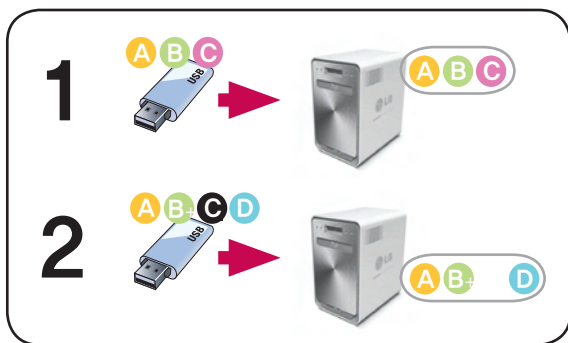
- Full: The whole original file is backed up. A backup folder with the name in the form "Full Device ID" is created and another folder beneath it with name in the form "Yyyymmdd" is created according to the creation date.



- Copy: The original data can be synchronized. The backup target basic folder name is created from the "Device ID". The backup is saved in the original file folder.



- One: The basic function is commensurate to the 'Copy' option. Information deleted from the original is also deleted from the back up differently from the previous version.



- 14 For advanced setting options, click on the 'Open button'.
- 15 The extension on the back up file can be specified. If the 'Picture Ext' or 'Document Ext' Check Boxes are selected, only files with image file extensions or text file extensions can be backed up. Otherwise all files will be backed up.
- 16 The files that are not backed up can also have their extensions specified. Temporary files etc with extensions (*.bck, *.tmp), and files that are not useful will not be backed up.
- 17 Click on the 'Save' button to save the task.

USB Sync Setting

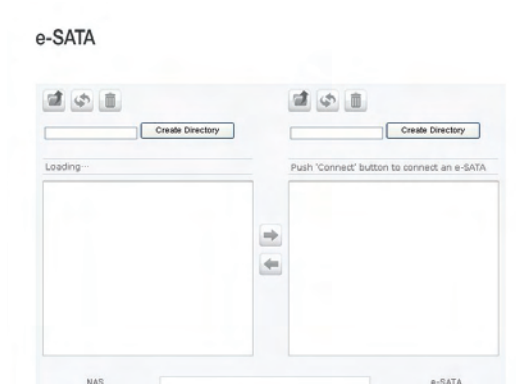
The current task list is indicated and tasks may be created, edited, deleted or synched.

- Clicking on the 'Create' button allows for a new task to be created.
- If the task name is selected, and the 'Delete' button is clicked, the task is deleted.
- If the task name on the list is clicked, editing is possible.
- If the task name is selected, the 'Sync' button can be clicked to instigate the sync process.









e-SATA

This function enables data transfer between external e-SATA devices and the LG NAS.



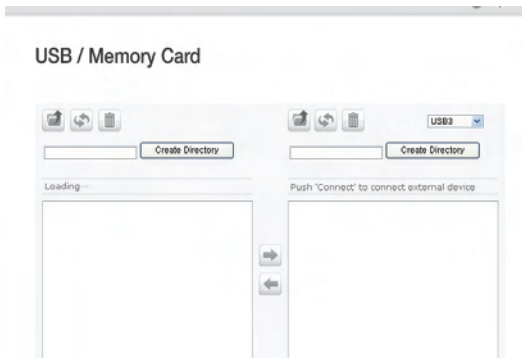
The LG NAS folders are displayed on the left window and folder structure of e-SATA devices on the right.

<Button Functions>






-  : Moves to upper folder.
-  : Refreshes the current folder
-  : Deletes selected files or folders.
-  : Copies selected LG NAS folders/files to e-SATA device folder
-  : Copies selected e-SATA device folders/files to LG NAS folder
-  : checks e-SATA device's connection status and loads connected e-SATA device folders.

USB / Memory Card

This function controls file input/output of USB devices or memory cards attached to the LG NAS.



