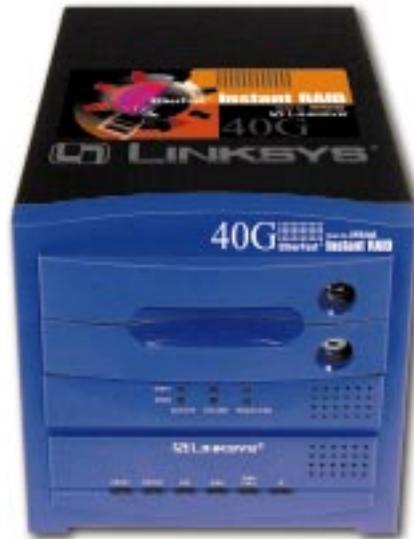


EtherFast® Series

Instant RAID



*Use this guide to install:
Linksys EtherFast Instant RAID
(EFR240)*

User Guide

LINKSYS®

COPYRIGHT & TRADEMARKS

Copyright © 2000 Linksys, All Rights Reserved. EtherFast is a registered trademark of Linksys. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. All other trademarks and brand names are the property of their respective proprietors.

LIMITED WARRANTY

Linksys guarantees that every EtherFast Instant RAID is free from physical defects in material and workmanship under normal use for ONE year from the date of purchase. If the product proves defective during this warranty period, call Linksys Customer Support in order to obtain a Return Authorization Number. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization Number clearly on the outside of the package and include your original proof of purchase. All customers outside of the United States of America and Canada shall be held responsible for shipping and handling charges.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS OFFERS NO REFUNDS FOR ITS PRODUCTS.

Linksys makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Linksys reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to:

Linksys P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

This equipment has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or device
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

Table of Contents

Introduction	1
Package Contents and System Requirements	2
Getting to Know the Instant RAID	3
Rear Panel	3
Front Panel	5
Buzzer	6
Basic Installation and Configuration	7
Installing the Instant RAID	7
Configuring the Instant RAID	8
Administration	12
Overview of Administrative Options	12
The Web-Based Administrative Interface	13
The Administrative Menu: Configuration	14
The Administrative Menu: Storage Management	16
Managing Shares, Groups, and Users	17
Nested Shares	18
Common Administrative Tasks	20
Maintaining the RAID Sub-System	21
Windows Client Setup	22
Introduction	22
TCP/IP Setup for Windows 95 and 98	22
TCP/IP Setup for Windows 2000	27
Using the RAID's Print Server	32
Troubleshooting	34
Specifications	36
Customer Support	38



Note: Linksys highly recommends that you regularly backup the files on your Instant RAID. In no instance will Linksys perform data recovery for lost data or files.

Introduction

The Linksys EtherFast Instant RAID

The EtherFast Instant RAID from Linksys is the perfect solution for any small business or workgroup that needs extra storage. A massive 40 Gigabytes of network attached storage ensures that you'll have the storage space you demand--that means no more worrying about losing valuable data.

But it doesn't stop there. The Instant RAID's hot-swap capability allows you to hot-swap either hard drive with zero down time, effectively increasing your productivity, making the Instant RAID the easiest way to add disk storage and printer sharing to virtually any Windows-based LAN.

To compliment the seamless network integration, every Instant RAID also boasts an impressive array of advanced features in one space-saving design. Automatic data mirroring, disk rebuilding, and security access control provide the ultimate in network reliability and management.

The EtherFast Instant RAID from Linksys: Storage, Security, and Peace of Mind.

Features

RAID Features

- Continuous Data Mirroring
- Automatic Disk Rebuilding When Replacing a Hard Drive
- Hot-Swappable Drives
- Status Indicators
- Level 1 RAID Specs

General Features

- Auto-Sensing Connection for Easy LAN Installation
- Supports Windows-based LAN
- OS Tool-Based File Management
- Acts as a DHCP Server or Client
- Full Administrator Control



Package Contents

- One Linksys EtherFast Instant RAID
- AC Power Cord
- UTP Category 5 Network Cable with RJ-45 Connectors (not pictured)
- Instant RAID Setup Utility
- Keys (not pictured)
- User Guide and Registration Card

System Requirements

- Windows 95, 98, 2000, NT 4.0, or Millennium Operating System
- 10BaseT or 100BaseTX Ethernet Network
- TCP/IP Protocol
- CD-ROM Drive or a PC with access to a shared CD-ROM Drive
- Internet Explorer (4.0 or higher), or Netscape Navigator (4.7 or higher)

Getting to Know the Instant RAID

Rear Panel

All of the Instant RAID's connections and switches are on the rear panel, as seen below.



- | | |
|------------------------|---|
| Power Input | The AC Cord plugs into the power input port. |
| Power Switch | The power switch is a spring-loaded soft switch which powers on and powers off the Instant RAID. If OFF, press once to turn it on. If ON, press once to start the Shutdown Sequence. While shutting down, the READY LEDs will blink. |
| Reset IP Button | If the Instant RAID's IP Address or password is lost, press and release this button. The Instant RAID will beep once to indicate that the reset was successful. The Instant RAID password will be cleared, and its IP Address set to 192.168.0.2, with a Network Mask of 255.255.255.0.

You can now connect to the Instant RAID and set the correct IP Address and password. |

Printer Port	The Printer Port is where you can connect the Instant RAID to your printer using a printer cable.
Uplink Button	When connecting directly to a computer via Ethernet, this button should be depressed. For normal operation (connecting to a hub or switch), this button should be UP.
LAN Port	Use this port to connect the Instant RAID to your 10BaseT or 100BaseTX hub or switch.
100BaseTX LED indicator	This LED will glow amber if the LAN Port is using 100BaseTX.
10BaseT LED indicator	This LED will glow green if the LAN Port is using 10BaseT.

