

# ALLNET ALL6700/ALL6700RP Disk Server

User's Manual

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# **About This Manual**

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

Product name: ALLNET ALL6700 / ALL6700RP

Manual Version: 1.0 Release Date: March 2007

# **Limited Warranty**

ALLNET GmbH guarantees all components of ALLNET ALL6700 are thoroughly tested before they leave the factory and should function normally under general usage. In case of any system malfunctions, ALLNET GmbH and its local representatives and dealers are responsible for repair without cost to the customer if the product fails within the warranty period and under normal usage. ALLNET GmbH is not responsible for any damage or loss of data deemed to be caused by its products. It is highly recommended that users conduct necessary back-up practices.

# **Safety Warnings**

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

- Read this manual thoroughly before attempting to set up your ALL6700.
- Your ALL6700 is a complicated electronic device. DO NOT attempt to repair it under any circumstances. In the case of malfunction, turn off the power immediately and have it repaired at a qualified service center. Contact your vendor for details.
- DO NOT allow anything to rest on the power cord and DO NOT place the power cord in an area where it can be stepped on. Carefully place connecting cables to avoid stepping or tripping on them.
- Your ALL6700 can operate normally under temperatures between 0°C and 40°C, with relative humidity of 20% 85%. Using the ALL6700 under extreme environmental conditions could damage the unit.
- Ensure that the ALL6700 is provided with the correct supply voltage (AC 100V ~ 240V, 50/60 Hz, 3A). Plugging the ALL6700 to an incorrect power source could damage the unit.
- Do NOT expose the ALL6700 to dampness, dust, or corrosive liquids.
- ▲ Do NOT place the ALL6700 on any uneven surfaces.
- DO NOT place the ALL6700 in direct sunlight or expose it to other heat sources.
- DO NOT use chemicals or aerosols to clean the ALL6700. Unplug the power cord and all connected cables before cleaning.
- DO NOT place any objects on the ALL6700 or obstruct its ventilation slots to avoid overheating the unit.
- Keep packaging out of the reach of children.
- If disposing of the device, please follow your local regulations for the safe disposal of electronic products to protect the environment.

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# **Chapter 1: Introduction**

#### Overview

Thank you for choosing the ALLNET ALL6700 1U Rackmount Storage Server. The ALLNET ALL6700 is an easy-to-use storage server that allows a dedicated approach to storing and distributing data on a network. Data reliability is ensured with RAID features that provide data security and recovery—over one Terabyte of storage is available using RAID 5 and RAID 6. Gigabit Ethernet ports enhance network efficiency, allowing the ALL6700 to take over file management functions, increase application and data sharing and provide faster data response. The ALL6700 offers data mobility with a disk roaming feature that lets you hot swap working hard drives for use in another ALL6700, securing the continuity of data in the event of hardware failure. The ALL6700 allows data consolidation and sharing between Windows (SMB/CIFS), UNIX/Linux, and Apple OS X environments, and its user-friendly GUI supports multiple languages. Take the time now to read through this user's manual and get the most out of your ALL6700.

# **Product Highlights**

#### File Server

First and foremost, the ALL6700 allows you to store and share files over an IP network. With a Network Attached Storage (NAS) device, you can centralize your files and share them easily over your network. With the easy-to-use web-based interface, users on your network can access these files in a snap.

To learn about the Web User Interface, go to **Chapter 6: Using the ALL6700 > Using WebDisk**.

#### **FTP Server**

With the built-in FTP Server, friends, clients, and customers can upload and download files to your ALL6700 over the Internet with their favorite FTP programs. You can create user accounts so that only authorized users have access.

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

## **Backup Server**

Don't leave precious data to chance. With advanced backup capabilities, you can easily upload mission critical files to the ALL6700, and even automate your backup tasks for true peace-of-mind.

To find out how to backup your files with the ALL6700, refer to **Chapter 6: Using** the ALL6700 > File Backup.

#### **Printer Server**

With the ALL6700's Printer Server, you can easily share an IPP printer with other PCs connected to your network.

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

# Package Contents

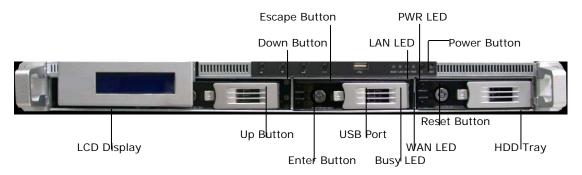
Your ALL6700 package should contain the following items:

- QIG
- CD-Title
- Ethernet Cable
- USB2.0 Cable Accessory
- Screw Kit

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

## Front Panel

The ALL6700's front panel displays the unit's array of status LEDs, controls, USB port, and LCD display. See the table below for a detailed explanation of each:



Front Panel	
Item	Description
WAN LED	Solid green: network link
	Blinking green: network activity
LAN LED	Solid green: network link
	Blinking green: network activity
Busy LED	Blinking orange: system startup or system maintenance; data
	currently inaccessible
USB Port	USB 2.0 port for compatible USB devices, such as digital
	cameras, USB disks, and USB printers
Power Button	Power on/off ALL6700
	• Solid blue: Device is powered on
	Blinking blue: eSATA hard disk is connected and active
Reset Button	• Resets the ALL6700
	Press for five seconds during boot process to reset IP address
	and admin password
HDD Trays	• Four 3.5" SATA HDD trays
	Locks are provided for added security
LCD Display	Displays current system status and warning messages
	Displays hostname, WAN/LAN IP address, RAID status, and
	current time
Up Button ▲	Push to scroll up when using the LCD display
Down Button ▼	Push to scroll down when using the LCD display
Enter Button →	Push to confirm information entered into the LCD display
Escape Button <b>ESC</b>	Push to leave the current LCD menu

# Hard Disk Trays

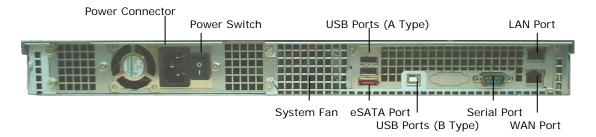
Each of the ALL6700's hard disk trays has a lock, a latch, and two LED indicators:

Item	Description
Lock	Use the lock to physically secure the hard disk to the unit
Latch	Use to open and remove or close and secure the tray
HDD Power LED	Solid blue: hard disk is powered on
HDD Access/Error	Blinking green: system is accessing data on the hard disk
LED	Blinking red: a hard disk error has occurred

# Rear Panel

## **ALL6700**

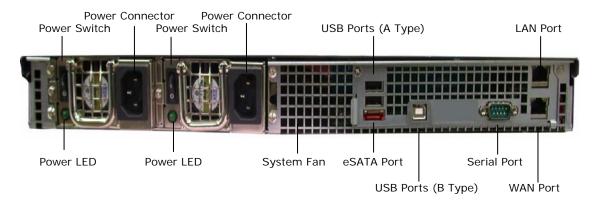
The rear panel of the ALL6700 houses most of the USB and Ethernet connections, as well as the eSATA port, system fan, and power connector. See the table below for descriptions of each:



ALL6700 Back Panel	
Item	Description
eSATA Port	eSATA port for high-speed storage expansion
USB Ports	USB 2.0 ports for compatible USB devices, such as digital
	cameras, USB disks, and USB printers
WAN Port	WAN port for connecting to an Ethernet network through a
	switch or router
LAN Port	LAN port that can be used for connection sharing
Power Switch	Switch for power supply
System Fan	System fan that exhausts heat from the unit
Serial Port	This port is for factory use only
Power Connector	Connect the included power cord to the connector

#### ALL6700RP

The rear panel of the ALL6700RP is similar to the ALL6700, but with redundant power:



# **Chapter 2: Hardware Installation**

#### Overview

Your ALL6700 is designed for easy installation. To help you get started, the following chapter will help you quickly get your ALL6700 up and running. Please read it carefully to prevent damaging your unit during installation.

