



DETAILED USER'S MANUAL v1.0

# Introduction

#### About this User Manual

Thank you for using the product of Sans Digital Technology Inc..

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# **Chapter 1 RAID Introduction**

## 1.1 What is RAID?

RAID (redundant array of independent disks or redundant array of inexpensive disks) Whenever and wherever we are, we store our data in a hard drive. Abnormally access, slower speed and unresponsiveness are all expected when an accident occurs or the hard disk reaches its service life because a hard disk is widely used. By then, all data stored within may be destroyed and become permanently irretrievable. RAID technology spares you from the threats of losing your data again!

RAID (redundant array of independent disks or redundant array of inexpensive disks) allows you to store your data into multiple drives by dividing them up into segments. It provides data redundancy and creates a fault-tolerant environment for data storage. With multiple drives used (at least 2) in a RAID, it increases storage capacity as well as enhances the speed of data transfer. Be equipped with it and you will never have to worry about the integrity of your data again because your data will be 100% protected.

# 1.2 RAID Functions

- · Expanding storage capacity
- Increasing data transfer speed
- · Saving cost
- Inherent Fault Tolerance
- Hot Swap Capability
- Auto-Rebuild of Data
- Hot Spare Drive
- On-line Capacity Expansion

# 1.3 RAID 0 vs. RAID 1

MN2LP provides RAID 0 and RAID 1 functions described as follows: Striping (fast, has no fault tolerance; requires at least two hard disks)



The RAID 0 array does not backup data, so it is not regarded as a real RAID application. If one of the hard disks is damaged, the entire array will fail, and all data in the array will be lost. Therefore, the fault tolerance of RAID 0 is lower than that of any hard disk in the array. However, RAID 0 is still the term widely used to describe these arrays. It is because that its basic idea is similar to real RAID application.

#### Mirroring (High security; at least 2 hard disks required)



In the RAID 1 array (commonly referred to as mirroring array), hard disks are paired up; each of the two disks contains identical data. As data is written into the mirroring array, it will be written at once and read simultaneously. Mirroring array is highly reliable. Because it will not fail until the paired hard disks fail at the same time. For instance, in a mirroring array of five-pair hard disks, even as many as five hard disks fail, the array still can maintain the data integrity --as long as each pair has one good hard disk left.

Below is the comparison between 2 RAID levels:

RAID Level	Basic Operation Method	Hard Disk Available Capacity	Data Reliability	Data Transfer Speed	Minimum Number of Hard Disks
0	Striping data across each drive	Total capacity of all the hard disks	Low	Highest	2
1	Mirroring	Half of total capacity of all the hard disks	High	Lower	2

For more information of RAID, refer to our website at www.sansdigital.com.

# **Chapter 2 Installation**

## 2.1 Accessories Check

After you open the outer package, make sure that the following items are contained in the package:

- MN2LP unit
- AC Power Cord
- CD (including information such as setup software and user manual)
- User Manual
- Accessory Kit

Make sure the related accessories and the product body are not damaged or missing. If you have any questions, contact the Sans Digital.



MN2LP



MN2L

- Notice : 1. If the hard disks are inserted and the formatting or disk array setting is completed, do not change the position of the disks arbitrarily.
  - To replace or remove the hard disks, please shut down the machine and turn off the power first. Removing the hard disks while the power is on will result in system malfunction and may damage the data.

#### Description of LED Indicators

MN2LP

	Alarm LED	Access LED
Power On	Lights on blue permanently	Blinks blue
System Ready	Lights on blue permanently	N/A
RAID Fail	Lights on purple permanently	Blinks red
Rebuilding	Blinks blue	Blinks between blue and purple
Fan Fail	Blinks purple	N/A
Over High Temperature	Lights on purple permanently	N/A
Access	Lights on blue permanently	Blinks blue

#### MN2L

	Status LED	Access LED
Power On	Blinks blue	Blinks blue
System Ready	Lights on blue permanently	N/A
RAID Fail	Lights on blue permanently	Blinks red
Rebuilding	Blinks between blue and purple	Blinks between blue and purple
Fan Fail	Blinks between blue and purple	N/A
Over High Temperature	Lights on purple permanently	N/A
Access	Lights on blue permanently	Blinks blue



MN2LP



- 1. The indicator on the left will light on green when Gigabit LAN Port is connected to Gigabit LAN and the indicator on the right will light on orange when Host Access is enabled.
- 2. With startup completed, press and hold the "Reset" key for 5 seconds and the system will be reset to default settings.

## 2.2. Hardware Installation

Please follow the procedure below to complete the hardware installation of MN2LP:

1. Open the outer package and take out the product body. (Make sure the related accessories and the product body are not damaged or missing. If you have any questions, contact the distributor or sales)



2. Mount the product to a stable surface. Make sure that the fan is not blocked and there is appropriate space around for heat dissipation. (Do not place the product nearby water area or any environment that may cause damage to the product)



Take out the tray and install your hard disk in it. Make sure to fasten the hard disk securing screws to prevent damages caused by unnecessary movement.



4. Once the installation is completed, insert the tray back and fix it firmly in the proper place.



- 5. Connect the LAN port and the power cord.
- 6. Hardware installation is completed. You can power on the system to start the setup via Web Brower.

### 2.3. Initial Setup

MN2LP supports the use of the graphic user interface (GUI) for system management. You can manage settings via the GUI. It takes about 2 minutes to boot up MN2LP. The unit will be be accessible before the boot up is complete.

1. Open the Web browser and enter the IP address, e.g. http://10.1.2.200 (your own host IP address). Change the IP address of MN2LP first (the factory default IP address is 192.168.1.1) to 10.1.2.XXX. Refer to Chapter 3 for more detail on changing the IP address.



The default account and password are as follows: Login Username: admin Default Password: admin

- 2. If you use formatted hard disks, the system will display current system information and setting will be available. If you use two new hard disks, you need to format the hard disks or create a disk array first. Enter "Maintenance" and click "Disk Utility" if you want to format the hard disks separately or "Disk Array" if you want to set the disk array directly. Once formatting or disk array setting is completed, the system will restart. After re-logon, the system will display the system information and setting is available. For detailed descriptions of system setting and hard disk formatting, refer to Chapter 3.
- % If you use formatted hard disks, the system will display the present system information and be ready for setting.

