The Complete Guide to

Using and Understanding

Novell's

NetWare for

Macintosh.

NetWare for Macintosh User's Guide

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KELLEY J. P. LINDBERG

M&T BOOKS

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Cover Design: Lauren Smith Design

Dedication

For Andy, who makes it all worthwhile.

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Acknowledgments

This is where all those wonderful people who have put up with me for the last several months get to see their name in print. It doesn't pay for all of the help and encouragement these people have given me, but hopefully they'll realize how grateful I really am.

Many thanks and a fistful of pistachios to Christine Milligan, for the inspiration and the opportunity.

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If there are any mistakes in this book, it certainly isn't the fault of my eagle-eyed reviewers: Louise Pollard, Tom Woolf, and Steve ("Neato Mosquito Stolman") Tolman.

Thanks, of course, to Novell, for allowing me to spend my free time doing the same thing I do at work—writing about Novell's outstanding products—and for not asking me to sign up on the company's mental health plan instead.

Hello to all my friends who think I've disappeared.

My undying gratitude goes to my parents, who told me I could grow up to be anything I wanted as long as it wasn't an English teacher.

Most of all, thanks to my husband, Andy—for his love, patience, and generous offer to help me spend my royalties.

Is This Book for You?

NetWare for Macintosh, a product offered by Novell, Inc., makes it possible to connect Macintoshes to a NetWare network. This book explains how to use NetWare for Macintosh to improve your Macintosh workstation's productivity, security, and file-sharing capabilities.

This book will be of particular interest to the following types of users:

◆ **Beginning users.** The clear, comprehensive explanations of how a network operates and what you'll see on the screen of your Macintosh workstation will quickly make you a knowledgeable and productive network user.

◆ **Network administrators and advanced users.** For power users, the hints on sharing files with DOS users, the explanations of NetWare 286 and NetWare 386 security, and the step-by-step reference guide to tasks you can perform with NetWare for Macintosh utilities will be especially useful.

◆ **Non-Macintosh users.** Did you know that with NetWare for Macintosh, you can send PostScript files from your DOS workstation to Apple LaserWriter printers? In addition, non-Macintosh users may find the explanations of NetWare 286 and NetWare 386 security refreshingly clear.

Since this book is a *User's Guide*, it does not explain installation, maintenance, or other tasks normally performed only by network administrators. For all other tasks, however, this will be a helpful and easily-accessible guide.

Introduction to Netware for Macintosh

Introduction

If you're a NetWare for Macintosh user, you have the best of two worlds. You can take advantage of the famous usability of the Macintosh as well as the versatile power of NetWare, the leading networking software in the computer industry. NetWare for Macintosh can help you increase your productivity, protect your files, and share printers, applications, and files with other network users.

NetWare for Macintosh User's Guide is a complete guide to the features of NetWare for Macintosh. If you're a brand-new user, this book will introduce you to the basics of networking and will help you start using the network quickly and easily. If you are an experienced user or network administrator, this book will prove to be a valuable reference tool and a resource for security and file-sharing hints.

NetWare for Macintosh User's Guide explains how to use NetWare for Macintosh versions 1.0, 1.1, and 2.0.

Part I (Chapters 1 through 8) introduces NetWare for Macintosh.

- ◆ Chapter 1 explains basic networking concepts and describes how NetWare for Macintosh operates.
- ◆ Chapter 2 tells you how to create a startup disk for your Macintosh and how to log in to the network.
- ◆ Chapter 3 describes NetWare security, and how your NetWare security affects what you can do with files and folders.
- ◆ Chapter 4 explains when and how Macintosh and DOS users can share files.
- ◆ Chapter 5 describes network printing and tells you how you can take advantage of NetWare print queues.

◆ Chapter 6 tells you how to archive your network files using NetWare's NBACKUP utility.

◆ Chapter 7 introduces the NetWare Desk Accessory, a utility you can use to work with NetWare security. If you have NetWare for Macintosh version 2.0, you can also use the NetWare Desk Accessory to work with print queues and to send messages to other users on the network.

◆ Chapter 8 introduces the NetWare Control Center, a more comprehensive application that you can use to control NetWare security.

Part II (Chapters 9 through 14) is a complete reference guide to the tasks users can perform using the NetWare Desk Accessory and the NetWare Control Center. Step-by-step instructions guide you through each task.

Appendix A offers hints for troubleshooting workstation problems. Appendix B is a quick reference guide to the icons and abbreviations you will see while using NetWare for Macintosh.

What is NetWare for Macintosh?

NetWare for Macintosh is an important tool that lets you extend the capabilities of your Macintosh computer by tapping into the power of a Novell NetWare network. Some of the things you can do with NetWare for Macintosh include:

◆ Sharing files and applications with other Macintosh users—and even with DOS and OS/2 users (if you're using compatible applications);

◆ Using NetWare's print queues to print your Macintosh documents, freeing up your Macintosh so you can do something other than wait;

◆ Protecting your folders and files using NetWare's security features;

◆ Using NetWare's backup facilities to archive not only your Macintosh folders and files, but also the security assignments you've made for them; and

◆ Taking advantage of NetWare's System Fault Tolerance, which helps make sure documents are never damaged by problems such as bad hard disks or power glitches.

Macintosh users aren't the only ones that get something out of this relationship with NetWare. If you're a DOS or an OS/2 user, not only can you share files with your Macintosh counterparts, you can also print your files on Apple LaserWriter printers. In fact, some companies that use only DOS-based computers on their network buy NetWare for Macintosh just so they can print to LaserWriters.

This chapter explains what a Novell NetWare network is, and how your Macintosh can fit into the NetWare picture.

Why is a Network Useful?

One of the hottest buzzwords in office technology these days is definitely *networking*. In business lingo, networking originally meant trading business cards with everyone you met in hopes that they might someday tell you about a great job opening, send lots of business your way, or let you in on a sure-fire business deal. If you were networking, you were establishing contacts with everyone who had any information you might need.

Networking still means the same thing in the corporate world—establishing contacts and opening channels of communication so you can get the information you need quickly. In today's business environment, however, networking has a decidedly electronic flavor.

In the modern computerized office, everyone wants to connect to everyone else. Everyone wants information, and they want it fast. No one wants to waste time fighting over the printer, hunting for the spreadsheet disks, or having to trade disks with someone on the other side of the building. This increasing need for fast-paced transfer of information and sharing of applications, printers, and other resources has led to an explosive growth in the computer networking industry.

To make the situation even more interesting, people don't just want to share information, they want to share information with people who are using different kinds of equipment and software. Before computer networking became so widespread, users would order whichever type of computer best met their individual needs. Now, many companies are trying to find ways to connect these dissimilar computers into business-wide networks, so that all of the employees can have access to the same resources and information.

NetWare for Macintosh is an innovative solution for connecting Macintosh computers into what used to be the DOS-based world of a NetWare network. NetWare for Macintosh combines the best of both worlds; Macintosh users don't have to give up their cherished Macintoshes, yet they can now share files, applications, printers, and disk storage with DOS and OS/2 users. Most importantly, they can also take advantage of NetWare's powerful security, fault tolerance, and backup features.

What Makes Up a Network?

In simplest terms, a NetWare network is a group of computers and printers that are all connected to each other. How these computers work together depends on what type of network you have. There are almost as many different kinds of networks as there are people who use them.

Fortunately, no matter how complex a NetWare network becomes, it's always made up of a few basic components. Once you understand these components, you'll see how they work together to form a network.

On a NetWare network you'll find:

- **Workstations**. This is the personal computer you're used to—the Macintosh or DOS computer you use at your desk.

- **File server**. This is the computer where the brains of the network are kept. You can store applications here, files, databases, and so on. In addition, the file server regulates security (who can use which files), printing (which files are printed first), and other network features.

- **Printers**. Printers can be connected to the network so everyone can use them.

- **Cables**. The cabling physically connects the workstations, file server, and printers together.

- **Network boards**. Network boards are special circuit boards that you install inside your workstations and file server. These boards have connectors that stick outside the computer's back. You attach to the cables to these connectors. Network boards are often called **network interface cards**.

- **Bridge**. A bridge is the point where two separate networks are joined together. It can be a separate computer that is connected to both networks, or, if your file server is supporting more than one network, the file server can also be the bridge. You only need a bridge if you have two or more networks that need to communicate.

Figure 1-1 illustrates how all of these components form a simple network. These are the basic components of a NetWare network. Now we'll look at them in more detail.

1. **Macintosh workstation**, with network boards inside.
2. **File server**, with network board inside.
3. **Printer**.
4. **DOS workstation**, with network board inside.
5. **Cabling**.
6. **Bridge,** with two network boards inside.
7. **Second file server,** with its own network.
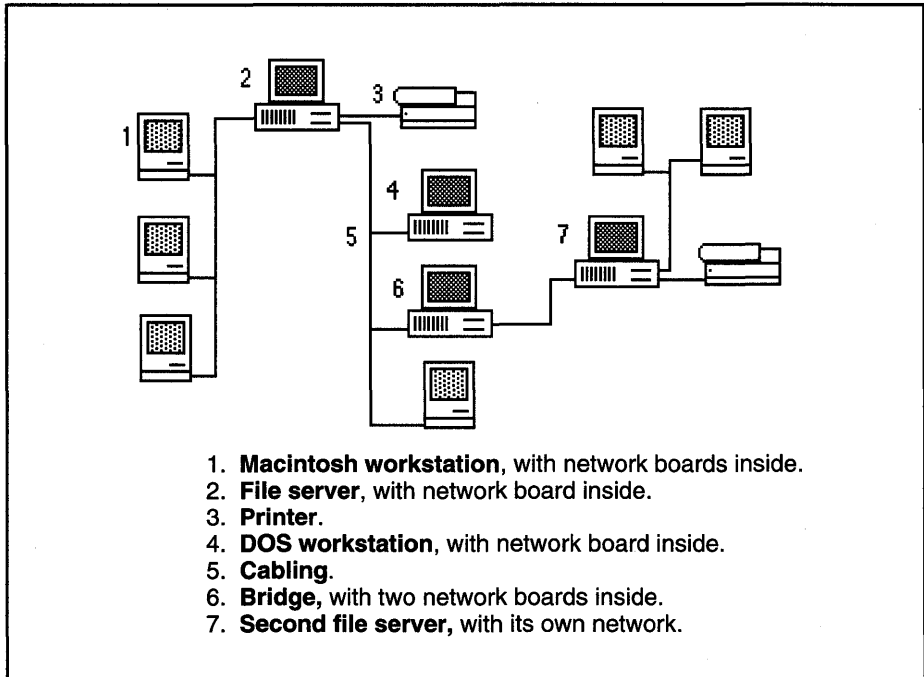
Figure 1-1. These are the basic components of a NetWare network.

The Workstation. A workstation is the personal computer you use to do your work. It doesn't matter whether it's a Macintosh or a DOS-based computer, such as an IBM PC.

For the most part, you won't notice much difference between the way your Macintosh works when it's running **stand-alone** (that is, not connected to a network) and the way it works once it's running on the network. That's because NetWare was not invented to replace what personal computers can do (which is local processing), but to take advantage of what they can do by enabling them to communicate with

each other. The ability to process information at your desk is what made personal computers so popular in the first place. Desktop computing is fast, easy, and appealing, and networks weren't designed to change that.

What does it mean when your computer becomes a workstation? It means that your Macintosh still uses the Finder and the System folder to do most of its work, and DOS-based workstations still use DOS (or OS/2) to do most of their work. The network helps out by storing files and applications, regulating security, managing print queues, and so on.

To enable your Macintosh to connect to the network and become a network workstation, you will load some special Macintosh software on it. Then, whenever you do anything on your workstation—such as opening an application, typing, computing a math formula, or saving a file—this software decides whether or not the task needs to involve the network. If it does, the software sends your requests to the file server. If not, it doesn't do anything, and your workstation handles the requests locally (as it would if your Macintosh weren't connected to the network).

Because workstations make requests of the network and the network serves them, workstations are sometimes called **clients**.

The File Server. The file server is a personal computer that controls the entire network. It has to be a DOS-based computer, but it doesn't run DOS (or OS/2). Instead, it runs NetWare—a **network operating system**.

An operating system is simply the fundamental program that tells a computer how to work. DOS (which stands for Disk Operating System) and OS/2 are operating systems for an IBM PC; the operating system for the Macintosh is stored in the file called System. Your computer's operating system is the first program loaded whenever you turn on your computer. It tells the computer how to handle files, how to initialize (or format) disks so that they can hold information, and so on.

A network operating system goes beyond telling the file server how to work by itself; it tells the file server how to run the entire network. NetWare tells the file server how to store files and folders, how to handle printing, how to keep track of users and their security levels, and how to perform other network tasks.

The file server usually has a large amount of disk storage, since this is where all applications, folders, and files are stored. Network printers may also be connected to the file server. You will sometimes find backup devices connected to the file server, too. Backup devices, such as tape drives, are used to archive all of the network files and information, regardless of who created the files or on which workstation they were created (as long as the files were saved on the network rather than on the workstation's local disk).

Whenever your workstation needs to use a network resource, it goes through the file server.

The Printers. Most networks have at least one printer.

You're probably used to sending documents directly to a printer from your Macintosh. When your Macintosh is connected directly to a printer, you send your print job to a printer, then wait for the file to be printed before you can use your Macintosh for something else. Unfortunately, only one person at a time can use the printer. If several people try to print files at the same time, they all must sit and wait while their documents get printed one by one. Users cannot use their Macintoshes until their files are finally printed.

With NetWare, printers can be connected to the network so that everyone can use them without hindering each other's work. When you want to print a document, you send it to a NetWare **print queue** instead of sending it directly to a printer. The print queue takes everyone's print jobs and then sends the jobs to the printer in first-come, first-served order. This two-step process eliminates the need for your workstation to wait until its document is printed before it can move on to something else.

The **print server** is the software in the file server that regulates all of the network printing. When you send a print job to a print queue, you are **spooling** the job to the queue.

Like workstations, printers are also called clients because they depend on the file server to help them do their work.

The Cabling and Network Boards. The network cables and network boards are the hardware links in the network; they provide the physical connections between the workstations, file servers, and printers. Cables and boards work together to transfer data across the network.

When a network board (also called a network interface card) is installed in a workstation or a file server, the board acts like a company's shipping department. Suppose you are using your workstation and you want to open a file that's stored on the network. You tell your workstation to open the file. The network software you've loaded inside your workstation decides that this is a network task that needs to be sent to the file server. The network board takes the request, packages it, and addresses it so that the information can be sent across the cable to the file server. When the package (called a **packet**) arrives at the file server, the network board in the file server receives the package, unwraps it, and delivers it to the file server. When the file server sends an answer back to the workstation, the network boards go through the same procedure in reverse.

You've probably heard of names like LocalTalk, Ethernet, Token-Ring, and ARCnet. Each of these names indicates a particular type of **cabling system**, which includes both cables and boards. The type of cabling system you choose depends on your individual networking needs, because each one handles data differently.

Since each cabling system transmits data in a unique way, the file server and all of the workstations on a network have to use the same type of cable and board. For example, on an Ethernet network, you'll find Ethernet network boards installed inside the file server and inside each workstation. Each board has an Ethernet cable attached to it, which connects the board (and therefore that workstation or file server) to the rest of the network.

LocalTalk is the name of the cabling system Apple created especially for networking Macintoshes. The Macintosh was one of the first personal computers that was actually designed with built-in networking capability. This means that if you use LocalTalk cables to connect your network, you don't have to buy and install separate network boards in your Macintosh workstations. The boards are already part of the

Macintosh's internal hardware. (You will, however, need to install a LocalTalk board in the NetWare file server, since the file server has to be a DOS-based computer.)

Because it's already built into the Macintosh design, LocalTalk is one of the most inexpensive cabling systems you can use. The disadvantage to LocalTalk is that it is relatively slow. Other cabling systems such as Ethernet are faster, but they're also more expensive. So choosing a cabling system depends on your needs and your budget.

Even though the file server and all of the workstations on the network have to use the same type of cabling system to communicate with each other, it's possible to have two different networks (running on different cabling systems) communicate with each other. To connect two networks, you need a bridge.

The Bridge. Often, a company will need more than just one NetWare network. However, that doesn't mean that the individual networks don't need to communicate with each other. A bridge is used to connect two networks together so that information can be shared across a wider area. When networks are connected, they form an **internetwork**.

There are two types of NetWare bridges—external and internal.

An **external bridge** is a workstation that is attached to both networks. This workstation has special bridge software running in it. The workstation also contains two network boards, with one board attached to the cabling for the first network, and the other board attached to the cabling for the second network. The two networks can be running on different types of cabling systems or on the same type of cabling system, depending on the restrictions of the cabling systems themselves. An external bridge can also be used to connect a group of workstations (using a separate cabling system) to another network, even if that group of workstations doesn't have its own file server.

An **internal bridge** is not a separate workstation; it's a software bridge inside of the file server itself. The internal bridge software automatically knows how to communicate between the different networks running in the file server.

A single file server can run several networks at a time. A NetWare 286 file server can run up to four networks. NetWare 386 file servers can run even more than that. For each network, the file server contains a network board that is connected to that network's cabling system. (In some cases, NetWare 386 can run more than one network from the same board.) Just as with an external bridge, the individual networks can be running on different types of cabling systems or on the same type of cabling system, depending on the restrictions of the cabling systems themselves.

How Does NetWare for Macintosh Fit In?

