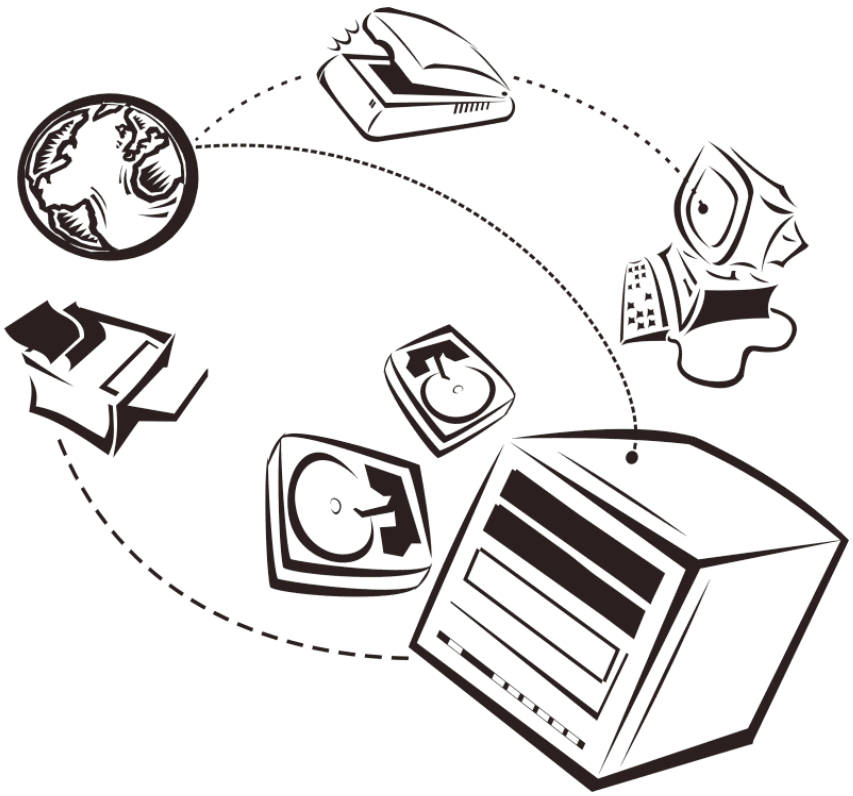
Disk Server RAID



User's Guide

Table of Contents

Document Version: 1.1

P/N 9560CE0101

1 About your Disk Server RAID

Congratulations on the purchase of your new Disk Server RAID. The Disk Server RAID will allow multiple LAN users to share data stored on the Disk Server RAID. Both Apple Macintosh and Windows users are supported.

Disk Server RAID Features

RAID Features

- ***Mirroring of Data.*** The built-in RAID 1 provides continuous, automatic mirroring of your valuable data.
- ***Automatic Rebuild.*** When a HDD is replaced, data automatically copied to it from the other disk.
- ***Hot-Swappable Drives.*** If a Hard Disk Drive fails, it can be replaced while the Disk Server RAID is still powered on and operating.
- ***Status Indicators.*** Six (6) LEDs keep you informed of the status of the RAID subsystem.

Other Features

- ***Easy LAN Installation (10/100BaseTX).*** An 10BaseT/100Base TX autosensing LAN connection eliminates the need to set DIP switches.
- ***Supports Windows and Macintosh.*** Clients can be either Microsoft Windows PCs (Windows 95, 98, NT4.0, 2000), or Apple Macintoshes.
- ***No Client Software.*** No software needs to be installed on either Windows or Macintosh clients.
- ***File Management using OS tools.*** Once your PC has access to the Disk Server RAID, you can manage your folders and files using the familiar tools provided by your operating system. For example, Windows users will see the Disk Server RAID as an additional drive in *Windows Explorer* and *My Computer*.
- ***DHCP Server Support.*** A DHCP (**D**ynamic **H**ost **C**onfiguration **P**rotocol) **Server** provides a dynamic IP address to PCs and other devices upon request. The requesting devices are called **DHCP Clients**.
  The Disk Server RAID can act as either a **DHCP Server** OR a **DHCP Client**.
- ***Multi Segment LAN Support.*** If you have a Router, PCs on other LAN segments can also use the Disk Server RAID.
- ***Easy Setup.*** A *Quickset* Windows program is provided to allow speedy configuration of the Disk Server RAID
- ***Full Administrator Control.*** The LAN Administrator can control Disk Server RAID usage by the following means:

- **Users**: Each LAN user has their own password to control access to the Disk Server RAID. The LAN Administrator can also limit the amount of Disk Storage used by a user.
- **Groups**: Users are organized into user Groups. A user can belong to many Groups.
- **Shares**: A "Share" is a folder (directory) on the Disk Server RAID which a User Group can access. Only the Disk Server RAID Administrator can create Shares. (Users can create folders within the Share.)
- **Access Rights**: Access to a Share can be "Read-Only" or "Read-Write". The Administrator can also prevent all User Groups from accessing a Share. To reduce administration effort, access to Shares is set by Group, not by individual user.

♦ ***Remote Management.*** The Disk Server RAID can be managed from a workstation anywhere on the LAN, using a WEB browser.

Package Contents

The following items should be included:

♦ The Disk Server RAID Unit.

♦ Power Cord

♦ Category 5 UTP network cable with RJ45 connectors.

♦ CD-ROM, containing this User Manual and the Disk Server Utility program for Windows 95/98/ or NT4.0/2000.

♦ Printed User Manual.

If any of the above items are damaged or missing, please contact your dealer as soon as possible.

System Requirements

♦ Ethernet Network employing 10BaseT or 100BaseTX.

♦ TCP/IP protocol.

The following client PCs are supported:

♦ PC using Windows 95/98 or later.

♦ PC using Windows NT4.0 or Windows 2000.

♦ Apple Macintosh with AppleShare and system 7.5 or later.

Connections and Components

All connections and switches are on the rear panel. Please take a few minutes to familiarize yourself with your new Disk Server RAID.