# Before You Begin

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

- 1. Read and understand the *Safety Warnings* outlined in the beginning of the manual.
- 2. If possible, wear an anti-static wrist strap during installation to prevent static discharge from damaging the sensitive electronic components on the ALL6700.
- 3. Be careful not to use magnetized screwdrivers around the ALL6700's electronic components.

### Hard Disk Installation

The ALL6700 supports four standard 3.5" Serial ATA (SATA) hard disks. To install a hard disk into the ALL6700, follow the steps below:

- 1. Remove a hard disk tray from the ALL6700.
- 2. Slide the new SATA hard disk into the tray and fasten the screws.
- 3. Insert the hard disk and tray back into the ALL6700 until it snaps into place and lock it with a key if desired.
- 4. The LED blinks green when the hard disk is accessed. If the Error LED flashes red it signals a problem.

NOTE

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

#### Cable Connections

To connect the ALL6700 to your network, follow the steps below:

1. Connect an Ethernet cable from your network to the WAN port on the back panel of the ALL6700.



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



3. Press the power button on the Front Panel to boot up the ALL6700.

NOTE

If you are installing the ALL6700RP, be sure to connect both power cables. If you do not, the system will assume one power supply has failed, and an alarm will sound. For more information, refer to Chapter 8: Troubleshooting.

# **Checking System Status**

After making connections on the ALL6700 and powering up, check whether the system status is normal or has trouble by observing indicators on the front panel and hard disk trays.

## **System Status Normal**

The system status is normal if:

- 1. The WAN and LAN LEDs glow green (assuming both are connected).
- 2. The Power LED on the Front Panel glows blue.
- 3. The HDD Power LED on each HDD tray glows blue (assuming all disks are installed).
- 4. The default IP address of the WAN port is 192.168.1.100.

# **System Trouble**

The system has trouble if:

- 1. System Busy LED glows orange.
- 2. Any of the HDD Access/Error LED glows red.

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

WARNING

There are no user serviceable parts inside the ALL6700. Please contact your distributor for service.

# **Chapter 3: First Time Setup**

#### **Overview**

Once the hardware is installed, physically connected to your network, and powered on, you can configure the ALL6700 so that it is accessible to your network users. There are two ways to set up your ALL6700: using the **ALLNET Setup Wizard** or the **LCD display**. Follow the steps below for initial software setup.

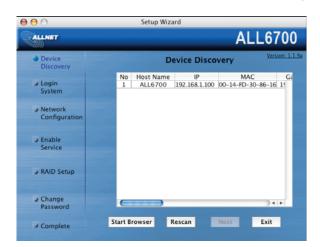
# ALLNET Setup Wizard

The handy ALLNET Setup Wizard makes configuring ALL6700 a snap. To configure the ALL6700 using the Setup Wizard, perform the following steps:

- 1. Insert the installation CD into your CD-ROM drive (the host PC must be connected to the network).
- 2. The Setup Wizard should launch automatically. If not, please browse your CD-ROM drive and double click on **Setup.exe**.



3. The Setup Wizard will start and automatically detect all ALLNET storage devices on your network. If none are found, please check your connection and refer to **Chapter 8: Troubleshooting** for assistance.



- 4. Select the ALL6700 that you like to configure.
- 5. Login with the administrator account and password. The default account and password are both "admin".



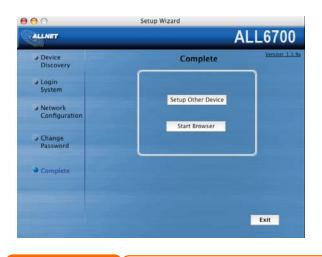
6. Name your ALL6700 and configure the network IP address. If your switch or router is configured as a DHCP Server, configuring the ALL6700 to automatically obtain an IP address is recommended. You may also use a static IP address and enter the DNS Server address manually.



7. Change the default administrator password.



 Finished! Access the ALL6700 Web Administrator Interface by pressing the Start Browser button. You can also configure another ALL6700 at this point by clicking the Setup Other Device button. Press Exit to exit the wizard.



NOTE

The ALLNET Setup Wizard is designed for installation on systems running Windows XP/2000 or Mac OSX or later. Users with other operating systems will need to install the ALLNET Setup Wizard on a host machine with one of these operating systems before using the unit.

# **LCD Operation**

The ALL6700 is equipped with an LCD on the front for easy status display and setup. There are four buttons on the front panel to control the LCD functions.

#### **LCD Controls**

Use the **Up** ( $\blacktriangle$ ), **Down** ( $\blacktriangledown$ ), **Enter** ( $\dashv$ ) and **Escape** (**ESC**) keys to select various configuration settings and menu options for ALL6700 configuration.

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

LCD C	LCD Controls		
Icon	Function	Description	
<b>A</b>	Up Button	Select the previous configuration settings option.	
lacktriangledown	Down Button	Select the next configuration settings option.	
4	Enter	Enter the selected menu option, sub-menu, or parameter setting.	
ESC	Escape	Escape and return to the previous menu.	

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

#### **Display Mode**

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

Display Mode	
Item	Description
Host Name	Current host name of the system.
WAN	Current WAN IP setting.
LAN	Current LAN IP setting.
RAID	Current RAID status.
System Fan	Current system fan status.
2006/06/16 12:00	Current system time.

The ALL6700 will rotate these messages every two seconds on the LCD display.

### **USB Copy**

The USB Copy function enables you to copy files stored on USB devices such as USB disks and digital cameras to the ALL6700 with a press of a button. To use USB copy, follow the steps below:

- 1. Plug your USB device into an available USB port on the Front Panel.
- 2. In **Display Mode**, press the **Down Button** (▼).
- 3. The LCD will display "USB Copy?"
- 4. Press **Enter** (→) and the ALL6700 will start copying USB disks connected to the front USB port.

## **Management Mode**

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

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

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

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

NOTE

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

# Typical Setup Procedure

From the Web Administration Interface, you can begin to setup your ALL6700 for use on your network. Setting up the ALL6700 typically follows the five steps outlined below.

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

#### Step 1: Network Setup

From the Web Administration Interface, you can configure the network settings of the ALL6700 for your network. You can access the **Network** menu from the menu bar.

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

### **Step 2: RAID Creation**

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

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

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

#### **Step 3: Create Local Users or Setup Authentication**

Once the RAID is ready, you can begin to create local users for the ALL6700, or choose to setup authentication protocols such as Active Directory (AD).

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

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

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

#### Step 4: Create Folders and Set Up ACLs

Once users are introduced into your network, you can begin to create various folders on the ALL6700 and control user access to each using Folder Access Control Lists.

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

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

## **Step 5: Start Services**

Finally, you can start to setup the different services of the ALL6700 for the users on your network. You can find out more about each of these services by clicking below:

SMB/CIFS

**Apple File Protocol (AFP)** 

**Network File System (NFS)** 

File Transfer Protocol (FTP)

**Printer Server** 

# **Chapter 4: System Management**

## **Overview**

The ALL6700 provides an easily accessible **Web Administration Interface**. With it, you can configure and monitor the ALL6700 anywhere on the network.

## Web Administration Interface

Make sure your network is connected to the Internet. To access the ALL6700 **Web Administration Interface**:

1. Type the ALL6700's IP address into your browser. (Default IP address is http://192.168.1.100)



NOTE

Your computer's network IP address must be on the same subnet as the ALL6700. If the ALL6700 has default IP address of 192.168.1.100, your managing PC IP address must be 192.168.1.x, where x is a number between 1 and 254, but not 100.

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

User Name: admin Password: admin

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

Once you are logged in as an administrator, you will see the **Web Administration Interface**. From here, you can configure and monitor virtually every aspect of the ALL6700 from anywhere on the network.