	BACKUP   PROTECT   RESTORE	
Basic Control Panel Personal Info	Logout	
System Information		
Product Name Firmara Version Product Vendor P Address	NYSIIP 242C 58m Dighal 192168.100.153	

% When a new hard disk is detected, the system will require formatting first.



3. Once the hard drive is available, enter "Basic Setting" and click "Wizard" to change the system related information, including host name, IP address and password, etc. For detailed descriptions, refer to Chapter 3.

			BACKUP   PROTECT   RESIDIE
Basic Control Par	nel Personal In	fo	Logout
Quick Setup	Step 4/6		
<ul> <li>Add User</li> </ul>	Internet Protor	ol Se	etting
Add Group	IP Address	۲	Obtain IP Address automatically
<ul> <li>Add Share</li> </ul>		0	Use following IP Addres
			IP Address 192 168 100 153
			Subnet Mask 255 255 255 0
			Default Gateway 192 168 100 254
	DNS Server	۲	Obtain DNS Server Address automatically
		0	Use following DNS Server Address
			Primary 192 168 0 71
			Secondary 192 168 0 101
			Others
			Back Naxt. Cancel

Change IP setting

- Notice : 1. Hard drive formating will erase system information. Please make sure system information is set after the hard drive being format.
  - 2. If you need to install additional MN2LP, please make sure to change the host name and IP address to the deployed unit to prevent conflict.
- 4. Once the system information is changed, the system will restart automatically. After login, you can use the system normally and installation is complete. You can start to setup the network share and user settings.

Notice : 1. If you change the IP address, the system may display "unable to open the web" after restart. Enter the new IP address in the browser and you will see the login page.

# **Chapter 3 User Interface Introduction**

## 3.1 User Interface Architecture

The following is the Web Interface architecture:

Basic		
Quick Setup	$\rightarrow$	Wizard
		Add User
		Add Group
		Add Share
Control panel		
Users and Group	$\rightarrow$	User Management
		Group Management
File	$\rightarrow$	File Server
		Share Management
System	$ \rightarrow $	LAN Settings
		Time Settings
		Turn Off Server
		Information
		Disk Usage
		Error Notification
Network Service	$\rightarrow$	DHCP Server
		Bonjour
		BTorrent
Maintenance	$\rightarrow$	Disk Utility
		RAID Settings
		Firmware Upgrade
		Save Configuration
		Restore Configuration
		Factory Reset
Log File	$\rightarrow$	Samba Log
		FTP Log
		DHCP Server Log
		System Log
		Administration Log
Personal Info		
Personal Information	$\rightarrow$	Account

## 3.2 Login

MN2LP supports graphic user interface (GUI) in Web Browser to manage the system. Make sure that the network cable is connected and the setting program is installed first. For the example below, IP address is: 10.1.2.200 (your own host IP address) Open the browser and input: http://10.1.2.XXX

	BACKUP   PROTECT   RESTORE	
license		
Usename Password	Login	

The default account and password are as follows: Login account: admin Default Password: admin

After login, you can choose the following screen is display for more functions.



A Notice : You can choose to format the hard disk separately or create the disk array system directly.

1. To format the hard disk separately, refer to the following procedures: Enter "Maintenance" and click "Disk Utility".

					BACKUP   PROTECT	RESTORE		
Control Panel		L.	ogout				-	
System	Disk Utility							
Network Service	Dion o unity							
Maintenance	Device Name	Туре	Mount Point	Status	Encrypt:Password/Format Type/Format	Scandisk	Umount	Health
RAID Setting     Firmware Upgrade	/dev/hdb	none		unmount	encrypt ext2 w Format	Scan	Umount	PASSED Detail
Save Configuration     Restore Configuration     Factory Reset	/dev/hda	none		unmount	encrypt ext2 v Format	Scan	Umount	PASSED Detail
🖾 Log File					Retresh			
	Found New D	) isk, P	lease Forma	t.				

 Choose the hard disk to be formatted and choose file format. MN2LP provides 3 formats: Fat32, Ext2 and Ext3 After choosing, click "Format". The system will start to format automatically and display the progress.

				B/	ACKUP   PROTECT   RESTOR	Ε		
Control Panel	Disk Utility	L	ogout					-
Maintenance	Device Name	Туре	Mount Point	Status	Encrypt:Password/Format Type/Format	Scandisk	Umount	Health
A RAID Setting     Firmware Upgrade	/dev/hdb	none		unmount	ext2 w Format	Scan	Umount	PASSED Detail
Save Configuration     Restore Configuration     Factory Reset	/dev/hda			formatting:70%	encrypt ext2 w Format	Scan	Umount	PASSED Detail
🖾 Log File					Refresh			
	Found New D	jisk, P	lease Forma	tt.				
	Please wait an	d do s	not do anyth	ing				

Notice : 1. If you choose to format the hard disks separately, the system information will be recorded on the first hard disk that is formatted, which, once damaged, may result in system malfunction.

2. MN2LP can perform 128bits loop-AES encryption for Ext2 file format only.

3. If you choose the Fat32 file format, you will be unable to set the disk array subsequently.

3. Once formatting is completed, the system will restart automatically. After login, enter "Disk Utility" and you can see related information that formatting is complete. You can repeat the above procedures to finish formatting the other hard disk.

					BACKUP   PROTECT	RESTORE		
Basic Control Pa	nel Personal	Info				.ogout		
Elle and Print	Disk Utility							
System	Device Name	Туре	Mount Point	Status	Encrypt:Password/Format Type/Format	Scandisk	Umount	Health
Network Service Maintenance	/dev/hdh	ent2	/mntiide2	mounted	encrypt	Scan	Umpunt	PASSED Detail
> Disk Utility	100 killion	Contrac.	111111100L	in come o	Format			AUGED LEAL
<ul> <li>RAID Setting</li> <li>Firmware Upgrade</li> </ul>	/dev/hda	none		unmount	encrypt ext2 m	Scan	Umount	PASSED Detail
<ul> <li>Save Configuration</li> <li>Restore Configuration</li> </ul>					Refresh			1
<ul> <li>Factory Reset</li> </ul>								

- Notice : 1. If you choose to format the hard disks separately, the system information will be stored in the first formatted hard disk.
  - 2. The space of the second formatted hard disk will be set to fully open and all users will have the access permission.