Usually, computers can only communicate with each other if they are using the same **protocol**. To most people, protocol means the proper behavior that diplomats use when dealing with other diplomats. For example, by defining and studying proper protocols, United States ambassadors learn the best ways to communicate with their assigned countries. They learn the accepted way to greet other diplomats, exchange information, and terminate conversations. By observing the correct protocols, an ambassador ensures that the other diplomat doesn't become offended, doesn't misunderstand a communication, and knows what to do with the information he or she is given.

As different as they may seem, computer protocols are actually analogous to diplomatic protocols. A computer protocol defines how computers and other devices communicate with each other. The protocol specifies how the computers establish a connection (greet each other), transfer data (exchange information), and signal the end of the transfer (terminate the conversation).

NetWare was first designed to connect DOS-based computers. To enable DOS-based workstations and file servers to communicate with each other across the network cabling, NetWare uses a protocol called **NCP** (NetWare Core Protocol).

Macintosh computers use a different protocol to communicate with each other. It's called **AFP** (Apple File Protocol).

Because NetWare and Macintosh use two different protocols, they communicate and handle files differently. Getting the two systems to communicate with each other requires (to return to the diplomat analogy) a translator.

To allow AFP communications to be translated into NCP then back again, special NetWare for Macintosh software was created.

The NetWare for Macintosh Software. The NetWare for Macintosh software is a set of programs called **VAPs** (Value-Added Processes). A VAP is a program that can be added to the network operating system, giving the operating system additional features. VAPs can be installed on either a file server or a bridge, or even on both.

NetWare for Macintosh consists of the following VAPs:

◆ **A File Services VAP.** This is the VAP that actually translates between AFP and NCP, and tells NetWare how to handle Macintosh files. When this VAP is installed in a file server or bridge, that file server or bridge becomes the **Service Protocol Gateway (SPG)**. The term **gateway** is very descriptive. Whenever a Macintosh workstation wants to use a network file service (to open, copy, or save a file, for example), it has to send its AFP request through this file server or bridge to be translated into an NCP request. Then, when the network answers with an NCP reply, the reply has to go back through this file server or bridge to be translated once again into AFP. The file server or bridge is the gateway through which all the requests must go.

◆ **A Print Services VAP** and a **Queue Services VAP**. These VAPs tell NetWare how to handle Macintosh print jobs. When these VAPs are installed in a file server or bridge, that file server or bridge becomes the **Print Service Gateway**. (Because of the amount of memory that the NetWare for Macintosh VAPs use, the print and queue services VAPs may need to be installed in a separate bridge from the file services VAP.)

◆ **A LAN Driver VAP**. This VAP tells the file server or bridge what type of network board is being used to connect it to the Macintosh workstations. (A **driver** is a program that tells the network operating system how to communicate with the network board inside the file server or bridge.)

◆ **AppleTalk transport VAPs.** These VAPs are only included in NetWare for Macintosh version 2.0. They control how NetWare for Macintosh communicates on different types of cabling systems.

Hosts and Targets. Any file server that has Macintoshes connected to its network must have NetWare for Macintosh installed. However, if other file servers that don't have Macintoshes attached to them are running on the same internetwork, those file servers do not need to have NetWare for Macintosh installed on them. If this is the case, you only need one SPG (Service Protocol Gateway—the file services) and one print services gateway on the internetwork. In other words, only one file server or bridge needs to have the NetWare for Macintosh software installed.

The file server or bridge that holds the NetWare for Macintosh gateways is called the **host**.Once the host is created, your Macintosh workstation can go through the host to get to other file servers on the internetwork. These other file servers are called **targets**. When NetWare for Macintosh is installed, the installer specifies both the host and the target file servers. That way, Macintosh workstations are able to access any resources they need on the internetwork.

Figure 1-2 illustrates an internetwork with one host and two target file servers.
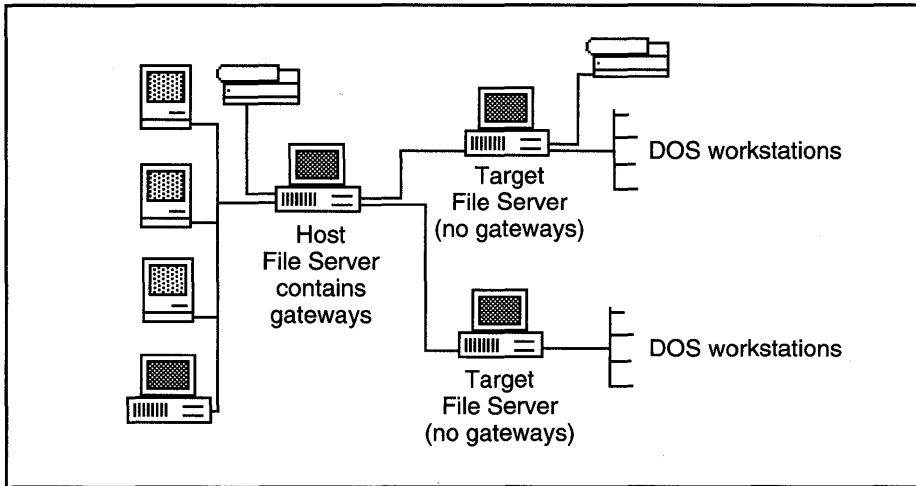
Figure 1-2.

What's the Difference Between NetWare for Macintosh and AppleShare?

AppleShare is Apple's networking software for Macintoshes. AppleShare allows Macintoshes to communicate with each other, but it can't connect them to a NetWare network. That's why NetWare for Macintosh was created. In many ways, NetWare for Macintosh acts very similar to AppleShare. However, NetWare for Macintosh's printing and security features are much better.

Because NetWare for Macintosh is AFP-conformant, NetWare can actually use AppleShare's workstation software to communicate with Macintosh workstations. However, NetWare for Macintosh replaces AppleShare's file server software with NetWare.

Being AFP-conformant means that NetWare for Macintosh can actually trans-late and use AFP communications the way Apple meant for them to be used. It also means that whenever Apple revises the Finder and System software for its Macintoshes, NetWare for Macintosh will still work. Other types of networking systems may not

be AFP-conformant. Instead, these systems emulate (imitate) AFP. Potentially, this could mean that when the Macintosh software is revised, these networking systems may no longer work.

NetWare for Macintosh and AppleShare file servers can both exist on the same network. From your Macintosh workstation, you can see both NetWare file servers and AppleShare file servers, and you can log in to either or both.

NetWare for Macintosh actually includes AppleShare workstation software that has been licensed from Apple. This is what you will install on your own Macintosh workstation so that your workstation can communicate with the NetWare file server.

What Does This All Look Like from My Mac?

With NetWare for Macintosh, you'll be using the same desktop concepts you're used to seeing on your Macintosh. You still use files and folders. You still create, move, copy, rename, and throw away files and folders just as you always have. Your applications should all look and act the same as you're used to because NetWare for Macintosh doesn't touch applications.

All NetWare for Macintosh really does is change where information goes and regulate who can use it. It doesn't affect how you work with the information or what it looks like.

These are the biggest changes you'll notice with NetWare for Macintosh:

- When you turn on your workstation, you'll have to **log in** to the network by typing your name and a password. You can use the Chooser to do this.

- Then you'll open the **volumes** you need to work with. (Volumes are sections of the file server's hard disk where your folders are stored.)

- Your applications, folders, and files can now be kept on the file server's disk storage.

- NetWare security determines what you can do in a folder, and what you can allow others to do in your folders.

◆ To look at and change security levels within folders and files, you can use a NetWare Desk Accessory.

◆ You can also use a new application called the NetWare Control Center to do even more things with security.

◆ When you print, you can send your job to a NetWare print queue, which will take care of your printing while you use your Macintosh for other tasks.

◆ If you have NetWare for Macintosh version 2.0, you can use the NetWare Desk Accessory to work with print queues and to send and receive network messages.

Summary

A network is an invaluable way to connect personal computers together so they can communicate with each other. Through the network, computers can share files, applications, printers, and disk storage space.

NetWare for Macintosh is a product that lets Macintosh computers join what used to be the DOS-based world of a NetWare network. With NetWare for Macintosh, Macintoshes and DOS-based computers can share network resources with each other, and they can take advantage of NetWare's security features.

A network consists of:

◆ **Workstations**. These are the computers you use to do your work.

◆ **A file server**. This is the computer that controls the network.

◆ **Printers**. Users anywhere on the network can use network printers— your workstation doesn't have to be directly connected to a printer. Users' print jobs are sent to print queues, where they wait in line to be printed.

◆ **Cables.** Cables connect the workstations, file server, and printers.

- ◆ **Network boards**. These are circuit boards inside each workstation and file server. The cables connect to these boards. Network boards help transmit information from the workstations to the file server, and vice versa.

- ◆ **Bridges**. A bridge is a connection between two networks.

NetWare for Macintosh consists of special software installed in each workstation and in the file server. Because Macintosh and NetWare use different types of protocols (methods of communication), the NetWare for Macintosh software translates information between the Macintosh AFP protocol and the NetWare NCP protocol.

If there is more than one file server on the network, the NetWare for Macintosh software only needs to be installed in one of the servers. This file server then becomes the host, and the software in it is called a gateway. All other file servers on the network can become targets, meaning that Macintosh workstations can use the target file server's services by going through the host's gateway.

NetWare for Macintosh is AFP-conformant. This means that NetWare for Macintosh conforms to all of Apple's specifications for products that network Macintoshes. This eliminates many problems that might occur to NetWare for Macintosh whenever Macintosh software is updated.

NetWare for Macintosh actually licenses and uses AppleShare software, Apple's own networking software, in Macintosh workstations. However, NetWare software is used in the file server instead of AppleShare software. This combines the best of both worlds. It also allows a Macintosh workstation to see both NetWare and AppleShare file servers if they happen to be installed on the same network.

NetWare for Macintosh provides you with a way to share resources with other Macintosh users and with your DOS counterparts. This doesn't mean you have to change the way you work. You will continue to use your System folder and the Finder to do your work. You will still open and use applications just as you always have on your Macintosh. You can still use your folders and files just as you're used to, only now you can store them on the network instead of on your hard disk or floppy disks.

NetWare for Macintosh gives you all the benefits of a NetWare network without taking away anything you like about your Macintosh.

Jumping In

Patience is only a virtue if you have lots of time to spare. In today's business world, few people do. Fortunately for Macintosh users, getting up and running for the first time on a NetWare for Macintosh network is probably less time-consuming than figuring out how to work the new office coffee-maker.

This chapter explains how to access the network from your Macintosh. First, there's the startup disk—you'll need to install the AppleShare workstation software on it. Then you might want to install the NetWare Desk Accessory on the startup disk, too. After that, you'll learn how to log in to the network, open the volumes you want to work with, log in to additional networks, and log out.

(Sorry, this chapter won't explain how to work the coffee-maker.)

First You Need a Startup Disk...

Every Macintosh has a startup disk. Without it, your Macintosh couldn't work. The startup disk contains the files your Macintosh needs to get started and to keep working. It contains the System folder, which holds the System files and the Finder. The startup disk also contains printer information (without which you couldn't print your files) and Control Panel options. If you're an experienced Macintosh user, you also may have learned how to add other files to your System folder, such as fonts and desk accessories. Your startup disk can be either your hard disk or a floppy disk.

To begin using NetWare for Macintosh from your Macintosh workstation, you'll have to start your Macintosh with a startup disk that contains both the System folder and the AppleShare workstation software. If you don't already have a startup disk, you'll need to create one. If you already have a startup disk, you may need to update it.

When you create or update your startup disk, you'll also probably want to install the NetWare Desk Accessory. This desk accessory will let you work with NetWare security. If you have NetWare for Macintosh version 2.0, the NetWare Desk Accessory will also let you work with print queues and will let you send and receive messages across the network. You'll use the Macintosh Font/DA Mover to install the NetWare Desk Accessory.

As you create or update your startup disk, keep in mind that it's easy to end up with more than one startup disk, either accidently or on purpose. If you have more than one copy of the System folder, your Macintosh may end up using the folder you weren't expecting. And if the unexpected System folder doesn't have AppleShare installed, you won't be able to log in to the network.

When your Macintosh starts up, it first looks for the startup disk in the floppy disk drive. If the startup disk isn't there, the Macintosh next looks on your second disk drive, if you have one, then on your hard disk (starting with the internal disk drive if you have more than one). Suppose your startup disk is your hard disk and you're going to use an application from a floppy disk that contains a System folder. If you place the application disk in the floppy disk drive, then start your Macintosh, your computer will find the System folder on the floppy disk first and use it as the startup disk.

What's more, your Macintosh may switch startup disks on you even if you aren't starting up. If you open an application that happens to be located on another startup disk, your Macintosh may switch to that startup disk, even though you're already up and working.

If your Macintosh is using the wrong startup disk, you can change to another startup disk. There are several ways to change to another startup disk:

◆   You can restart your computer, making sure it starts from the right disk.

◆   You can use the Control Panel to set which startup device to use.

◆   You can try pressing the Option key while you open an application that's on the startup disk you want to use.

◆ You can press both the Command and the Option keys while you open the Finder on the startup disk you want to use.

The latter two methods only work if the version of the Finder you're trying to get to is the same or more recent than the one you're trying to leave.

Creating or Updating Your Startup Disk. To create or update your startup disk, you'll need:

✔ Your current startup disk if you're updating it, or an initialized disk if you're creating a new startup disk.

✔ The *Macintosh System Tools* disk. This disk contains the System folder, and the AppleShare workstation software that you'll need to run your Macintosh. This disk also contains the Installer utility, which you'll use to create or update your startup disk. You received a *Macintosh System Tools* disk with your Macintosh computer. A *Macintosh System Tools* disk was also included with NetWare for Macintosh versions 1.0 and 1.1. It doesn't matter which *System Tools* disk you use, as long as it's legally licensed for your Macintosh. Just make sure you use the correct version of System and Finder for your version of NetWare for Macintosh. Version 1.0 and 1.1 require System files to be at least version 4.2. NetWare for Macintosh version 2.0 requires your System files to be at least version 6.0.

To create or update your startup disk, follow these steps.

1. **Make backup copies of all the disks you'll be using.**
   Make backup copies of *Macintosh System Tools* and your current startup disk (if you're updating it). To protect your software investment, always use your backup copies instead of the originals.

2. **Put your backup copy of the *Macintosh System Tools* disk in your Macintosh's floppy drive and start your computer.** (Or restart it if it is already on.)

3. **Open (double-click) the *System Tools* disk.**
   Inside the *System Tools* disk, you'll see the Installer utility (among other files). On some versions of the *System Tools* disk, the Installer utility may be located inside the Setup Folder.

4. **Open the Installer utility.**
   Make sure you open the Installer, *not* the Installer script. In newer versions of the Installer utility, you may see a Welcome screen. If you do, click **OK**. Next you will see an Easy Install window. The Easy Install window won't let you install AppleShare software, so click **Customize**. If you have an older version of the Installer, you won't see any of these special windows.

5. **Select the correct startup disk.**
   The Installer utility displays the name of a disk in the top right corner of the window. If this isn't the startup disk you want to be creating or updating, click **Drive** to change to a different disk.

   If you will be creating your startup disk on a floppy disk, you will need to insert either your current startup disk or a new, initialized disk. If you are using only one floppy disk drive, eject the *System Tools* disk first, then insert your startup disk. (Then be prepared to spend a good part of your day swapping disks.)

6. **Select AppleShare and any other files you need.**
   The left-hand panel of the Installer window contains a list of system software that you can install.

   If you don't need to update your System files, just select AppleShare from the list. If you are creating a new startup disk or if you need to update your System or printer files, select AppleShare and the appropriate System and printer packages. (Hold down the Shift key while you click on each item in the list.)

   As you select each software package from the list, some versions of the Installer will display a message at the bottom of the dialog box telling you how much disk space will be left on the disk if you install that item.

(You may have to swap disks several times while the Installer figures out the disk space.) If there isn't enough room on the disk to install what you need, the **Install** button will be dim. You'll have to make more room on your startup disk by deleting any unnecessary files, or by using the Font/ DA Mover to remove unnecessary fonts and desk accessories. Then start over, beginning with Step 2.

7. **Click Install.**
   The AppleShare software (and the System and printer files, if you selected them) will be installed on your startup disk. You may have to swap disks many times while the appropriate files are being installed. A message will appear at the bottom of the window to tell you whether or not the installation was successful.

8. **Click Quit to leave the Installer.**

9. **Restart your Macintosh using your new startup disk.**

Your startup disk is now complete with everything you need to start your Macintosh and connect it to a NetWare for Macintosh network.

However, you'll probably want to install the NetWare Desk Accessory in your System folder. It isn't necessary, but you may find that it is a convenient tool for working with NetWare security. If you have NetWare for Macintosh version 2.0, you can also use the desk accessory to work with print queues and to send and receive messages.

Installing the NetWare Desk Accessory. To copy the NetWare Desk Accessory to your startup disk, you'll need:

✔ Your new startup disk.

✔ The *NetWare Utilities* disk, which contains the NetWare Desk Accessory and the Rights module. If you have NetWare for Macintosh version 2.0, this disk will also contain three additional modules—About, Message, and Print Queue—and the Notify INIT file (a startup document).