Front Panel

The Instant RAID has three LEDs for each disk, and six status LEDs.



RAID LEDs

Activity

This LED flashes green when the disk is being accessed.

Failure

This LED is normally off. It will illuminate red if the disk is not installed, or has failed.

Rebuilding

This LED is normally off. When a new disk is inserted, this LED will illuminate orange, indicating that data is being copied from the other disk. It will continue to illuminate until the mirroring is complete, then it will turn off.

Status LEDs

Ready

This LED will illuminate when the Instant RAID is on, will blink during startup or shutdown, and will be off after the shutdown is complete.

Error

This LED is normally off. It will illuminate amber during self-test, and turn off after the test is complete. If it remains on, a hardware error is indicated.

During a software upgrade, both the Ready and Error LEDs will blink.

LAN	This LED will flicker when data is being transmitted or received on the LAN.
Disk	This LED will flicker when the disk sub-system is being accessed.
Disk Full	This LED is normally off. It will blink when the disk is 98% full, and will illuminate when the disk is completely full.
IP	This LED is normally off. It will illuminate and blink if the Server is a DHCP Client.

Buzzer

The Instant RAID has an internal buzzer that beeps to indicate certain events.

1 Beep	Indicates that the reset button or power switch has been pressed.
2 Beeps	Repeated every 5 seconds for 1 minute. Indicates that the Instant RAID is configured as a DHCP client, but no DHCP Server responded to the DHCP client request.
3 Beeps	Repeated every 15 seconds for 3 minutes. Indicates that the Instant RAID's hard disk usage exceeds 98% capacity.
5 Beeps	Repeated every 15 seconds for 3 minutes. Indicates that the Instant RAID is overheating. An automatic shutdown will be performed 3 minutes after the 1st beep.

Basic Installation and Configuration

Note: If you are a network administrator, please follow the *Basic Installation and Setup* process, then proceed to the **Administration** section for instructions regarding all available administrator options.

Overview

The following section will instruct you on how to physically connect the Instant RAID to the network, and how to configure the Instant RAID for basic operation in your Windows environment.

Installing the Instant RAID

Requirements

The following conditions are required to begin the installation of the Instant RAID to your system.

- Windows OS (95 or later)
- TCP/IP protocol.
- 10BaseT or 100BaseTX Ethernet Network or a Network-ready PC
- CD-ROM Drive or a PC with access to a shared CD-ROM
- Internet Explorer (4.0 or higher), or Netscape Navigator (4.7 or higher)



Warning: Never shut down the Instant RAID by unplugging the power cable.

Hardware Installation

Use the following procedure to connect the Instant RAID to your LAN.

1. Connect one end of the Network Cable to the Instant RAID's LAN Port, then connect the other end of the Network Cable to your hub.
2. Connect the power cord to the Instant RAID's Power Input Port, then plug the power cord into a standard power outlet.
3. Power On the RAID using the Power Switch on the rear of the device. The RAID will perform a self-test (lasting 2 to 3 seconds), during which all the LEDs will be illuminated.

After the self-test is complete, the boot process will begin. The Ready and Disk Full LEDs will be illuminated. When the boot process is completed, the Ready LED will be illuminated and the Error LED will be off. If the Error LED is still illuminated, or the RAID beeps repeatedly, there is a hardware problem. It takes the Instant RAID at least 30 seconds to completely boot up.

Configuring the Instant RAID

Now that everything is connected and powered on, you are ready to configure your Instant RAID so that it is accessible to the users on your system. Make sure that TCP/IP is installed.

1. Insert the Driver Installation CD-ROM that came in your Instant RAID packaging into your PC's CD-ROM drive.
2. The pop-up menu should appear a few seconds after you insert the CD into your CD-ROM drive. When it does, click the **Install Software** button.

Follow the setup program's prompts to install the Instant RAID Setup Utility. When installation is complete, click the **Exit** button on the CD-ROM pop-up window to return to your desktop.

3. For the default installation, click **Start, Programs, Instant RAID Setup Utility**. The *RAID Setup Utility* window will appear. The left section of the window will display a list of all RAIDs, and the right section will display data about the selected RAID. If no RAIDs are listed refer to the *Troubleshooting* section on page 34.

Instant RAID

4. In the left section of the Utility window, highlight the Instant RAID you are configuring and click the **Quick Setup** button on the far left of the tool bar. The *Setup RAID* screen will appear.



5. Enter the following data in the appropriate fields:

Server

Server Name: The default name will be shown. You can change this if you wish.

Comment: This field is optional.

Time Zone: Select the appropriate time zone.

Date/Time: Enter the local date (mm/dd/yy) and time.

TCP/IP

Obtain an IP Address: If you have a DHCP or Bootp server on your LAN, you can enable this setting. The Instant RAID will then obtain its IP Address from the DHCP or Bootp server. However, if you are using the RAID as a DHCP Server, a fixed IP Address must be set.

- Fixed IP Address:** Select this option to enter a fixed IP Address.
- IP Address:** Enter a free IP Address from the address range used by PCs on your LAN. The default IP Address is 192.168.0.2.
- Subnet Mask:** Use the same value as PCs on your LAN. The default Subnet Mask value is 255.255.255.0.
- Gateway:** Use the same value as the PCs on your LAN. If you don't have a router or Internet Gateway, leave this field blank.
- Enable DHCP Server:** If checked, the RAID will provide an IP Address and related data to PCs upon request. PCs will only request an IP Address if they are set up to act as DHCP Clients.
- 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.