## 3.3 Set RAID Directly without Formatting

1. Enter "Maintenance" and click "Disk Array".



2. Select "Disk Array Mode" and "Format File System". After choosing, click "Create Disk" and the system will start to perform hard disk formatting and RAID system setting automatically.

Control Panel	-	Logout	
System	RAID Set	ting	
Maintenance     Oisk Utility     RAID Setting	Raid File s	level: RAID 0 ystem: EXT3	
<ul> <li>Firmware Upgrade</li> <li>Save Configuration</li> </ul>	Disk S	tatus	
Restore Configuration     Factory Reset     Log File	¢	Treating Raid system 50%	Z
		/dev/hda	/devhdo
	1	WDC WD1600JS-60MHB5 160 GBytes	WDC WD1600JS-60MHB5 160 GBytes

3. Once formatting is complete, the system will restart automatically. Control Panel will be display and provide more setting for the unit.

	BACKUP   PROTECT   RESTORE
Basic Control Panel Personal Info	Logout
Quick Setup System Information	
Product Name	MN2LP
Firmware Version	2.42C
Product Vendor	Sans Digital
IP Address	192.168.100.153

- Notice : 1. Since MN2LP will store the system settings in the hard disk, you must format the hard disks prior to setup so that the new settings can be stored.
  - 2. Once the setting is complete, if you change format the hard disk, the system will be reset to the default values and you will be reset the system setting.

#### 3.4 Basic

Enter Basic function group contain "Quick Setting", which includes 4 functions: "Wizard", "Add User", "Add Group" and "Add Share".

#### 3.4.1 Wizard

The installation wizard may guide you to complete the basic function setting of the system within 6 steps described as follows:

1. Select Language

MN2LP can display a language in accordance with the language used by the browser or you can select any of the 3 default languages: "English", "Simplified Chinese" and "Traditional Chinese".



2. New Password Setting (for admin)

A new password can be set for the "admin" account If you do not want to change the password, click "Next" directly.



- Notice : 1. The password limited to 16 characters and must be English character in lower case and numeric numbers.
  - 2. It is recommended that you change the default password to prevent users from changing your system information via the default password.

#### 3. Host Name Setting

Please set the host name of MN2LP over the network in this step. It is the network name of the unit.

	BACKUP   PROTECT   RESTORE
Basic Control Panel Personal Info	Logout
Quick Setup Step 3/6	
Hostname Setting	1
Hostname	MN2LP
NOTE: The Hostna	me is the name given to the server by which Window based machine may access.

- Notice : 1. The number of characters is limited to 15 characters, which must consist only English characters, numeric numbers or "-".
  - 2. Since each MN2LP has an identical default host name, if you want to install more than two MN2LPs, changing the host name of each of them to avoid errors.

4. Network Communication Protocol Setting Network IP seeting, including DNS information can be setup via this screen..

Basic Control Panel P	ersonal In	fo		Logout
Quick Setup	4/6			
N Wizard				
<ul> <li>Add User</li> <li>Interr</li> </ul>	net Protoc	ol Se	etting	
Add Group	Address	۲	Obtain IP Address	automatically
Add Share		0	Use following IP Ad	idress
			IP Address	192 168 100 153
			Subnet Mask	255 255 0
			Default Gateway	192 168 100 254
DN	S Server	۲	Obtain DNS Serve	r Address automatically
		0	Use following DNS	Server Address
			Primary	192 168 0 71
			Secondary	192 168 0 101
			Others	

#### 5. Time Setting

System date, time and time zone and designate the NTP server.

	BACKUP   PROTECT   RESIGRE
Basic Control Par	el Personal Info
Quick Setup	Step 5/6
<ul> <li>Wizard</li> </ul>	•
Add User	Time Settings
Add Group	Date Month 1 M Day 1 M Year 2007
Add Share	Time Hour 12 Minute 7 M PM M
	Time Zone 🛛 (GMT-08:00) Pacific Time (US & Canada). Tijuana 🛛 💌
	NTP Server   Default None
	User Define

The NTP (network time protocol) server provides data and time information over the network automatically. The system is to provide two NTP server addresses: time.windows.com and time.nist.gov for users to choose from.

#### 6. Verifying the related equipments

All setting information will be displayed together. If everything is OK, click "Finish" to finish the setting; if the setting is incorrect, click "Previous Page" to return to the pervious screen to change.

		BACKUP	PROTECT   RESTORE
Basic Control	Panel Personal Info		Logout
Quick Setup	Step 6/6		
<ul> <li>Wizard</li> <li>Add User</li> </ul>	Wizard Setting Confi	irmation	
<ul> <li>Add Group</li> </ul>		Current Settings	New Settings
<ul> <li>Add Share</li> </ul>	UI Language	set From Browser Options	English
	Hostname	MN2LP	MN2LP
		Automatic Obtain	Automatic Obtain
	IP Address	IP Address	IP Address
	IF MOURSS	Subnet Mask	Subnet Mask
		Default Gateway	Default Gateway
		Automatic Obtain	Automatic Obtain
	DNC Concer	Primary	Primary
	Divo Gerver	Secondary	Secondary
		Others	Others

#### 3.4.2 Add User

With this function, we can add a user within 3 steps. Please refer to the following instructions:

#### 1. User ID and Password Setting

Click "Add User" and fill in the name and password of the new user. A private folder with limited size can be created for "Home" folder purposes. The private folder will only be access by that user only.

			BACKUP   PROTECT   RESTORE	
Basic Control Panel Quick Setup S Wizard	l Personal Info Step 1/3		Logout	
> Add User A	dd User			
Add Group	User Name	SansDigital	]	
<ul> <li>Add Share</li> </ul>	Password	•••••	]	
		•••••	Please type your password again	
	Description (optional)			
		Create Shared priva	te Folder	
		Shared Private Fold	er Location /mnt/md1	
		Enable Quota of	MB	

Notice : 1. User ID is limited 20 characters in length. Only English characters in lower case and numeric numbers, "-", "\_" or "." is allowed. The first character must be an English character.