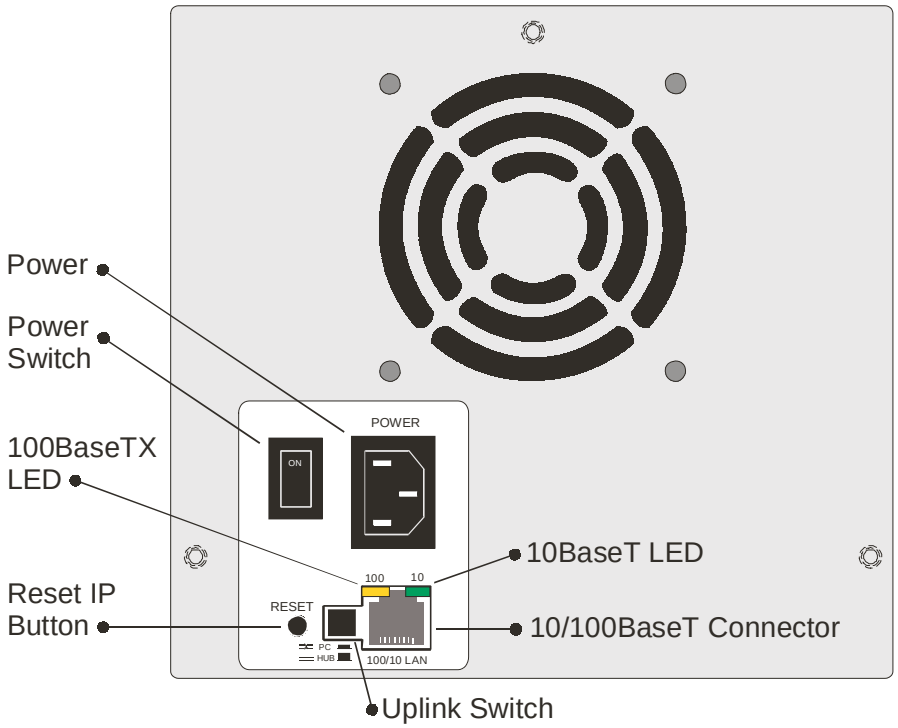


Figure 1: Disk Server RAID Rear Panel

Power	Connect the supplied cord here.
Power Switch	This is a spring-loaded "Soft Switch". If Off, press once to turn On. If On, press once to start the Disk ***Shutdown*** sequence. During *Shutdown*, the *Ready* LEDs will blink.
Reset IP Button (IP/Password)	If the Disk Server RAID's IP Address or password is lost, press and release this button. The Disk Server RAID will beep once to indicate the reset has occurred. The Disk Server RAID password will be cleared, and its IP Address set to the default value of 192.168.0.2, with a Network Mask of 255.255.255.0 You can then connect to the Disk Server RAID and set the correct IP Address and password.

Uplink Button	If connecting directly to a PC or Macintosh via Ethernet, depress this button. For normal operation (connecting to a hub), this button should be UP.
10/100BaseTX connector	Use this to connect the Disk Server RAID to your 10BaseT or 100BaseTX hub.
100BaseTX LED (amber)	This will be ON if the 10/100BaseTX connector is using 100BaseTX.
10BaseT LED (green)	This will be ON if the 10/100BaseTX connector is using 10BaseT.

LEDs (Front Panel)

Raid LEDs

The Raid controller has 3 LEDs for each disk, as follows:

Activity (Green)	Flashes when the disk is being accessed (read or write operation).
Failure (Red)	Normally OFF. This LED is On if the disk is not installed, or has failed. The disk should be replaced as soon as possible.
Rebuilding (Yellow)	Normally OFF. When a new disk is inserted, this LED will light to indicate that data is being copied (mirrored) from the other disk. The LED will remain On until the mirroring is complete, then it will turn Off.

Status LEDs

There are six (6) status LEDs on the front panel, as follows:

Ready	Normally ON. This blinks during Startup or Shutdown, and turns OFF after the shutdown is completed.
Error (Amber)	Normally OFF. However, this will be On during self-test; it will turn Off once the self-test is completed. If it stays ON, there is a hardware error. During a software upgrade, both the **Ready** and **Error** LEDs will blink.
LAN	Flashes during normal operation, when data is transmitted or received via the LAN.
Disk	Flashes when the disk sub-system is accessed (read or write operations).
Disk Full	Normally OFF. Blinking indicates the disk is 98% full. ON indicates the disk is completely full.
IP	Normally OFF. This will be ON if the Server is acting as a DHCP Client. If this LED is Blinking, the Server is a DHCP client, but no DHCP Server responded to the DHCP client request.

Buzzer

The buzzer will beep as follows:

- **1 Beep** - Reset button or power switch is pressed.
- **2 Beeps** (Repeated every 5 seconds for 1 minute) - Disk Server RAID is a DHCP client, but no DHCP Server responded to the DHCP client request.
- **3 Beeps** (Repeated every 15 seconds for 3 minutes) - Hard disk usage exceeds 98%.
- **5 Beeps** (Repeated every 15 seconds for 3 minutes) - Overheating; automatic shutdown will start 3minutes after 1st beep.

Specifications

Dimensions	180mm (W) x 330mm (D) x 170mm (H) 7.2" (W) x 13.2" (D) x 6.8" (H)
Operating Temperature	5° C to 40° C
Storage Temperature	-10° C to 60° C
Network Protocol:	TCP/IP, AppleShare, SMB
Network Interface:	Auto-sensing Ethernet 10BaseT or 100BaseTX UTP, RJ45 connector
LEDs	Rear: - 2 LAN connection status Front: - 6 RAID, 6 general status/operation
Power	100- 240 V AC, 50-60Hz

FCC Statement:

This device complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

CE Marking Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

2 Installation and Setup

Requirements

- Ethernet Network employing 10BaseT or 100BaseTX.
- TCP/IP protocol.

LAN Installation

1 Connect Network Cable

a) Use the RJ45 socket to connect the Disk Server RAID to your Hub.

b) The Disk Server RAID will auto-configure for 10BaseT or 100BaseTX, and full or half duplex.

2 Connect Power

a) Use the supplied power cord to connect to a power outlet.

b) Power ON using the power switch on the rear.

3 Check the boot process

a) During the self-test (2 or 3 seconds), ALL of the LEDs will be ON.

b) Then, during the boot process, the ***Ready*** and ***Disk Full*** LEDs will be ON.

c) Once the boot process is completed, the ***Ready*** LED should be ON and the ***Error*** LED should be OFF. If the ***Error*** LED stays On, there is a hardware problem. Repeated beeps also indicate a failure to boot correctly.

Disk Server RAID Setup using Windows

- For basic operation, only the following setup is required.
- For the full range of options available to the Network Administrator, refer to *Chapter 3 - Administration*.

Software Installation

1. Insert the supplied CD-ROM into the drive of your Windows 95/98 or Windows NT4.0/2000 system.
2. If the SETUP program does not start automatically, run SETUP.EXE in the root directory.
3. Follow the prompts to install the *Disk Server Utility*.

1. Start the program. For the default installation, use *Start - Programs - Disk Server - Disk Server Utility*.
2. The screen will look like the example below. The left section displays a list of all Disk Servers. The right section displays data about the currently-selected Disk Server. (If no Disk Servers are listed, see the Troubleshooting section.)

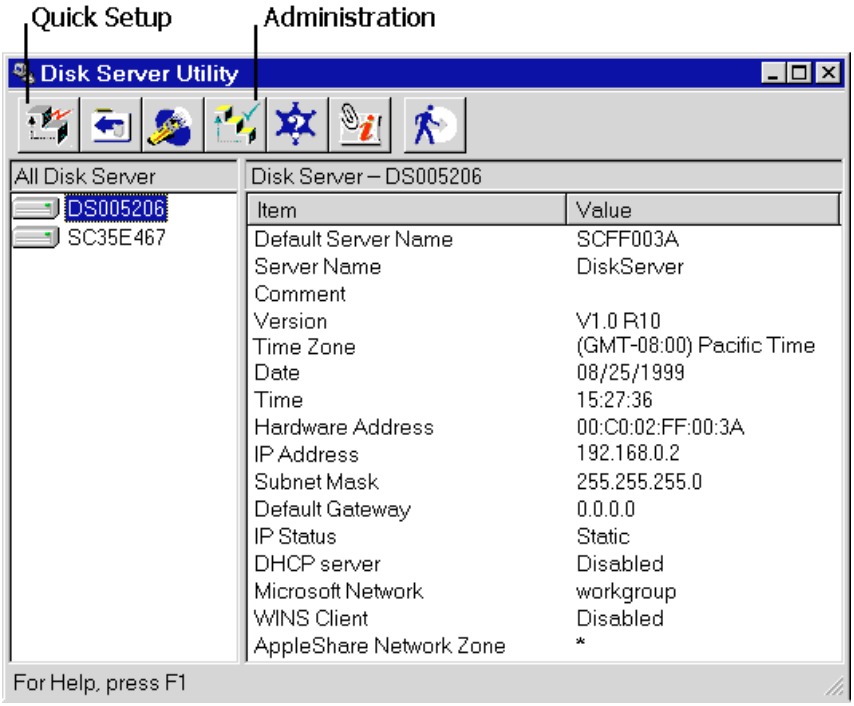


Figure 2: Disk Server Utility


Quick Setup

3. Ensure that the desired Disk Server is selected in the left panel, then click the *Quick Setup* icon.
4. The *Setup* screen will be displayed, as shown below.