Microsoft Networking

- Workgroup Name:** This name should match the workgroup name used by PCs on your LAN.
- Enable WINS:** Check this box if your LAN has a WINS 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 Instant RAID. If a zone name is shown, only Mac users in that zone can access the Instant RAID.

5. Click **OK** to save the current setting and exit. The Instant RAID is now operational, with the following limitations:

- All Windows users will be given "guest" access rights. This allows access to the *Public* folder.

To overcome these limitations, use the browser-based administration interface, by clicking on the **Administration** icon on the Instant RAID Utility's main screen.

Note: If you plan to install two or more Instant RAIDs on the same network, you must connect and set them up one at a time. Setting them up concurrently will cause network problems.

Administration

Overview of Administrative Options

The Instant RAID administrator can control Instant RAID usage by creating and managing *Users*, *Groups*, and *Shares*.

Users: Each user is identified by his *User Name* and *Password*. The administrator creates users, and can also limit the amount of disk space available to a user.

Groups: Users are organized into user groups. Groups are created in order to allocate which users have access to which shares.

Shares: A “share” is a folder (directory) on the Instant RAID which users can access. Only the Instant 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 an individual user. A share can be accessed by only one group, but a group can access several shares.

The *admin* user, or any other users added to the *administration* 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 right for the *everyone* group.

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

The Web-Based Administrative Interface

Because the Instant RAID doesn’t have an attached keyboard or monitor, you have been provided access to the RAID’s internal data and processes through your web browser. The Instant RAID contains an HTTP server which enables you to connect and configure your RAID using Netscape Navigator (4.7 or better) or Internet Explorer (4.0 or better). This connection can be made with a click of the RAID Utility’s Administration Button, or by entering a URL into any networked PC’s web browser.

Accessing the Administration Interface with the Instant RAID Utility

1. Run the Instant RAID Utility. After the Utility searches your network and locates all of your Instant RAID, click the Utility’s  **Administration button** (as seen to the left). You will be prompted for your user name and password. Enter “**admin**” for the user name.
2. By default, there is no password. Unless you have already changed the password for *admin* in the Instant RAID Utility, leave the *Password* field blank and click **OK**. You will be brought to the *Welcome* screen.
3. Choose the Instant RAID you wish to access. Choose **Connect**. Click the **Administration** button. The *Administrative Menu* page will load.

Accessing the Administration Interface With Only Your Web Browser

If you are working on a networked PC without an installed version of the Instant RAID Utility, you can still access the Administration Interface through your web browser.

1. **Start your web browser.** In the Address box, enter the following web address:

`http://ip_address.`

Where `ip_address` is the IP Address of the Instant RAID, as in the following:

`http://192.168.0.2`

Note: You will need the IP address of the Instant RAID in order to gain access to the Web Interface.

- You will be prompted for the *Password*. Enter “**admin**” for the *User Name*. By default, there is no password. Unless you have already changed the password for *admin* in the Instant RAID Utility, leave the *Password* field blank and click **OK**. You will be brought to the *Welcome* screen.

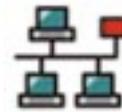
If you have multiple Instant RAIDs, you can use the *Connect* button to switch to another RAID. Otherwise, click the **Administration** button to proceed to the *Administrative Menu*.

The Administrative Menu: Configuration

The options on the Administrative Menu are divided between two categories—Configuration and Storage Management. Configuration deals mostly with the setup and monitoring of the Instant RAID’s network and system variables.



The Administrative Configuration options are listed on the following page.



Network

The Network options, which are also found in the Quick Setup area of the Instant RAID Utility, allow you to configure the following variables.

- **IP Address** Set the IP Address, Network mask (Subnet Mask), and Gateway variables.
- **DHCP** Enable and configure the DHCP Server function.
- **DNS** Set the Domain Name Server IP Addresses.
- **AppleTalk** Set the AppleTalk Zone. The default value is “*”, which allows access by all zones. Linksys does not provide technical support for the Macintosh operating system.
- **Microsoft** Configure Microsoft networking, set the Workgroup Name and Code Page (alphabet), and enable WINS support.



System

- **General** Set the Instant RAID name, date, time and time zone.
- **E-mail** Configure the Instant RAID to send E-Mail messages if there is a problem.
- **Shutdown** Shutdown the Instant RAID, or create a shutdown schedule.



Utilities

These utilities are not required for normal operation. They are tools to help you better manage the RAID.

- **Disk** Check the disk for errors. (Similar to Scandisk.) Because the disk check takes an exceptionally long time, this should be done overnight.
- **Log** Check the system log. This is provided only for troubleshooting.
- **Upgrade** Upgrade the Instant RAID’s software.



Status

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

The Administrative Menu: Storage Management

Use the Storage Management options manage the Instant RAID's *Shares*, *Users*, and *Groups*. This section is only meant as a brief introduction. Refer to the *Managing Shares, Groups and Users* section on page 17 for more detailed instructions.

Note: We recommend that you browse the shares and folders on the Instant RAID to view the relationships between them, and to view the RAID's directory structure.



Browse

Browsing the shares and folders on the Instant RAID allows you to:

- See the relationship between shares and folders on the disk.
- View the directory structure on the Instant RAID.



Groups

Groups are collections of users created to manage access to shares.