✔ The Font/DA Mover. NetWare for Macintosh versions 1.0 and 1.1 includes the Font/DA Mover on the *NetWare Utilities* disk. NetWare for Macintosh version 2.0 does not, so you will have to use the Font/DA Mover that came with your Macintosh. (It is probably located in your System folder.) There are other programs you can use to install desk accessories, but the Font/DA Mover is the most common.

The Font/DA Mover is a Macintosh utility that lets you install both fonts and desk accessories into your System folder. You can't just copy fonts and desk accessories to your System folder—you have to use the Font/DA Mover or a similar program.

First you'll use the Font/DA Mover to install the NetWare Desk Accessory on your startup disk. Then you'll copy the modules used by the NetWare Desk Accessory from the *NetWare Utilities* disk to the System folder on the startup disk. If you have NetWare for Macintosh version 2.0, you'll also copy the Notify INIT file to your System folder.

1. **If you haven't already, make a backup copy of the *NetWare Utilities* disk.**
   To protect your software investment, always use your backup copies instead of the originals.

2. **Put your backup copy of the *NetWare Utilities* disk in your Macintosh's floppy drive.**

3. **Open (double-click) the *NetWare Utilities* disk.**
   This folder contains the suitcase-shaped icon for the NetWare desk accessory. (In NetWare for Macintosh version 2.0, the icon is located inside the NetWare DA Utilities folder.)

4. **Find the Font/DA Mover.**
   In some versions of NetWare for Macintosh, the Font/DA Mover may be inside the Font/DA Mover folder on the *NetWare Utilities* disk. If you're using NetWare for Macintosh version 2.0, however, you'll probably have to use the Font/DA Mover from your System folder.

5. **Open (double-click) the Font/DA Mover.**

   The first window that appears lists all the fonts that are currently in the System folder on your startup disk.

6. **Click the Desk Accessory button at the top of the window.**

   Now the window will display the list of desk accessories currently in the startup disk's System folder (Figure 2-1).

   Beneath the list of desk accessories is the name of the startup disk that contains the desk accessories.
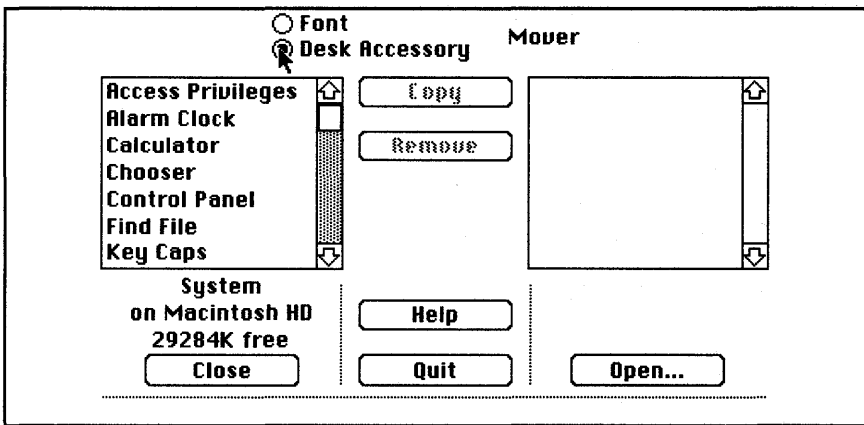
Figure 2-1.

7. **Click Open.**

   A dialog box appears. If *NetWare Utilities* is not the disk displayed at the top of the dialog box, click the **Drive** button until the *NetWare Utilities* disk appears.

   Beneath the disk's name appears the name of the NetWare desk accessory (**NetWare**). If a folder appears in the list instead of the NetWare desk accessory, click **Open** to display the contents of the folder. The NetWare desk accessory should then be the only item in the list (Figure 2-2).

```
┌─────────────────────────────────────────────────────┐
│ ╔═══════════════════════════════════════════════════╗ │
│ ║                                                    ║ │
│ ║         ┌────────────────────────┐                 ║ │
│ ║         │ 🖫 NetWare® Utilities │                 ║ │
│ ║  ┌──────────────────────────┬──┐  🖫 NetWare...    ║ │
│ ║  │ ▢ NetWare             ⬆ │                     ║ │
│ ║  │                          │  │  ┌──────────────┐ ║ │
│ ║  │                          │  │  │    Eject     │ ║ │
│ ║  │                          │  │  └──────────────┘ ║ │
│ ║  │                          │  │  ┌──────────────┐ ║ │
│ ║  │                          │  │  │    Drive     │ ║ │
│ ║  │                          │  │  └──────────────┘ ║ │
│ ║  │                          │  │ ..............    ║ │
│ ║  │                          │  │  ┌──────────────┐ ║ │
│ ║  │                          │  │  │   Open  ▶   │ ║ │
│ ║  │                          │  │  └──────────────┘ ║ │
│ ║  │                          │  │  ┌──────────────┐ ║ │
│ ║  │                          │  │  │    New       │ ║ │
│ ║  │                          │  │  └──────────────┘ ║ │
│ ║  │                       ⬇ │  │  ┌──────────────┐ ║ │
│ ║  └──────────────────────────┴──┘  │   Cancel     │ ║ │
│ ║                                   └──────────────┘ ║ │
│ ╚═══════════════════════════════════════════════════╝ │
└─────────────────────────────────────────────────────┘
```
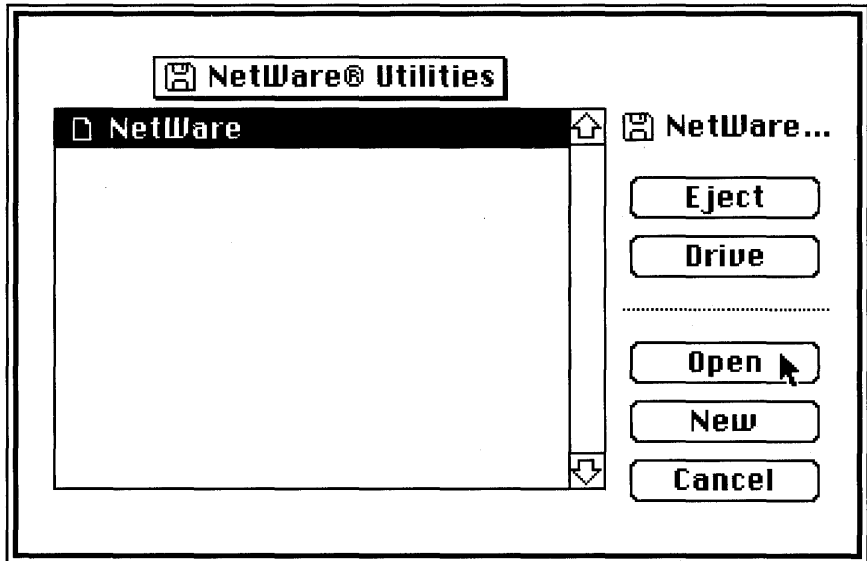
Figure 2-2.

8. **Click Open to open the NetWare Desk Accessory from the list.**
    The dialog box disappears, and the NetWare desk accessory from the
    NetWare Utilities disk appears on the right-hand side of the Font/DA
    Mover window.

9. **Select (click) the NetWare Desk Accessory from the list.**
    The **Copy** button becomes active, and arrows appear around the word
    Copy (« **Copy** «). These arrows indicate that you will be copying the
    desk accessory from the right-hand list to the left-hand list (Figure 2-3).

```
                        ○ Font          Mover
                        ◉ Desk Accessory

  Access Privileges  ⬆    ┌── << Copy << ──┐   NetWare         ⬆
  Alarm Clock         ▒   └────────────────┘▸
  Calculator          ▓    ┌──── Remove ────┐
  Chooser             ▓    └────────────────┘
  Control Panel       ▓
  Find File           ▓     11749 bytes
  Key Caps           ⬇       selected                          ⬇
         System              ┊                    NetWare
     on Macintosh HD         ┊ ┌──── Help ────┐  on NetWare® Utili...
        29284K free          ┊ └──────────────┘     417K free
     ┌──── Close ────┐       ┊ ┌──── Quit ────┐   ┌──── Open... ────┐
     └───────────────┘       ┊ └──────────────┘   └─────────────────┘
```

Figure 2-3.
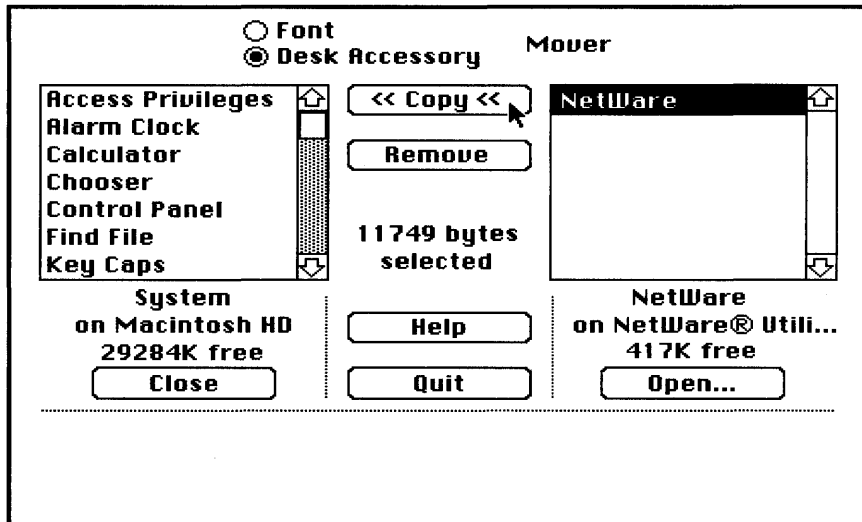
10. **Click Copy.**

    The NetWare Desk Accessory is copied from the *NetWare Utilities* disk
    to the startup disk. In a moment, the NetWare Desk Accessory appears in
    the left-hand list (for the startup disk).

11. **Click Quit to leave the Font/DA Mover.**

    The NetWare Desk Accessory is now installed on your startup disk.
    Next, you need to copy the desk accessory's modules into your System
    folder.

12. **Open the System folder on your startup disk.**

13. **Open the *NetWare Utilities* disk (if it isn't already open). You may
    also need to open the NetWare DA Utilities folder.**

    Locate the icon for the Rights module. If you have NetWare for Macin-
    tosh version 2.0, you will also see icons for the About, Message, and
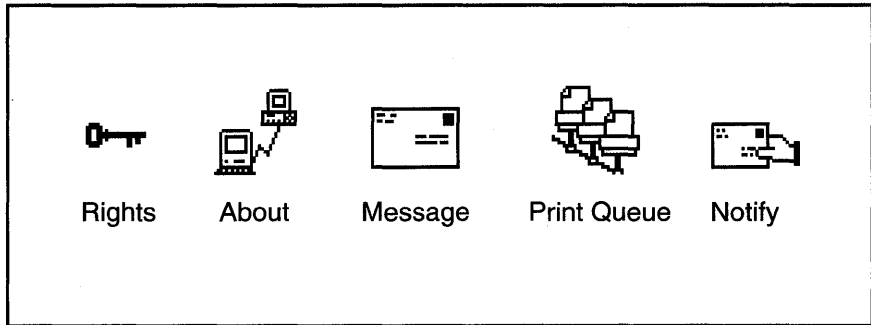   Print Queue modules and for the Notify INIT file (Figure 2-4).

Rights   About   Message   Print Queue   Notify

Figure 2-4.

14. **Copy (drag) each module's icon to your System folder.**
    NetWare modules don't necessarily have to be in the System folder, but
    that is usually the most convenient place for them. If the modules aren't
    in the System folder, you will have to specify their location the first time
    you use the Desk Accessory.

15. (Version 2.0 only) **Copy (drag) the icon for the Notify INIT file to
    your System folder.**
    The Notify INIT file must be in the System folder if you want to receive
    messages from other users. It will not work if you place the INIT file in
    another folder.

Your startup disk now has everything you need. You've installed or updated
your System files, you've installed AppleShare workstation software, and you've
installed the NetWare Desk Accessory.

When you start your Macintosh with this startup disk, you'll be ready to log in
to the network.

Logging In for the First Time

By adding AppleShare workstation software to your startup disk and cabling
your Macintosh to the network, you've prepared your Macintosh to become a
network workstation. But that isn't the whole story. You've arrived at the front door,
but now you need to knock and be invited in—you need to log in.

When you log in to a file server, you accomplish three things:

1. You open the connection between your workstation and the network.

2. You tell the file server who you are.

3. You tell the file server which network volumes contain the information you want to use.

Once you've started your Macintosh with your new startup disk, you will use the Control Panel to make sure your workstation is set to use the correct cabling system. Then you will use the Chooser (under the Apple menu) to log in.

When you log in, you first see which NetWare file servers are available. You select the file server you want to log in to, then type in your name and a password (if you have one). Then you open whichever of the file server's volumes you need to work in. That's it. From that point on, you are a network user. You can start using applications and opening documents just as you normally do.

Selecting Your Cabling System. Make sure that your workstation is set up to use the right cabling system, such as LocalTalk or EtherTalk.

1. **Make sure you've started your Macintosh using your new startup disk.**

2. **Select the Control Panel from under the Apple ( ) menu.**
   In the left-hand panel you'll see icons for options you can modify, such as color, keyboard, and sounds. The right-hand side of the window contains various panels that you can use to change settings.

3. **Select the Network icon from the left-hand panel.**
   The right-hand side of the Control Panel window will display icons for the available cabling systems (Figure 2-5). If the Network icon is not displayed, you have not installed the AppleShare workstation software on your startup disk. Return to "Creating or Updating Your Startup Disk" at the beginning of this chapter to update your startup disk.
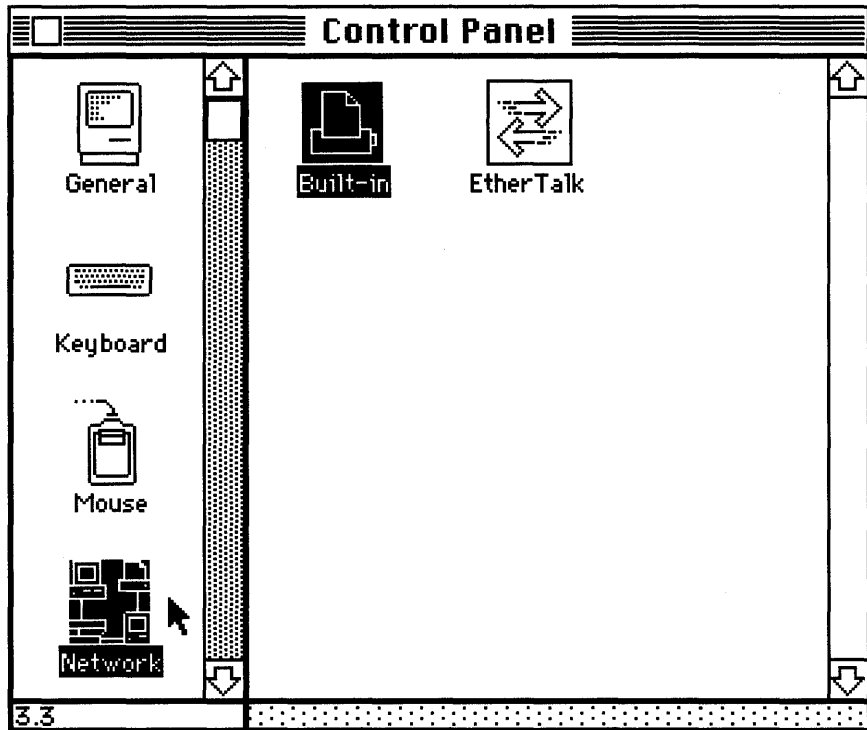
Figure 2-5.

4. **Make sure the correct icon for your cabling system is selected.**
   If the correct icon is not selected, click on the icon to select it. If you are
   using LocalTalk, select the Built-in icon. If there is no icon displayed for
   your cabling system, you need to install software (called a driver)
   provided by the cabling system's manufacturer. Refer to the
   manufacturer's documentation for installation instructions.

5. **Close the Control Panel.**

Now you're ready to find a file server.

Finding and Selecting a File Server. The first step when logging in to a file server is to see what file servers are available.

1. **Make sure you've started your Macintosh using your new startup disk.**

2. **Select the Chooser from under the Apple ( ) menu.**
   In the left-hand panel of the Chooser window, you may see icons that represent different types of devices, such as printers. You'll also see the AppleShare icon (Figure 2-6).
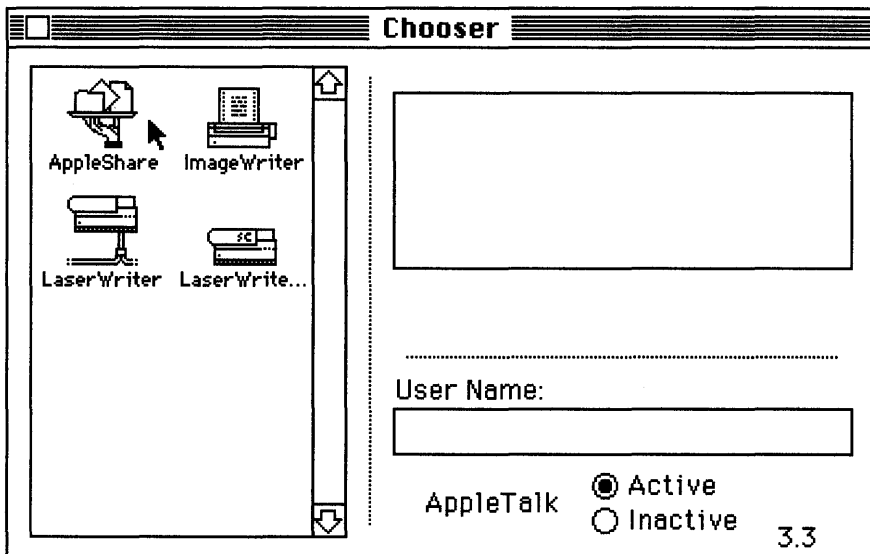

Figure 2-6.