2. The password is limited to 16 characters in length which must be English characters in lower case.

#### 2. User Management

Â

After setting the Username and password, you can add newly created user into user group. (If you are setting for the first time, only the "guest-share" group is available).

		BACKUP   PROTECT   RESTORE
Basic Control Pa	inel Personal Info	Logout
Quick Setup	Step 2/3	
> Add User	User Management - sansdigital	
Add Group	Member	Non-member
And Share	END LIST	<< Add guest-share END LIST
		Remove >>

#### 3. Share Permission Setting

To setup user premission, selecct the from the folder list to allow access (Read Only or Writable) or deny the access. Writable will allow both read and write premission.

		BACKUP   PROTECT   RESTORE
Basic Control Pa	nel PersonalInto	Logout
<ul> <li>Wizard</li> </ul>	Step 3/3	
> Add User	Share Permission - sansdigital	1
Add Group	Access Granted	Access Denied
<ul> <li>Add Share</li> </ul>	l	
	END LIST	<< Read Only public END UST
		<< Writable
		Remove >>

Once the setting is complete, you can find the share folder in the Network Neighbors.

#### 3.4.3 Add Group

"Group" contains different users for centralize access managements. Add Group Wazard will create the user group and add members.

#### 1. Group Name Setting

Input the group name.

		BACKUP   PROTECT   RESTORE
Basic Control P	anel Personal Info	Logout
Quick Setup	Step 1/3	
<ul> <li>Wizard</li> </ul>		
🔺 Add User	Add Group	
> Add Group	Group Name	
<ul> <li>Add Share</li> </ul>		

#### 2. Group Members Selection

Select the user on the left and click "Add" to add to the group.

		BACKUP   PROTECT   RESTORE
Basic Control Pa	nel Personal Info	Logout
Quick Setup	Step 2/3	
🔺 Add User	Group Member - admin	
Add Group     Add Share	Member	Non-member
	END LIST	<< Add admin guest-share sensetigital END UST
		Remove >>

#### 3. Share Permission Setting

Folder permission can be set as Read Only, Writeable and Deny.

#### 3.4.4 Add Share

Share is the Network Folder that allow sharing the date. Add Share will setup the folder in the follow step.

#### 1. Setting of the Share Folder's Name

Type the folder name, and move to a blank area on the screen. Click anywhere to setup the path.

Basic Control 1	Panel Personal Info	BACKUP   PROTECT   RESIGNE
Quick Setup	Step 1/3	
<ul> <li>Add User</li> </ul>	Add Share	
<ul> <li>Add Group</li> </ul>	Share Name	
> Add Share	Path	
	Description (Optional)	

Notice : The share name is limited 20 characters. Only English characters in lower case, numeric numbers, "-,", "\_" or "." is allowed. The first character must be an English character.

#### 2. Setting of Windows and FTP Access Premission

To set the premission to access the folder, check the "allow access by all" to allow all users or select via the user and group list on the left.



3. Setting of NFS Access Premission

To set the access premission of NFS, check "allow access by all users" to allow all access or fill in the IP address of the NFS client.

		BACK	SUP   PROTECT   RESIGNE
Basic 🖸	ontrol Panel Personal Info		Logout
Quick Setup	Step 3/3		
<ul> <li>Add User</li> </ul>	NFS Access - guest	tshare	
<ul> <li>Add Group</li> </ul>	Grant access to all		
> Add Share	Allowable IP/Subnet		
	END LIST	Add   Add  Address	
		Remove O Subnet	
		_	

## 3.5 Control Panel

#### 3.5.1 Users and Groups

In Users and Groups, you can set and manage two items: users and groups.

#### 3.5.1.1 User Management

The user management menu will display all users in the present system. You can add or delete a user via the "Save" or "Delete User" button. Click "Add to Group" to add it to a group.

#### Add User

\* Fill out the table with related contents and then click "Save".

Notice : 1. User ID shall be 20 characters in length at maximum which must be English characters in lower case and numeric numbers, "-", "\_" or "." and the character must be an English character.

2. The password limit to 16 characters which must be English characters in lower case.

To add a user to a group, click the name of the user and click "Add to Group" to enter group setting .

			BACKUP   PROTECT   RESTORE
Basic Control Pa	nel Personal Info		Logout
Users and Groups	User Manager	ment	
> User Management		a dayla	-
<ul> <li>Group Management</li> </ul>		guest-share	
File and Print	Existing Users	senscigital END UST	
🔤 System			
Network Service			
Maintenance			
🖾 Log File	User Name		
	Password		
			Please type your password again
	Description (optional)		
	Create Share	d private Folder	
	Shared Priva	te Folder Location /m	nt/md1
	🔲 Enable Quota	of MB	
		Save Clear Form	n Groups Delete User

#### 3.5.1.2 Group Management

The group management menu will display all groups in the system. You can add or delete groups via the "Save" or "Delete User" button. To add or remove a user in an existing group, click the group first and then add or remove users.

			BACKUP   PROTECT	RESTORE
Basic Control Par	nel Personal Info			Logout
Users and Groups	Group Manageme	nt		
Group Management		guest-share END LIST		
File and Print	Existing Groups			
🖾 System				
Network Service			1	
Maintenance	Group Name			
🖾 Log File	Save	Clear Form Membe	rs Delete Group	

#### 3.5.2 File

This menu includes "file server" and "share management".

#### 3.5.2.1 File Server

- Windows Setting
- Check "Enable" to permit the Microsoft Windows connection.
- Set group name and description
- · Set the IP address of the WINS server (not mandatory)
- FTP Server Setting

%Check "Enable" to initiate the FTP function. The port is 21 by default.

- Notice : You can change the port of the FTP port, which, however, make sure there is no conflict with the port used by other related applications. For instance, do not use port 80 as the position is used by the Web Browser.
  - NFS Server Setting

% Check "Enable" to initiate the NFS server function.

#### Guest Access Setting

☆Click "Enable" to permit guest access.

% Check "Enable Disk Quota" to set the upper limit of data (Mega Bytes) uploaded by the guest.



#### 3.5.2.2 Share Management

The share management screen will display all existing share names. "public" is the factory default.

#### Add Share

% Fill in the "Share Name" with the new share folder's name, move the mouse to a blank area, click the left mouse key and the system will fill in the "Path" automatically and then click "Save" to add a new share name.