- View the current groups, modify their shares access, and add or remove users from a group.
- Create new groups, or delete existing groups.



Shares

Shares are folders placed on the Instant RAID. Access to each share can be monitored by an administrator.

- Create, delete and modify shares.



Users

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

Please note:

- The *guest* and *admin* users cannot be deleted.
- The *admin* user cannot be moved from the "administrator" group.
- The *admin* user has no password: assigning one is recommended.
- The properties for the *guest* user cannot be changed.

Managing Shares, Groups, and Users

By creating shares, groups, and users on the Instant RAID, the Administrator is able to allocate how much space is available to each person working over the network.

Quick Terminology

- **User** A user can be thought of as a single account on the Instant RAID. A user, which is basically a name with a password, is most typically created on the RAID to define a specific networked person's RAID access rights.
- **Group** A group is a collection of users. Groups are created to more easily manage users' access to shares. Each individual user can belong to many groups.
- **Share** A share is a directory folder created on the Instant RAID. Access to a share is given to a group by an administrator. Each share can only be accessed by a single group.
- **Access Rights** All shares are configured with specific access rights – either Read Only or Read/Write.

Pre-configured Users, Groups, and Shares

On initial setup, the Instant RAID already has the following shares, groups and users installed. These pre-defined objects cannot be deleted, and only limited modifications may be performed.

Users *admin*

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 by the RAID Administrator. Assigning a password is recommended. This user can not be deleted.

guest

The *guest* user is a member of the everyone group, and may be added to (and deleted from) any other groups. By default, the *guest* user has no password, and a password can not be assigned. This user can not be deleted.

Groups *everyone*

All users are automatically members of the everyone group. No user can ever be removed from the everyone group unless the user is entirely deleted. By default, this group has Read/Write access to the public share. This can be changed, and access to other shares can be granted or revoked. This group can never be deleted.

administrator

The administrator group always has Read/Write access to every share. The admin user cannot be removed from this group, but other users may be added or deleted. This group can never be deleted.

Shares *HDD1*

HDD1 is the administrative root folder, provided so the administrator can backup all of the RAID's data by simply backing up the contents of this folder. The administrator group always has Read/Write access to this share. This share can't be deleted.

public

By default, the everyone group has Read/Write access to the public folder. The public folder's access rights can be changed, but it can't be deleted.

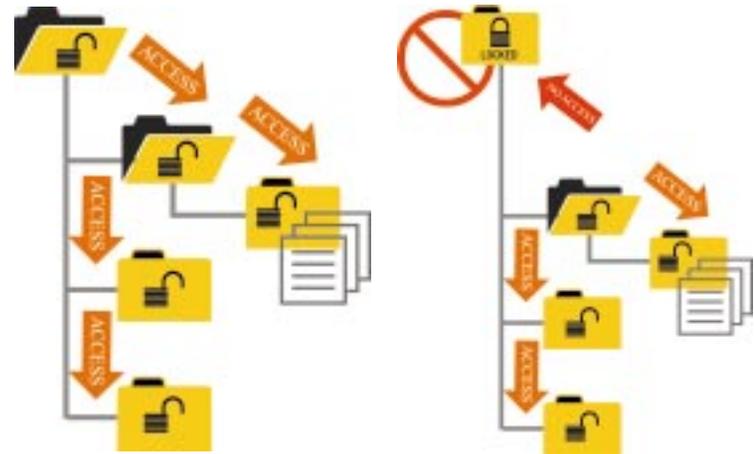
Nested Shares

The Instant RAID allows a folder inside a share to also be configured as a share. This allows the nesting of shares to any depth, just like the folders on your PC's hard drive. If you use this feature, you need to be aware of the following points.

- In Windows' Network Neighborhood, all shares are listed on the same level, making the nesting completely invisible.
- Users cannot tell whether or not a sub-folder is in fact a nested share.

Nested Shares and Access Rights

Anyone with access to one share automatically has access to every share beneath it. You can not provide access to an outer share while preventing access to an inner share (figure 1). You can, however, deny access to an upper share by granting a group's access only to the shares beneath it (figure 2). Because of this, shares access flows down, but does not flow up. Your most sensitive data should therefore be stored in the outermost or upper share, not in the innermost share.

**Figure 1****Figure 2****Multiple Access Rights**

Access to a share can be assigned to only one group, but nested shares may result in multiple groups being able to share a file. If an individual user is in two groups with different access rights, they would be able to receive the *Least Restrictive* access permission.

For example, in Figure 1, if access to the uppermost share is assigned to Group 1, and access to one of the folders beneath the uppermost share is assigned to Group 2, Groups 1 and 2 will both have access to that second share as well as all the shares beneath it.

Common Administrative Tasks

Create Users

Click the **Users** icon in the *Administration Menu*. When the *Users Administration* screen appears, click the **New User** button. Enter the new user's name, their password (twice for confirmation), whether or not you wish to limit their RAID storage space, and which groups you would like to add them to. Click **Save**. Your new user is now created.

Edit User Details

Click the **User** icon in the *Administration Menu*. When the *Users Administration* screen pops up, select the user you would like to edit, then click **Modify**. You can edit any user attributes you wish.

Create Groups

Click the **Groups** icon in the *Administration Menu*. When the *Groups Administration* screen pops up, click the **New Group** button. Enter the new group's name into the box, then click **Save**. Your new group is now created.

Change Group Membership

From the *Groups Administration* screen, select **Members** or, from the *Users Administration* screen, select **Groups**. Use the arrow buttons to move selected users into selected groups.