<Button functions>

-  : Moves to upper folder.
-  : Refreshes the current folder
-  : Deletes selected files or folders.
-  : Copies selected LG NAS folders/files to USB device / Memory card folder
-  : Copies selected USB device/Memory card folders/files to LG NAS folder

6. LG NAS use via network drive

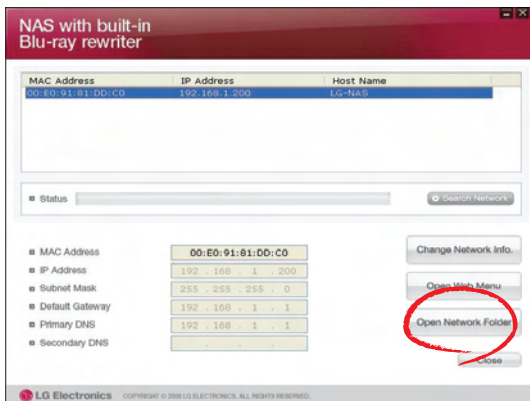
The file sharing service is the most important function in the LG NAS. This section pertains to Windows, Mac, Linux OS, which are explained in reference to their use with the LG NAS network drive.

Accessing the LG NAS data in Windows OS

For Windows users, observe the following procedure to access the LG NAS.

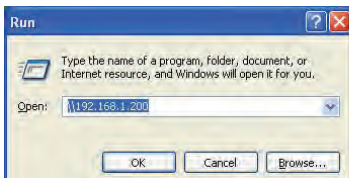
PC Application Program Usage

After setting up the 'LG NAS PC Software Installer' disc NAS Detector program and desktop icon use, execute and clicking on the "Open Network Folder" button will allow access to the LG NAS's sharing folder. For detailed setting information refer to **<PC Application Usage>**



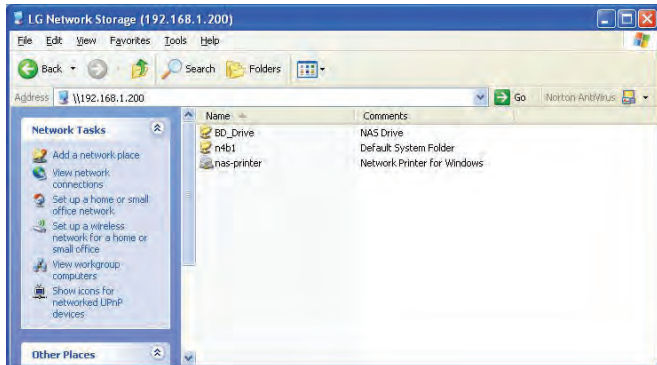
Windows OS “Execute” function use

Clicking on “Execute” in the Windows OS can start a new menu with inputting the \\IP Address to the LG NAS can be accessed. For information pertaining to the IP address, refer to [<IP Setup>](#)



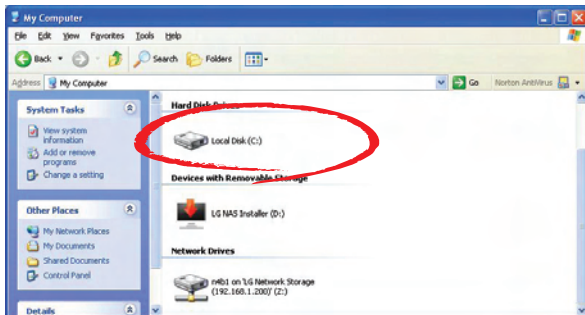
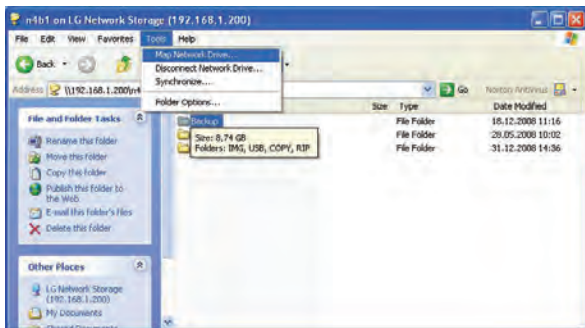
Windows File Sharing Use.