#### Menu Bar

The **Menu Bar** is where you will find all of the information screens and system settings of the ALL6700. The various settings are placed in the following groups on the menu bar:

Menu Bar	
Item	Description
Status	Current system status of the ALL6700.
Storage	Information and settings for storage devices installed into the ALL6700.
Network	Information and settings for network connections, as well as various services of the ALL6700.
Accounts	Allows configuration of users and groups.
System	Various ALL6700 system settings and information.
Language	Choose your preferred language here.

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

In the following sections, you will find detailed explanations of each function, and how to configure your ALL6700.

# Language Selection

The ALL6700 supports multiple languages, including:

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

On the menu bar, click *Language* and the **Change Language** screen appears. This screen allows you to select preferred language for the ALL6700. Press *Apply* to confirm your selection.



#### Status Menu

The **Status** Menu on the menu bar allows you to see various aspects of the ALL6700. From here, you can discover the status of the ALL6700, and even find out other details like firmware version and up time.

### **Product Information**

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



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

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

## **System/Service Status**

From the **Status** menu, choose the **System** item, and the **System Status** and **Service Status** screens appear. These screens provide basic system and service status information.



System Status	
Item	Description
CPU Loading (%)	Displays current CPU workload of the ALL6700.

CPU Fan Speed	Displays the current status of the CPU fan.
System Fan Speed	Displays the current status of the system fan.
Memory Size	Shows the system memory capacity.
Up Time	Shows how long the system has been running.

Service Status	
Item	Description
AFP Status	The status of Apple Filing Protocol server.
NFS Status	The status of Network File Service Server.
SMB/CIFS Status	The status of SMB/CIFS server.
FTP Status	The status of FTP server.
Nsync Status	The status of Nsync server.
UPnP Status	The status of UPnP service.

## **System Information**

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



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

## **Printer Status**

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



<b>Printer Status</b>	
Item	Description
Manufacturer	Displays the name of the USB printer manufacturer.
Model	Displays the model of the USB printer.
Status	Displays the status of the USB printer.
Printer Queue	Click to remove all documents from printer queue

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

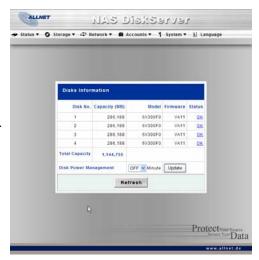
For information on how to set up the Printer Server, refer to **Chapter 4: Printer Server**.

# Storage Management

The **Storage Menu** displays the status of storage devices installed in the ALL6700, and includes storage configuration options such as RAID and disk settings, folder configuration, and Nsync settings.

#### **Disks Information**

From the **Storage** menu, choose the *Disks* item and the **Disks Information** screen appears. From here, you can see various items about installed SATA hard disks. Blank lines indicate that a SATA hard disk is not currently installed in that particular disk slot. If there is a problem with a disk, a **Failed** message will be displayed in the **Status** column.



<b>Disks Information</b>	
Item	Description
Disk No.	Indicates disk location.
Capacity	Shows the SATA hard disk capacity.
Model	Displays the SATA hard disk model name.
Firmware	Shows the SATA hard disk firmware version.
Status	Indicates the status of the disk. Can read <b>OK</b> , <b>Warning</b> , or <b>Failed</b> .
Total Capacity	Shows the total SATA hard disk capacity.
Disk Power	The administrator can set the disk to power down after a period
Management	of inactivity.

NOTE

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

#### S.M.A.R.T. Information

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



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

NOTE

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

#### **RAID Information**

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



RAID Information	
Item	Description
RAID Level	Shows the current RAID configuration.
Total Capacity	Shows total capacity of the RAID configuration.
Status	Indicates status of the RAID. Can read either <i>Healthy</i> ,
	Degraded, or Damaged.
Data Capacity	Indicates the used capacity, total capacity, and current
	percentage used by user data.
Snapshot Capacity	Indicates the used capacity, total capacity, and current
	percentage used by the Snapshot.
USB Capacity	Indicates the used capacity, total capacity, and current
	percentage used by the target USB mode.
Capacity Used	Displays the total space available and total space used on the
	RAID.
Stripe Size	Shows the current disk stripe size.
Remaining Time	Indicates time remaining until the RAID is finished building.
Rebuild Speed	Configures the speed of the RAID rebuild.
	<b>Low</b> : the rebuild will be longer, but the system will be more
	responsive to file requests.
	High: the rebuild will be faster, but the system will be less
	responsive to file requests.
Add new disk as spare	When adding a new disk, this setting determines whether the
disk?	system will add the new disk as a spare disk of the existing
	RAID.

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

# **RAID Configuration**

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

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



#### RAID Level

You can set the storage volume as either **None**, **JBOD**, **RAID 0**, **RAID 1** or **RAID 5**. RAID configuration is usually required only when you first set up the device. A brief description of each RAID setting follows:

RAID Levels	
Level	Description
None	There is no existing storage volume.
JBOD	The storage volume is a single HDD with no RAID support. JBOD

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

WARNING

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

# Disk Settings

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

Disk Settings	
Item	Description
RAID	Check the boxes of the hard drives you wish to add to the storage volume.
Spare	Check a box to designate the replacement HDD for the storage volume. This becomes the backup for any damaged hard drives.
Stripe Size	This sets the stripe size to maximize performance of sequential files in a storage volume. Keep the 64K setting unless you require a special file storage layout in the storage volume. A larger stripe size is better for large files.
User Percentage	Data Percentage: The percentage of the RAID volume that will be used to store data.  Target USB Percentage: The percentage of RAID volume that will be used as USB disk.  Snapshot Percentage: The rest of the RAID volume will be used to store the Snapshot.
Add Linear	Under JBOD mode, if you would like to add more disks to the current RAID, select a disk by clicking on the checkbox in the RAID column for that disk and click <i>Add Linear</i> to add the new disk into the RAID volume.
Add Spare	Press this button to add a new Spare disk.
Remove	Click to remove the RAID volume. All user data, snapshot, and Target USB data will be removed.
Create RAID	Press this button to configure a file system and create the RAID storage volume.

# Creating a RAID

To create a RAID volume, follow the steps below:

- On the RAID Configuration screen, set the RAID storage space as JBOD, RAID 0, RAID 1, RAID 5, RAID 6, or RAID 10 — see Appendix C: RAID Basics for a detailed description of each.
- 2. Tick the checkboxes of the hard disks you wish to use to create a RAID.
- 3. Specify a stripe size 64K is the default setting.
- 4. Press *Create* to build the RAID storage volume.



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

When you create RAID, you can assign a portion of space on the RAID to be used as a USB disk. For instructions on how to do this, see **Chapter 7: Tips and Tricks > Target USB**.

#### Deleting a RAID

To delete a RAID volume, follow the steps below:

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

WARNING

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

#### **Advanced RAID Configuration**

Scroll to the bottom half of the RAID Configuration screen, you will see **RAID Advanced Configuration** screen. Advanced RAID Configuration options include RAID Migration and RAID Expansion. Descriptions of each are below:

Advanced RAID Configuration	
Item	Description
RAID Migration	Changes the number of disks or RAID level in current RAID configuration. The system will list the possible migration paths, and enable you to choose a possible path. For example, RAID 1 with two disks can be migrated to RAID 5 with 3 disks or RAID 5 with 3 disks can be migrated to RAID 5 with 4 disks. RAID levels currently supported are: RAID 0, 1, 5.
RAID Expansion	When larger disks have replaced the smaller disks thru RAID Rebuild, the file system on the RAID is not changed. You can press this button to check to see if there is room to expand the file system. If yes, then the file system will grow to take advantage of the larger disks.

NOTE

During RAID Migration and RAID Expansion, all the file services such as SMB/CIFS, AFP, NFS, and FTP will not be available. The time to finish these operations depends on the size of your hard disk drives and your RAID volume.