If your network has been set up in zones, a panel listing the available zones will also appear on the left side of the Chooser window (Figure 2-7).
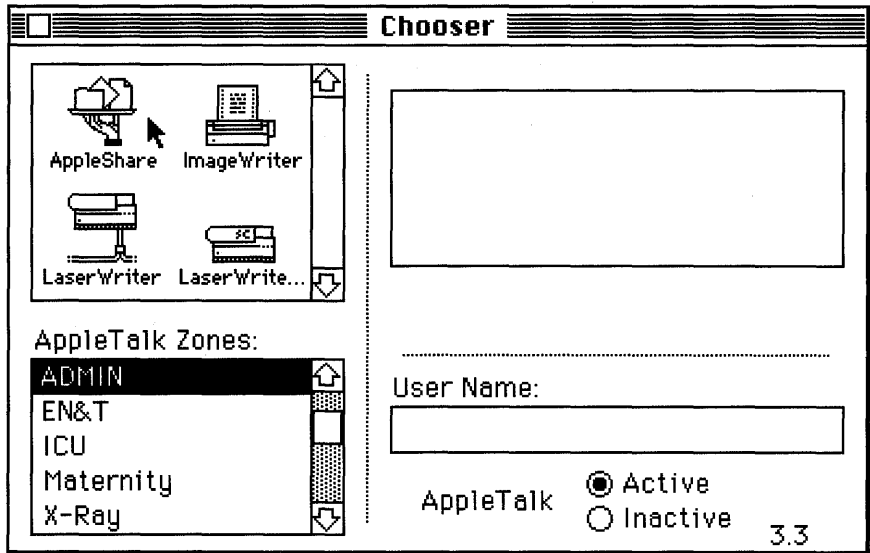
Figure 2-7.

An AppleTalk zone is a segment of an AppleTalk internetwork. (When several networks are connected to each other, they form an internetwork.) Setting up an internetwork into zones is one way the network administrator can organize the internetwork.

3. **Click the AppleShare icon.**
   A list of available NetWare file servers appears in the right-hand panel of the Chooser window (Figure 2-8). If there are AppleShare file servers attached to the network, they will be listed, as well.

   If your network has been set up in zones, the list of file servers will contain only those file servers that are in the selected zone. To see other file servers, you may need to select a different zone from the left-hand panel.

```
≣□≣≣≣≣≣≣≣≣≣≣≣≣≣≣≣≣ Chooser ≣≣≣≣≣≣≣≣≣≣≣≣≣≣≣
```

Select a file server:

ACCOUNTS
CHERRY
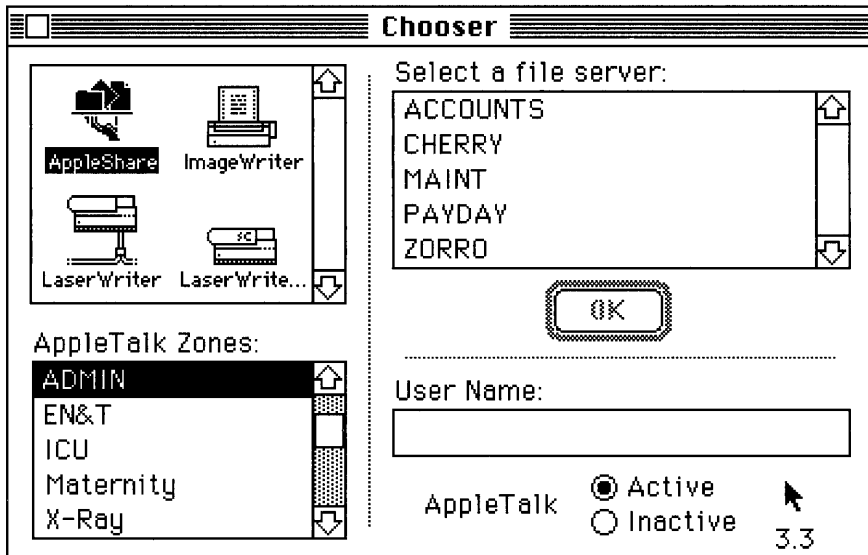MAINT
PAYDAY
ZORRO

AppleShare   ImageWriter

LaserWriter   LaserWrite...

AppleTalk Zones:

ADMIN
EN&T
ICU
Maternity
X-Ray

OK

User Name:

AppleTalk   ◉ Active
             ○ Inactive

3.3

Figure 2-8.

4. **Make sure the AppleTalk option is active.**

   At the bottom of the Chooser window, there are two AppleTalk buttons—**Active** and **Inactive**. Be sure the **Active** button is selected, even if you are using Ethernet or Token Ring instead of the LocalTalk cabling system.

5. **Click the name of the file server you want to log in to.**

Now that you've selected the file server you want to use, the next step is to tell the network who you are. (Don't leave the Chooser. You'll use it to enter your name and password.)

Entering Your User Name and Password. Before you can start working on the network, the file server needs to recognize you and verify that you are allowed to log in.

Therefore, before you can log in for the first time, the network administrator has to create a user name for you and store it in the file server's special database (called a **bindery**). In addition, the administrator will probably assign a password to your user name.

When you log in, you have to give the file server your user name and your password. (For more information about passwords, turn to "Passwords and Login Restrictions" in Chapter 3.)

If you aren't sure of your user name or password, ask your network administrator. Otherwise, NetWare provides a user name, called GUEST, that anyone can use to log in. The GUEST user is often pretty limited in what he or she can do on the network, but if you don't know what your own user name is, you can at least use GUEST to see how to log in.

Now that you've selected the file server you want, you can enter your user name.

6. **Type your user name in the box at the bottom of the Chooser window.**
   (If you are logging in as GUEST, you do not need to type GUEST into this box. Just skip this step.)

   If you type your user name in this box, the Chooser will record your name for future reference. Every time you log in, the Chooser will display whatever name was last typed in this box (Figure 2-9).
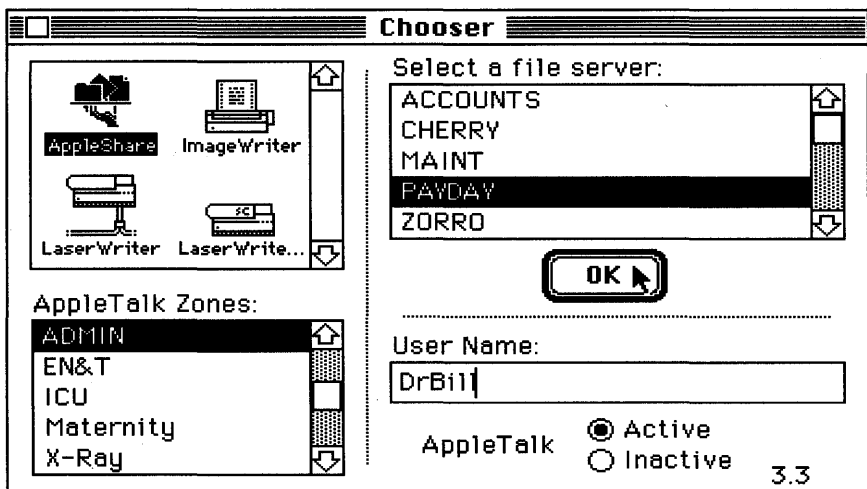

Figure 2-9.

7. **Click OK.**

   After you click **OK**, the login window appears. This window shows the
   file server you selected and the user name you entered (Figure 2-10).

   ```
   ┌─────────────────────────────────────────────────────────┐
   │  ⟨⟩                                                      │
   │                                                          │
   │         Connect to the file server "PAYDAY"              │
   │         as:                                              │
   │            ○ Guest                                       │
   │            ◉ Registered User                             │
   │              ▶                                           │
   │            Name:      │DrBill                        │   │
   │                                                          │
   │            Password:  │          │   (Clear text)        │
   │                                                          │
   │                                                          │
   │         ( Cancel )    ( Set Password )  ║   OK   ║       │
   │                                                  v2.0.1  │
   └─────────────────────────────────────────────────────────┘
   ```

Figure 2-10.

   If you didn't enter a user name because you want to log in as GUEST,
   the **Guest** button should be selected. If someone else's name appears as a
   registered user, you can click the Guest button.

   If you entered a user name, that name appears in the **Name** box, and the
   Registered User button is selected.

   You can change your mind and click the **Guest** or **Registered User**
   buttons to log in using a different user name.

8. **If you have a password, type it in the Password box.**

   As you type your password, a series of dots appears in the Password box.
   That way, no one can watch over your shoulder to see your password.
   GUEST usually doesn't have a password.

9. **Click OK.**

   After you click OK, the volume window appears. This window will let you choose the volumes that you want to use (Figure 2-11).
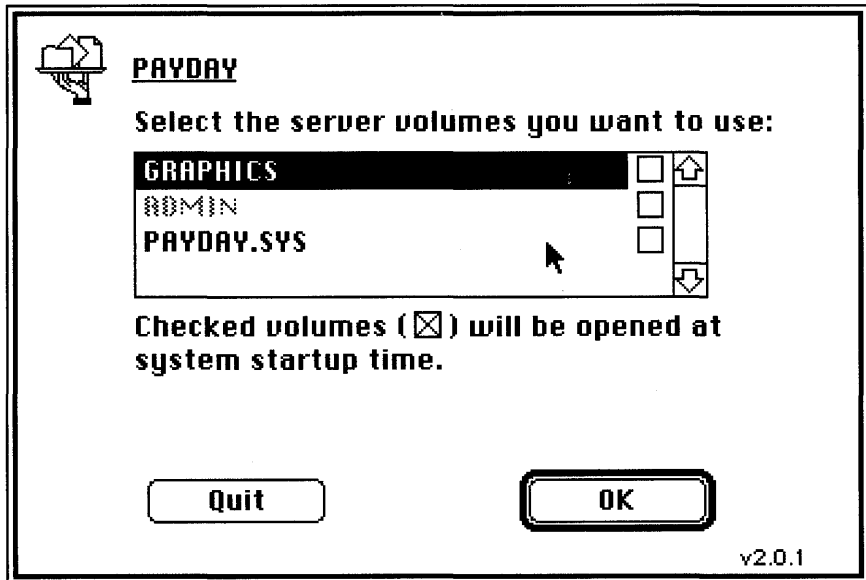
```
┌─────────────────────────────────────────────────────────┐
│  ┌──┐     PAYDAY                                          │
│  └──┘                                                     │
│          Select the server volumes you want to use:      │
│         ┌──────────────────────────────────┬──┬──┐       │
│         │ GRAPHICS                        │☐ │⬆ │       │
│         │ ADMIN                           │☐ │  │       │
│         │ PAYDAY.SYS                  ▶   │☐ │  │       │
│         │                                 │  │⬇ │       │
│         └──────────────────────────────────┴──┴──┘       │
│          Checked volumes (☒) will be opened at           │
│          system startup time.                            │
│                                                          │
│                                                          │
│          ┌──────────┐        ┌──────────────┐            │
│          │   Quit   │        │      OK      │            │
│          └──────────┘        └──────────────┘            │
│                                            v2.0.1         │
└─────────────────────────────────────────────────────────┘
```

Figure 2-11.

Now you've opened the connection between your workstation and the network, and you've told the network who you are.

The last thing to do is to tell the file server which network volumes you want to use. (Again, don't leave the Chooser. You'll use the Chooser to select the volumes you need.)

Until you select a volume to work with, you have not finished logging in to the network.

Selecting a Volume. When you look for files on your Macintosh, you search through a hierarchy of disks and folders. First you open a disk (either your hard disk or a floppy disk). Next, you may have to open at least one folder, and possibly a series of folders. Network files are stored on the file server in the same manner.

The difference between the hierarchical structures of your Macintosh and the file server is at the disk level.

The file server uses hard disks for storing network files. However, NetWare divides the hard disks into volumes. Instead of seeing and opening the file server's hard disks, users see and open these volumes. A volume is the logical equivalent of a workstation's disk. Basically, this means that volumes act like disks. Therefore, before you can access any folder on a file server, you have to open the volume that contains that folder.

Every file server has at least one volume, called SYS (for system). The SYS volume is to NetWare what the System folder is to a Macintosh. The SYS volume holds the SYSTEM, LOGIN, MAIL, and PUBLIC folders, which contain system information and utilities. Never change any of the files in these folders.

When you see the SYS volume's name from your Macintosh, it will have the file server's name in front of it. If you are using NetWare for Macintosh version 1.0 or 1.1, the file server name and the volume name are separated by an underscore character. For example, if your file server's name is LASAGNA, the volume's name will be LASAGNA_SYS. NetWare for Macintosh version 2.0 uses a period to separate the file server and volume names, so the volume's name would be LASAGNA.SYS. (For convenience, most of the examples in this book use the "period" convention from NetWare for Macintosh version 2.0.)

The SYS volume is mandatory, but other volumes are optional. Your file server may not have any other volumes, or you may find several. The SYS volume is the only one that will have the file server's name in front of it. (Volumes will be discussed further in "Using Volumes, Folders, and Files" later in this chapter.)

The Chooser's volume window shows a list of all available volumes on the file server you selected. From this list, you can select the volumes you want to use. You can also specify which volumes you want to automatically open every time you log in to that file server.

10. **Select the names of the volumes you want to use.**

    To select one volume, click on the volume's name. To select more than one volume, shift-click on each volume's name.

11. **Select the volumes you want automatically opened.**

    If you know you'll be opening the same volumes every time you log in to that file server, you can set those volumes to open automatically. Click the box to the right of the name of each volume you want to open automatically (Figure 2-12). When the box is checked, that volume will be opened every time you log in. If the box is not checked, that volume will not be opened.
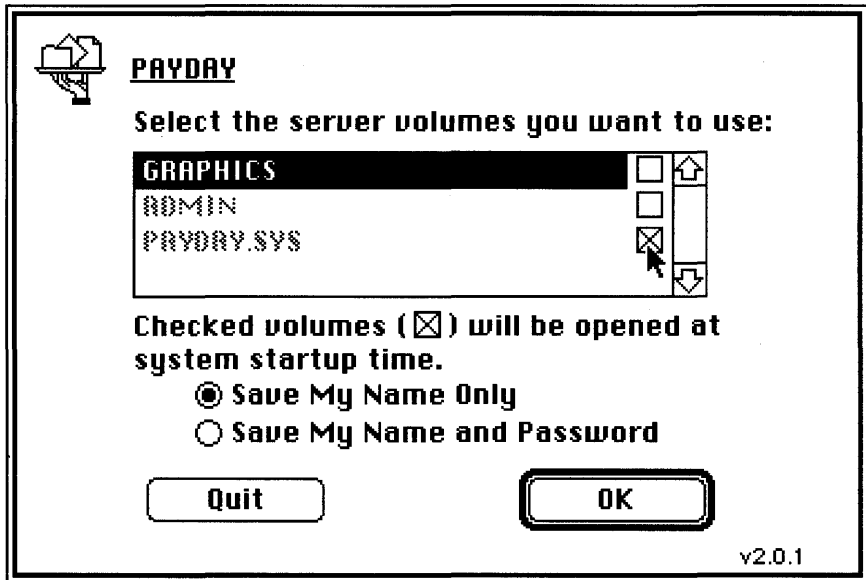
Figure 2-12.

12. **If you selected volumes to be opened automatically, click Save My Name Only.**

    If you select a volume to be opened automatically, a new option appears on the Volumes window. This option lets you decide whether you want only your user name or both your user name and your password to be entered automatically every time you log in. (If you don't specify any volumes to be automatically opened, you will not see this option.)

In most situations, you should choose the **Save My Name Only** option. That way, every time you start your Macintosh, your name will be entered automatically, but you will be asked for your password.

If you choose **Save My Name and Password**, anyone who starts up your Macintosh can log in as you without having to specify your password. That person would then have free access to all your files and folders. This can be annoying in the best of cases, and very dangerous in any area where security is critical.

13. **Click OK to log in.**

    An icon for each volume you selected appears on the desktop. The volume icon looks like a filing cabinet (Figure 2-13).

LASAGNA. SYS   GRAPHICS
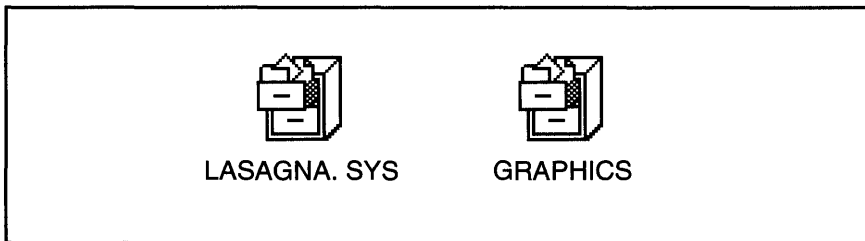
Figure 2-13.

The first Chooser window then reappears on your screen.

14. **Log in to any additional file servers.**

    If you want to log in to additional file servers, repeat the whole process from Step 3.