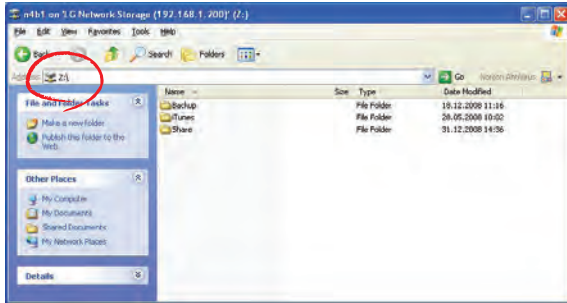
Open the web browser and input 『\\IP address』 in the address bar. The server can be accessed after the log in. If the IP address is not known, refer to [<PC Application Usage>](#) or [<IP Setup>](#)



Post server connection, network drive set up

If there is a connection to the LG NAS, all sharing folders are registered. If settings involve the network drive using the “Tools > Map Network Drive...”, future connection to the LG NAS server becomes more convenient.





MAC OS connection

MAC users can connect to the LG NAS by methods such as explained below.

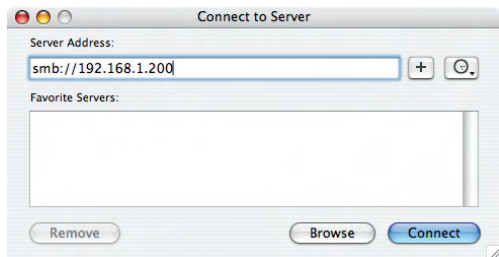
“Server connect” function use

The LG NAS sharing folder can be added to the Mac server list on the desk top. The connection order is as follows.

- ① Select “Connect to server” after clicking on “Go” at menu bar.



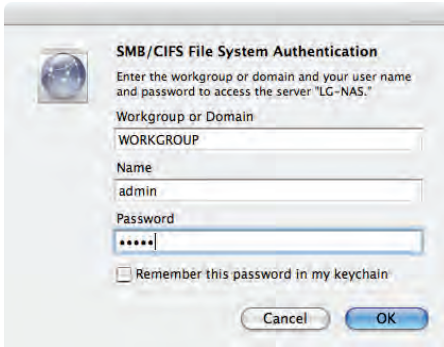
- ② At the server address field, input the LG NAS IP address 『smb://IP Address』, and click the “Connect” button. If the LG NAS IP address is not known, refer to <PC Application Usage> or <IP Setup> .



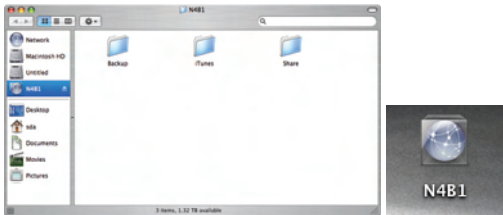
- ③ Click on the “OK” button in the LG NAS folder list usage volume (e.g. BD_Drive or n4b1) .



- ④ Input the log in ID and password and click on the 'OK' button. The initial settings are as follows: ID: admin, password: admin.
* For security, changing administrator password is advised.



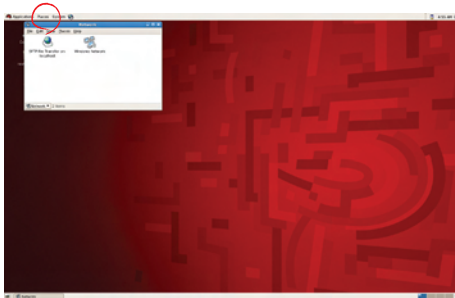
- ⑤ Hence open the share folder and the share folder will appear on the desk top.



Linux OS access

LG NAS supports Windows, MAC, and Linux OS, through the NFS service. The Linux system connection is as follows. Hereinafter Red Hat will be referred to.

- ① Click on the menu bar and then select 'network'.

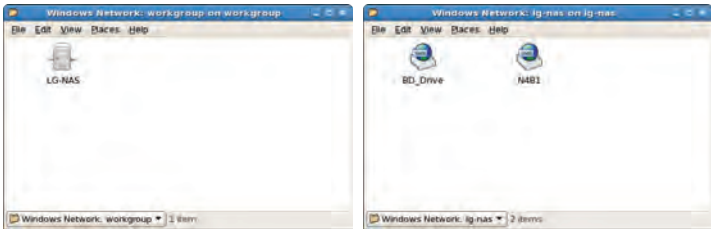


- ② Click on "Windows Network" and if "workgroup" is selected, the connected LG NAS will be displayed inside the work group. Select the LG NAS to connect.