#### **WARNING**

- RAID Migration and Expansion are inherently risky operations. Please make sure your system is protected by a UPS (Uninterruptible Power Supply) to prevent accidental power failure, which might result data loss.
- accidental power failure, which might result data loss.
  These operations will cause heavy loading on your RAID system. RAID Migration and RAID Expansion will not be available if your RAID is in a degraded state.

## **Folder Management**

From the **Storage** menu, choose *Folder*, and the **Folder** screen appears. This screen allows you to create and configure folders on the ALL6700 volume.

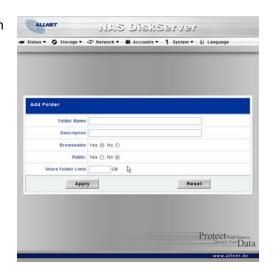


Folder	
Item	Description
Folder name	Displays the name of the folder.
Description	Provides a description of the folder.
NFS Share	Press <b>NFS Share</b> to configure which hosts on the network are
	allowed to access this folder using NFS.
ACL	Press ACL (Access Control List) to configure which users have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

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

### **Adding Folders**

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



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

NOTE

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

#### **Editing Folders**

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

Edit Folder	
Item	Description
Share Name	Enter the name of the (Share) folder.
Comment	Provide a description the folder.
Browseable	Enable or disable users from browsing the folder contents.
Public	Admit or deny public access to this folder.
Share Limit	Enter the maximum size of the folder. The folder will not grow beyond this limit. You can enter a 0 to turn off the share folder limit.
Submit	Press <b>Submit</b> to save your changes.
Back	Press <b>Back</b> to return to the <b>Folder</b> screen.

## **Deleting Folders**

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

WARNING

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

#### NFS Share

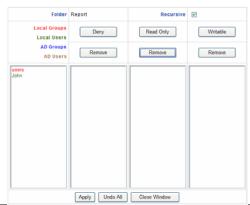
To allow NFS access to the share folder, enable the **NFS Service**, and then set up hosts with access rights.



NFS Share	
Item	Description
Hostname	Enter the name of the Host or IP address
Privilege	Host has either read only or writeable access to the folder.
Root Access	Access the data on root directory of the RAID.

#### Folder Access Control List (ACL)

On the Folder screen, press the *ACL* button, and the *Access Control List* screen appears. This screen allows you to configure access to the specific folder for users and groups. Select a user or a group from the left hand column and then choose *Deny*, *Read Only*, or *Writable* to configure their access level. Press the *Submit* button to confirm your settings.



Access Control List	
Item	Description
Deny	Denies access to users or groups who are displayed in this column.
Read Only	Provides Read Only access to users or groups who are displayed in this column.
Writable	Provides Write access to users or groups who are displayed in this column.
Remove	Removes the selected user or group from the column in order to reset their access privileges.
Submit	Submits and confirms settings.
Reset	Cancel your settings and return to the <b>Folder</b> screen.

To configure folder access, follow the steps below:

- 1. On the **ACL** screen, all network groups and users are listed in the left hand column. Select a group or user from this list.
- 2. With the group or user selected, press one of the buttons from the three access level columns at the top. The group or user then appears in that column and has that level of access to the folder.

- 3. Continue selecting groups and users and assigning them access levels using the column buttons.
- 4. To remove a group or user from an access level column, press the *Remove* button in that column.
- 5. When you are finished, press *Submit* to submit and confirm your ACL settings.

#### **System Snapshots**

This function will create snapshots of all your share folders. The snapshot versions will be time stamped.

Snapshot	
Item	Description
Manual	Press to manually create a snapshot.
Schedule	Create snapshots at designated intervals.

To schedule a snapshot at designated times, press the *Schedule* button and set your desired snapshot options:

Item	Description
Automatically remove oldest snapshot	When a snapshot is created and it is over the system limit. The oldest snapshot will be removed automatically to make room for the new snapshot.
Enable snapshot schedule	To Enable scheduling mechanism of snapshot.
Monthly	To create a snapshot using a monthly interval.
Weekly	To create a snapshot using a weekly interval.
Daily	To create a snapshot using a daily interval.



# Network Management

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

## **WAN Configuration**

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



WAN Configuration	
Item	Description
Host name	Host name that identifies the ALL6700 on the network.
Domain name	Specifies the domain name of the ALL6700.
MAC Address	MAC address of the network interface.
Jumbo Frame Support	Enable or disable Jumbo Frame Support of the WAN interface on your ALL6700.
DHCP	Enable or disable the ALL6700 from obtaining in IP address via DHCP server. If you require a static IP, disable this feature and input your network configuration.
IP	IP address of the WAN interface.
Netmask	Network mask, which is generally: 255.255.255.0
Gateway	Default Gateway IP address.
DNS Server	Domain Name Service (DNS) server IP address.
IP Sharing Mode	When enabled, PCs connected to the LAN port will be able to access the WAN. Default is Enabled.
Link Aggregation	Specifies whether WAN and LAN ports will be aggregated and act as one port.  Failover: When one port fails, the other one will take over.  Load Balance: Ethernet traffic will flow alternative between two Ethernet ports.

## **NOTE**

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

## **WARNING**

Most Fast Ethernet (10/100) Switches/Routers do not support Jumbo Frame and you will not be able to connect to your ALL6700 after Jumbo Frame is turned on. If this happens, turn off the ALL6700. Then, power on the ALL6700 and immediately press and hold the Reset button on the back of the unit for 10 seconds. This will reset your network settings, password, and turn off Jumbo Frame Support.

## **LAN Configuration**

The ALL6700 supports two Gigabit Ethernet ports for higher service availability. To configure these ports, choose *LAN* from the Network menu, and the LAN Configuration screen appears. Press Apply to save your changes.



LAN Configuratio	n
Item	Description
MAC Address	Displays the MAC address of the LAN interface.
IP	Specifies the IP address of the LAN interface.
Netmask	Specifies the Network Mask of the LAN interface.

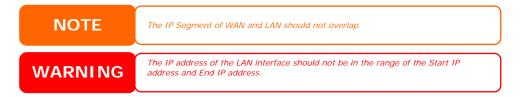
NOTE

Before enabling Jumbo Frame Support, please make sure your network equipment supports Jumbo Frame. If your equipment is incompatible, you might not be able to connect to your ALL6700. In this case, you have to reset the system back to default by the holding down front panel reset button for 5 seconds during boot up process.

## **DHCP Configuration**

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

<b>DHCP Configurat</b>	ion
Item	Description
DHCP Server	Enable or disable the DHCP server to automatically assign IP address to PCs connected to the LAN interface.
Start IP	Specifies the starting IP address of the DHCP range.
End IP	Specifies the ending IP address of the DHCP range.
DNS Server	Specifies the DNS server IP address.



## **Web Services Configuration**

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



Web Service	
Item	Description
HTTP (WebDisk) Support	Enable or disable WebDisk support. Enter the port number if this option is enabled.
HTTPs (Secure WebDisk) Support	Enable or disable secure WebDisk support. Enter the port if this option is enabled.
SMB/CIFS	Enable or Disable SMB/CIFS protocol for Windows, Apple, Unix drive mapping.
UPnP	Enable or disable Universal Plug and Play protocol. UPnP helps to find the IP address of the ALL6700.

NOTE

- Disable HTTP support and Enable Secure HTTP support to guarantee secure access.
- In some environments, due to security concerns, you may wish to disable SMB/CIFS as a precaution against computer viruses.

## **AFP (Apple Network Setup)**

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



Apple Network Configuration	
Item	Description
AFP Server	Enable or disable Apple File Service to use the ALL6700 with MAC OS-based systems.
MAC CHARSET	If your operating system does not support Unicode (e.g. MAC OS9/8), select the same language as your OS here in order to properly view the files and directories on the server.
Zone	Specifies Zone for Applet Talk service.  If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the ALL6700. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting.