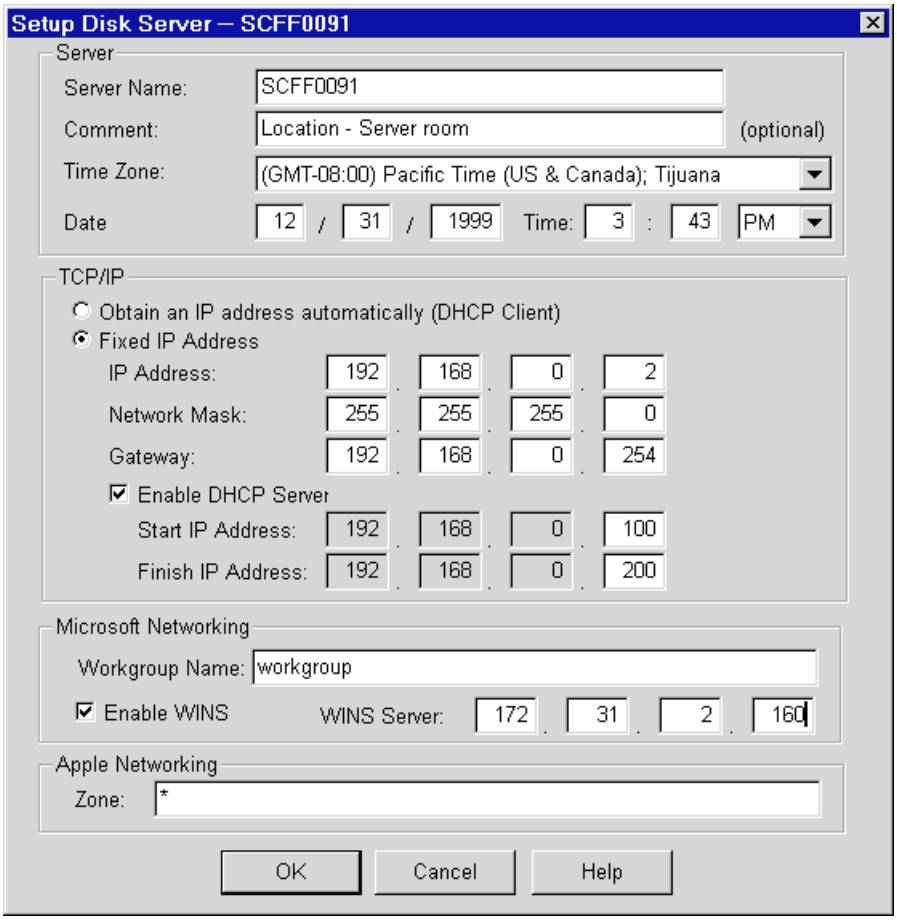


Figure 3: Setup Screen

Enter data on this screen as follows:

Server

Server Name:	The *Default Name* is shown. Change this if you wish.
Comment:	Comments (e.g. Location of the Disk Server RAID) are optional.
Time Zone	Select your time zone from the list.
Date/Time	Enter the local date (mm/dd/yyyy format) and time.

TCP/IP

Obtain an IP Address automatically (DHCP Client)	If you have a DHCP or Bootp server on your LAN, you can enable this setting. The Disk Server RAID will then obtain its IP Address from the DHCP or Bootp server. However, because this is a Server, it is preferable to use a **Fixed IP Address**. If your LAN does not have a DHCP server, then you **must** select **Fixed IP Address**.
Fixed IP Address:	Select this option to enter an IP Address. This option is required if you wish to use the DHCP Server function.
IP Address:	Enter a free IP Address from the address range used by PCs on your LAN. The default Disk Server RAID value is 192.168.0.2
Network Mask:	Use the same value as PCs on your LAN. The default Disk Server RAID value is 255.255.255.0
Gateway:	Use the same value as PCs on your LAN. If you don't have a router or Internet Gateway, leave this at the default value (blank).
Enable DHCP Server:	If checked, the Disk Server RAID will provide an IP Address and related data to PCs on request. PCs will only make such as request if they are set to act as **DHCP clients**. (See *Windows Client Setup* and *Mac Client Setup* for details.)
Start IP Address:	The first value for the range of IP Addresses to be allocated by the DHCP Server.
Finish IP Address:	The last value for the range of IP Addresses to be allocated by the DHCP Server Ensure that the range is large enough for the number of DHCP clients (PCs and other devices making DHCP requests.)

Microsoft Networking

Workgroup Name:	Normally, this name should match the *Workgroup* name used by PCs on your LAN.
Enable WINS	Check this if your LAN has a WINS (Windows Internet Naming Service) Server.
WINS Server	Enter the IP Address of the WINS Server. This is normally a system running Windows NT Server.

Zone: The default value is "*", giving all zones access to the Disk Server RAID. If a zone name is shown, only Mac users in that zone can access the Disk Server RAID

5. Click "OK" to save and exit. The Disk Server RAID is now operational, with the following limitations.
   - All Windows users will be given "Guest" access rights. This allows access to the *public* folder.
   - Macintosh users can only access Disk Server RAID storage with the *guest* network logon, or by logging on as *admin* with no password. (The *admin* user has access rights to ALL folders.)

   To overcome these limitations, use the Browser-based *Administration* interface. This is invoked with the *Administration* icon on the Disk Server Utility's main screen. See Chapter 3 for full details on using the Administration interface.

Disk Server RAID Setup using Macintosh

If your PC is not running Windows 95/98 or Windows NT4.0/2000, you cannot use the SETUP program on the CD-ROM. Instead, you must connect to the Disk Server RAID, and configure it, using your Web Browser. Your Web Browser must support JavaScript V1.1. The interface has been tested on the following Browsers:

- Netscape Navigator 4.04, 4.08, 4.5
- Internet Explorer 4.0
- Internet Explorer 5.0

Connecting to the Disk Server RAID

1. Ensure your system has a compatible *IP Address* and *Network Mask (Subnet Mask)*.
   - The Disk Server RAID's default values are 192.168.0.2 for the IP Address, with a Network mask of 255.255.255.0. Your PC should use the same Network Mask, and an IP Address in the range 192.168.0.3 to 192.168.0.254.
   - On the Macintosh, you can check using *Apple - Control Panel - TCP/IP*. (If this option does not exist, then TCP/IP has not been installed. Use your Apple system disk to install TCP/IP.)
2. Connect to the Disk Server RAID using your Web Browser:

a) Start your Browser

b) In the *Address* box, enter the following:

```
HTTP://ip_address
```

Where `ip_address` is the IP Address of the Disk Server RAID, as in the following example:

```
HTTP://192.168.0.2
```

c) You will be prompted for a name and password.