15. **Close the Chooser.**

You are now logged in to the file server. You have done everything you need to do to start working on the network.

Logging In the Next Time

When you log in to the file server the first time, you can set certain options to happen automatically from then on. The next time (and every time) you log in, these options will already be entered, and the process will be much faster.

1. **Select the Chooser from under the Apple ( ) menu.**
   The first Chooser window appears, but it already has your name in the **User Name** box. (If someone else has used your workstation, a different name may be in the box. If so, type in your name instead.)

2. **Click the AppleShare icon.**

3. **Click the name of the file server you want to log in to.**

4. **Click OK.**
   The login window appears.

5. **If you have a password, type it in the Password box.**

6. **Click OK.**
   The volume window appears.

7. **Select a volume if you need one that isn't already selected.**

8. **Click OK.**

9. **Close the Chooser.**

You are now logged in.

Selecting Another Volume

If you've already logged in but you need to select another volume, you'll use the same basic procedure you used to log in:

1. **Select the Chooser from under the Apple ( ) menu.**

2. **Click the AppleShare icon.**

3. **Click the name of the file server that contains the volume you need.**

4. **Click OK.**
   A window appears, telling you that you're already connected to that file server.

5. **Click OK.**
   The volume window appears.

6. **Select the name of the volume you want to use.**

7. **Click OK.**

   The icon for the volume appears on the desktop.

8. **Close the Chooser.**

Now you can open that volume and begin using it.

Using Volumes, Folders, and Files

When you logged in to the network, you selected the file server's volumes you wanted to use. When you selected a volume, its icon (a filing cabinet) appeared on the desktop.

Since volumes work like disks do, to get to the folder you need, you first have to open the volume that contains the folder. As with disks, you can have several volumes open at once (if your file server has more than one volume). And, just like disks, volumes can contain hierarchies of nested folders.

You open a volume just as you would open a disk—double-click on the volume's icon, or select it and choose **Open** from the File menu.

The NetWare filing system is set up so that all network files and folders have to be contained in volumes. This means you cannot take a file or folder out of a volume and leave it on the desktop. You can, however, move a file or folder out of one volume and into another.

Speaking of folders, they also work the same way on a network as they do on a stand-alone Macintosh. You create, open, move, rename, and delete folders exactly as you always have. You will also create, open, move, rename, and delete your files the same way.

There are probably only three differences you will notice about working with files, folders, and volumes on a network.

1. More than one person can open a volume or folder at a time. Some types of files, such as database files, may even allow several users to access them at the same time.

2. NetWare security may restrict what tasks you can do within a folder. For example, the network administrator may have set up a folder so you can create and change the files in it, but you cannot delete them. You may be restricted from doing certain things to the files within a folder; however, for those tasks that you can perform, you use normal Macintosh methods.

3. The icons for folders may look unusual. If you've worked on an AppleShare network before, you will recognize them. AppleShare uses different types of folder icons to indicate what your security restrictions are within each folder. NetWare for Macintosh supports these icons, and you can use them to get a general idea of what you can do in a particular folder. These folder icons are explained in Chapter 3.

Using volumes is like using disks. If you know how to move around your Macintosh desktop, you know how to get around the network.

Using Applications

Once you've logged in to a file server, you can start using network applications just as though you were running them from a disk. The only difference between using an application on the network and using one on a disk is that some network applications may allow more than one user to run them at the same time.

Whether or not an application can be used by several network users at the same time depends entirely upon the application. Some manufacturers develop two versions of their applications: a single-user version for stand-alone computers only, and a network version that will allow several network users to run the application at the same time. If you have an application that only allows one user at a time, you probably can still store it and run it on the network as long as you make sure no one else is using it. However, be sure you check your license to find out exactly what you are legally permitted to do. If in doubt, install a network version of your application.

You start a network application just as you would start an application from your hard disk. If the application is stored in a volume on the network, make sure you open that volume. Then, if the application is stored in a folder, open the folder. Next, find the icon for the application on the desktop and open it.

Applications don't have to be stored on the network. You can still use applications from a local disk if you want to.

There is seldom anything different about the way you use applications on a network. Just think of the network as an alternate hard disk where you can store applications, folders, and files.

Logging Out

When you log out of the network, you close off the connection between your workstation and the file server, although you can still use your Macintosh in stand-alone fashion. The next time you want to use the file server, you must log in again.

Always log out of the network whenever you finish your work or leave your Macintosh. If you don't, someone else could use your workstation and tamper with your network files.

Logging out is very simple.

1. **Close all of the network files you were using.**

2. **Drag all of the file server's volume icons to the Trash can.**

You are now logged out of the file server. To access network files now, you'll have to log in again.

Summary

To get started on the network, you first need to create or update a startup disk. The startup disk needs to contain the correct System and Finder software and the AppleShare workstation software.

You may want to install the NetWare Desk Accessory in your System folder. The NetWare Desk Accessory is a tool you can use to see and change your NetWare security.

After you start up your Macintosh using your new startup disk, you must log in to the network. To log in, use the Chooser to complete three steps:

1. Find and open a file server.

2. Enter your user name and password.

3. Open the volume that contains the folders you need.

You can save some of this login information so that every time you log in, the information will be entered for you automatically.

Once you are logged in to the network, you can open additional volumes and log in to additional file servers.

You use volumes the same way you use disks. You open volumes to get to the folders and files they contain. You work with folders and files in a volume the same way you work with them on a disk. If you have the proper security, you can create, open, move, rename, and delete folders and files using normal Macintosh procedures.

Using applications on the network is no different from using applications from your hard disk. You open them the same way, and you work with your files and folders the same way.

When you are finished using the network, you should always log out. To log out, make sure you've closed all of your files and applications. Then drag all of the file server's volume icons to the trash.

How Does NetWare Security Work?

One of the biggest benefits offered by computer networks is that they permit users to share files and applications. So does this mean that a network environment becomes a free-for-all? Can everyone on the network open any file or folder he or she wants to open? And what happens if two people open the same file at the same time?

The answers to these questions depend on whose networking product you're using. Some products only provide rudimentary security mechanisms to keep important data safe from unauthorized access. Other products provide no security at all. You get what you pay for with some of these low-end networking products.

NetWare, on the other hand, has one of the best security schemes in the computer networking industry.

This chapter will explain:

◆ The three types of NetWare security:

1. Passwords and login restrictions.

2. Rights (and the difference between NetWare 286 rights and NetWare 386 rights).

3. Folder attributes and file flags.

◆ How NetWare security compares to AppleShare privileges.

Why is Security Useful?

It's a common misconception that you only need to worry about network security if you're working in a bank or a government agency. But security is important for more reasons than those offered in spy-novel scenarios.

♦ Security can protect important data from accidents.

♦ Security can prevent employees from seeing (and tampering with) payroll information, personnel data, and other sensitive files.

♦ Security can keep a user from inadvertently corrupting a file or copying over an application.

♦ Security can stop employees from pirating their company's expensive software.

♦ Security can keep your personal folders private.

Keeping your network secure is a good idea, no matter what type of network you have.

And if you **do** happen to work in a bank or a government agency (or in any other industry where data security is critical), NetWare's security is essential.

The Three Keys to NetWare Security

If you keep your valuable files in a filing cabinet, your choice of security schemes is pretty slim. You can leave the filing cabinet unlocked so that everyone else in the office can get to your files, or you can lock the filing cabinet and only give the key to authorized employees. Of course, once you've given someone the key to the cabinet, that person can look in any folder in the whole cabinet.

With a filing cabinet, you have three choices of security:

♦ Everyone can see everything.

♦ No one can see anything.

♦ Some people can see everything and others can't see anything.

While this all-or-nothing type of security is better than no security at all, it isn't very flexible. Network security introduces a whole new level of flexibility.

Suppose there are several employees in your office, and all of them need to use the office files in different ways. Using the security built into NetWare, the network administrator can specify exactly what kind of access each employee can have to different folders on the network.

For example, some employees may be able to create and change files within a particular folder, but they can't erase those files. Other employees might be able to create files and put them in a folder, but they can't see, change, or erase those files once they're in the folder. Still others may have no restrictions and can do anything they wish with the files in the folder.

In addition, there may be some files that the administrator wants everyone to see but doesn't want anyone to change. There also may be applications that are set up so that no one can copy them. And some folders may be hidden so that none of the employees can see them at all.

NetWare uses three different types of security to provide this kind of flexible network protection:

- ◆ Passwords and login restrictions
- ◆ Rights
- ◆ Attributes and flags

Using these three types of security, network administrators can set up varying levels of security to suit the needs of their network users.

The first key elements of NetWare security to consider are passwords and login restrictions.

Passwords and Login Restrictions

When you log in to the network, you probably have to give the file server your password. (The network administrator can specify whether or not users have to use passwords.)

Your password is connected to your user name. If you type the right user name but the wrong password, the file server won't let you log in. Likewise, if you type the right password but the wrong user name, the file server won't let you log in.

When you choose a password, keep in mind the following rules:

✔ Your password probably must be at least five characters long. (Five characters is the default minimum. However, the network administrator can set a different minimum.)

✔ If your workstation is a Macintosh, your password can't be longer than eight characters.

✔ If your workstation is a DOS computer, your password can be as long as 127 characters.

✔ There is no difference between upper- and lower-case letters in a password.

✔ If you want to be able to log in to the network from both a Macintosh and a DOS-based workstation, use only alpha-numeric characters (letters and numbers) in your password. In other words, don't use characters with the Option key.

✔ Don't choose passwords that can be easily guessed, such as your birthday or the names of your family members.

Ask your network administrator about any other password restrictions that may have been set up. For example, the administrator may have specified that passwords will expire after a specified number of days. When your password expires, the file server lets you choose a new one.

In addition to password restrictions, the network administrator can also establish login restrictions. Login restrictions can limit when you can log in to the network,

how many workstations you can be logged in to at one time, and which workstations you can use. The administrator can also set the file server so that it will "lock out" a user after that user unsuccessfully tries to log in a specified number of times. This prevents someone from breaking in to the network by patiently trying lots of passwords. Be sure to ask your network administrator if there are any login restrictions you should know about.

Passwords and login restrictions are the first key to NetWare security. The second key to NetWare security is NetWare rights.

NetWare Rights

NetWare rights regulate exactly what you can do with the files stored within a particular folder. There are eight NetWare rights. Each one controls a specific task, such as your ability to erase files, create files, change a folder's security, etc.

NetWare 386 uses a different set of rights than NetWare 286 version 2.15. Although these rights perform similar functions, they have different names. All versions of NetWare for Macintosh will let you log in to both NetWare 286 and NetWare 386 file servers from your Macintosh. However, depending on the version of NetWare for Macintosh you are using, the way your rights are displayed varies.

♦ Versions 1.0 and 1.1 of NetWare for Macintosh use and display only the rights used in NetWare 286 version 2.15. If you look at your rights for a folder located on a NetWare 386 file server, NetWare for Macintosh will translate the rights so that your Macintosh displays the version 2.15 names instead of the NetWare 386 names.

♦ Version 2.0 of NetWare for Macintosh can display both NetWare 286 and NetWare 386 rights. When you look at a folder on a NetWare 286 file server, your Macintosh displays the 286 rights. When you look at a folder on a NetWare 386 file server, your Macintosh displays the 386 rights.

Since the NetWare 286 and NetWare 386 rights are similar in some ways but different in others, let's first look at the basic way rights work. Then we'll look at NetWare 286 rights in detail, and then NetWare 386 rights.

Who Has Rights? Every user on the network has at least some NetWare rights. Before you can even open a folder, you have to have the right to open it. Different users on the network will have different rights to network folders, depending on their needs.

Two users are created automatically when NetWare is first installed: SUPERVISOR and GUEST. The group EVERYONE is also created automatically. All other users must be created by the network administrator.

SUPERVISOR is the user name that the network administrator uses to set up and maintain the network. SUPERVISOR has all rights to every volume and folder on the network, and those rights cannot be taken away. This is because SUPERVISOR needs to have access to everything on the network so he or she can keep the network running smoothly. SUPERVISOR can't be deleted from the network.

SUPERVISOR has a special icon (Figure 3-1).
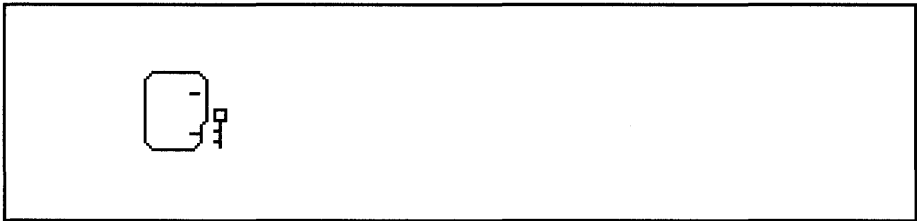
Figure 3-1.

GUEST is a generic user created for convenience. Any user can log in as GUEST, as long as the network administrator doesn't give GUEST a password. Unlike SUPERVISOR, GUEST can be deleted and usually has minimal rights on the network. However, GUEST can be a convenient way to log in for users who occasionally need to access a resource on the network. For example, if your network has a LaserWriter printer attached to it, you may find that people from other departments want to send documents to that printer. Those users can log in as GUEST, print their file, then log out. This means the administrator doesn't have to make each one an authorized user, assign them rights, and so on.

The user GUEST does not have a special icon. All users have the same icon (Figure 3-2).
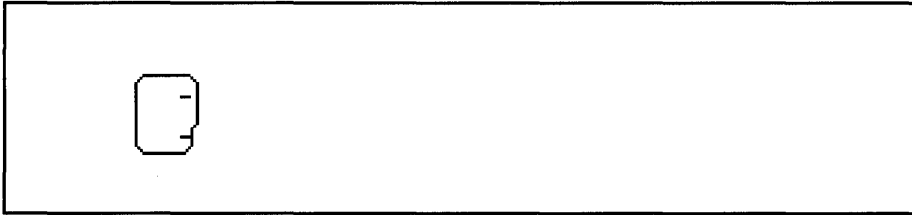
Figure 3-2.

The group EVERYONE includes every user on the network. As new users are created, they are automatically added to EVERYONE. The group EVERYONE usually has minimal rights and can be deleted. When all users on the network need access to the same folder, the network administrator can assign the necessary rights to the group EVERYONE. This is especially useful for giving all users access to applications.

The group EVERYONE doesn't have a special icon either. All groups have the same group icon (Figure 3-3).
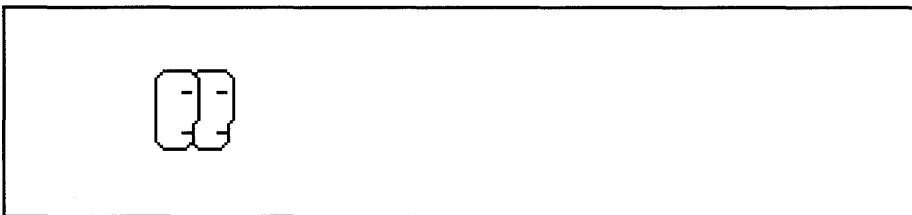
Figure 3-3.

All other users are created individually by the network administrator. When a new user is created, the administrator has to give that new user the rights to access any necessary folders.

Where Do Rights Come From? If you don't completely understand how rights are used, working with security can be a tricky process because rights can be applied in different ways. Rights can be assigned to a user or a group of users (to allow that user or group to work within a folder), and rights can be assigned to a folder (to limit what users can do in that folder). In NetWare 386, rights can also be assigned to individual files.

When a user is given rights to a folder, that user becomes a **trustee** of that folder. **Trustee rights** are those rights that are assigned to that user for that folder. In NetWare 386, a user can be granted trustee rights to an individual file in the same way.

Trustee Rights. Your trustee rights are the rights that you can exercise within a folder (or a file in the case of NetWare 386). These rights are assigned specifically to you, and they apply to a particular folder and its contents (or to a particular file). If you don't have any rights in a folder, you aren't a trustee of that folder.

Trustee rights can also be assigned to groups of users. The network administrator can designate several users as a **group** and then assign trustee rights to that group. This can be a much quicker and more efficient way to assign trustee rights if there are many users on the network. For example, if there are 30 users in the Game Development Department who all need the same rights to the "Fun and Games" folder, the network administrator could place all 30 users in the group GAMERS, then make GAMERS a trustee of "Fun and Games." Your trustee rights are extremely important, because they control exactly what you can do within a folder or file.

Security Equivalences. There is another way you can get rights to a folder, without having the rights assigned directly to you. You can be assigned a level of security that is equal to another user's or group's security. This type of assignment is called a **security equivalence**.

If you are assigned a security equivalence which makes you equal to another user, you can exercise all the same rights as the other user. Security equivalences can be used as a shortcut for assigning trustee rights to users. For example, if you need

rights to all the same folders that Jane has rights to, your network administrator can give you a security equivalence that makes you equal to Jane. Then you and Jane would have identical rights for all the same folders.

In this example, the only reason you wouldn't have the same rights as Jane is if Jane has a security equivalence to another user. Security equivalences don't travel. (In other words, they aren't transferable.) If you are security equivalent to Jane and Jane is security equivalent to Ed, you don't become security equivalent to Ed, too. You only get the rights that are explicitly assigned to you and to Jane. When you become a member of a group, you become security equivalent to that group. That's how all members of the group get the same level of security.

Now that we've discussed some of the general background about NetWare rights, we can look at the specific way NetWare 286 and NetWare 386 rights work. First, let's look at NetWare 286 rights.