## **NFS Setup**

From the **Network** menu, choose the **NFS** item, and the **NFS Server Setting** screen appears. The ALL6700 can act as an NFS server, enabling users to download and upload files with the favorite NFS clients. Press **Apply** to confirm your settings. A description of each item follows:



NFS Server Setting	
Item	Description
AFP Server	Enable or disable Apple File Service to use the ALL6700 with
	MAC OS-based systems.
Zone	Specifies Zone for Applet Talk service.
	If your AppleTalk network uses extended networks and is
	assigned with multiple zones, assign a zone name to the
	ALL6700. If you do not want to assign a network zone, enter an
	asterisk (*) to use the default setting.

# User and Group Management

The ALL6700 has built-in user database that allows administrators to manage user access using different group policies. From the **Accounts** menu, you can create, modify, and delete users, and assign them to groups that you designate.

#### **Local User Configuration**

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



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

#### Adding Users

- 1. Click on the *Add* button on **Local User Configuration** screen, and **Local User Setting** screen appears.
- 2. On the Local User Setting screen, enter a name in the User Name box.
- 3. Enter a password in the **Password** box and re-enter the password in the **Confirm** box.
- 4. Select which group the user will belong to. **Group Members** is a list of groups this user belongs to. **Group List** is a list of groups this user does not belong to. Use the << or >> buttons to have this user join or leave a group.
- 5. Press the *Apply* button and the user is created.

NOTE

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

### **Modifying Users**

- 1. Select an existing user from the **Local User Configuration** screen.
- Click on the *Modify* button, and Local User Setting screen appears.
- From here, you can enter a new password and re-enter to confirm, or use the << or >> buttons to have this user join or leave a group. Click the *Apply* button to save your changes.



#### **Deleting Users**

- 1. Select an existing user from the **Local User Configuration** screen.
- 2. Click on *Delete* button and the user is deleted from the system.

## **Local Groups Configuration**

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



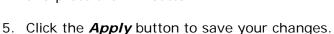
Local Groups Configuration	
Item	Description
Add	Press the <i>Add</i> button to add a user to the list of local groups.
Modify	Press the <i>Modify</i> button to delete a selected group from the
	system.
Delete	Press the <i>Delete</i> button to delete a selected group from the
	system.

#### **Adding Groups**

- 1. On the Local Group Configuration screen, click on the Add button.
- 2. The Local Group Setting screen appears.
- 3. Enter a **Group Name**, and select users to be in this group from the **Users List** by adding them to the **Members List** using the << button.
- 4. Click the *Apply* button to save your changes.

#### **Modifying Groups**

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



#### **Deleting Groups**

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

#### ADS/NT Configuration

item follows:

Server (ADS) or Windows NT server to handle the domain security in your network, you can simply enable the ADS/NT support feature; the ALL6700 will connect with the ADS/NT server and get all the information of the domain users and groups automatically. From the Accounts menu, choose Authentication item and the ADS/NT Support screen appears. You can to change any of these items and press Apply to confirm your settings. A description of each

If you have a Windows Active Directory





ADS/NT Support	
Item	Description
WINS Server	Specifies the WINS server if necessary.
Work Group / Domain	Specifies the SMB/CIFS Work Group / ADS Domain Name (e.g.
Name	ALL6700).
ADS/NT Support	Select Disable to disable authentication through Windows Active
	Directory Server or Windows NT.
Authentication Method	Select ADS for Windows Active Directory Server, or select NT for
	Windows NT
ADS/NT Server Name	Specifies the ADS/NT server name (e.g. adservername).
ADS/NT Realm	Specifies the ADS/NT realm (e.g. example.com).
Administrator ID	Enter the administrators ID of Windows Active Directory or
	Windows NT, which is required for ALL6700 to join domain.
Administrator	Enter the ADS/NT Administrator password.
Password	·
Confirm Password	For re-entering password to confirm.

To join an AD domain, you can use the example below to configure the ALL6700:

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

## NOTE

- The DNS server specified in the WAN configuration page should be able to correctly resolve the ADS server name.
- The time zone setting between ALL6700 and ADS should be identical.
- The system time difference between ALL6700 and ADS should be less than five
- The Administrator Password field is for the password of ADS (Active Directory Server) not ALL6700.

## System Management

The **System** menu gives you a wealth of settings that you can use to configure your ALL6700's system administration functions. You can set up system notifications, view system logs, and even upgrade firmware from this menu.

## **System Notifications**

From the **System** menu, choose the **Notification** item, and the **Notification Configuration** screen appears. This screen lets you have the ALL6700 notify you in case of any system malfunction. Press **Apply** to confirm all settings. See following table for a detailed description of each item.



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

NOTE

Consult with your mail server administrator for email server information.

## **System Logs**

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



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

## **Time and Date Settings**

From the **System** menu, choose the **Time** item and the **Time** screen appears. Set the desired **Date**, **Time**, and **Time Zone**. You can also elect to synchronize the system time on the ALL6700 with an **NTP** (**Network Time Protocol**) **Server**. You can change any of these items and press *Apply* to confirm your settings.

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



Time	
Item	Description
Date	Sets the system date.
Time	Sets the system time.
Time Zone	Sets the system time zone.
NTP Server	Select <b>Yes</b> to allow the ALL6700 to synchronize with the NTP server shown below.
	Select <i>Manually</i> to allow the ALL6700 to synchronize with an
	NTP server of your choice.
	Select <i>No</i> to not have the ALL6700 to synchronize with an NTP
	server.

WARNING

If an NTP server is selected, please make sure your ALL6700's network has been setup to access the NTP server.

## **System Configuration Backup and Restore**

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



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

NOTE

Backing up your system configuration is a great way to ensure that you can revert to a working configuration when you are experimenting with new system settings.

## **Reset to Factory Default Settings**

From the **System** menu, choose the *Factory Default* item and the **Reset to** Factory Default screen appears. Press *Apply* to reset the ALL6700 to factory default settings. Press *Cancel* to go back to the main menu.



**WARNING** 

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

## **Upgrading System Firmware**

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

Follow the steps below to upgrade your firmware:

- 1. Use the *Browse* button to find the firmware file.
- 2. Press Apply.
- 3. The beeper beeps and the Busy LED blinks until the upgrade is complete.



NOTE

- The beeper only beeps if it is enabled in the System Notification menu.
- Check ALLNET website for the latest firmware release and release notes
- Downgrading firmware is not permitted.

WARNING

Do NOT turn off the system during the firmware upgrade process. This will lead to a catastrophic result that may render the system inoperable.

## **Change Administrator Password**

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



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

## **Reboot and Shutdown System**

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



## Logout

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

## **Chapter 5: Additional Feature Setup**

## Overview

The ALL6700 can also act as an FTP Server, allowing employees and clients to transfer files using their favorite FTP programs. The integrated Print Server allows you to share a single USB printer will all users on the network. The following section shows you how.

## FTP Server

ALL6700 can act as a FTP server, enabling users to download and upload files with their favorite FTP programs. From the **Network** menu, choose the *FTP* item, and the **FTP** screen appears. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:



FTP	
Item	Description
FTP	Enable FTP Service on the ALL6700.
FTP ENCODE	If your FTP client or operating system does not support Unicode (e.g. Windows® 95/98/ME or MAC OS9/8), select the same encoding as your OS here in order to properly view the files and directories on the server. Available options are BIG5, HZ, GB2312, GB18030, ISO, EUC-JP, SHIFT-JIS and UTF-8.

To access the share folder on the ALL6700, use the appropriate user login and password set up on the **Users** page (*Accounts* > *Users*). Access control to each share folder is set up on the **ACL** page (*Storage* > *Folder* > *ACL*).

#### **Printer Server**

You can configure the ALL6700 to act as a printer server. That way, all PCs connected to the network can utilize the same printer.