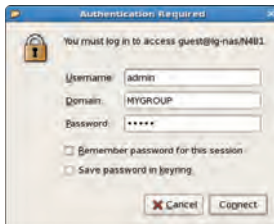
6. LG NAS use via network drive

- ③ If the LG-NAS is selected, the LG NAS folder list will be displayed. Select the volume to be used (e.g. BD_Drive or n4b1).

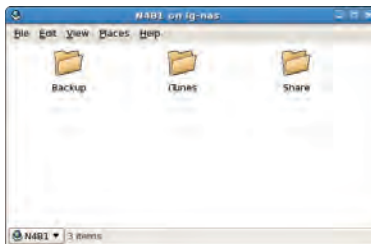


- ④ If the ID and passwords are inputted then connection to the LG NAS is allowed. Initial default information is ID: admin, password: admin.

* For security, changing administrator password is advised.



- ⑤ After logging in, the LG NAS share folder appears.



7. LG NAS maintenance

This section explains about general LG NAS maintenance and self-diagnosis.

LG NAS shut down/reboot

The following steps pertain to server shut down/reboot.

- ① Inform all connected users to save files in operation and stop use of the LG NAS.
- ② Open the administrator web page, and go to the 'System > Power > Shutdown' tab. According to the description, pressing the 'Restart' button, the system can be restarted or shut down.



For a compulsory shut down of the LG NAS, press the power button for 5 seconds. A beep will sound once and LG NAS shut down will follow.

Administrator password and network set up initialization

Open the administration web menu and go to the 'Initialization' tab of the 'System > Firmware' menu. Following the explanation, push the 'Initialization' button and initialize the default system values.

Warning: As this time all registered user information and data will be deleted, and cannot be recovered.

- LG NAS default value initialized items
 - ① System administrator ID, password: admin, admin
 - ② Network set up /TCP/IP configuration: 192.168.1.200
 - ③ Network set up/TCP/IP configuration : Jumbo frame inactivity
 - ④ System device/IP filter: All connections are allowed
- 2) Log in to the LG NAS using the default user name and password:
ID: admin, password: admin



System information checking and saving.

Open the administration web menu and go to the 'Log' of the 'Information' menu then check and save settings in 'System Log', 'Samba Log' and 'FTP Log'.



Self-diagnosis execution.

The LG NAS, by virtue of built in self-diagnosis mode, helps users easily recognize and handle problems arising on the server.

- ① When the LG NAS encounters a problem while powering on and running, it automatically displays self-diagnosis result on the LSC as follows (xx: system error code, yy: HDD error code)



- ② Even in the middle of usage, the administrator can open up the administrator web menu and select the 'Self-diagnosis' tab in the 'Information > Log' menu, so the LG NAS immediately runs self-diagnosis.



System failure or malfunction

If the LG NAS encountering a problem after powering on is envisages, or after running 'Self-diagnosis' on the administrator web as stated above in section 7.4, Follow the steps below.

- ① For technician's reference, write down the error code appearing on the LCD '[SVC_CODE xx_yy]' and make a record on tasks done before the accident and messages you witnessed
- ② For error messages mentioned in ①, you can get help from LG electronics Service Site if such errors were caused by negligence. <http://www.lge.com>.
- ③ When no solution exists, do not disassemble and call the service center for remote technical support.

Power cut or failure

When power failure occurs, the LG NAS will return to its former pre power-failure state after reboot. In case of system malfunctions under normal environment, observe the following procedure.

- ① If the system settings are modified, the user must perform a new set up after reboot.
- ② If the system is still acting strangely contact the service centre.

To prevent data loss, frequently back up files.

- ① Follow the above description for shutdown/restart.
- ② In the case that a potential shut down is expected, all files must be saved and backed up. After the power is restored, reboot the system.