Create Shares

Click the **Shares** icon in the *Administration Menu*. When the *Shares Administration* screen pops up, click **New Share**. Enter the name of the new share, the directory address of the share, which group you would like to give access to the share, and which level of access rights you would like that group to have. Click **Save**. Your new share has been created.

Set Access to Shares

From the *Groups Administration* screen, highlight the group you would like to access the share, then select the **Shares** button. Use the arrow buttons to select which shares, and with which access rights, you would like to make available to the specified group.

File Management

Use Windows Explorer to perform file management.

Instant RAID

Backup the Instant RAID's Data

The RAID does not have a built in backup mechanism, nor does it come with backup software. Use your regular backup program to backup any folder. To backup all of the RAID's files, backup the HDD1 folder while logged in as an administrator.

Note: When browsing the Instant RAID using Windows Explorer or another file manager, you may see the following files which have been generated by Apple Talk clients: .Apple Desktop, .Apple Double, Network Trash Folder. Do not delete these files!

Shutdown the Instant RAID

There are two ways to correctly shutdown the Instant RAID. Either depress the rear-mounted power switch, which will begin the shutdown process, or enter the shutdown function through the **System** icon in the *Administration Menu*. From there, you can either immediately shutdown the Instant RAID, or set a scheduled shutdown.

Protect Server Configuration

To assign a password to the *admin* user, select **Users**, then select the *admin* user, then click **Modify**.

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

If a hard disk fails, the red *Failure* LED will illuminate. You should replace the failed drive as soon as possible with an HDD that is identical to, or larger than, the one replaced.



Note: Do not remove the source hard disk during the rebuilding process.

Windows Client Setup

Introduction

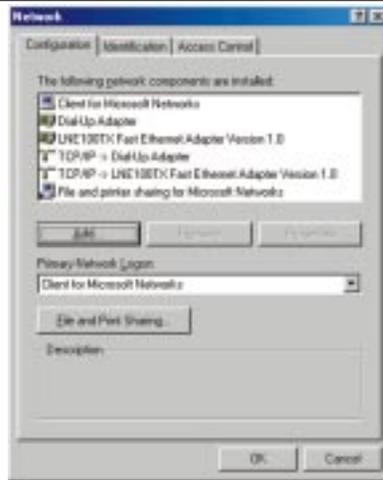
This section will help you configure Windows so that you will be able to access your network and the Instant RAID from your PC. The following items will be checked or configured.

- TCP/IP protocol
- Access to the Instant RAID's storage

If your PC already has been configured for TCP/IP, you very well may already be able to access the Instant RAID without changing any of your Windows settings. Check your Network Neighborhood. If you don't see it anywhere in there, begin the Client Setup.

TCP/IP Setup for Windows 95 and 98

1. Select the **Control Panel - Network** option in the Start Menu. You should see the following screen.



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**.

Note: These screen-shots have been taken from Windows Millennium. Depending on the operating system you are using, the screens may be different. The process, however, is essentially the same.

Instant RAID

3. With the TCP/IP entry highlighted, click on the **Properties** button. The **IP Address** tab should be selected. If it isn't, choose it now. You should then see a screen resembling the following.



To act as a DHCP Client

Select **Obtain an IP Address Automatically**, as shown above. If you have enabled the Instant RAID to act as a DHCP Server, it will now provide IP Addresses (and related data) to your PC when it boots.

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 must be compatible with other devices on your LAN. Each PC requires a unique IP Address (usually only the last field is different on each PC). The Subnet Mask, however, should be the same for each PC on your network. The IP Address range commonly used is 192.168.0.254, with a Subnet Mask of 255.255.255.0.

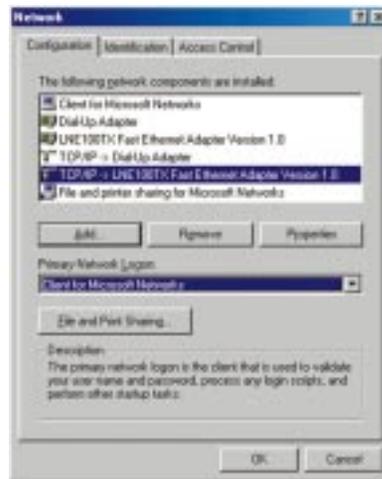
Note: The Gateway is the IP Address of your router or internet gateway. If you don't have a router or internet gateway, the address should be left at 0.0.0.0. If you have a Router on your LAN, ask your LAN Administrator what values to use.

- If you have made any changes, restart your computer now.

Network Logon

To access the Instant RAID, you must correctly log on to the network.

1. Check your Windows logon using **Start - Settings - Control Panel - Network**. Ensure that the *Primary Network Logon* is set to **Client for Microsoft Networks**, as shown below. If this is already set, there is no need to make a change.



2. After your PC boots, Windows will prompt you to logon to the network. You must logon. If you press **ESC**, or click **Cancel**, network resources will not be available. When you logon, you will need to use a valid User Name and Password.

- If the Instant RAID Administrator has defined users on the RAID, use the User Name and password supplied there.
- If you use a User Name and password which is not recognized by the Instant 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 Instant RAID Password

Once the Instant RAID Administrator has given you a valid RAID user name, you can use the following procedure to change your password.

1. **Start your web browser.**
2. **In the Address box, enter:** HTTP://ip_address, where ip_address is the IP Address of the Instant RAID. If you do not know the RAID’s IP Address, ask the RAID administrator.
3. **You will be prompted for your name and password.** Enter them at this time.
4. **On the next screen,** type what you would like your new password to be.