Enter *admin* for the name, and leave the password blank. Later, if you set a password for the *admin* user, you will be required to enter it here to gain access to the Disk Server RAID.

3. On the first screen, click the *Administration* button to continue. You will then see the main menu, as shown below.

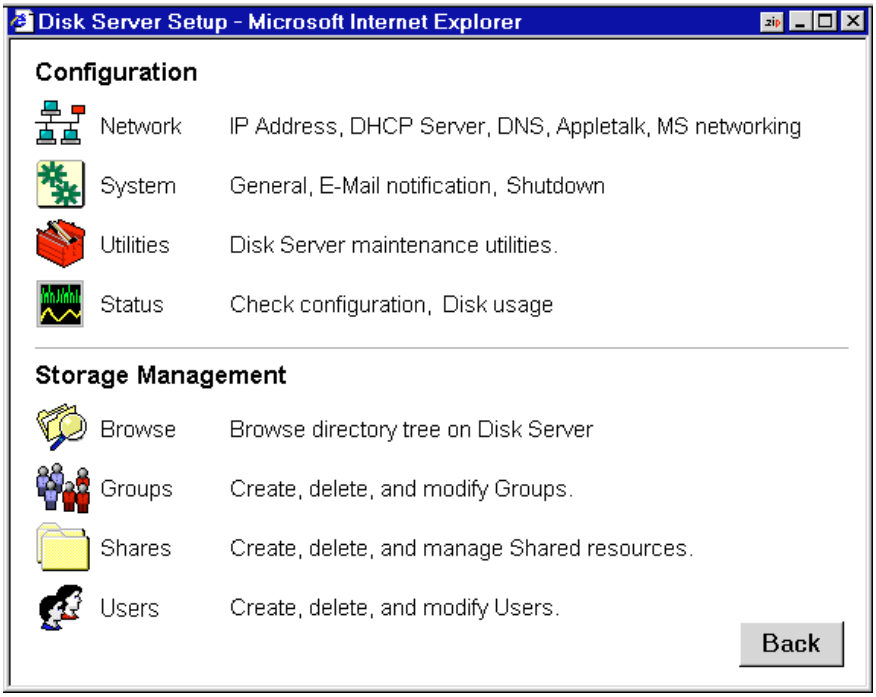


Figure 4: Web Interface - Main Menu

4. Select ***Network*** and configure each tab.
Use the on-line help as necessary.

5. Macintosh users can now access the Disk Server RAID, provided they use the *Guest* button on the Network login, or login as *admin*.

- As *guest*, they will have access to the *public* share. The Disk Server RAID Administrator can grant access to other shares by changing the access rights to the *everyone* group.
- The *admin* user has access rights to ALL folders. By default, the *admin* user has no password, but one can and should be assigned.
- For further details on using the Web Administration interface, refer to *Chapter 3 - Administration*.

3 Administration

Overview

The Disk Server RAID administrator can control Disk Server RAID usage by creating and managing Users, Groups, and Shares.

- **Users**: Each user is identified by their *User Name* and *Password*. The Administrator can create Users, and also limit the amount of Disk Storage available to a user.
- **Groups**: Users are organized into user Groups. A user can belong to many Groups.
- **Shares**: A "Share" is a folder (directory) on the Disk Server RAID which users can access. Only the Disk Server RAID Administrator can create Shares. However, within a Share, users who have access to that Share can create other folders (directories) as well as files.
- **Access Rights**: Access to a share can be "Read-only" or "Read-Write". To reduce administration workload, access to a Share is granted to a User Group, rather than to individual users.

AppleShare does NOT support "Read-only" access, so access is always "Read-Write".

A Share can be accessed by only 1 Group, but a Group can access many Shares.

The *admin* user, and any other users who are added to the *administrator* group, ALWAYS have Read/Write access to ALL shares and folders.

The *guest* user has Read/Write access to the *public* share. This can be changed, and access to additional shares can be granted, by changing the access rights for the *everyone* group.

Users who do not have a *User Name* on the Disk Server RAID are automatically given the *guest* login.

Web Interface

To create and manage users, groups and shares, a Web-style interface is provided.

The Disk Server RAID contains a HTTP server. This enables you to connect to it, and configure it, using a Web Browser. The Web Browser must support JavaScript V1.1 The interface has been tested on the following Browsers:

- Netscape Navigator 4.04, 4.08, 4.5
- Internet Explorer 4.0
- Internet Explorer 5.0

Connecting to the Disk Server RAID

Windows Users


Administration

1. Start the Disk Server Utility, and select the desired Disk Server RAID.
2. Click the *Administration* icon.
3. You will be prompted for the password, as shown below

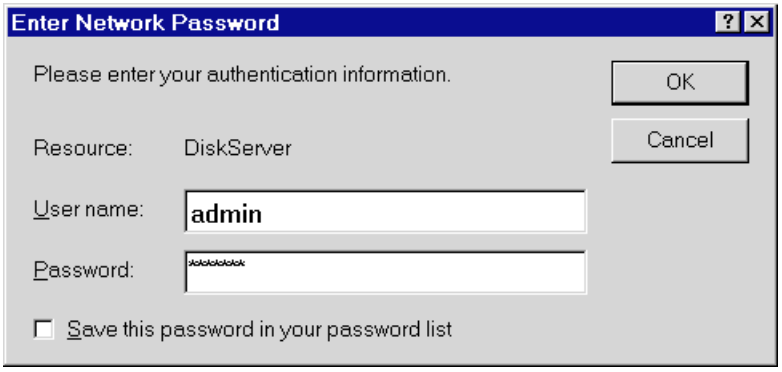


Figure 5: Password Prompt

Enter *admin* for the **User Name**. By default, there is no password, but if you have set a password for the *admin* user, enter it here.

You will then see the Welcome screen. If you have multiple Disk Server RAIDs, you can use the *Connect* button to switch to another Disk Server RAID.

Click the *Administration* button to proceed to the **Main Menu**. See the next section for details.

Other Users

1. Start your WEB browser

   In the *Address* box, enter the following:

   `HTTP://ip_address`

   Where `ip_address` is the IP Address of the Disk Server RAID, as in the following example:

   `HTTP://192.168.0.2`

2. You will be prompted for the password, as shown in *Figure 5: Password Prompt* above. Enter *admin* for the **User Name**. By default, there is no password for the *admin* user, but if you have set a password, you must enter it here.

   You will then see the first screen. If you have multiple Disk Server RAIDs, you can use the *Connect* button to switch to another Disk Server RAID. Otherwise, click the *Administration* button to proceed to the **Main Menu**.