NetWare 286 Rights

You need to understand NetWare 286 rights if:

♦ You are using NetWare for Macintosh version 1.0 or 1.1, or

♦ You are using NetWare for Macintosh version 2.0 and you log in to NetWare 286 version 2.15 file servers.

The first two versions of NetWare for Macintosh, versions 1.0 and 1.1, only support NetWare 286 rights. Therefore, if you log in to a NetWare 386 file server from your Macintosh, NetWare for Macintosh will translate the NetWare 386 rights and display their NetWare 286 equivalents on your Macintosh.

There are eight rights in NetWare 286. Each controls a different type of task you can perform in a folder.

When you look at your rights for a particular folder, the rights are usually abbreviated to their first letters and enclosed in square brackets, for example, [ROWCDPSM].

This table lists each right, its abbreviation, and what it controls:

Right	Abbreviation	Description
Read	R	Lets you read an open file.
Open	O	Lets you open an existing file.
Write	W	Lets you change (write to) an open file.
Create	C	Lets you create new folders and files.
Delete	D	Lets you delete folders and files.
Parental	P	Lets you change a folder's security.
Search	S	Lets you see what folders and files are inside a given folder.
Modify	M	Lets you change the names of folders and files, and lets you change folder and file attributes.

You may have no rights, all rights, or any combination of these rights in the folders with which you work. Different combinations of rights will allow you to use a folder in various ways. For example, if you have the Read, Open, and Search rights ([ROS]) in a folder called "Party Invitations," all you can do is:

◆ Open the "Party Invitations" folder and see what files and folders are in it.

◆ Open the files and folders inside "Party Invitations."

◆ Read the files you open.

You can't change, rename, or delete any of the files in the folder, and you can't create any new files or folders inside the folder. You also can't assign trustee rights to any other users in the folder "Party Invitations" because you don't have the Parental right.

If you have Read, Open, Write, Create, Delete, and Search rights ([ROWCDS]) in another folder called "Memos," you can:

◆ Open the "Memos" folder and see what files and folders are in it.

◆ Open the files and folders inside "Memos."

◆ Read the files you open.

◆ Create new files and folders inside of "Memos."

◆ Delete files and folders from "Memos."

◆ Change (write to) existing files inside "Memos."

You can't rename files and folders inside "Memos" because you don't have the Modify right, and you can't assign trustee rights to other users in the "Memos" folder because you don't have the Parental right.

The Parental Right. The Parental right is the most powerful right you can have in a folder. The Parental right gives you the right to add trustees to that folder or change an existing trustee's rights in that folder. If you have the Parental right in a folder, you can also change your own trustee rights in that folder.

Inheriting Rights in Nested Folders. Once you are given rights in a folder, those rights apply to any folders that are nested inside the original folder. You inherit these rights in each nested folder unless your rights are explicitly changed in one of those nested folders. If your rights are changed in one folder, you inherit these modified rights in any folders nested within that folder, but you retain the original rights in the other folders. This concept is presented much more clearly in Figure 3-4:
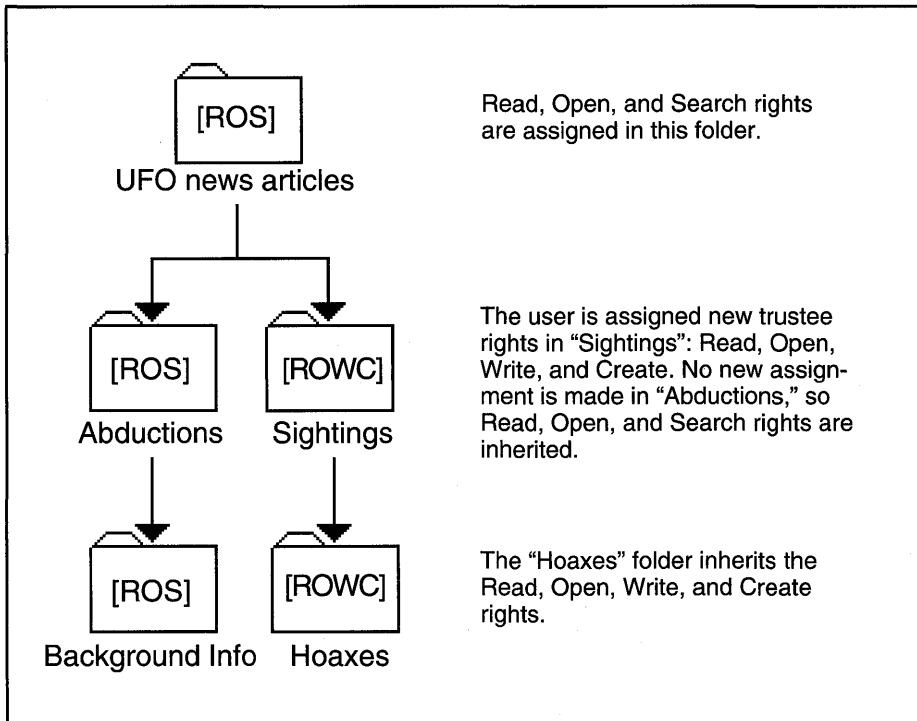
Figure 3-4.

This illustration shows how you inherit rights down through nested folders until those rights are redefined. If a new trustee assignment is made, it redefines the inherited rights. Notice that when the new set of trustee rights was assigned in the Sightings folder, the new assignment did not include the Search right. Because a new assignment overrides an "inheritance," the user loses the Search right.

Now that you know how trustee rights work, let's look at why rights are also assigned to folders.

NetWare 286 Folder Rights—The Maximum Rights Mask. Whenever a new network folder is created on a NetWare 286 file server, the folder is automatically assigned all eight rights—Read, Open, Write, Create, Delete, Parental, Search, and Modify. When a right is assigned to a folder, it means that the folder will allow any user that has that right to exercise that right.

If you take a right away from the folder, no users will be able to exercise that right, even if the right was previously given to the individual users. The rights that are assigned to the folder are collectively called that folder's Maximum Rights Mask, because they mask out what users cannot do. This concept might be easier to understand if you think of a store that takes credit cards. The store has a sign on the door that says it accepts the following credit cards:

DOLLAR PLUS

NICKLECARD

AMERICAN PENCE

This list of cards is the store's Maximum Rights Mask. In other words, these are the cards that the store will allow.

You happen to have the following credit cards in your wallet:

DOLLAR PLUS

AMERICAN PENCE

DIMEBANK

Since your DimeBank card is not in the store's Maximum Rights Mask, you can't use it even though you have one. And, on the flip side of this issue, even though the store says it will accept the NickleCard, you can't use it because you don't have that card in your wallet. The following chart illustrates this idea.

What the store will allow	What you have	What you can use in this store
Dollar Plus	Dollar Plus	Dollar Plus
NickleCard		
American Pence	American Pence	American Pence
	DimeBank	

This is exactly how the Maximum Rights Mask works for a network folder. It specifies the rights that it will allow users to exercise in that folder, but it doesn't give users any rights they don't already have on their own.

Just as trustee rights apply to all nested folders until those rights are redefined, a folder's Maximum Rights Mask also applies to any folders that the first folder contains. In the previous example, if the first folder ("UFO news articles") has all eight rights in its Maximum Rights Mask, all of the other folders will also allow all eight rights. If someone changes the Maximum Rights Mask in the "Abductions" folder, the "Background Info" folder will inherit the revised Mask, but the "Sightings" and "Hoaxes" folders will retain the original Mask.

NetWare 286 Effective Rights—The Sum of the Parts. With all of these different ways to grant and restrict rights—user trustee rights, group trustee rights, security equivalences, and the Maximum Rights Mask—how do you know what you can actually do in a folder?

The combination of all of these rights and restrictions add up to form your **effective rights**. Your effective rights are the rights that you can use in a folder after all of your assignments (from user and group trustee rights, and security equivalences) are matched with the Maximum Rights Mask.

In the credit card example, your effective rights would be represented by the two credit cards you can use in the store: Dollar Plus and American Pence. These two cards are the intersection of the cards the store allows and the cards you have. This is how effective rights are calculated. Your effective rights are those rights that are shared between the Maximum Rights Mask and the list of rights you've been granted through trustee assignments and security equivalences.

You don't have to add up your trustee assignments and compare them to the Maximum Rights Mask every time you want to see what your effective rights are for a folder. NetWare calculates them for you automatically. You can see what your effective rights are by using the NetWare Desk Accessory or the NetWare Control Center from your Macintosh. (The NetWare Desk Accessory is explained in Chapter 7. The NetWare Control Center is explained in Chapter 8.)

The following five examples illustrate how effective rights are calculated in different situations.

Example 1. You have been assigned the trustee rights Read, Open, and Search [ROS] in a folder. The folder's Maximum Rights Mask allows all rights [ROWCDPSM]. Figure 3-5 illustrates this example.
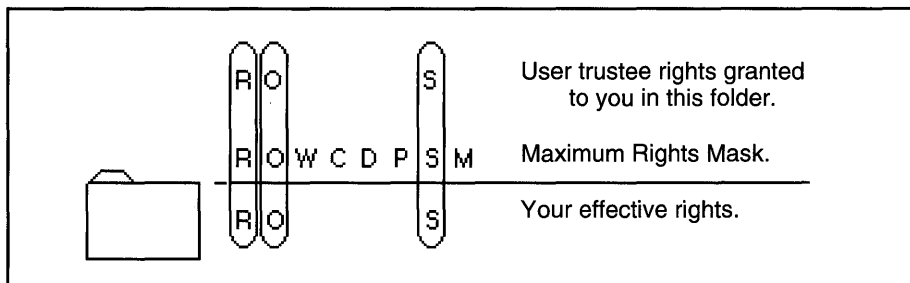
Figure 3-5.

Your effective rights in this case are Read, Open, and Search [ROS]. That's because those are the rights you have that are also allowed by the Maximum Rights Mask.

Example 2. You have been assigned the trustee rights Read and Open [RO] for a folder. You also have been given a security equivalence to the user Andy. Andy has Read, Open, Create, Delete, and Search rights [ROCDS] in that folder, so now you do, too.

The folder's Maximum Rights Mask only allows the Read, Open, and Search rights [ROS]. Figure 3-6 illustrates this example.

R	O			User trustee rights granted to you in this folder.
R	O	C D	S	Security equivalence to user Andy.
R	O		S	Maximum Rights Mask.
R	O		S	Your effective rights.
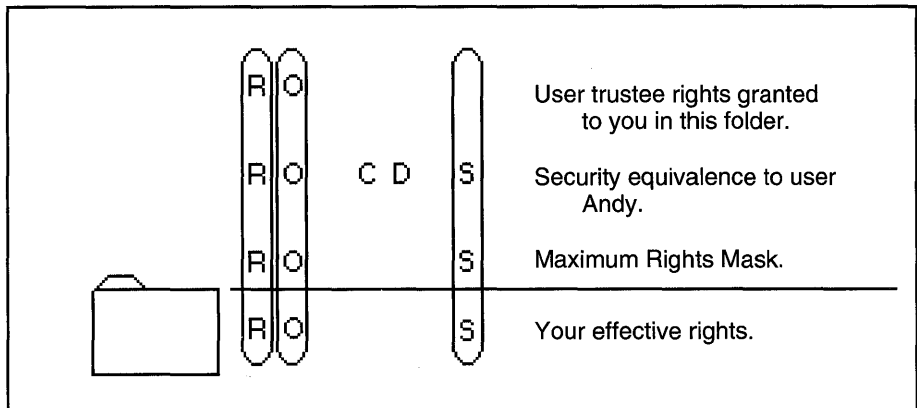
Figure 3-6.

Again, your effective rights are Read, Open, and Search [ROS]. That's because those are the only rights you have (from both your trustee assign-ment and your security equivalence) that are also allowed by the Maximum Rights Mask.

Example 3. In this example, you have not been given any trustee rights to the folder. However, you belong to a group called ELITE, which has been given the Read, Open, Write, Search, and Modify trustee rights [ROWSM] for the folder. You also have been given a security equivalence to the user Raissa. Raissa has the Read, Open, Write, Create, Delete, and Search rights [ROWCDS] for this folder, so now you have those rights, too.

The folder's Maximum Rights Mask allows all rights. Figure 3-7 illustrates this example.

You have been granted no user trustee rights.

R O W | S M — Group trustee rights granted to you in this folder.

R O W C D | S — Security equivalence to user Raissa.

R O W C D P S M — Maximum Rights Mask.

R O W C D | S M — Your effective rights.
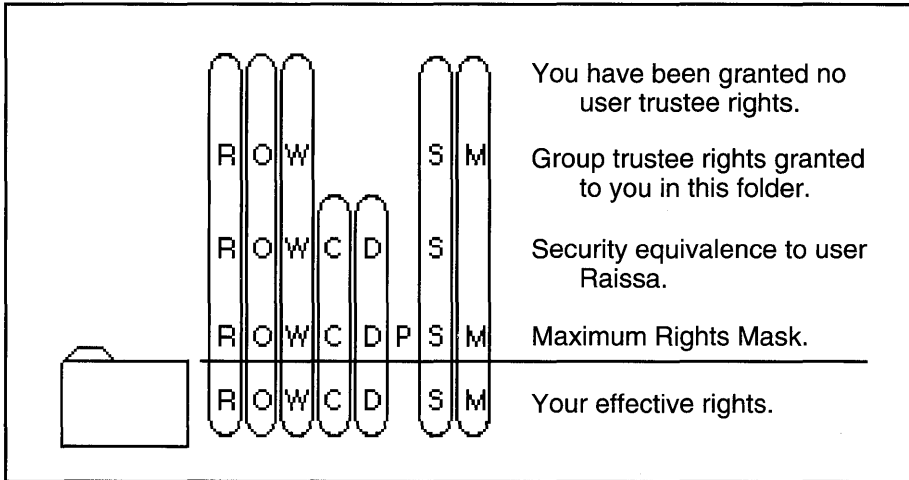
Figure 3-7.

Your effective rights are Read, Open, Write, Create, Delete, Search, and Modify [ROWCDSM]. Since the Maximum Rights Mask allows all rights, you can exercise any right you receive from any of your assignments or equivalences. In this case, the only right you can't exercise is the Parental right, because you didn't get it with your group assignment or from your equivalence to Raissa.

Example 4. Suppose the folder in Example 3 above is called "Drawings" and it contains another folder called "Blueprints."

Your effective rights in "Drawings" were [ROWCDSM]. Remember that rights assigned for one folder apply to any folders contained within the first folder. In other words, nested folders inherit the rights of the original folder unless new assignments are made.

"Drawings" has all rights allowed in its Maximum Rights Mask, so all rights are also allowed in the Mask for "Blueprints." And if no trustee rights or security equivalences are assigned to you in "Blueprints," you can exercise the same rights you can exercise in "Drawings." Figure 3-8 illustrates this example.
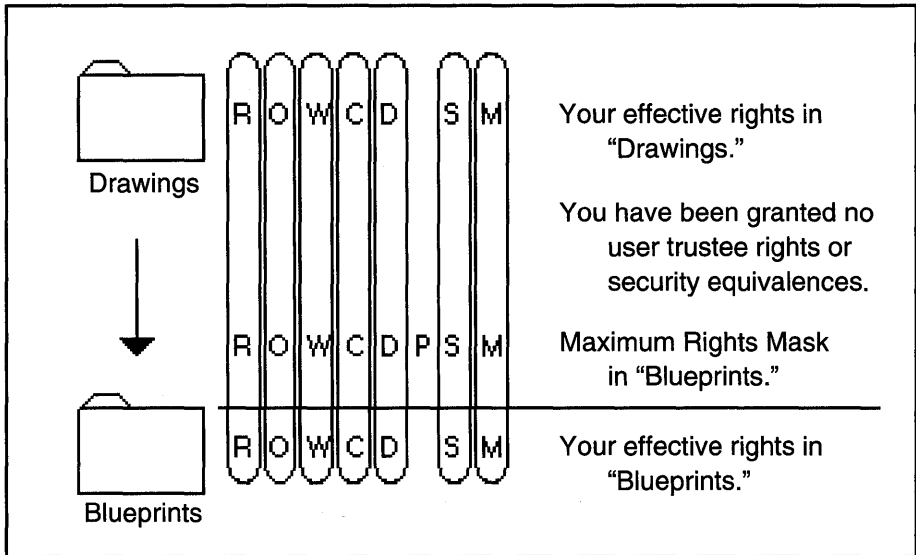
Figure 3-8.

Because no new assignments or security equivalences were given to you, your effective rights in "Blueprints" are identical to your effective rights in "Drawings" [ROWCDSM].

Example 5. What happens to inherited rights when changes are made to the Maximum Rights Mask and to your trustee assignments? For example, suppose "Blueprints" contains a folder called "Sketches." "Sketches," in turn, contains a folder called "Ideas."

Ordinarily, "Sketches" would inherit the Maximum Rights Mask from "Blueprints." However, the administrator has deleted all but three rights from the Mask for "Sketches"—Read, Open, and Search [ROS].

"Ideas," then, would inherit the [ROS] Mask from "Sketches." However, the administrator decided to reassign all rights to the Maximum Rights Mask for "Ideas." The administrator also decided to give you trustee rights in "Ideas." You've been given Read, Open, Write, Create, Delete, Search, and Modify rights [ROWCDSM].