Notice : The share name is 20 characters in length at maximum which must be English characters in lower case, numeric numbers, "-", "\_" or "." and its first character must be an English character.

#### Update Share

%Click a share name in the "Existing Shares" and click the "windows, FTP access" or "NFS access" button to change the property of the share folder.

			BACKUP   PRC	DTECT   RESTORE	
Basic Control Pa	nel Personal Info			Logout	
Users and Groups     File and Print	Share Manageme	ent			
File Server     Share Management     Printer Server	Existing Shares	guestshare public END LIST			
System Network Service Maintenance	Share Name Path	/mnt/md1 /			
🖬 Log File	Description (Optional)	lows,FTP Access	NFS Access S	Save Clear Form	Delete Share

#### Windows and FTP Access

%Check "Allow access by all users" to permit all users to access the share space in the server or select a user or group name from the list and set the "Read Only" or "Write-in" permission.

	BACKUP   PROTE	CT   RESTORE
Basic     Control Panel     Personal Info       Ubera and Groops     Windows, FTP Acc       File and Print     Grant access to all Access Granted       > Share Management     Access Granted       > System     Network Service       Maintenance     The prefix "@" denotes G	sss - guestshare Access Deried c< Read Only cwittable Remove >>> up Name. ve Cancel	Logout

#### NFS access

%Check "Allow access by all users" to permit all users to access. Or add the IP of the access computer or subnet mask in the list to permit access.

	BACKUP   PROTECT   RESTORE
Basic Control Pa Users and Groups File and Print File Server Server Server Server Server	International Info
System Network Service Maintenance Log File	Remove Subact

#### · Delete Share

% After selecting a folder name, click "Delete Share" to delete the designated share name.

Notice : To delete the data in the folder, please backup the data prior to deletion. Once a folder is deleted, the data originally stored in the folder will also be deleted.

#### 3.5.3 System

System setting includes 6 functions: "Network Setting", "Time Setting", "Server Startup", "Information", "Disk Capacity" and "Error Notice Setting".

#### 3.5.3.1 LAN Setting

#### Hostname

%You must set an independent name for MN2LP over the LAN.

Notice : 1. The number of characters is limited to 15 characters, which must consist only English characters, numeric

- numbers or "-".
- Since the default host names of MN2LP are identical, if you want to install more than 2 MN2LP, be sure to change the host name of each MN2LP to avoid recognition error on the IP setting software.

#### IP Address Setting

#### \*Obtain IP address automatically

If you have installed the DHCP server, the system will obtain the IP address from the DHCP server automatically. If the IP address cannot be obtained from DHCP, the default IP address is 192.168.1.1.

℁Use static IP address

You can consult related MIS personnel to obtain the IP address, subnet mask and default gate and fill them in related fields.

\*Obtain DNS server address automatically

The system obtains the IP address of the DNS server from the DHCP server automatically. %Use static DNS server address

You can consult related MIS personnel to obtain the DNS address and fill it in the related field.

Notice : When MN2LP is connected to the network, the system will obtain the IP address automatically through the DHCP server. In case that the IP address cannot be obtained through the DHCP server, MN2LP will initiate its own DHCP function to become the DHCP server. Confirm the IP address of MN2LP (by default, 192.168.1.1) first and then set the PC to the same LAN to enter the system login screen.

#### Physical Address

Δ

%The physical address is displayed as MN2LP.

Ubers and Groups     LAN Settings       File and Print     Hostname MN2LP       Ipackan     Hostname MN2LP       IP Address Setting ©     Obtain IP Address automatically       Use following IP Address     IP Address Setting ©       Term off Server     In Address Setting ©       Disk Usage     © Obtain DNS Server Address automatically       Error Modification     Disk Usage       Retwork Service     Disk Usage       Baindenanco     Other Setting 0       Optime     MAC Address 0050C238F2BC	Basic Control P	anel Personal Info			L	.ogout
Citle and Print     Hostname (M2LP       System     IP Address Setting © Obtain IP Address automatically       Tame Settings     IP Address Setting P Address       Tame Settings     IP Address Setting © Obtain IP Address       Tame Settings     IP Address Setting © Obtain IP Address       Tame Settings     IP Address Setting © Obtain IP Address       Tame Off Server     Subort Mask       Indomation     Default Gateway 102       Dick Usage     © Obtain DNS Server Address automatically       Error Notification     Pinnary       Nationance     Others       Outer Server     Secondry       Secondry     102       Outers     IP	Users and Groups	LAN Settings				
Vystem         Paddress Setting         Obtain IP Address automatically           LAS Settings         Use following IP Address         19         160         100         153           Time Sottings         IP Address         IP Address         19         160         100         153           Time Off Server         Defrait Gateway         100         163         264         265         255         255         255         255         264 <t< th=""><th>ile and Print</th><th>Hostname MN2LP</th><th></th><th></th><th></th><th></th></t<>	ile and Print	Hostname MN2LP				
LAN Settings         Output for Southing IP Address           Time Settings         Use following IP Address           Tam Off Server         IP Address           Information         Defrait Cateway           Dirk Usage         © Obtain IP Notification           Provide Server         Address automatically           Wastification         Primary           Network Service         Primary           Network Service         Other           Other         Others	System	IP Address Setting  Obtain IP Address	automat	ically		
Trans Statings         IP Address         102         66         100         153           Turn Off Serveer         Subnet Mask         255         255         255         00         254           Dirk Usage         Obtain DNS Server Address automatically         0         284         00         264           Network Service         Primary         192         188         0         71           Nativenance         Other         Other         0         107           Dirk Usage         Other         0         101         101	LAN Settings	<ul> <li>Use following IP Activities</li> </ul>	idress	Cony		
Term Off Server         Subpert Mask         255         256         266         257         256 <th>Time Settings</th> <th>IP Address</th> <th>192</th> <th>168</th> <th>100</th> <th>153</th>	Time Settings	IP Address	192	168	100	153
Information         Defualt Gateway         192         163         100         264           Oik Usage         © Obtain DNS Server Address automatically         Use Following DNS Server Address           Error Nozification         Primary         112         166         0         71           Automatice         Others         0         101         101         101           Automatice         Others         0         101         101         101           og File         MAC Address 00:00:228:E78:E78:E78:E78:E78:E78:E78:E78:E78:E7	Turn Off Server	Subnet Mask	255	255	255	0
Other         Object         Object </th <th></th> <th>Default Gateway</th> <th>192</th> <th>168</th> <th>100</th> <th>254</th>		Default Gateway	192	168	100	254
Error Nuclfication         O Use following DNS Server Address           Primary DNS Server Address         Primary DNS Server Address           Nationance         Secondary 1102 166 0 101           Others         Others           Log File         MAC Address 00 50C 228 F37BC	Disk Usage	Obtain DNS Server	Addres	s autor	natically	/
Primary         192         188         0         71           ietwork Service         Secondary         192         168         0         101           Astronance         Others         0         101         101         101           og File         MAC Address 00:50:228:F78C         0         101         101	Error Notification	Use following DNS	Server	Addres	8	
Network         Secondary         192         68         0         101           Maintenance         Others	Harburgh Canadam	Primary	192	168	. 0	71
Maintenance Others	Network Service	Secondary	192	168	. 0	101
Log File MAC Address 00:50:C2:28:E7:BC	Maintenance	Others		].	1.	].[
	Log File	MAC Address 00:50:C2:2B:E7:BC				