Main Menu

The **Main Menu** screen looks like the example below:

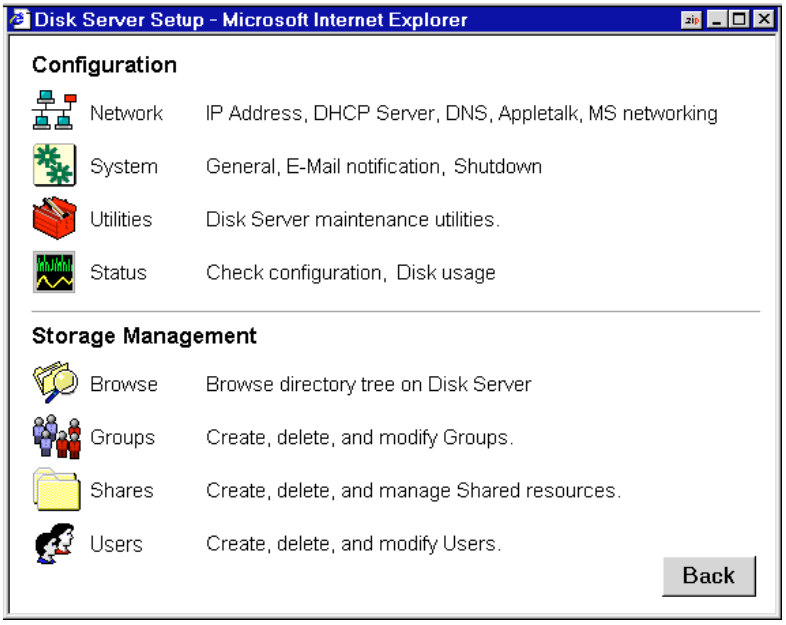


Figure 6: Web Interface - Main Menu

The options on the main menu are divided into 2 groups:

- Configuration
- Storage Management

Configuration Group

Network

- **IP Address** - Set IP Address, Network mask (Subnet Mask), and Gateway.
- **DHCP** - Enable and configure the DHCP Server function.
- **DNS** - (DNS) Domain Name Server IP Addresses.
- **AppleTalk** - Set the AppleTalk *Zone*. The default value is "*", which allows access by all zones.
- **Microsoft** - Configure Microsoft networking; set *Workgroup Name, Code Page* (alphabet) and WINS (Windows Internet Naming System).

System

- **General** - Set the Disk Server RAID name, date and time.
- **E -Mail** - Configure the Disk Server RAID to send E-Mail messages when there is a problem.
- **Shutdown** - Shutdown the Disk Server RAID, or create a shutdown schedule.

Utilities

These utilities are not required for normal operation.

- **Disk** - Check the disk for errors, similar to Scandisk.
- **Log** - Check the system log. This is provided only for troubleshooting.
- **Upgrade** - Upgrade the Disk Server RAID software.

Status

- **Disk** - Check disk usage. This data is read-only.
- **System** - Check System status. This data is read-only.

Storage Management Group

Use these options to manage *Shares*, *Users*, *Groups*, and access to shares. See the later section ***Managing Shares, Groups and Users*** for details.

Browse

Browse the Shares and folders on the Disk Server RAID. This allows you to:

- See the relationship between *Shares* and folders on the hard disk.
- View the directory structure on the Disk Server RAID.

Groups

- View the current Groups, modify their access to Shares, and add or delete Users from any Group.
- Create new Groups, or delete existing Groups.

Shares

- Create, delete and modify Shares. A "Share" is a folder (directory) which Users can access.
- Access rights are set by Group rather than by individual user.

Users

- View the list of existing users, and modify individual user data.
- Create or delete individual users.

Note:

- The *guest* and *admin* users cannot be deleted.
- The *admin* user cannot be or moved from its existing group "administrator".
- By default, the *admin* user has no password. Assigning a password is recommended.
- The *admin* user, and all other members of the *administrator* group, **always** has Read/Write access to **all** shares and folders.
- The properties for the *guest* user cannot be changed.

Managing Shares, Groups, and Users

This section has additional information to assist the Disk Server RAID Administrator in managing and controlling access to the Disk Server RAID.

Terminology

- A ***Share*** is a folder on the Disk Server RAID which can be accessed by client PCs on the LAN.
- ***Access rights*** (Read-only or Read-Write) are granted to a ***Group*** (group of users), rather than to individual users.
- Each ***Share*** can only be accessed by a single ***Group***.
- A ***Group*** can have access to many ***Shares***.
- Each individual ***User*** can belong to many ***Groups***.

Special Shares, Users and Groups

When delivered, the Disk Server RAID will have the following shares, groups and users. These pre-defined objects cannot be deleted, and only limited modifications may be performed.

Shares

HDD1	• Root folder, provided so the Administrator can backup all data by backing up the contents of this folder. • The *administrator* group ALWAYS has Read/Write access to this share.
public	• By default, the *everyone* group has Read/Write access to this folder. This may be changed. • This share can not be deleted.

Groups

everyone	• This group cannot be deleted. • All users are members of this group, and cannot be removed from this group. • By default, this group has Read/Write access to the *public* share. This can not be changed, but access to other shares can be granted or revoked.
administrator	• ALWAYS has Read/Write access to ALL shares. • This group cannot be deleted. • The *admin* user cannot be removed from this group, but other users may be added or deleted.

Users	
admin	• This user cannot be deleted. • The *admin* user is a member of the *administrator* group, and therefore has Read/Write access to all shares. • By default, the *admin* user has no password, but a password can be assigned. Assigning a password is recommended.
guest	• This user cannot be deleted. • The *guest* user is a member of the *everyone* group, and so has the access rights of the *everyone* group. • The properties of the *guest* user can NOT be changed.

Nested Shares

The Disk Server RAID allows a folder inside a share to be a share. This allows "nesting" of shares to any depth. If using this feature, remember that:

- In Windows' *Network Neighborhood*, all shares are listed on the same level - the "nesting" is completely invisible.
- When a user accesses a share, they will see only folders, never shares. Users cannot tell whether or not a sub-folder is in fact a nested share.
- Anyone with access to the outer share automatically has the same access rights to any inner shares. So the most sensitive data must be kept in the **outermost** share, not the innermost share. This is illustrated below.

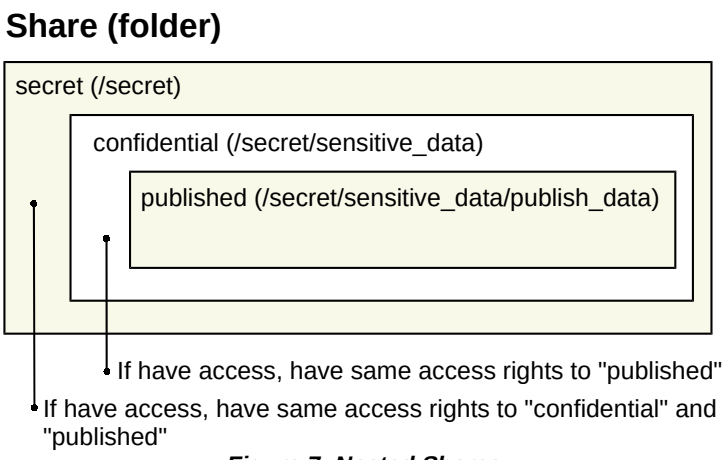


Figure 7: Nested Shares

Multiple Access Rights

- Access to a Share can be assigned to only 1 Group, but using nested Shares may result in multiple groups being able to access a Share.
- If an individual user is in 2 groups with different access rights, they would receive the **Least Restrictive** access permission.