System temperature protection

If HDD temperature within the system exceeds 75 degrees Centigrade or 167 degrees Fahrenheit, the system ends automatically and to protect hardware.

8. RAID trouble shooting

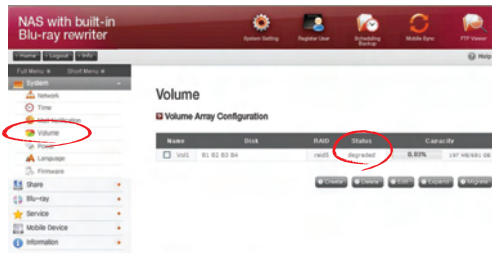
The LG NAS RAID configuration is abnormal when error messages appear, hence resort to another solution:

To avoid data obstacles, perform a back up first.

1. RAID configuration error checkup

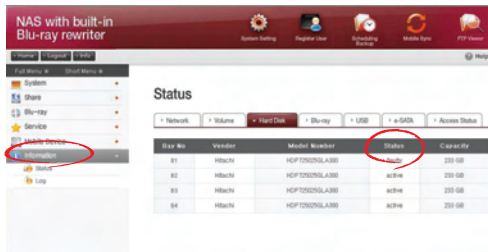
- **Confirm whether there is an error on the RAID configuration:**

- ① On the System > Volume page, the volume configuration state will show as "degraded/destroyed".



- **Confirm which HDD is causing the RAID error.**

- ① LED: The LG NAS state LED will appear as red.
- ② The Hard Disk state "faulty/removed" is displayed in the information/state box.





If the RAID configuration is RAID5 and more than one HDD has an error, the RAID cannot be reconfigured, thus volumes need to be reallocated. In this case, no data can be recovered.

2. Problem solutions

Remove the HDD that has an error and connect a new hard drive (e.g.: HDD 1), then the RAID reconfiguration will start. All data in the newly connected HDD will be lost during this process.

For another failure during reconfiguration, the fault and HDD should be located and the following procedure should be observed.

- ① Error is due to the new HDD.

The newly connected drive must be exchanged for a new drive, and then RAID must be reconfigured.

② Error is due to the existing HDD.

- 1** If the RAID configuration is RAID1, choose between each of the following.
 - Back up the volume data on another storage device. Next, reconfigure the volume.
 - Format the newly connected HDD. Data in the volume where the problem has occurred should be backed up by the administrator. Separate the HDD in which the error has occurred. Execute RAID1 reconfiguration after exchanging HDD on the LG NAS.
- 2** When RAID configuration is RAID5, the volume state is changed to 'destroyed'. The data must be backed up and the system must be reconfigured. Some data may be lost during this process.



When connecting or disconnecting the HDD, strictly adhere to the following procedure and avoids abnormal system operation or data obstruction.

1. In the LG NAS, one HDD can be connected or disconnected at a time.
 2. 10 seconds will lapse before 2 tones are heard when the LG NAS is connected to or disconnected from a new hard drive. Next, connect or disconnect the HDD.
-

Appendix A Volume Construction & RAID Configuration

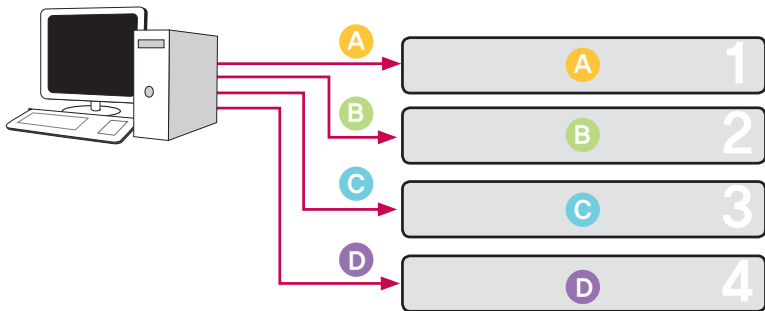
This section describes volume configuration and supported RAID level.

When configuring volume using RAID, the use of Disks of the same manufacturer and capacity is recommended to maximize stability and efficiency of configuration. In the case that the Disks differ in capacity and trademark, data may be lost due to low system stability and efficiency.