#### Windows XP SP2

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

- Connect the USB printer to one of the USB ports (preferably the rear USB ports; front USB ports can be used for external HDD enclosures).
- 2. Go to Start > Printers and Faxes.
- 3. Click on File > Add Printer.
- 4. The Add Printer Wizard appears on your screen. Click Next.
- 5. Select the "A network printer, or a printer attached to another computer" option.
- 6. Select "Connect to a printer on the Internet or on a home or office network", and enter "http://ALL6700\_IP\_ADDRESS:631/printers/usb-printer" into the URL field.
- 7. Your Windows system will ask you to install drivers for your printer. Select correct driver for your printer.
- 8. Your Windows system will ask you if you want to set this printer as "Default Printer". Select **Yes** and all your print jobs will be submitted to this printer by default. Click **Next**.
- 9. Click Finish.

NOTE

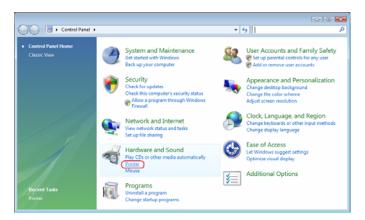
- Not all USB printers are supported. Please check ALLNET website for a list of supported printers.
- Note that if a multi-function (all-in-one) printer is attached to the ALL6700, usually only the printing and fax functions will work. Other features, such as scanning, probably will not function.



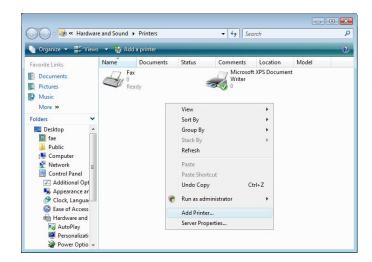
#### **Windows Vista**

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

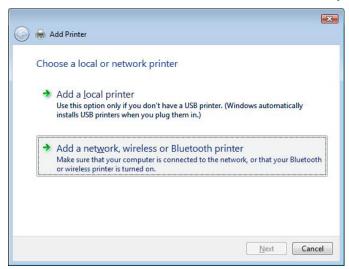
1. Open *Printer Folder* from the Control Panel.



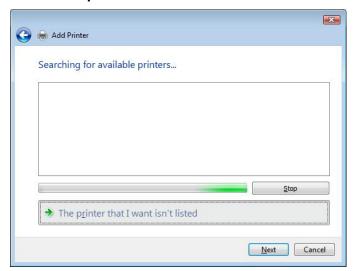
2. Click the right mouse button in anywhere on the **Printers** folder and then select **Add Printer**.



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

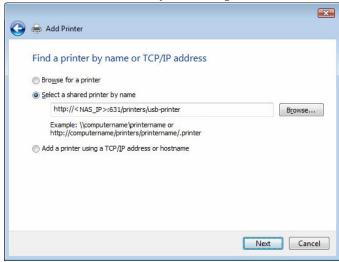


4. Select The printer that I want isn't listed.



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

5. Click Select a shared printer by name.



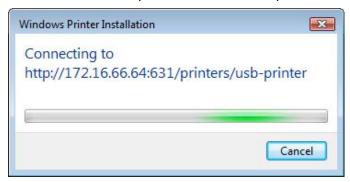
Type http://<allnet\_nas>:631/printers/usb-printer in the box, where <allnet\_nas\_ip> is the IP address of the ALL6700. Click *Next*.

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



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

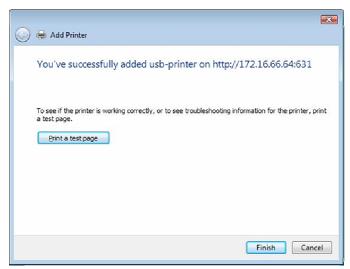
7. Windows will attempt to connect to the printer.



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



9. Done! Click Finish.



## **Chapter 6: Using the ALL6700**

## **Overview**

Once the ALL6700 is setup and operating, users on the network may manage all varieties of digital music, photos, or files by simply using their web browsers. To manage your personal files or access public files on the ALL6700, just enter its IP address into your browser (default IP address is http://192.168.1.100), and you will be taken to the **ALL6700 Login** page.

NOTE

Before proceeding, make sure that WebDisk Support or Secure WebDisk Support is enabled in the Service Support screen in the system's **Network** menu. See Service Support in Chapter 6: System Management.

## Login Page

To login to the system, enter your user name and password, and click *Login* to log into the system. You will be taken to the **WebDisk** interface.

## Using WebDisk

The ALL6700 provides a WebDisk function that allows you to access the system over the Internet from any browser.

- In the Login page, type in the User ID and password that were previously set for you in the Accounts menu. See Chapter 4: System Management
   User and Group Management > Local User Configuration.
- 2. The WebDisk page appears showing folders made currently available to you via the **Access Control List (ACL)**.
- 3. Click on a folder name to enter the folder.
- 4. The folder's page appears displaying files and folders. Click on a file to download the file.

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

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

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

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

- 7. To upload a file from your computer to the current folder, press the New file (upload) button. When the screen appears, press Browse and locate the file to upload. Press **OK** and the file is uploaded to the current folder.
- 8. To delete a file or folder, select the file or folder's check box. Press the Delete selected items button. You can also check the check box as the red circle indicates to select all files and folders in this folder.

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

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

## Mapping a Client PC to the ALL6700

You can map share folders on the ALL6700 so that you can access them as if they were drives on your computer. You can connect to the shared network folders on the ALL6700 as follows:

#### **Windows**

- 1. Go to the My Computer folder in Windows.
- 2. In the menu bar, select **Tools** and then **Map Network Drive**...
- 3. The Map Network Drive window appears.
- 4. Assign a drive letter for the share folder.
- 5. Click the *Browse* button to find the folder over your network. Alternatively, you may enter the folder name you wish to connect to or enter its IP address. (i.e. \\192.168.1.100\share)
- 6. Click *Finish*. When the **Connect As...** window appears, enter your user name and password.
- 7. Click **OK**. The share folder appears as the drive you assigned. You can now access this folder as though it were a drive on your computer.

#### Apple OS X

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

- 1. Choose Go > Connect to Server...
- 2. Enter the network address for the server in the Server Address text box. When connecting using SMB/CIFS protocol, type:

smb://192.168.1.100/Folder1

When connecting using AFP protocol, type:

afp://192.168.1.100/Folder1

Click Connect.

3. When MAC OS X is trying to connect ALL6700, it will ask for a User Name and Password which has access to the folder.

4. When MAC OS X has connected to the ALL6700 successfully, an icon representing the folder will appear on the MAC OS X desktop. You can access the folder by double clicking on the icon.

## File Backup

There are a number of ways to back up data with the ALL6700.

## **Nsync**

You can backup a share folder to another ALL6700 (Nsync Target) or any FTP server for safe keeping as long as you have appropriate access right on that target. When using Nsync between two ALL6700, you have the option to transmit files securely between two ALL6700.

If the files on your ALL6700 are lost for any reason, you can restore those files from the target ALL6700. To backup files regularly, you can set up a scheduled task to run only once, daily, weekly, or monthly. You can also limit the bandwidth of your Nsync tasks, so other users on the network can share the bandwidth equally.

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

#### Adding an Nsync Task

From the **Storage** menu, click **Nsync** and the **Nsync Information** screen appears. Click *Add* to display the **Add Nsync Task** screen.

Add Nsync Task	
Item	Description
Task Name	The name of your Nsync task.
Manufacturer	Select whether the target is a ALLNET Product (e.g. ALL6700) or
	FTP server.
Target Server IP	The IP address of your target server.
Address	
Source Folder	The share folder you want to backup.
Nsync Task Name	The name of your Nsync task.
Authorized Username	The account name on the target server.
on Target Server	
Password on Target	The password for the username on the target server.
Server	
Test Connection	Click to check the connection to the Target Server.
Schedule	Schedule backup of your share folders.
Time	The time when the Nsync task will run.
Type	Select whether to run the Nsync task daily, weekly, or monthly.
	Daily: input the time of day to execute Nsync task.