Common Administrative Tasks

Task	Procedure
Protect Server configuration	Assign a password to the *Admin* user. Select *Users*, then select the *Admin* user, and click *Modify*.
Create Users	*Users* menu option. Click *New User*.
Edit User Details	*Users* menu option. Select the desired user, then click *Modify*.
Create Groups	*Groups* menu. Click *New Group*.
Change Group Membership	Either: • Select the Group on the *Groups* screen, and click *Members*. • OR, Select the User on the *Users* screen, and click *Groups*.
Create Shares	*Shares* menu option. Click *New Share*.
Set Access to Shares	*Groups* menu. Select the Group, then click the *Shares* button. On the *Group/Share Relationship* screen, you can select the Share(s) and the type of access for this Group.

File Management	Within any Share to which you have access, you can use Windows Explorer to perform file management. Users in the *Administrator* group can access any share, and can also access the share "HDD1", which is the root directory on the Disk Server RAID.
	Note: You may sometimes see the following files, which have been generated by AppleTalk clients:
	`.Apple Desktop`
	`.Apple Double`
	`Network Trash Folder`
	Do NOT delete these files!

Backup data on the Server	Use your backup program to backup any folder. To backup all files, users in the *Administrator* group can backup the HDD1 folder.
Shutdown the Server	User either of the following methods: • Press the rear-mounted power switch ONCE. • Use the *System - Shutdown* menu option to perform a remote or scheduled shutdown.

Ready LED blinks during shutdown.

Maintaining the RAID Sub-system

The RAID sub-system works continuously and automatically to "mirror" your data. Each disk always contains a complete copy of valuable data.

Normally, no maintenance is required.

Hard Disk Failure

The Red ***Failure*** LED will turn ON If a Hard Disk fails. The drive should be replaced as soon as possible.

Replacing a Hard Disk Drive

Note the following:

- Use a new Hard Disk Drive (HDD) which is identical to or larger than the surviving drive. **The replacement HDD must NOT be smaller than the surviving drive.**
- Each HDD must be set to be an IDE "Master" (rather than a "Slave").
- When a new HDD is inserted, data is copied from the other HDD. This process is called "rebuilding". If both HDDs are replaced simultaneously, rebuilding is not possible, and the Disk Server RAID will fail.
- The Disk Server RAID is "Hot Swappable", so the Disk Server RAID can continue operating while a HDD is replaced, and during the rebuilding process.
- **You MUST have the power ON when inserting a replacement HDD. Leave the power ON, and both HDDs inserted, until rebuilding is completed.**

Procedure

1. Leaving the power ON, unlock the drive bay for the Disk Drive which has failed. Slide out the mounting tray, and carefully remove the HDD.
2. Ensure that the new HDD is set to be an IDE "Master", rather than a "Slave". You may need to set the jumpers - see the drive's documentation.
3. Install the new HDD in the mounting tray, ensuring that the power and IDE cables are properly connected.
4. Insert the new Disk Drive. Push firmly until the Drive is properly seated, then lock the drive bay.
5. Check the LEDs. The *Failure* LED should turn OFF, and the *Rebuilding* LED turn ON. The *Rebuilding* LED will remain On until the process is complete, which could take several hours.

Do not remove a HDD while Rebuilding is in progress.

4 Windows Client Setup

Overview

Supported versions of Windows are:

- Windows 95/98 or later
- Windows NT 4.0 or Windows 2000.

The following items need to be checked or configured:

- TCP/IP protocol.
- Access to the Disk Server RAID's storage.

TCP/IP Setup

1. Select the *Control Panel - Network* option on the Start Menu. You should see a screen like the one following.

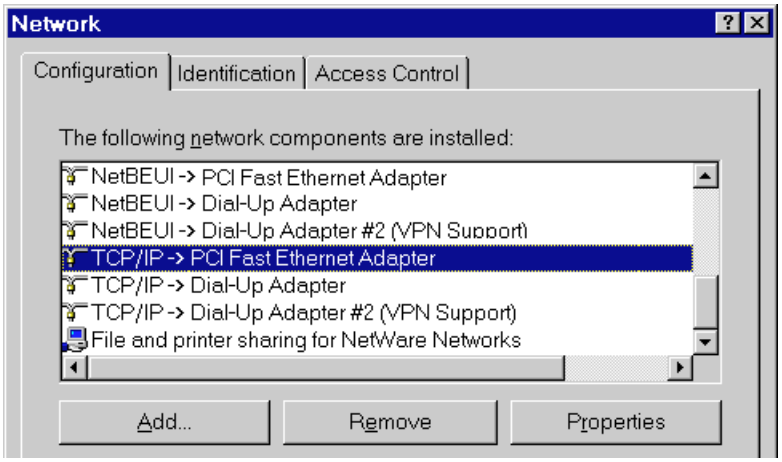


Figure 8: Network Configuration

2. If a line like the one highlighted (TCP/IP -> Network card) is not listed, then you need to install the TCP/IP protocol by selecting *Add - Protocol - Microsoft - TCP/IP - OK.*

3. With the TCP/IP entry highlighted, click on the *Properties* button. The *IP Address* tab will be selected. You should then see a screen like the following.

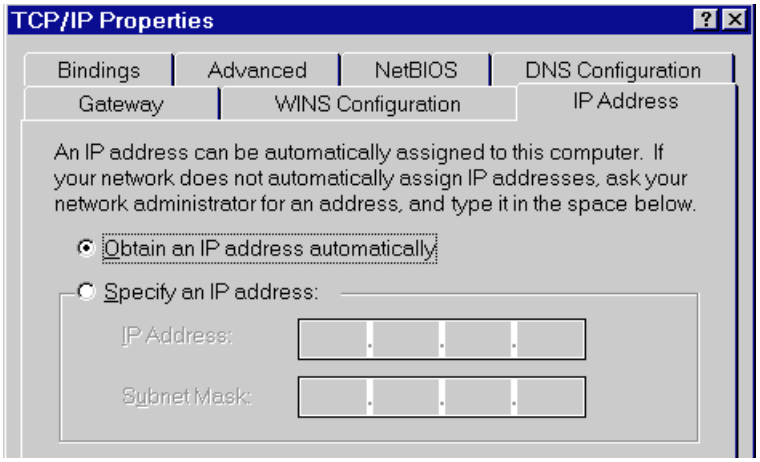


Figure 9: IP Address (Win 95/98)

To act as a DHCP Client:

- Click on the radio button to *Obtain an IP address automatically*, as shown above. If the DHCP Server in the Disk Server RAID has been enabled, it will now provide an IP Address and related data to your PC when it boots.
- Restart your PC. (DHCP only functions when your PC starts.)

To use "Specify an IP address" (fixed IP Address):

- If your PC is already configured, no changes are required.
- If you just installed TCP/IP, you need to enter:
  - *IP Address* and *Subnet mask* (on the *IP Address* tab, as shown above).
  - *Default Gateway Address* (on the *Gateway* tab)

    These values need to be compatible with other devices on your LAN. Each PC requires a **unique** *IP Address* (usually only the last field is different), and the **same** *Subnet Mask*. The *IP Address* range commonly used is 192.168.0.1 to 192.168.0.254, with a *Subnet Mask* of 255.255.255.0.

    The *Gateway* is the IP Address of your Router or Internet Gateway. If you don't have either of those, the address should be left at 0.0.0.0.
- If you have made any changes, Restart your PC.

If you have a Router on your LAN, ask your LAN Administrator what values to use.

Network Logon

To use the Disk Server RAID, you must Logon to the Network correctly:

1. Check your Window logon using *Start - Settings - Control Panel - Network.* Ensure the *Primary Network Logon* is set to *Client for Microsoft Networks*, as shown below.