Note: The admin password can not be changed using this method. The Administrator Interface must be used to change the password for user “admin”.

Instant RAID

5. **Click Save**, and then close your browser. Your password has been changed.

Note: When you try to access a share or folder, you may be prompted for a password. If your Windows login name is the same as your user name on the Instant RAID but the passwords are different, you can enter your RAID password here. If your Windows login name does not exist on the RAID, you will only have guest access rights. There is no password which you can enter in this window.

Password Management

You can configure your PC to work with only one password the password you use to log onto the network at startup. To do this requires that the User Name and Password be the same on Windows, the Instant RAID, and on any other network server you may be accessing.

Changing your Windows password

- Your Windows password can be changed by using **Control Panel - Passwords - Change Windows Password**.

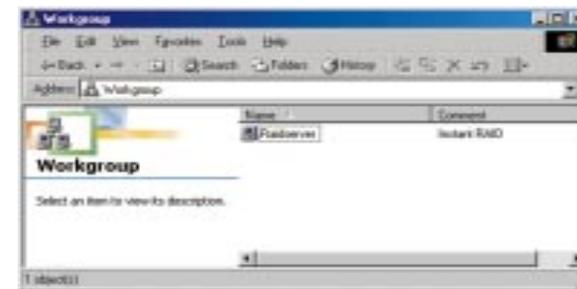
Changing the password on your other servers

- Only the Network Administrator can create and modify user names.
- To change your password, use **Control Panel - Passwords - Change Other Passwords**. Select the **Server**, then click **Change**. If Windows is unable to change the password, it will display an error message. Check with your Network Administrator for the correct procedure.

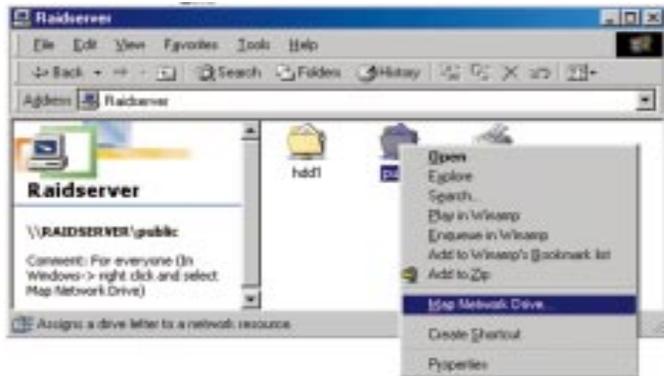
Using the Instant RAID’s Storage

To use the Instant RAID’s storage, you must “map” a drive letter to each RAID folder you wish to access. The drive will then be available to all Windows programs.

1. **Double-click the Network Neighborhood icon** on the desktop. On the *View* menu, select *Details*. the *Comment* column is then visible.



2. **Locate the Instant RAID**, as shown above. If it is not listed, double-click Entire Network. Then double-click the Workgroup that the RAID is in. (By default, the RAID is in *Workgroup*.)
3. **Double-click the Instant RAID icon.**
4. **Right-click a RAID folder (share)** to which you have access, and select **Map Network Drive**, as shown below.



5. **Select a drive letter for this folder**, and check the **Reconnect at Logon** checkbox. (If you don't choose to reconnect, the mapping will be lost when you shut down your PC.) Click **OK**.
6. **This drive will now be available** in Windows Explorer, and from the *File-Open* or *File-Save As* function in all Windows applications.

When you try to access a folder, you may be prompted for a password.

If your Windows logon name is the same as your Instant RAID user name, but the passwords are different, you can enter you Instant RAID password now.

If your Windows logon name does not exist on the Instant RAID, you will only have *guest* access rights and there is no password which you can enter at this time.

Note: When browsing the Instant RAID using Windows Explorer or another file manager, you may see the following files which have been generated by Apple Talk clients: .Apple Desktop, .Apple Double, Network Trash Folder. Do not delete these files!

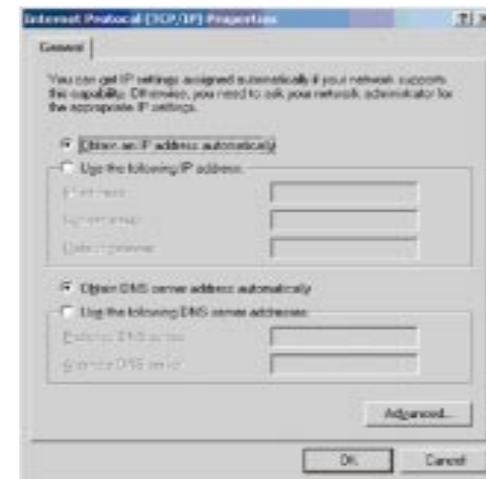
TCP/IP Setup for Windows 2000

1. Select the **Start button** and go to **Settings**. From here, select **Network and Dial-Up Connections**. Click the **Local Area Connections #** and select **Properties**.



2. Be sure to check the following components listed in this window:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Internet Protocol (TCP/IP)

3. Check with your network administrator to be sure this is properly configured or use the setting shown below.



To act as a DHCP Client

Select **Obtain an IP Address Automatically**, as shown above. If you have enabled the Instant RAID to act as a DHCP Server, it will now provide IP Addresses (and related data) to your PC when it boots.

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 must be compatible with other devices on your LAN. Each PC requires a unique IP Address (usually only the last field is different on each PC). The Subnet Mask, however, should be the same for each PC on your network.