		Weekly: input which day of the week to execute the task.  Monthly: decide which day of the month to execute the task.		
Apply	Apply Click to submit the task.			
	NOTE	Before starting an Nsync Task, make sure the target server's Nsync Server (or FTP Server) is enabled.		

#### Setting Up an Nsync Target on an Nsync Device

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

- On the Nsync server, add a user for Nsync source (ex. nsyncsource1). For instructions on how to add a user on the ALL6700, see Chapter 4:
   System Management > User and Groups Management > Local User Configuration > Adding Users.
- On the Nsync server, grant that user (ex. nsyncsource1) write access to the nsync folder. For instructions on how to set up a folder's ACL, see Chapter 4: System Management > Folder Management > Folder Access Control List (ACL).
- 3. Once this is done, the target server will start accepting Nsync tasks from server using that ID and password.

#### Setting Up an Nsync Target on Another Device

If you selected "Other Device" when setting up your Nsync task, the ALL6700 will use the FTP protocol to back up the share folder. On the external storage device, make sure there is a folder named "nsync", and the Auth ID has writable permission in that folder.

#### Designating ALL6700 as an Nsync Target

The ALL6700 can act as an Nsync server, enabling another Nsync-equipped ALLNET NAS at a remote location backup their files to this ALL6700. From the **Network** menu, choose the **Nsync Target** item, and the **Nsync Target Server Setting** screen appears.

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

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

## **ALLNET Backup Utility**

The ALLNET Backup Utility is on your Installation CD. When you click on the CD, the Backup Utility will be installed under **Program Groups** > **ALLNET Backup Utility**. If it is not installed, you can copy the file (**Backup Utility.exe**) to a convenient location on your hard disk and double click to execute it.



NOTE

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

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

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

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

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

NOTE

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

## Windows XP Data Backup

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

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

- 1. Insert the Windows XP CD into a drive and double-click the *CD* icon in **My** Computer.
- 2. When the Welcome to Microsoft Windows XP screen appears, click **Perform Additional Tasks**.
- 3. Click Browse this CD.
- 4. In Windows Explorer, navigate to *ValueAdd* > *Msft* > *Ntbackup*.
- 5. Double-click *Ntbackup.msi* to install the backup utility.

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

- 1. Click *Start*, and point to *All Programs* > *Accessories* > *System Tools* > *Backup* to start the wizard.
- 2. Click *Next* to skip past the opening page. Choose **Backup files and settings** from the second page, and then click *Next*.
- 3. Select which option you want to back up.
- 4. Click **Next** and in the Backup Type, Destination, and Name page, specify a back up location using the **Browse** button.
- 5. Find and select the drive that specifies your ALL6700 as your backup destination and click *Next*.
- 6. Click *Next* to display the wizard's final page and click *Finish* to start backing up.

### **Apple OS X Backup Utilities**

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

## **Chapter 7: Tips and Tricks**

## USB and eSATA Storage Expansion

The ALL6700 supports external USB hard disks through its three USB ports. Once a USB hard disk has successfully mounted, the entire volume will be copied automatically to the default USB HDD folder. The ALL6700 supports up to 6 USB external storage devices. All file names on the USB disk volume are case sensitive.

The ALL6700 also supports eSATA hard disks with its eSATA port.

Before attaching an eSATA or USB disk drive to ALL6700, you have to partition and format it on a desktop computer or a notebook first. The attached device will be located at \\192.168.1.100\usbhdd\sdf1 where 192.168.1.100 means the IP address of ALL6700 and sdf1 stands for the first partition on disk #6, the eSATA or USB disk drive. If it is an NTFS partition, NAS users can open or copy files from \\192.168.1.100\usbhdd\sdf1 but cannot add new files or modify existing files.

NOTE

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

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

## Adding a Spare Disk

With a RAID 5 array, you can add a spare disk after the initial RAID is setup. To add a spare disk, follow the steps below:

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

## Target USB

ALL6700 can operate in dual mode. When connecting to a regular USB disk or thumb drive, ALL6700 is acting as USB host. When connecting to a PC thru its USB Type B connector on the back panel, ALL6700 can act as a USB Mass Storage device. This feature allows the user to transfer files without using a network connection.

When you create RAID, you can assign a portion of space on the RAID to be used as USB disk. When connecting ALL6700 to a PC using the supplied USB A to B cable, the PC will recognize this space as an unformatted disk. At this point, the PC can format this portion of disk and create file system on it. Since this disk is created on the RAID, it will be protected by the RAID level you select.

WARNING
When RAID is removed or damaged, all the data on the Target USB device will be deleted.

#### Remote Administration

You can set up your ALL6700 for remote administration. With remote administration, you can access your ALL6700 over the Internet, even if your ALL6700 is behind a router. This is especially useful if you are traveling and suddenly need a file from your ALL6700.

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

- ALLNET ALL6700 NAS device
- Cable/DSL Router with Dynamic DNS support
- Home PC
- Internet Connection

NOTE

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

## Part I - Setup a DynDNS Account

- 1. Go to http://www.dyndns.org from your home PC.
- 2. Click on the Sign Up Now link.
- 3. Check the Check boxes, select a user name (i.e.: ALL6700), enter your email address (i.e.: xxx@example.com), check *Enable Wildcard*, and create a password (i.e.: xxxx).
- 4. Wait for an email from www.dyndns.org.
- 5. Open the email and click on the link to activate your account

#### Part II - Enable DDNS on the Router

- 1. Go to the router setup screen and select *IP Config > Miscellaneous DDNS Setting* from your Home PC.
- 2. Click on Yes for Enable the DDNS Client?
- 3. Select www.dyndns.org.
- 4. Go to router setup screen, and enter the following information:
  - a. User Name or E-mail Address: xxx@example.com
  - b. Password or DDNS Key: xxxx
  - c. Host Name: www.ALL6700.dyndns.org
  - d. Enable wildcard? Select Yes
  - e. Update Manually: Click Update

#### Part III - Setting up Virtual Servers (HTTPS)

- 1. Navigate to **NAT Setting** > **Virtual Server**.
- 2. For Enable Virtual Server?, select Yes
- 3. Setup the HTTPS Server
  - a. Well-Known Applications: Select User Defined
  - b. Local IP: Enter 192.168.1.100
  - c. Port Range: 443 (the default HTTPS port setting on the ALL6700)
  - d. Protocol: select TCP
  - e. Click Add.
  - f. Click Apply.

- 4. Test the HTTPS connection from another computer on the Internet
  - a. From a remote computer, open your browser and enter <a href="https://www.ALL6700.dyndns.org">https://www.ALL6700.dyndns.org</a>
  - b. You should see the login page of ALL6700.

## Firewall Software Configuration

If you are using a software firewall (i.e. Norton Internet Security) and are having trouble connecting to the ALL6700, you can try the following steps:

- Double click the NIS icon on system tray, and then configure the Personal Firewall.
- 2. On the **Programs** page, find the **SetupWizard.exe** and change its permission to "Permit All". If it's not in the program list, use the **Add** or **Program Scan** buttons to find it.
- 3. On the **Networking** page, manually add ALL6700 IP address (i.e. 192.168.1.100) to the **Trusted** list.

## Replacing Damaged Hard Drives

If you are using RAID 1, RAID 5, RAID 6, or RAID 10, you can easily replace a damaged hard drive in the ALLNET ALL6700 while keeping your data secure with the system's automatic data recovery.

## **Hard Drive Damage**

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

## Replacing a Hard Drive

To replace a hard disk drive in the ALL6700:

- 1. Remove the tray with the damaged hard disk.
- 2. Unscrew the damaged hard disk and remove it from the tray.
- 3. Slide a new hard disk into the tray and fasten the screws.
- 4. Insert the hard disk tray back into the ALL6700 until it snaps into place. You can also lock it with a key if desired.
- 5. The LED blinks green when the HDD is accessed. If the Error LED flashes red, it signals a problem.