#### 3.5.3.2 Time Setting

The date, time and time zone can be set. Or you can designate an NTP server to synchronize the time and date.

		BACKUP   PROTECT   RESIDIE
Basic Control Pane Users and Groops File and Print System LAN Settings Tano Statings Tano Off Server Indemation Disk Usage Error Hotification Network Service Maintonance Log File	Personal Info Time Settings Date 12 Time 1 Time Zone [ NTP Server	Logout Month I w Day 2 W Year 2007 w Koar 5 W Minnel 36 W AM W (OMT-08:00 Pacific Time UB 56 Canada), Tijuana w O Defaut Updata Time

The NTP (network time protocol) server is one that is provided over the network primarily for network time checking of the user's host. By default, the system now provides two NTP server addresses, time. windows.com and time.nist.gov, for users to choose.

#### 3.5.3.3 Turn Off Server

Click the "Restart" key to restart the server.Click the "Shutdown" key to shut down the server.

	BACKUP   PROTECT   RESTORE
Basic Control Par Boers and Groups File and Groups System A LAN Settings A Time Settings A Set	Resental Info     Legout  Turn Off Server  To restart the server, click the Restart button. To turn off the server, click the Turn off button.  Restart  Turn off

3.5.3.4 Information

Display system related information: %Product Name %Firmware Version %Product Vendor %IP Address



#### 3.5.3.5 Disk Usage

Display information about the use status of the present hard disk and restriction on user capacity. %Overview of present hard disk status

	Control Pane	Personal Info			BACKUP   PROT	ECI   RESIGNE
Users and Group File and Print	95	Disk Usage	-			
System			Last Ci	recked: 1/2/2	2007 05:40:25	
<ul> <li>LAN Settings</li> </ul>			Please select	statistics info	rmation: Summar	ny 🛩
<ul> <li>Time Settings</li> </ul>		Disk Name	Capacity	Used	Free	Disk Usage (%)
Turn Off Serve	r	/dev/md	299456MB	128MB	299328MB	0%
<ul> <li>Information</li> </ul>				Refresh		
> Disk Usage						
· Error Notificati	on					
Network Service	,					
Maintenance						
Log File						

\*Use status and capacity restriction for each user.

			В	ACKUP	PROTECT   RESTORE			
Basic Control Pa	nel Personal Info				Logout			
Users and Groups	Disk Usage							
File and Print					~~			
System		Last Checke	d: 12/31/18	09 10:00	:00			
LAN Settings	Please select statistics information: User							
<ul> <li>Time Settings</li> </ul>	User Name	Quota	Used	Free	Disk Usage (%)			
<ul> <li>Turn Off Server</li> </ul>	admin	unlimited	OMB	-	-			
<ul> <li>Information</li> </ul>	guest-share	unlimited	OMB	-				
> Disk Usage	sansdigital	unlimited	OMB	-				
<ul> <li>Error Notification</li> </ul>	Refresh							
Network Service								
Maintenance								
Log File								

Basic Contro	I Panel Personal Info Logout
Users and Groups	Error Notification Setting
System	Monitoring Services Setting
<ul> <li>LAN Settings</li> </ul>	Disk Usage 🔲
<ul> <li>Time Settings</li> </ul>	Windows File Sharing Server
<ul> <li>Turn Off Server</li> </ul>	FTP Server
<ul> <li>Information</li> </ul>	DHCP Server
🔺 Disk Usage	Check Interval
> Error Notification	Interval Hourty
Network Service	Email Notification Setting
Maintenance	Email Notification Setting
🖬 Log File	Enable East Pop-Up
	Error Handling Pop-Up Machine Name

- 3.5.3.6 Error Notification Setting
  - Monitoring Services Setting

  - If checked, the system will notify the administrator in case of 90% of hard disk capacity.
  - % Windows File Sharing Server
  - Once checked, if Samba operates abnormally, the system will notify the administrator.
  - ℁FTP Server
  - Once checked, if FTP server operates abnormally, the system will notify the administrator.  $\ensuremath{\circledast} \mathsf{DHCP}$  Server
  - Once checked, if DHCP server operates abnormally, the system will notify the administrator.
  - Check Interval
  - System can be set to be detected on an hourly or daily basis.
  - Email Notification Setting
    - Check "Enable" to set whether to notify the administrator by Email.
  - ℁Error Handling Mail Server

Please fill in your mail host address (should be in the same LAN without passing through the Router).

℁Error Handing Mail Addresses

Please fill in the administrator's mailbox.

- Pop-Up Notification Setting
- %Check "Enable" to choose whether to display related information by means of popping up a window.
- %Error Handling Pop-Up Machines

The host name of the administrator computer that displays the error window can be designated.

#### 3.5.4 Network Service

#### 3.5.4.1 DHCP Server

Check "Server Enable" to start the DHCP server. If the DHCP function is selected, fill in a related IP address.

- Notice : 1. If MN2LP cannot obtain the IP address from DHCP, the system will initiate its own DHCP function.
  - If MN2LP has obtained the IP address from DHCP, you should set "use the static IP mode" and designate a static IP for MN2LP before initiating the DHCP server function.