Note: The Gateway is the IP Address of your router or Internet gateway. If you don't have a router or Internet gateway, the address should be left at 0.0.0.0. If you have a Router on your LAN, ask your LAN Administrator what values to use.

Network Logon for Windows 2000

To access the Instant RAID, you must correctly log on to the network.

1. Check your Windows logon using **Start - Settings - Control Panel - Network**. Ensure that the *Primary Network Logon* is set to **Client for Microsoft Networks**, as shown below. If this is already set, there is no need to make a change.



2. After your PC boots, Windows will prompt you to logon to the network. You must logon. If you press **ESC**, or click **Cancel**, network resources will not be available. When you logon, you will need to use a valid User Name and Password.
 - If the Instant RAID Administrator has defined users on the RAID, use the User Name and password supplied there.
 - If you use a User Name and password which is not recognized by the Instant RAID, you can still use it with guest access rights. By default, this allows read/write access to the public share, and allows you to use the printer.

Changing your Instant RAID Password

Once the Instant RAID Administrator has given you a valid RAID user name, you can use the following procedure to change your password.

1. **Open up your web browser.**
2. **In the Address box, enter:** `HTTP://ip_address`, where `ip_address` is the IP Address of the Instant RAID. If you do not know the RAID's IP Address, ask the RAID administrator.
3. **You will be prompted for your name** and password. Enter them.
4. **On the next screen**, type what you would like your new password to be.
5. **Click Save**, and then close your browser. Your password has been changed.

Password Management

You can configure your PC to work with only one password the password you use to log onto the network at startup. To do this requires that the User Name and Password be the same on Windows, the Instant RAID, and on any other network server you may be accessing. Only the Network Administrator can create and modify user names.

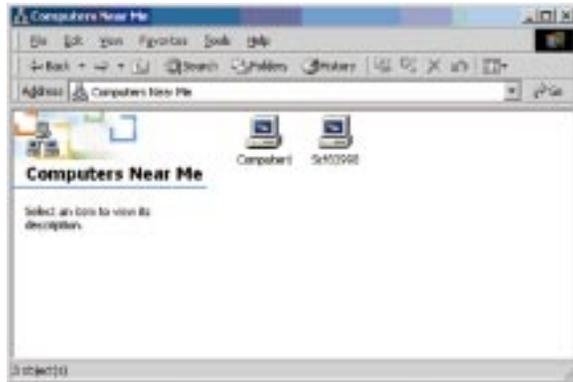
Changing your Windows password in Windows 2000

- Please consult your Windows 2000 documentation.

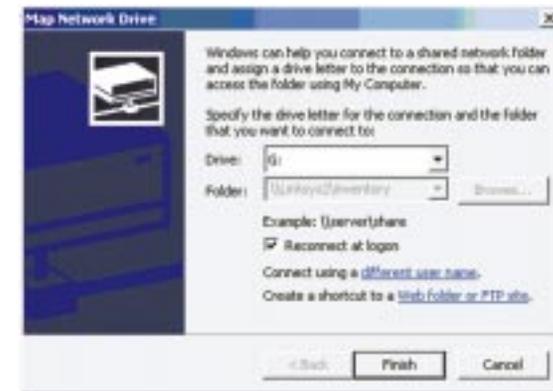
Using the Instant RAID's Storage

To use the Instant RAID's storage, you must map a drive letter to each RAID folder you wish to access. The drive will then be available to all Windows programs.

1. **Double-click the Network Neighborhood icon** on the desktop. In Windows 2000, double-click on **My Network Places**, then **Entire Network**, then **Microsoft Network**.



2. **Locate the Instant RAID**, as shown above. If it is not listed, double-click Entire Network. Then double-click the Workgroup that the RAID is in. (By default, the RAID is in Workgroup.)
3. **Double-click the Instant RAID icon**.
4. **Right-click a RAID3 folder (share)** to which you have access, and select **Map Network Drive**, as shown on next page.



5. **Select a drive letter for this folder**, and check the **Reconnect at Logon** checkbox. (If you don't choose to reconnect, the mapping will be lost when you shut down your PC.) Click **OK**.
6. **This drive will now be available** in *Windows Explorer*, and from the *File-Open* or *File-Save As* function in all Windows applications.

Using the Instant RAID's Print Server

Overview

The EtherFast Instant RAID comes with a built-in print server. Configuring your Instant RAID's printer is easy, and by networking a printer through your Instant RAID you save space, money, and the hassles of dealing with a stand-alone PrintServer. Any printer connected to the Instant RAID is available to any network user, provided that user has access to the Instant RAID itself. It will function exactly the same as any other network printer.

Using the RAID's Printer

Complete the following steps to make the Instant RAID's printer available from your PC.

1. **Find out which printer** is connected to the printer port on the Instant RAID.
2. **Use Network Neighborhood to locate the Instant RAID**, as explained in the previous section. In Windows 2000, click on **My Network Places**, then **Entire Network**, then **Microsoft Network**.
3. **Double-click the Instant RAID icon**. A printer icon should be appear.
4. **Right-click the printer icon**, and select **Install**. The Add Printer wizard will begin.
5. **Select the Manufacturer and Printer** matching the printer connected to the Instant RAID.
6. **Follow the prompts** to complete the installation.
7. **The new printer will now appear** in your Printer list, and can be used from any Windows application.

8. **Use the normal Windows commands** to manage the printer:
 - Use **Start - Settings - Printers** to list all of your printers.
 - Double-click the printer to view or delete the documents in the print queue.
 - Use **File - Set as Default** to make the selected printer the default printer.
 - Use **File - Properties** to view or modify the properties of the selected printer.