#### **RAID Auto-Rebuild**

When using RAID 1, 5, 6, or 10 on the ALL6700, you can use the auto-rebuild function when an error is detected.

- 1. When a hard disk fails the system beeps and/or an email notification is sent to specified receivers.
- 2. Check the hard disk error LEDs to see which disk has failed.
- 3. Follow the steps mentioned above to replace the failed hard disk.

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

## **Chapter 8: Troubleshooting**

## Forgot My Password

If you forget your password, you can reset the unit to use the default password. To do this, press the reset button on the front panel after system is booted, and ALL6700 will be reset. LAN IP address will become 192.168.1.100 and admin password will be admin.

## Forgot My Network IP Address

If you forget your network IP address and have no physical access to the system, you can find out the IP address by either looking directly onto the ALL6700's LCD panel, or by using the setup wizard to retrieve the IP of your ALL6700.

- 1. Start the Setup Wizard, and it will automatically detect all ALLNET IP storage products on your network.
- 2. You should be able to find the IP address of the ALL6700 which you have forgotten in the **Device Discovery** screen.

## Resetting NAS IP Address and Admin Password

In case you changed the ALL6700 IP address and then forgot it, or forgot the administration password, follow the steps below to reset to default settings:

- 1. Power on the ALL6700 and immediately press the *Reset* button for 10 seconds. (The reset button is near the LAN connector)
- 2. This resets the ALL6700 to its default IP address and password settings. For firmware v2.0.00 and later, Jumbo Frame support will also be disabled.

Default IP: 192.168.1.100 for LAN1 and 192.168.2.100 for LAN2

Default admin password: admin Jumbo Frame support: disabled

## Can't Map a Network Drive in Windows XP

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

- 1. The network folder is currently mapped using a different user name and password. To connect using a different user name and password, first disconnect any existing mappings to this network share.
- 2. The mapped network drive could not be created because the following error has occurred: Multiple connections to a server or shared resource by the same user, using more than one user name, are not allowed. Disconnect all previous connections to the server or shared resource and try again.

To check out existing network connections, type net use under the DOS prompt.

## Restoring Factory Defaults

From the **System** menu, choose the *Factory Default* item and **the Reset to Factory Default** screen appears. Press *Apply* to reset the ALL6700 to factory default settings.

WARNING

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

## **Problems with Time and Date Settings**

The administrator is able to select an NTP Server to keep the ALL6700's time synchronized. However, if the ALL6700 can not access the Internet, you may encounter a problem when setting the Time and Time Zone. If this happens:

- 1. Login to the Web Administration Interface.
- 2. Navigate to **System** > **Time**.
- 3. Under NTP Server, select No.
- 4. Set the **Date**, **Time**, and **Time Zone**.
- 5. Click Apply.

In addition, if the ALL6700 is able to access the Internet and you want to keep the NTP Server clock.isc.org by default, please make sure the DNS Server is correctly, thereby allowing the NTP Server name to correctly resolve. (See *Network* > *WAN* > *DNS Server*)

# **Appendix A: Product Specifications**

# Hardware Specifications

Product Model	ALL6700			
Core Processors / Memory				
Processor	Intel® Celeron™ M 1.5GHz			
Memory	512MB standard			
Network Interfaces				
WAN(LAN 1) Gigabit RJ-45 connector				
LAN(LAN 2)	Gigabit RJ-45 connector			
Storage				
HDD Bays	4 x 3.5" SATA II HDD, hot-swappable			
HDD Support	SATA II HDDs up to 750GB			
eSATA	1 x eSATA connector for capacity expansion			
I/O Interfaces				
USB Ports	3 x USB type A ports (Host mode)			
	1 x USB type B ports (Client mode)			
System Information				
LCD Control Panel	For basic configurations and status display			
System LED Display	4 x LED (System Busy, Power, Network Activity x 2)			
Physical				
Form Factor	1U rackmount			
Height	44.0 mm			
Width	430.5 mm			
Depth	567.6 mm			
Power Supply	200W power supply			
	100~240V AC, 50/60Hz			
Environment				
Temperature	0 ~ 40°C			
Humidity	20 ~ 85% relative humidity (non-condensing)			
Certifications	CE, FCC, BSMI, C-Tick, RoHS Compliant			

## Software Specifications

<sup>\*</sup>PDC/AD support: Works as a client member in a Microsoft NT 4.0 domain/Active Directory domain, allowing the ALL6700 to utilize the domain users and groups setting for authentication to the system and authorization to the share folders.

## **Appendix B: Customer Support**

If your ALL6700 is not working properly, we encourage you to check out **Chapter 7: Troubleshooting**, located in this manual. You can also try to ensure that you are using the latest firmware version for your ALL6700. ALLNET is committed to providing free firmware upgrades to our customers. Our newest firmware is available on our Download Center:

#### http://www.allnet.de/downloads.php

If you are still experiencing problems with your ALL6700, or require a Return Merchandise Authorization (RMA), feel free to contact technical support via our Technical Support Website:

http://www.allnet.de/service.php

or

Email to: support@allnet.de

For Sales Information you can e-mail us at:

sales@allnet.de

# Thank you for choosing ALLNET!



## **Appendix C: RAID Basics**

## Overview

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

#### **Benefits**

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

## **Improved Performance**

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

#### **Data Security**

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

## RAID Levels

The ALLNET ALL6700 supports standard RAID levels 0, 1, 5, 6, 10, and JBOD. You choose a RAID level when you create a system volume. The factors for selecting a RAID level are:

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

The following is a description of each RAID level:

## RAID 0

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

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

#### RAID 1

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

This is excellent for complete data security.

#### RAID 5

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

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

#### RAID 6

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

This is a perfect solution for mission critical applications.

## **RAID 10**

RAID 10 is implemented as a striped array whose segments are RAID 1 arrays.

RAID 10 has the same fault tolerance as RAID level 1.

RAID 10 has the same overhead for fault-tolerance as mirroring alone. High I/O rates are achieved by striping RAID 1 segments.

Under certain circumstances, RAID 10 array can sustain multiple simultaneous drive failures

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

#### **JBOD**

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

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

## Stripe Size

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

# Disk Usage

When all 5 disks are of the same size, and used in RAID, ALL6700 disk usage percentage is listed below:  $\frac{1}{2}$ 

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

NOTE

RAID 10 allows only 4 disks and one as spare disk.

## **Appendix D: Active Directory Basics**

#### Overview

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

## What is Active Directory?

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

## **ADS Benefits**

ADS lets the ALL6700 integrate itself with the existing ADS in an office environment. This means the ALL6700 is able to recognize your office users and passwords on the ADS server. Other major benefits ADS support provides include:

1. Easy integration of the ALL6700 into the existing office IT infrastructure

The ALL6700 acts as a member of the ADS. This feature significantly lowers the overhead of the system administrator. For example, corporate security policies and user privileges on an ADS server can be enforced automatically on the ALL6700.

2. Centralized user/password database

The ALL6700 does not maintain its own copy of the user/password database. This avoids data inconsistency between the ALL6700 and other servers. For example, without ADS support, an administrator might need to remove a specific user privilege on the ALL6700 and each individual server. With ADS support, the change on an ADS server is known to all of its ADS members.

## **Appendix E: Licensing Information**

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EMI: EN 55022:1994/A1:1995/A2:1997, Class B, EN61000-3-2:2000,

EN61000-3-3: 1995/A1: 2001

EMS: EN 55024:1998/A1:2001/A2:2003 (IEC61000-4-2:1995,

IEC61000-4-3:1995/A1:2001,

IEC61000-4-4: 1995, IEC61000-4-5: 1995, IEC61000-4-6: 1996,

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