   Note: If this is already set, there is no need to make any changes.

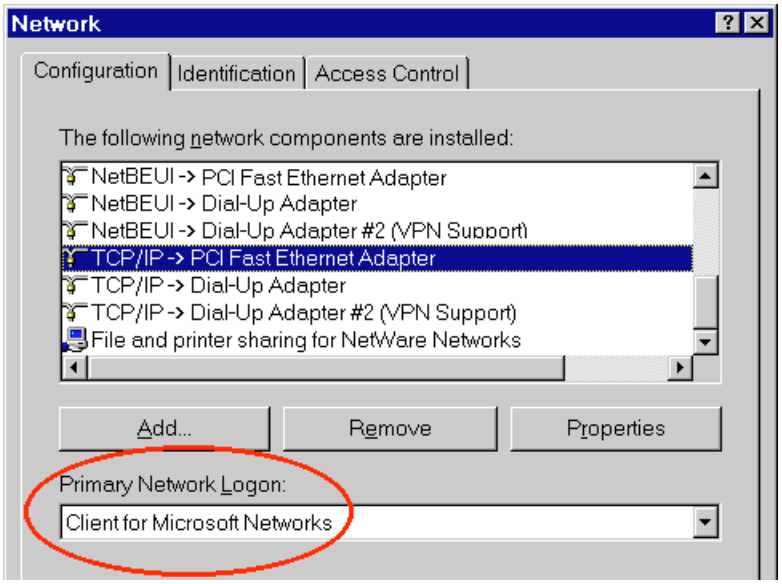


Figure 10: Window Logon

2. Windows will prompt you to Logon to the Network when it boots.

   You must logon. If you press ESC, or click *Cancel*, no network resources will be available. When you logon, you need to use a valid *User Name* and *Password*.

   - If the Disk Server RAID Administrator has defined users on the Disk Server RAID, use the *User Name* and password they supply.
   - If you use a *User Name* and password which is not recognized by the Disk Server RAID, you can still use it, with *guest* access rights. By default, this allows read/write access to the "public" share, but the Administrator can set the *guest* access rights as they wish.

Changing your Disk Server RAID Password

Once the Disk Server RAID Administrator has given you a valid *User Name* on the Disk Server RAID, you can use the following procedure to change your password.

The password for the *admin* user can NOT be changed using this method. The *Administrator* interface must be used.

1. Start your WEB browser

   In the *Address* box, enter: `HTTP://ip_address/user.pl`

   Where `ip_address` is the IP Address of the Disk Server RAID.
   e.g.
   `HTTP://192.168.0.2/user.pl`

   If you do not know the IP Address of the Disk Server RAID, ask the Disk Server RAID administrator.

2. You will be prompted for your name and password. Enter your existing user name and password.

3. On the next screen, enter your new password.

4. Save, then close your Browser.

Password Management

It is convenient if you only have to logon once. This requires that the *User Name* be the same on Windows, the Disk Server RAID, and any other Servers. Only the Administrator can create or change *Users* on the Disk Server RAID, but you can easily change your Windows 95/98 logon:

- You can logon with any *User Name*. A new user profile will be created if Windows does not recognize the user name.
- Your Windows password can be changed using Control Panel - Passwords - Change Windows Password.

Using the Disk Server RAID's Storage

To use the Disk Server RAID's storage, you must "Map" a drive letter to each folder on the Disk Server RAID folder which you wish to access. The "Drive" will then be available to all Windows programs. The procedure is as follows:

1. Double-click the *Network Neighborhood* icon on the desktop.
2. Locate the Disk Server RAID, as shown below. If it is not listed, double-click *Entire Network*. Then double-click the Workgroup that the Disk Server RAID is in. (By default, the Disk Server RAID is in *Workgroup*.)

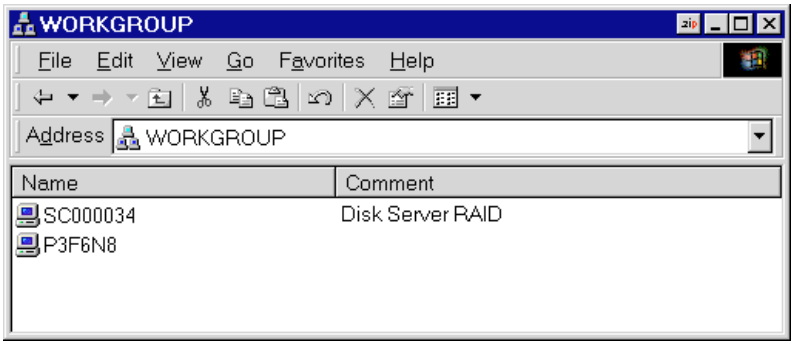


Figure 11: Network Browse

3. Double-click the Disk Server RAID icon.
4. Right-click a folder (directory) to which you have access, and select *Map Network Drive*, as shown below.

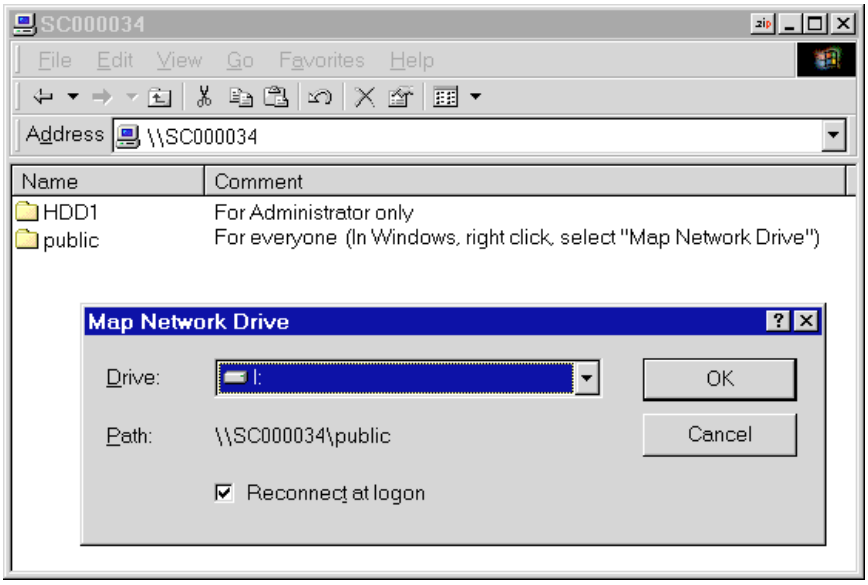


Figure 12: Map Network Drive

5. Select a drive letter for this folder, and check the *Reconnect at Logon* checkbox. (If this is not done, the mapping will be lost when you shut down your PC.) Then click OK.

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

Notes:

- When you try to access a folder, you may be prompted for a password, as shown below:

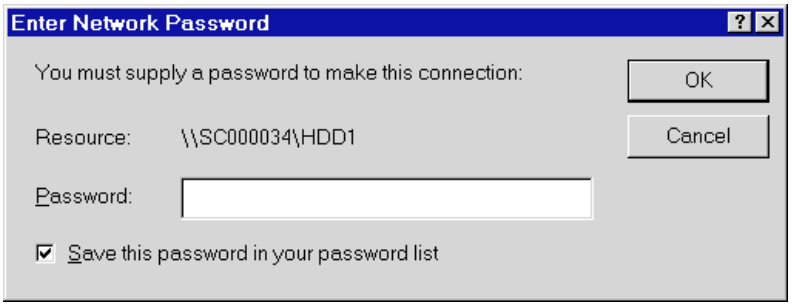


Figure 13: Network Resource Password Dialog

If your Windows logon name is the same as your *user name* on the Disk Server RAID, but the passwords are different, you can enter your Disk Server RAID password here.