Note: Drivers for the printer will be needed if the printer is not listed in the Windows list of printers.

Troubleshooting

1. The RAID Utility doesn't list any Instant RAIDs.
 - Check that the Instant RAID is properly installed, that the LAN connections are OK, and that the RAID is powered ON.
 - If you are using a router, ensure that your PC and the Instant RAID are on the same network segment.
 - Ensure that your PC has the TCP/IP network protocol loaded. This is done by checking the **Network** option of the *Control Panel*. If an entry for *TCP/IP -> Network card* is not listed, use *Add - Protocol - Microsoft - TCP/IP* to add it.

2. The Instant RAID is listed in the RAID Utility, but the *Admin* button doesn't work.
 - This will happen if the Instant 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 Instant RAID. Click the **Refresh** button to update the listing.

3. The Instant RAID is configured, but I can't find it in Network Neighborhood.
 - Go to the Find function in the **Start** menu. Choose **Computer**, then enter the RAID's name.
 - If this doesn't work, choose the **Network** option of the **Control Panel** to check that a TCP/IP protocol is installed. If it isn't installed, use *Add - Protocol - Microsoft - TCP/IP* to install it.
 - Check the network Bindings. First, ensure that the TCP/IP protocol is bound to your Network card (NIC). Then, select your Network card in the **Control Panel**, click *Properties*, and choose the *Bindings* tab. If TCP/IP is not bound (checked), check it.
 - Ensure that the *TCP/IP -> Network card* entry is bound to the *Client for Microsoft Networks* service. Select the *TCP/IP* entry for your Network Card, click *Properties*, and then choose the *Bindings* tab. If *Client for Microsoft Networks* is not bound (checked), check it.
 - If you don't have a DHCP Server, ensure that your IP Address is compatible with the Instant RAID's. This means it needs to be in 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 DHCP Server, check that your *Gateway IP Address* is set correctly. Ask your LAN administrator for the correct value.

4. When I click on the RAID icon in Network Neighborhood, I'm prompted for a password.

This can happen in the following situations:

- Your Windows Logon name is recognized by the Instant RAID, but your Logon password is not. Simply enter your RAID password, or make your Windows password the same as the RAID password.
 - Your Windows Logon name is not recognized by the Instant RAID, defaulting you to guest access rights. Ask the RAID Administrator to create a user name for you. (Use the same name as your Logon name.)
 - You do not have access permission for this share. Ask the RAID Administrator to grant you access.
5. When using the Web interface, some of the data will not fit on the screen, and there is no scroll bar.
 - You are likely using extra-large fonts in your Browser or in Windows. To change your browser's font size, select *View* from your web-browser's menu, and change the font size there. To change the size of your Windows fonts, go to **Display** in the **Control Panel**. Choose *Settings*, then click the *Advanced* button. Change the font size to either Small or Large. Both should work.

 6. A print job does not print and no error message is displayed.
 - The amount of free disk space on the Instant RAID is probably not sufficient to spool (queue) the print job. The RAID's disk usage can be checked using the Status - Disk screen on the RAID's Administrator interface. If this is the problem, you must delete some print jobs.
 1. Select Printer from the Status menu of the Instant RAID's Administrator interface.
 2. Use the Delete Current Job option to delete the current print job, or Delete All Jobs to delete all print jobs.

Specifications

Model Number	EFR240
Standards	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX)
Protocol	CSMA/CD
Network Protocol	SMB/CIFS over TCP/IP; Apple Share*
Ports	One 10BaseT/100BaseTX RJ-45 Port, One Parallel Port
Speed	10Mbps or 100Mbps
Cabling Type	UTP Category 3 or 5
Topology	Star
LEDs	Activity, Failure, Rebuilding (per disk), Ready, Error, LAN, Disk, Disk Full, IP

*Linksys does not provide support for Macintosh

Environmental

Dimensions	7.1" x 13" x 6.5" (180mm x 330mm x 166mm)
Unit Weight	14.85 oz. (6.72Kg)
Power	100 - 240VAC, 50 - 60Hz
Certifications	FCC Class B, CE Mark Commercial, C-Tick, VCCI
Operating Temp	5°C to 40°C (41°F to 104°F)
Storage Temp	-10°C to 60°C (14°F to 158°F)
Operating Humidity	10% to 80% Non-Condensing
Storage Humidity	5% to 90% Non-Condensing

Customer Support

For help with the installation or operation of your EtherFast Instant RAID, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

Customer Support	(800) 326-7114 (949) 261-1288
Information	(800) 546-5797
Fax	(949) 261-8868
E-mail	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

Linksys Warranty Information

Linksys guarantees that every EtherFast Instant RAID is free from physical defects in material and workmanship under normal use for ONE year from the date of purchase. If the product proves defective during this warranty period, contact Linksys Customer Support to obtain a Return Authorization Number. When returning a product, mark the Return Authorization Number clearly on the outside of the package and include your original proof of purchase. All customers outside of the United States of America and Canada shall be held responsible for shipping and handling charges.

Note: You must have your proof of purchase and a bar-code from the product's packaging on hand when calling. Return requests can not be processed without proof of purchase.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS OFFERS NO REFUNDS FOR ITS PRODUCTS.



Tampering with or disassembling this product voids its warranty.

Linksys makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Linksys reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.



www.linksys.com

© Copyright 2000 Linksys, All Rights Reserved.