#### 3.5.4.2 Bonjour

MN2LP supports Apple's Bonjour protocol and iTunes server %Check "Enable" to initiate the Bonjour protocol.

		BACKUP   PROTECT   RESIDRE
Basic Control Pa Uters and Groups If He and Print System Network Service DRCP Server Banfort Maintenance Log File	eel Personal Info Bonjour Setting ITunes Enable 2	Legout

#### 3.5.5 Maintenance

System maintenance includes: There are six options: disk utility, disk area, firmware update, storage configuration, restore configuration and factory reset.

3.5.5.1 Disk Utility

Disk information will display hard disk name, file system type, total capacity, used capacity, cluster configuration and all configured hard disks.

Encrypt Box

MN2LP can perform 128bits loop-AES encryption for Ext2 file format only. To perform this function, you need to input the 20-character password and format the hard disks again.

Format

You can format the hard disks via this key. MN2LP supports 3 file formats: Fat32, Ext2 and Ext3.

• Scan

You can check whether the hard disks are normal via this key.

Detail

If your hard disks support the S.M.A.R.T function, click this key to display related status information of the hard disks.

To avoid wrong commands, before formatting and scanning of the hard disks, the system will bring up a window requesting you to confirm. Moreover, MN2LP supports USB disks and you can share the data by inserting the USB disk into the USB port at the rear of the unit. When you insert a USB hard disk, the system will display /mut/usb1 in "Disk Utility" and name the share folder as "usb 1" automatically in Network Neighborhood.





- Notice : 1. Once the USB disk is detected by the system, you need to set the read permission before reading the "usb1" folder.
  - 2. To remove the USB disk, click "Uninstall" before removal.

#### 3.5.5.2 RAID Setting

MN2LP supports two disk array level applications: RAID 0 and RAID 1. If only one hard disk is inserted, the "disk array" window will display "unable to set the disk array"; if two hard disks are inserted, the "disk array" window will display two options: "RAID0 and RAID1". After selecting the RIAD mode and file format, click "Create Disk" to set the disk array.

#### 3.5.5.3 Firmware Upgrade

Click firmware upgrade to display the present firmware version. You can download the latest firmware version onto your PC and designate the correct file path in "Updated File" to upgrade the firmware. Network service will stop when you upgrade the firmware.

		BACKUP   PROTECT   RESTORE
Basic Control P	Personal Info	Logout
Users and Groups	Firmware Upgrade	
EFile and Print		
System	Current Firmware Version	2.420
Network Service	Opgrade File	Diowse
Maintenance		Upgrade
<ul> <li>Disk Utility</li> </ul>		
<ul> <li>RAID Setting</li> </ul>		
> Firmware Upgrade		
<ul> <li>Save Configuration</li> </ul>		
<ul> <li>Restore Configuration</li> </ul>		
<ul> <li>Factory Reset</li> </ul>		
Log File		

Once the firmware is upgraded, the system will restart automatically.

Notice : Random firmware upgrade may cause your system unable to operate normally. If your system operates normally, it is recommended that you not upgrade the firmware. If you have any question about firmware upgrade, contact the technical support or write to tech@sansdigital.com.

#### 3.5.5.4 Save Configuration

The system configuration file can be saved in the hard disk for backup. The file name is "config.tar" by default.



#### 3.5.5.5 Restore Configuration

When the system's configuration file is destroyed, lost or changed incorrectly, you can use restore configuration to restore the configuration file you saved previously. Browse the System configuration file, and click Restore.

	BACKUP   PROTE	CT   RESTORE
Basic Control Pa	Personal Info	Logout
Users and Groups	Restore Configuration	
File and Print	•	
System	You can Restore (Upload) a previously saved configuration file for restore the senser configuration select the file you wish to rectore	om your PC.To
Network Service	"Restore" button.	and click the
Maintenance	Restore File Browse	
🔺 Disk Utility	Restore	
<ul> <li>RAID Setting</li> </ul>		
<ul> <li>Firmware Upgrade</li> </ul>		
<ul> <li>Save Configuration</li> </ul>		
> Restore Configuration		
<ul> <li>Factory Reset</li> </ul>		
🔤 Log File		

#### 3.5.5.6 Factory Reset

By clicking Factory Reset, you can reset the system configuration file to the factory default. All system information will be lost upon the Factory Reset.

	RACKUP   PROTECT   RESTORE
Basic Control Pa	nel Personal Info Logout
Users and Groups	Factory Reset
File and Print	To restore the factory default settings, click the Eastery Reset by then
🔤 System	Continent You will lose all uses date
Network Service	Caulorit rou will ose all user data.
Maintenance	Pactory Reset
🔺 Disk Utility	
<ul> <li>RAID Setting</li> </ul>	
A Firmware Upgrade	
<ul> <li>Save Configuration</li> </ul>	
A Restore Configuration	
> Factory Reset	
🔤 Log File	

#### 3.5.6 Log File

Login records include: Five items: "Samba Log File", "FTP Log File", "DHCP Server Log File", "System Log File" and "Administrator Log File".

3.5.6.1 Samba Log File

Display all Microsoft Network Sharing information and its related records.

	4L <sup>2</sup>	Personal Info		BACKUP	PROTECT   RESIDE		
Users and Grou File and Print	ps	Samba Log	•				
System		User	From	Time	Informat	ion	
Network Servic		Clean					
Maintenance							
🖾 Log File							
> Samba Log							
▲ FTP Log							
<ul> <li>DHCP Server I</li> </ul>	Log						
<ul> <li>System Log</li> </ul>							
- Administration	n Log						

#### 3.5.6.2 FTP Log File

All related log files connected through FTP. If you do not initiated the FTP function, no information will be displayed.

#### 3.5.6.3 DHCP Server Log File

Display all DHCP related log files. If you do not initiated the DHCP function, no information will be displayed.

#### 3.5.6.4 System Log File

Display all system related records, including failure log.



3.5.6.5 Administrator Log File

Display all records relating to the "Administrator".

## 3.6 Personal Information

"User Account" is the only option in this item. In the user account page, you can change the password of "admin" and displayed language. In addition, "Share List", "System Disk Quota" and "Percentage of Used Disk Capacity" will also be displayed.