But if your Windows **logon name does not exist** on the Disk Server RAID, you will have only *guest* access rights, and **there is no password** which you can enter in this dialog.

- When browsing the Disk Server RAID using Windows Explorer or another file manager, you may see the following files, which have been generated by AppleTalk clients:

```
.Apple Desktop
.Apple Double
Network Trash Folder
```

Do NOT delete these files!

5 Macintosh Client Setup

Requirements

To use the Disk Server RAID, you require:

- Macintosh OS Version 7.5 or later, with Appleshare.
- The Disk Server RAID Administrator must create a value *User Name* on the Disk Server RAID for each Mac user. Otherwise, Mac users will only be able to access the Disk Server RAID by using the *guest* login.

TCP/IP

Generally, no changes are required.

However, if you previously used a fixed (static) IP Address, but now wish to use the DHCP Server function in the Disk Server RAID, you must change your TCP/IP settings to make your Mac a DHCP client. Use the procedure below.

To make your MAC a DHCP Client

1. Select Apple - Control Panel - TCP/IP.
2. Select Ethernet, then Setup, then DHCP.

Accessing Disk Storage

1. Select *Chooser* from the *Apple* menu.
2. Click the *Appleshare* icon.
3. If necessary, select the appropriate zone. (By default, the Disk Server RAID is accessible from any zone.)
4. Select the Disk Server RAID from the list of File Servers, and click OK.
5. In the *Log-in* dialog, enter your Name and Password. These must match the values stored on the Disk Server RAID, or you will not be able to gain access. If the Disk Server RAID Administrator has not created a *User Name* for you, click the *Guest* button. This will allow access to the *public* share.
6. A list of "Shares" (Disk Server RAID folders) will be displayed. Use the checkbox to indicate which Shares you wish to access. If you select a Share to which you do not have access permission, you will see an error message.
7. Click OK to finish. An icon for each Share will appear on your desktop. You can use these like any other folders.

Changing your Password

Once the Disk Server RAID Administrator has created a valid *User Name* on the Disk Server RAID for you, you can use the following procedure to change your password.

The password for the *admin* user can NOT be changed using this method. The *Administrator* interface must be used.

1. Start your WEB browser
2. In the *Address* box, enter:

   HTTP://ip_address/user.pl

   Where `ip_address` is the IP Address of the Disk Server RAID, as in the following example:

   HTTP://192.168.0.2/user.pl

   If you do not know the IP Address of the Disk Server RAID, ask the Disk Server RAID administrator.
3. You will be prompted for your name and password.
   Enter your existing user name and password.
4. On the next screen, enter your new password.
5. Save, then close your Browser.

6 Troubleshooting

Windows

Problem 1: **The Disk Server Utility doesn't list any Disk Server RAIDs.**

Solution 1: Check the following:

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

  If your LAN has a DHCP Server, you can select "Obtain an IP Address automatically".
  Otherwise, you must select "Specify an IP Address", and enter values for *IP Address* and *Subnet Mask*. The *IP Address* range commonly used is 192.168.0.1 to 192.168.0.254, with a *Subnet Mask* of 255.255.255.0. (The Disk Server RAID's default IP Address is 192.168.0.2, with a Subnet Mask of 255.255.255.0). Remember that each device needs a **unique** IP Address, and the **same** Subnet Mask.

Problem 2: **Using the Disk Server Utility, the Disk Server RAID is listed, but the *Admin* button doesn't work.**

Solution 2: This will happen if the Disk Server RAID's IP Address is not compatible with your PC.

Use the *Quick Setup* button to assign a compatible IP Address and Network Mask (Subnet Mask) to the Disk Server RAID, then *Refresh* the listing.

Problem 3: **The Disk Server RAID is configured, but I can't find it in *Network Neighborhood*.**

Solution 3 Try using *Start - Find - Computer*, and enter the Disk Server RAID's name.

If this does not work, use ***Control Panel - Network*** to check the following:

- TCP/IP protocol is installed. Refer to *Client Setup*.
- Ensure the TCP/IP protocol is bound to your Network card (NIC). In *Control Panel - Network*, select your Network card, click *Properties*, and then the *Bindings* tab. If TCP/IP is not bound (checked), check it.
- Ensure the **TCP/IP -> Network card** entry is bound to the *Client for Microsoft Networks* service.
  In *Control Panel - Network*, select the *TCP/IP* entry for your Network Card, click *Properties*, and then the *Bindings* tab. If *Client for Microsoft Networks* is not bound (checked), check it.
- If you don't have a router, check that your IP Address is compatible with the Disk Server RAID's. This means it needs to be from the same address range (e.g. 192.168.0.3 to 192.168.0.254) and using the same *Subnet Mask* (e.g. 255.255.255.0)
- If you DO have a router, check that your *Gateway IP Address*. Ask your LAN administrator for the correct value.

Problem 4 **When I click on the Disk Server RAID icon in Network Neighborhood, I get prompted for a password.**

Solution 4 This can happen in the following situations:

- The Logon name you used on your PC is recognized by the Disk Server RAID, but the password is not. Simply enter your Disk Server RAID password, or make your Windows password the same as the Disk Server RAID password.
- The logon name you used on your PC is NOT recognized by the Disk Server RAID, and was converted to *guest*, with *guest* access rights. Ask the Disk Server RAID Administrator to create a *user name* for you. (Use the same name as on your PC.)
- You do NOT have access permission for this share.
  Ask the Disk Server RAID Administrator to grant you access.

Note: Windows uses the *Computer name*, as shown on *Control Panel - Network - Identification*, as the default *Logon Name*.

Problem 5 **When using the Web interface, some of the data will not fit on the screen, and there is no scrollbar.**

Solution 5 This will only happen if you use extra large fonts, either in your Browser or in Windows. You must reduce the font size:

- In your Browser, select *View - Fonts* to change the font size.
- In Windows, use *Control Panel - Display - Settings - Advanced* to change the font size. Either of the 2 standard settings - *Small* or *Large (125%)* - should work.

Macintosh

Problem 1: **Can't connect to the Disk Server RAID to configure it.**

Solution 1: Check the following:

- The Disk Server RAID is properly installed, LAN connections are OK, and it is powered ON.
- If your LAN has a router, ensure that your Mac and the Disk Server RAID Device are on the same network segment.
- If any PC or device on the LAN is already using the Disk Server RAID's default IP Address of 192.168.0.2, that PC or device must be turned OFF until the Disk Server RAID is allocated a new IP Address.
- Ensure that your Mac is using an IP Address within the range 192.168.0.3 to 192.168.0.254 and thus compatible with the Disk Server RAID's default IP Address of 192.168.0.2. Also, the *Subnet Mask* should be 255.255.255.0.
  This can be checked using *Apple - Control Panel - TCP/IP*.

Problem 2 **When using the Web interface, some of the data will not fit on the screen, and there is no scrollbar.**

Solution 2 You must reduce the font size. In your Browser, select *View - Fonts* to change the font size.