In the case that the volume of the damaged Disk must be amended, relevant data must first be backed up.

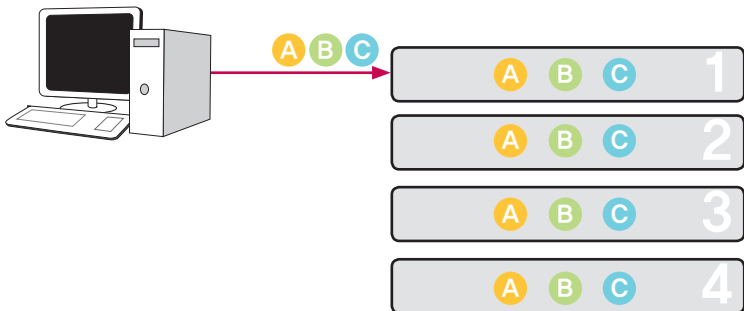
- **Single Disk (None) volumes**

The volume can be configured to each Disk without configuring the RAID. This is similar to methods with general PCs that use Disks. If the Disk is damaged, the damaged Disk data may be lost.



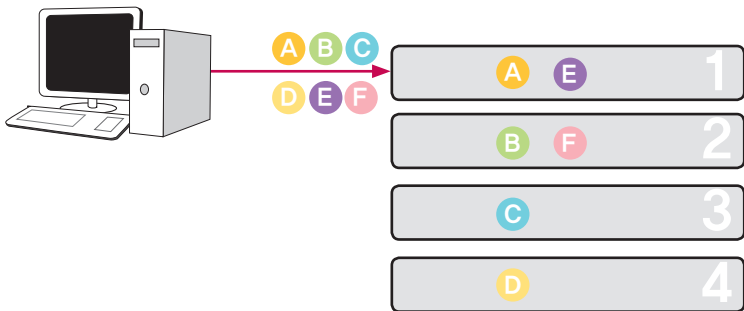
- **RAID1 mirroring volumes**

Data can be exactly replicated to the Disk through this technique. If one Disk becomes damaged in the volume, data can be efficiently transferred, saved and backed up to another configured Disk. The volume's storage capacity is equal to that of the smallest Disk in the RAID1, as the data is reproduced from Disk to Disk. The data backup is a priority during RAID1. The saving of important data is recommended.



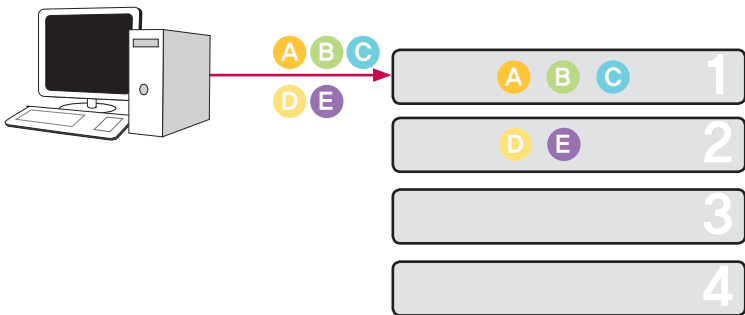
- **RAID0 striping volume**

The Disks are configured in parallel so that they are all being used at once to store data, as if they were one Disk in summation. Because the data is saved to each Disk in parallel, many files of low capacity are read simultaneously but with superior efficiency. Many low capacity files are read because multiple blocks of data are stored to each Disk, though the performance is excellent at this time. In order to secure data stored, Information is not read when at least one Disk is damaged. Subsequently, if the Disk is damaged, the saved data in the volume will be lost. The saving capacity of the volume is at least the Disk capacity multiplied by the number of Disks. This technique must not be used for the saving of important data, but rather for fast data access and for maintenance of the security of its volume capacity.