What are your effective rights in both "Sketches" and in "Ideas"? Figure 3-9 illustrates this example.
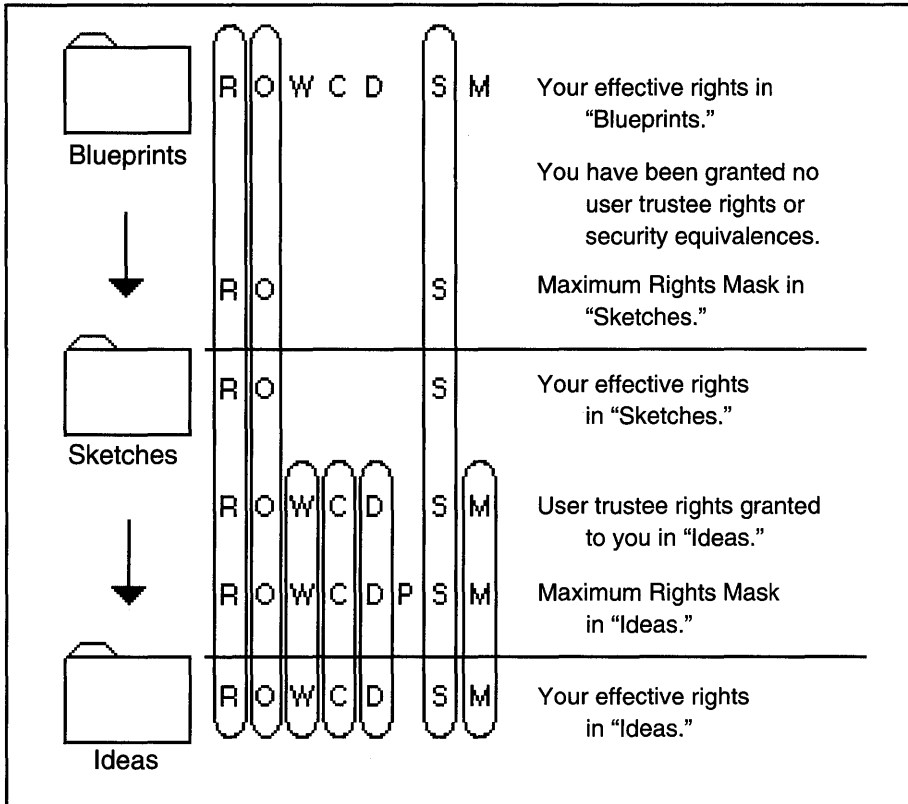
Figure 3-9.

Your effective rights in "Sketches" are Read, Open, and Search [ROS] because those are the only three rights you had previously that the new Maximum Rights Mask will allow.

Your effective rights in "Ideas" are Read, Open, Write, Create, Delete, Search, and Modify [ROWCDSM]. You received these effective rights because of two things: you were given these rights as a trustee assignment, and the Maximum Rights Mask for "Ideas" was changed so that it would allow all rights.

NetWare 386 Rights

You need to understand NetWare 386 rights if:

◆ You are using NetWare for Macintosh version 2.0, and

◆ You log in to NetWare 386 file servers.

The first two versions of NetWare for Macintosh, versions 1.0 and 1.1, only support the NetWare 286 rights. These early versions translate the NetWare 386 rights and display their NetWare 286 equivalents. NetWare for Macintosh version 2.0, however, supports both NetWare 286 and NetWare 386 rights, so the rights you see will change depending on the file server you are logged in to. Like NetWare 286, NetWare 386 allows you to have rights to a folder. Unlike NetWare 286, however, NetWare 386 also allows you to have rights to individual files.

There are eight rights in NetWare 386. Each controls a different type of task you can perform in a folder or a file. When you look at your rights for a particular folder or file, the rights are usually abbreviated to their first letters and enclosed in square brackets, for example, [SRWCEMFA].

The following table lists each right, its abbreviation, and what it controls:

Right	Abbreviation	Description
Supervisory	S	In a folder: Gives you all rights to the folder and its contents. In a file: Gives you all rights to the file.

Continued...

Right	Abbreviation	Description
Read	R	In a folder: Lets you open and read files within the folder. In a file: Lets you open and read the file.
Write	W	In a folder: Lets you open and change (write to) files within the folder. In a file: Lets you open and change (write to) the file.
Create	C	In a folder: Lets you create new folders and files within the folder. In a file: Lets you salvage the file if it has been deleted.
Erase	E	In a folder: Lets you delete folders and files from the folder. In a file: Lets you delete the file.

Continued...

Right	Abbreviation	Description
Modify	M	In a folder: Lets you change the names and the attributes of folders and files within the folder. In a file: Lets you change the file's name and its flags.
File Scan	F	In a folder: Lets you see what folders and files are inside the folder. In a file: Lets you see the file.
Access Control	A	In a folder: Lets you change the security for the folder and any folders and files it contains. In a file: Lets you change the file's security.

You may have none, all, or any combination of these rights in the folders and files with which you work. Different combinations of rights will allow you to use a folder or file in various ways. For example, if you have the Read and File Scan rights ([RF]) in a folder called "Press Releases," all you can do is:

◆ Open the "Press Releases" folder and see what files and folders are in it.

◆ Open the files and folders inside "Press Releases."

◆ Read the files you open.

You can't change, rename, or delete any of the files in the folder, and you can't create any new files or folders inside the folder. You also can't assign trustee rights to any other users in the folder "Press Releases" because you don't have the Access Control right.

If you have Read, Write, Create, Erase, and File Scan rights ([RWCEF]) in another folder called "Hot Topics," you can:

◆ Open the "Hot Topics" folder and see what files and folders are in it.

◆ Open the files and folders inside "Hot Topics."

◆ Read the files you open.

◆ Create new files and folders inside of "Hot Topics."

◆ Delete files and folders from "Hot Topics."

◆ Change (write to) existing files inside "Hot Topics."

You can't rename files and folders inside "Hot Topics" because you don't have the Modify right, and you can't assign trustee rights to other users in the "Hot Topics" folder because you don't have the Access Control right.

The Access Control and Supervisory Rights. The Access Control and Supervisory rights are the most powerful rights you can have in a folder or a file. The Access Control right gives you the right to add trustees to that folder or file, and to change an existing trustee's rights. If you have the Access Control right in a folder, you can also change your own trustee rights in that folder.

The Supervisory right gives you all rights in a folder or file. If you have the Supervisory right in a folder, you also have all rights to all folders contained within the first folder. In other words, if you have the Supervisory right in the folder "Hot Topics," you have all rights in "Hot Topics" as well as all rights in the folders and files within "Hot Topics." Once you've been given the Supervisory right, it can only be revoked at the same folder level at which the right was assigned. This means your Supervisory right cannot be taken away from folders within "Hot Topics" unless it is first revoked from "Hot Topics" itself.

Inheriting Rights in Nested Folders. Once you are given rights in a folder, those rights apply to any folders that are nested inside the original folder. You inherit these rights in each nested folder unless your rights are explicitly changed in one of those nested folders. If your rights are changed in one folder, you inherit these changed rights in any folders nested within that folder but you retain the original rights in any other folders. This concept is presented much more clearly in Figure 3-10:
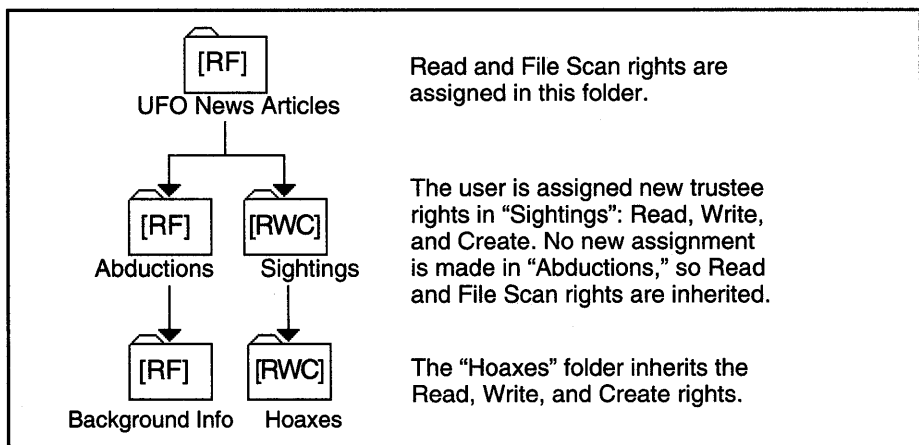
[RF] UFO News Articles	Read and File Scan rights are assigned in this folder.
[RF] Abductions [RWC] Sightings	The user is assigned new trustee rights in "Sightings": Read, Write, and Create. No new assignment is made in "Abductions," so Read and File Scan rights are inherited.
[RF] Background Info [RWC] Hoaxes	The "Hoaxes" folder inherits the Read, Write, and Create rights.

Figure 3-10.

This illustration shows how you inherit rights down through nested folders until they are redefined. If a new trustee assignment is made, it overrides the inherited rights. Notice that when the new set of trustee rights was assigned in the Sightings folder, the new assignment did not include the File Scan right. Because a new assignment overrides an "inheritance," the user loses the File Scan right.

Now that you know how trustee rights work in NetWare 386, let's look at why rights are also assigned to folders and files.

NetWare 386 Folder and File Rights—The Inherited Rights Mask. Folders and files created on a NetWare 386 file server are assigned an Inherited Rights Mask. This Mask works differently from NetWare 286's Maximum Rights Mask. The NetWare 286 Maximum Rights Mask limits the rights that all users can exercise within a folder, regardless of how the users received their individual trustee rights. In NetWare 386, however, the Inherited Rights Mask only limits the rights that a user can inherit in that folder. The Inherited Rights Mask does not affect any rights that a user is specifically assigned in that folder.

Another difference between the NetWare 286 Mask and the NetWare 386 Mask is that, since NetWare 386 allows rights to be granted for both folders and files, NetWare 386 files can have their own Inherited Rights Mask. A file's Inherited Rights Masks works in just the same way as a folder's Inherited Rights Mask.

Whenever a new network folder is created on a NetWare 386 file server, the folder's Inherited Rights Mask allows all rights to be inherited. This means that users can exercise any rights they've inherited in that folder. Similarly, if you remove a right from the Mask, no users will be able to inherit that right. For example, if the Modify right is removed from the Mask, no user can inherit the Modify right from previous folders. However, if a user is specifically assigned the Modify right in that folder, the Mask will allow the user to exercise it, since in this case the user's Modify right wasn't inherited from another folder.

A Mask that limits the rights that a user can inherit is more flexible than the NetWare 286 Maximum Rights Mask. For example, suppose everyone in your department has Read, Write, Create, Erase, and File Scan rights to a folder called

"Race Cars." Within this folder is another folder called "Parts List." You want to make sure only two people in your department, Ev and Karl, have the Erase right in the "Parts List" folder. With NetWare 286, you have to specifically assign each user in the department (except Ev and Karl) a new set of trustee rights for the "Parts List" folder to eliminate the Erase right. You cannot use the Maximum Rights Mask to eliminate the Erase right, because then Ev and Karl also would be unable to use the Erase right.

With NetWare 386's Inherited Rights Mask, you can solve this problem more efficiently. If you remove the Erase right from the "Parts List" folder's Inherited Rights Mask, no one will be able to inherit the Erase right in this folder. The rest of their rights will remain intact, however. Then you can make new trustee assignments, including the Erase right, for Ev and Karl. It is usually more efficient to change two employees' trustee assignments than to change the entire department's trustee assignments.

Figure 3-11 shows how the Inherited Rights Mask blocks users from inheriting the Erase right.
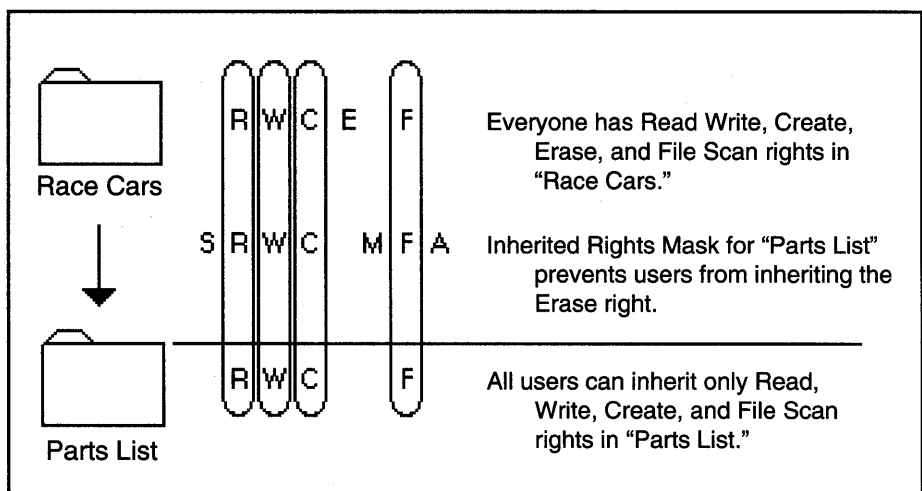
Figure 3-11.

A folder's Inherited Rights Mask only applies to that folder. All folders and files within the original folder have independent Inherited Rights Masks. For example, the "Race Cars" folder has a Mask that blocks the Erase right. However, that doesn't mean that all the folders and files within "Race Cars" will also have the Erase right removed from their Masks. Each of those folders and files can have completely different Inherited Rights Masks.

NetWare 386 Effective Rights—The Sum of the Parts. With all of these different ways to grant and restrict rights—user trustee rights, group trustee rights, security equivalences, Inherited Rights Mask—how do you know what you can actually do in a folder or a file?

The combination of all of these rights and restrictions add up to form your **effective rights**. Your effective rights are the rights that you can actually exercise in a folder—either the combination of trustee rights and security equivalences you have been given in a particular folder, or the combination of trustee rights and security equivalences you have inherited, matched against the folder's Inherited Rights Mask.

You don't have to add up your trustee assignments or compare them to the Inherited Rights Mask every time you want to see what your effective rights are for a folder. NetWare calculates them for you automatically. You can see what your effective rights are by using the NetWare Desk Accessory or the NetWare Control Center from your Macintosh. (The NetWare Desk Accessory is explained in Chapter 7. The NetWare Control Center is explained in Chapter 8.)

The following four examples illustrate how effective rights are calculated in different situations.

Example 1. You have been assigned the trustee rights Read and File Scan [RF] for a folder. You also have been given a security equivalence to the user Andy. Andy has Read, Write, Create, and Erase rights [RWCE] in that folder, so now you do, too. Figure 3-12 illustrates this example.
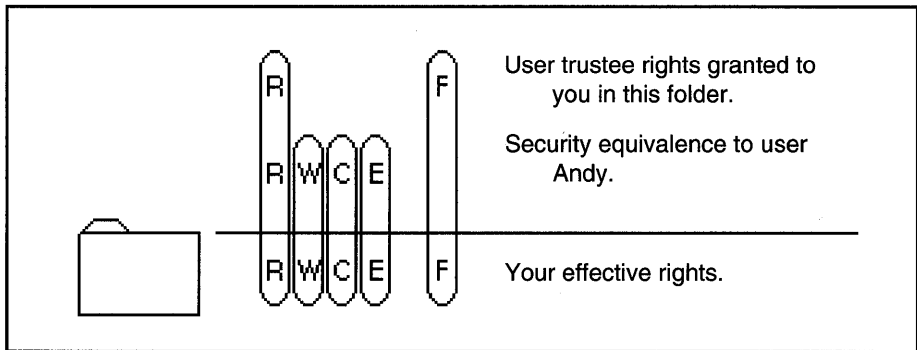
Figure 3-12.

Your effective rights are Read, Write, Create, Erase, and File Scan [RWCEF]. This is because the rights you can exercise in this folder are both the rights you have been assigned as a trustee and the rights you get from your equivalence to Andy.

Example 2. In this example, you have not been given any trustee rights to the folder. However, you belong to a group called ELITE, which has been given the Read, Write, Modify, and File Scan trustee rights [RWMF] to the folder.

You also have been given a security equivalence to the user Raissa. Raissa has the Read, Write, Create, Erase, and File Scan rights in the folder [RWCEF], so now you have those rights, too. Figure 3-13 illustrates this example.
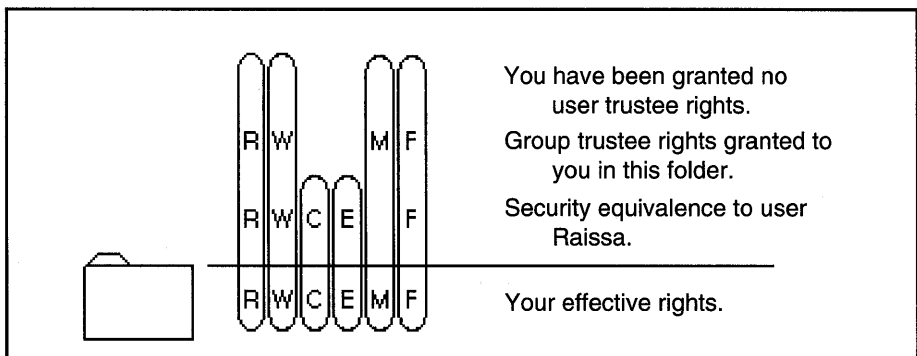
Figure 3-13.

Your effective rights are Read, Write, Create, Erase, Modify, and File Scan [RWCEMF]. You can exercise all of these rights because these are the total from your group trustee assignment and your security equivalence to Raissa.