		8.4	CKUP   PROTECT   RESTO
Basic Control Par	nel Personal Info		Logo
Personal Information  Account	Account Information -	admin	
		•••••	
	Change Password	•••••	(Please type your password
		again)	
	Language Preference	English	~
	Description (Optional)		
		Quota.	unlimited
	Dick Lisono	Used	0.00MB
	Lisk osage	Percentage	-
	Share List	public (Writable) ===== END LIST ==	
	L. L.	oure No	a d bri

Account: mysgl or admin

# 3.7 Change and View the IP Address using MN2LP LCD Display

- 1. To change the IP address of MN2LP, press the "ENT" key on the panel. Press the "Down" arrow key and press enter button at "System Setup" Enter the password (Default: 0000000) by using the arrows and ENT key. To Setup DHCP network, Select Yes, For Static IP, select NO and follow the screen for IP address, Restart the unit to finish the setting.
- 2. The IP address of MN2LP, will display on the LCD. You can also select "Network Info" function in the LCD for more detail.
- 3. IP address can also setup via IP Setup.exe software from Windows in Appendix A.

#### 3.8 Logout

Click "Logout" to log out the system directly.

# Appendix A Using IP Setup.exe

### 1. Change System Information via Software (For Windows)

In addition to changing system information through Web GUI, (e.g. IP address and time, etc.), you can change these system information by running "SetupUtil.exe", which is described as follows:

1.1 Click to run "IP Setup.exe" and click "Setup".



- 1.2 The IP Setup software will detect MN2LP unit automatically and present the result to
  - screen. In case multiple MN2L/MN2LP are installed over the network, multiple unit will display on the left.

Sans Digital MobileMAS MM2LP - Setup Wizard (Step 1)						
Cicp 1. Network Storage Link(s) Have been Found						
If you have one Network Storage Link, you can make changes to the following settings, if you have more than one Network Storage Link, you will						
need to run the Setup L	Itility again to configure e	each separate Network				
Storage Link.						
_ Selection	0N	MUCI D				
MN2LP	Server Name	MN2LP				
	P Address	192.168.100.153				
	Subnet Mask	255.255.255.0				
	Default Gateway	192.168.100.254				
	DNS Server	192.168.0.71				
Search again	MAC Address	00:50:C2:2B:E7:BC				
Exit	1	OK				

To change Networl information of the MN2LP, select the hostname of the unit and click "OK".

- Notice : If you need to install more than 2 MN2LPs at the same time, make sure hostname and IP address is not the same to aviod conflict.
- 1.3 Click "OK" to confirm the setting , enter the current administrator password. The default password is "admin".

Verify admin password	$\square$
Please enter current admin	****
ОК	Cancel

1.4 Enter the IP address manually or select DHCP to obtain IP address automatically. Click Next to complete.

Server	mn2lp	
Set IP c	onfiguration ma	• obtain an IP
IP	192 . 168 . 100 . 153	An IP address must
Subnet	255 . 255 . 255 . 0	be specified in order
Gateway	192 . 168 . 100 . 254	to access the Network Storage Link
DNS	192.168.0.71	from the network.

#### 1.5 Enter the Date and Time setting and click Next



1.6 Confirm the setting and click Save.

	Old Settings	Now
Server Name	MN2LP	mn2in
IP Address	192,168,100,153	192.168.100.1
Subnet Mask	255.255.255.0	255.255.255.0
Default Gateway	192.168.100.254	192.168.100.2
IP Status	DHCP	DHCP
Date	2007/01/02	2007/01/02
Time	06:46:57	06:46:57

1.7 After you click "Save", the system will again ask you if you are sure to change the setting. If so, click "OK". If you do not want to change, click "Cancel".

You are about to change th Press "OK" to save new se Press "Cancel" if you want settings.	ne settings. ettings. : to keep current
OK	Cancel

1.8 Setting is completed. Once the system is reset, it will jump back to the beginning screen. To change other servers, repeat the above procedures. If you have finished setting, click "Exit". It takes about 2 minutes to start MN2LP after power on. Before the startup is completed, the system will be unable to find MN2LP.

Notice : When MN2LP is connected to the network, the system will obtain the IP address automatically through the DHCP server. In case that the IP address cannot be obtained through the DHCP server, MN2LP will initiate its own DHCP function to become the DHCP server. Confirm the IP address of MN2LP (by default, 192.168.1.1) first and then set the PC to the same LAN to enter the system login screen.

# **Appendix B Complete Firmware Update Process**

- 1. In order to prevent from data loss caused by software update please backup data to other storage before starting update process.
- 2. Start to update software firmware after backup. Related update process please refer to the following description.
- 2.1 Click "Control Panel", "Maintenance", "Software Update", the following image will appear. Then upload firmware. Browse the firmware files. The new firmware files can be downloaded from www.sansdigital.com or contact tech@sansdigital.com.

		BACKUP   PROTECT   RESTORE	
Basic Control Pa	nel Personal Info	Logout	
File and Print	Firmware Upgrade Current Firmware Version		
🔤 System		2.42C	
Network Service	opgrade File	Upprade	
Maintenance			
<ul> <li>Disk Utility</li> </ul>			
A RAID Setting			
Save Configuration			
A Restore Configuration			
· Factory Reset			

2.2 The status will be update via the below screen. Once the update process is completed, the system will reboot and ask for username and password to login the system.

		BACKUP	PROTECT   RESTORE
Basic Control Pa	nel Personal Info		Logout
Users and Groups	Firmware Upgrade Process		
File and Print	0%		
🔤 System			
Network Service			
Maintenance			
<ul> <li>Disk Utility</li> </ul>			
<ul> <li>RAID Setting</li> </ul>			
> Firmware Upgrade			
<ul> <li>Save Configuration</li> </ul>			
<ul> <li>Restore Configuration</li> </ul>			
<ul> <li>Factory Reset</li> </ul>			
🖾 Log File			

2.3 After completing update, please click "Remove raid system" to rebuild RAID system. For detail information please refer to Chapter 3. Please note all the data will be remove.



2.4 After completing above process, please move data back to MN2LP and the update process is finished.

# Appendix C Introduction of LCD Display Items



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