- **JBOD Linear volume**

The Disks are configured in series so that they are all being used at once to store data, as if they were one Disk in summation. The volume's storage capacity can be maximized, as the data is stored to the Disks in sequence. Data must not be written in the event of a damaged Disk to safeguard saving capacity. In this way, if a Disk is damaged, saved date in the volume will be lost. The storage capacity of the volume as a whole is the sum of the capacities of all of the Disks. To maximize the safeguard of capacity of the volume, saving of important data is not recommended.

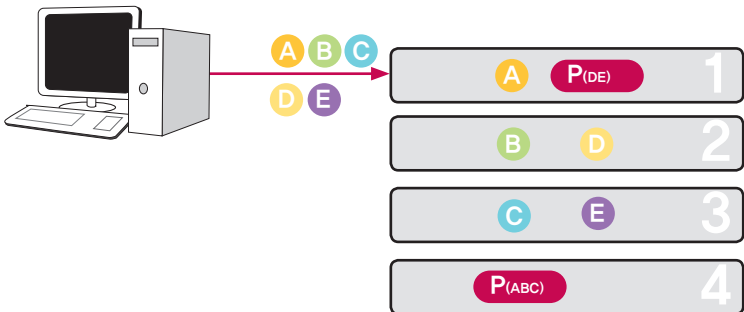


- **RAID5 Parity volume**

The Disks are configured in parallel so as to all be used at once to store data; parity (P) suggests that when the Disk is damaged the system will not be affected, which is the system that the volume uses. At least 3 Disks are needed as well as parity save capacity of 1 Disk, thus 1 Disk can be damaged without system malfunction.

Data backup and the safeguarding of saving capacity occur simultaneously, where the volume capacity is equal to the minimum Disk capacity multiplied by the number of Disks in the volume minus 1. Due to parity calculation, data saving is retarded. Data backup and the safeguarding of saving capacity occur simultaneously.

– If one Disk is damaged in RAID5, the state of the volume is indicated as “Faulty”. The Disk that backs up data must immediately be changed in the event of its malfunction. If more Disks are damaged, data will be permanently lost. Thus the Disks must be exchanged with either the server off or left on (hot swapping). After the Disk is replaced, the volume will be in a “syncing” state. After the backup is finished, the system will be in a normal “active” state.

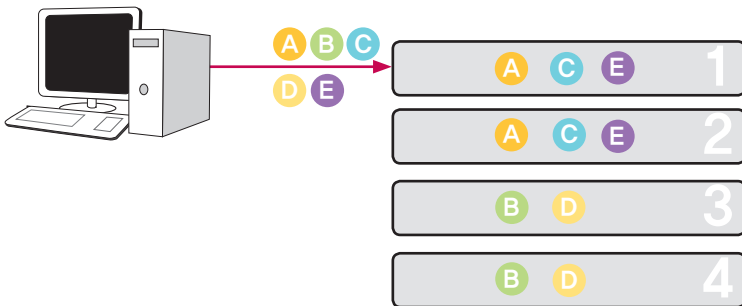


- **RAID10 Mirroring & striping volumes**

In relation to the volume configuring techniques RAID1 and RAID0, the Disks are configured 2 at a time by RAID1, followed by the configured set being associated by RAID0 and hence the volume as a whole is configured. With more than 4 Disks present, configuration occurs in pairs. 4 Disks are used to configure the LG NAS.

If Disk damage does not happen simultaneously to 2 Disks configured through RAID1, the volume will continue to function. The volume save capacity is equal to the product of the minimum Disk capacity and half of the number of Disks in the volume.

Data backup and the safeguarding of saving capacity occur simultaneously. (RAID5 prioritizes capacity security, where RAID10 prioritizes data backup).



Appendix B Technical Support

LG NAS provides dedicated online support and customer service via instant messenger. You can contact us by the following means:

-. Online Support : <http://www.lgservice.com>

LG Electronics U.S.A. Inc, 1000 Sylvan Ave.
Englewood Cliffs NJ 07632 U.S.A or <http://www.lgusa.com>

LG Electronics Deutschland GMBH Jakob-Kaiser-Strae 12,
D-47877 Willich, Germany

Goldstar France E.U.R.L Paris Nord II 22, Avenue des Nations-B.P.50372
VILLEPINTE 95945 ROISSY CDG CEDEX France

LG Electronics España Complejo Europa Empresaries (Edif. Bruselas)
Ctra, N-VI 28230 Las Rozas Madrid Spain

Appendix C Open source software notice

The following GPL executables and LGPL libraries used in this product are subject to the GPL2.0/LGPL2.1 License Agreements:

GPL EXECUTABLES:

- u-boot
- Linux kernel 2.6
- Busybox
- apcupsd
- ascii-3.8
- bash-2.05b
- cdrkit
- dosfstools
- dvdbackup
- e2fsprogs
- libid3tag
- mdadm
- mediatomb
- mtd
- mt-daapd
- netatalk
- noflushd
- ntfs-3g
- proftpd
- rsync
- samba
- smart
- ssmtp
- sysklogd
- udev
- xfs
- gdbm
- coreutils
- libid3tag
- fstyp
- fdutils

- logrotate
- inadyn
- shadow

LGPL LIBRARIES:

- Glibc
- libexif

LG Electronics offers to provide source code to you on CD-ROM for a charge covering the cost of performing such distribution, such as the cost of media, shipping and handling upon e-mail request to LG Electronics at:

opensource@lge.com

This offer is valid for a period of three (3) years from the date of the distribution of this product by LG Electronics.

You can obtain a copy of the GPL, LGPL licenses from the included the "Licenses" folder in the "LG NAS PC Software Installer" CD.

This product includes

- PHP software, freely available from <http://www.php.net/software/>.
- software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)
- Apache HTTP Server

Copyright 2006 The Apache Software Foundation.

This product includes software developed at The Apache Software Foundation (<http://www.apache.org/>).

Portions of this software were developed at the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security Inc. MD5 Message-Digest Algorithm, including various modifications by Spyglass Inc., Carnegie Mellon University, and Bell Communications Research, Inc (Bellcore)

This work includes the Expat xml parsing library Copyright (c) 1998, 1999 James Clark, distributed under and subject to the Mozilla Public License Version 1.1.

This work includes the regex library Copyright 1992, 1993, 1994 Henry Spencer, all rights reserved.

This product includes other open source software.

- Copyright (c) 2004 by Internet Systems Consortium, Inc. ("ISC")
- Copyright (c) 1996–2003 by Internet Software Consortium
- Copyright 1998–2008 The OpenLDAP Foundation
- Portions Copyright 1998–2008 Kurt D. Zeilenga.
- Portions Copyright 1998–2006 Net Boolean Incorporated.
- Portions Copyright 2001–2006 IBM Corporation.
- Portions Copyright 1999–2007 Howard Y.H. Chu.
- Portions Copyright 1999–2007 Symas Corporation.
- Portions Copyright 1998–2003 Hallvard B. Furuseth.
- Portions Copyright 2008 Gavin Henry
- Portions Copyright 2008 Suretec Systems
- Portions Copyright (c) 1992–1996 Regents of the University of Michigan.
- Copyright (c) David L. Mills 1992–2006
- Copyright (c) 1994–1996, 1998–2005 Todd C. Miller Todd.Miller@courtesan.com
- Copyright (c) 1987, 1989, 1990, 1991, 1993, 1994 The Regents of the University of California.
- Copyright 1997 by the Massachusetts Institute of Technology.
- Copyright (C) 2004–2006 Internet Systems Consortium, Inc. ("ISC")
- Copyright (C) 1996–2003 Internet Software Consortium.
- Portions Copyright (C) 1996–2001 Nominum, Inc.
- Copyright (C) 1998–2003 Daniel Veillard.
- Copyright (c) 1998, 2005 Free Software Foundation, Inc. *

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Appendix D Compatible/Recommended Device List

Recommendation hard disk list

The following is a list of hard disks possibly compatible with the LG NAS. The following hard disks are recommended. In the case of using hard disks not recommended by LG Electronics, malfunctions in the LG NAS can occur. For updated hard disk recommendations, go to the link <http://www.lge.com>.



This device strictly complies by the rules and regulations of MIC, governing emission of electromagnetic waves (B grade), and can be used in any area in the household.

Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>