Example 3. Suppose the folder in Example 2 above is called "Drawings," and it contains another folder called "Blueprints."

Your effective rights in "Drawings" were [RWCEMF]. Remember that rights assigned for one folder apply to any folders contained within the first folder. In other words, nested folders inherit the rights of the original folder unless new assignments are made.

"Blueprints" has all rights allowed in its Inherited Rights Mask. If no trustee rights or security equivalences are assigned to you in "Blueprints," you inherit the same rights you had in "Drawings." Figure 3-14 illustrates this example.
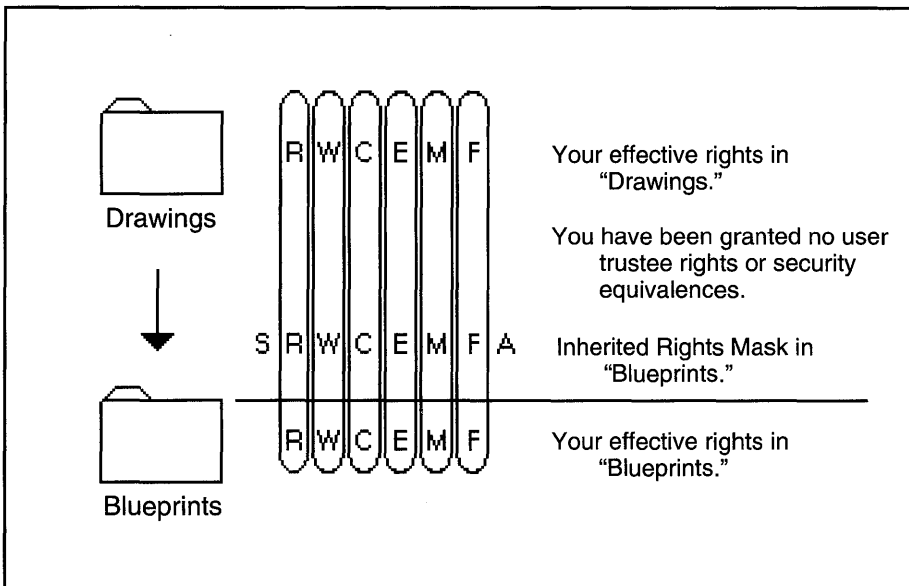
Figure 3-14.

Because you were given no new assignments or security equivalences, your effective rights in "Blueprints" are identical to your effective rights in "Drawings" [RWCEMF].

Example 4. What happens to inherited rights when changes are made to the Inherited Rights Mask and to your trustee assignments? For example, suppose "Blueprints" contains a folder called "Sketches." The administrator has deleted all but two rights from the Inherited Rights Mask for "Sketches"—Read and File Scan [RF].

"Sketches," in turn, contains a folder called "Ideas." The administrator has assigned the Read, Create, and File Scan rights [RCF] to the Inherited Rights Mask for "Ideas."

The administrator also decided to give you trustee rights in "Ideas." You've been given Read, Write, Create, Erase, Modify, and File Scan rights [RWCEMF].

What are your effective rights in both "Sketches" and in "Ideas"? Figure 3-15 illustrates this example.
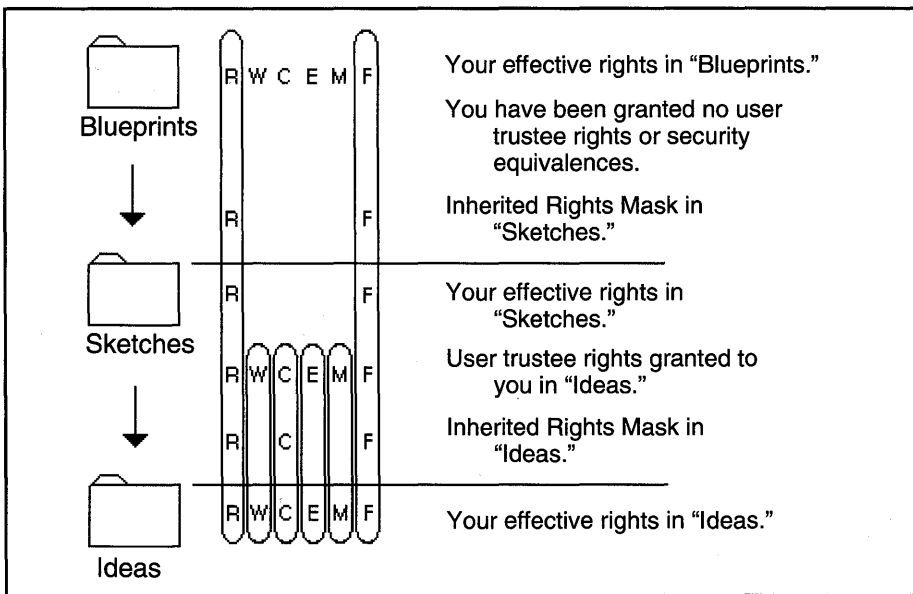
Figure 3-15.

Ordinarily, you would inherit the same effective rights for the "Sketches" folder as you had in "Blueprints." However, since the Inherited Rights Mask for "Sketches" only allows you to inherit the Read and File Scan rights, and because no new trustee assignments have been made for "Sketches," Read and File Scan are your effective rights [RF].

Your effective rights in "Ideas" are Read, Write, Create, Erase, Modify, and File Scan [RWCEMF]. You got these effective rights because you were given these rights as a trustee assignment. It doesn't matter what the Inherited Rights Mask for "Ideas" is because your direct trustee assignments replace your inherited rights. Therefore, since you aren't using your inherited rights, the Inherited Rights Mask has no effect.

Your effective rights are the second key to NetWare security. The third part of NetWare security consists of folder attributes and file flags.

Folder Attributes and File Flags

Attributes and flags are another feature of NetWare that lets you keep folders and files protected from access by all users. Where the rights to use a folder can vary from user to user, attributes and flags are universally enforced.

NetWare for Macintosh uses the word **attribute** for folders and **flag** for files. However, the two words are often used interchangeably because attributes and flags are used in much the same way. NetWare 386 provides more folder attributes and file flags than NetWare 286.

The following table lists the folder attributes you can see from your Macintosh. The first column shows the attributes that are available to you in NetWare 286; the second column shows the attributes available in NetWare 386. The third column describes what these attributes do.

Folder Attributes		
NetWare 286	**NetWare 386**	**Description**
Private	*(Not available)*	Prevents other users from opening your folder if they don't have the Search (NetWare 286) or File Scan (NetWare 386) right. If a folder is not Private, other users can open the folder, even if they don't have the Search or File Scan right. All folders you create from your Macintosh are automatically assigned the Private attribute. Folders created from a DOS workstation are not automatically set Private.
Invisible	Hidden	Hides a folder so no one can see it using normal means—not even you. If you know an Invisible (or Hidden) folder's name, you can still open and use it just like a visible folder. The Invisible/Hidden attribute must be removed before you can delete the folder. It is possible to detect Invisible/Hidden folders using certain utilities, so this is not a recommended way to protect critical folders.

Continued ...

Folder Attributes		
NetWare 286	**NetWare 386**	**Description**
System	System	Assigned to folders that contain DOS system files (which are used by the DOS operating system). From a Macintosh, System folders are hidden and behave like Invisible/Hidden folders. The System attribute must be removed before you can delete the folder.
(Not available)	Delete Inhibit	Prevents users from deleting the folder.
(Not available)	Rename Inhibit	Prevents users from renaming the folder.
(Not available)	Purgeable	Purges the folder from the network as soon as the folder is deleted. (NetWare 386 allows deleted folders and files to be salvaged even after they've been deleted unless you purge the folders and files.)

File flags have a wide variety of purposes. Some of them are security-related, while others help certain applications use the files more efficiently.

The following table lists the file flags you can see from your Macintosh. The first column shows the flags available to you in NetWare 286; the second column shows the flags available in NetWare 386. The third column describes what these flags do.

File Flags		
NetWare 286	**NetWare 386**	**Description**
Hidden	Hidden	Hides a file from users—including you. If you know a Hidden file's name, you can still open and use it just like a visible file. The Hidden flag must be removed before you can delete the file. A Hidden file can be detected using the NetWare Control Center or other utilities, so this is not a recommended way to protect critical files.
Indexed	*(Set auto-matically)*	Allows information in a large database file to be retrieved more quickly. The Indexed flag is normally only used with database files that are larger than 10 megabytes.

Continued ...

File Flags		
NetWare 286	**NetWare 386**	**Description**
(Not available)	Purgeable	Purges the file from the network as soon as the file is deleted. (NetWare 386 allows deleted files to be salvaged even after they've been deleted unless you purge the files.)
Read-Only	Read-Only	Only allows users (including you) to read this file, no matter what trustee rights they have been granted. No one can change or delete this file.
Shareable	Shareable	Lets more than one user open this file at a time. This is useful for network applications and utilities.
System	System	Assigned to DOS system files (which are used by the DOS operating system). From a Macintosh, System files are hidden and behave like Hidden files. The System flag must be removed before you can delete the file.

Continued...

File Flags		
NetWare 286	**NetWare 386**	**Description**
Transaction Tracking	Transaction Tracking	Marks a database file as Transactional. When users make changes in a data base, the records that being modified become locked until the change is complete. Each update to a record is called a transaction. If the file is marked Transactional, the database is protected should the system shut down since only completed transactions are saved. If a transaction is only partially completed when the system goes down, the entire transaction is "backed out" (eliminated). This prevents the database from being corrupted.
Copy Inhibit *(Available only in version 2.0)*	Copy Inhibit	Prevents users from copying the file.
(Not available)	Delete Inhibit	Prevents users from deleting the file. For NetWare 286 files, you can duplicate this security feature by flagging the file Read-Only. This prevents users from deleting the file.

Continued...

File Flags		
NetWare 286	**NetWare 386**	**Description**
(Not available)	Rename Inhibit	Prevents users from renaming the folder. For NetWare 286 files, you can duplicate this security feature by flagging the file Read-Only. This prevents users from renaming the file.
Execute Only *(Available only in version 2.0)*	Execute Only	This flag applies only to DOS files. It only allows users to execute (run) a file, such as an application. Users cannot copy, delete, or change a file flagged Execute Only.
Modified Since Last Backup	Modified Since Last Backup	Indicates that the file has been changed since the last time it was backed up. Backup systems use this flag to tell whether or not the file should be backed up again.

Attributes and flags are the third key to NetWare security.

With passwords and login restrictions, rights, and attributes and flags, NetWare security can be made as tight or as lenient as you need it to be.

NetWare Rights vs. AppleShare Privileges

If you've used an AppleShare network before, you've probably used AppleShare access privileges. Privileges are the AppleShare equivalent of NetWare rights.

AppleShare displays your access privileges in two ways:

1. When you open a folder, three access privilege icons appear in the upper left-hand corner of the window. These icons represent your access privileges for that folder.

2. AppleShare also uses six different types of folder icons to help indicate what your privileges are for each folder.

Since NetWare for Macintosh uses AppleShare workstation software, you will probably see these AppleShare privilege icons and folder icons.

However, AppleShare privileges do not really apply to a NetWare for Macintosh network. Only NetWare rights are effective if you are accessing a NetWare file server. Likewise, only AppleShare privileges are effective if you are using an AppleShare file server.

The AppleShare icons are displayed because the workstation software only understands AppleShare privileges. To communicate with the workstation, the NetWare file server often has to translate NetWare rights into AppleShare privileges and AppleShare privileges into NetWare rights.

NetWare for Macintosh tries to match NetWare rights to AppleShare privileges as closely as possible so that when the icons are displayed, they are basically helpful. However, comparing AppleShare privileges to NetWare rights is not an exact process because there are eight NetWare rights and only three AppleShare privileges. And, since the NetWare rights are more specific about the tasks they control, they can be combined in more ways than the AppleShare privileges. Therefore, to really see what your rights are in a folder, use the NewWare for Macintosh tools— the NetWare Desk Accessory or the NetWare Control Center application—rather than trusting the AppleShare icons.

Even though NetWare for Macintosh uses Netware rights and not AppleShare privileges, you probably will want to know what the AppleShare icons mean.

AppleShare Privileges. This table shows the icons for the AppleShare access privileges and explains what each privilege controls. If a privilege's icon has a line through it, it means you don't have that privilege in the folder.

Icon	Name	Description
	See Files (Can't See Files)	Lets you open a folder and see, open, and copy the files that are inside it. (Prevents you from opening any files inside the folder.)
	Make Changes (Can't Make Changes)	Lets you make any changes you want to files inside the folder. (Prevents you from making any changes to files inside the folder.)
	Make Changes (Can't Make Changes)	Lets you make any changes you want to files inside the folder. (Prevents you from making any changes to files inside the folder.)

One reason why it's difficult to compare AppleShare access privileges and NetWare rights is immediately evident. The AppleShare privilege Make Changes lets you make any change you want—you can write to the file, you can change its name, you can create a new file, or you can even delete the file. NetWare controls each of these four tasks with a separate right. This means that even if you only have NetWare's Write and Modify rights and not the Create and Delete (or Erase) rights, the AppleShare Make Changes icon will appear. AppleShare's icon has no way to indicate that you can only make some of the changes that privilege would normally let you make on an AppleShare file server.

This is a good reason why NetWare for Macintosh users should always look at their NetWare rights rather than AppleShare icons to see what they can really do.

The following table provides a rough comparison between AppleShare access privileges and their most common corresponding NetWare rights.

AppleShare Privilege	Equivalent NetWare Rights
See Folders	**NetWare 286:** Search [S] The Search right lets you see folders inside a Private folder. If a folder is not Private, you can see the folders inside it even if you don't have any NetWare rights. **NetWare 386:** File Scan or Read [F] [R] Lets you see the folders inside the folder.

Continued...

AppleShare Privilege	Equivalent NetWare Rights
See Files	**NetWare 286:** Read, Open, Search [ROS] **NetWare 386:** Read, File Scan [RF] Gives you rights to see, open, and copy files. This also lets you see folders; NetWare cannot let you see files without also letting you see folders.
Make Changes	**NetWare 286:** Write, Open, Create, Delete, Modify [WOCDM] **NetWare 386:** Write, Create, Delete Modify [WCDM] Different combinations of the Write, Create, Delete, and Modify rights will cause the Make Changes icon to appear. (NetWare 286 must also have the Open right.)

Of course, you can have more than one privilege in a folder. If you have a combination of AppleShare privileges, you also have a combination of the equivalent NetWare rights. For example, to match See Files and Make Changes on a NetWare 286 network, you would combine [ROS] and whichever subset of [WOCDM] you need. For example, if you need [WOM] rights for the folder, your total effective rights would be [ROWMS].

You may have noticed that NetWare 286's Parental right and NetWare 386's Access Control right do not appear in the previous table. (These rights let you modify the rights that all other users have to that folder.) AppleShare reserves the ability to modify a folder's security for the owner of that folder. However, any user can be granted ownership of the folder, and that user then can modify the folder's security.
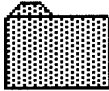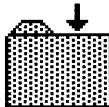
It's clear that NetWare rights and AppleShare privileges are similar but certainly not the same. Therefore, it's always a safer bet to refer to the NetWare rights whenever you are using a NetWare file server. On the other hand, if you are using an AppleShare file server, refer to the AppleShare privileges.

The Six Types of Folder Icons. AppleShare uses six folder icons to help you determine what privileges you have in a particular folder. NetWare for Macintosh supports these folders, but again, it isn't always a perfect match. You can't always tell exactly what rights you have in the folder, but you at least can get the general idea.

If you are logged in to a NetWare 386 file server, you will only see four of the folders. Since the Private attribute is not supported on NetWare 386, the folders that indicate Private status do not show up if you are looking at folders on a NetWare 386 network.
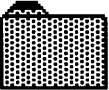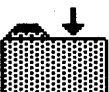
This table shows each of the folder icons and explains what each one means.

Icon	Purpose
	Plain folders indicate that you can open them and see their files and folders. A plain folder either means you have the Search right to the folder or the folder is not flagged Private.
	Gray folders are folders in which you have no rights. You can see that the folder exists, but you can't open it, copy files into it, or change it in any way. Other users' Private folders will appear gray to you. Gray folders are not displayed in NetWare 386. If you have no rights to a folder in NetWare 386, you simply cannot see the folder.
	A gray folder with an arrow above it is called a **dropbox folder**. A dropbox folder is like a mailbox; you can place files and folders into the dropbox, but you can't get to them once they're in there. You can't open the folder, and you can't read or change any of the files or folders in it.

Continued...

Icon	Purpose
	A **black-tabbed folder** indicates that you have the Parental right in that folder, so you can modify that folder's security.
	A **black-tabbed plain folder** means you have some rights in the folder (in addition to the Parental right).
	A **black-tabbed gray folder** means you only have the Parental right. However, since you have the Parental right, you can give yourself more rights. Black-tabbed gray folders are not displayed in NetWare 386. If you have no rights to a folder in NetWare 386, you simply cannot see the folder.
	A **black-tabbed dropbox folder** means you have enough rights (in addition to Parental) to use the folder as a dropbox. Again, you can give yourself more rights.

Now you know how NetWare security works and how it compares to Apple-Share security. The next step is to learn how to set up NetWare security.

How Do I Set Up Security?

As you might guess, many aspects of NetWare security will be established by the network administrator. The administrator is responsible for the overall security of the network, not only ensuring that the network runs smoothly but that everyone can

access the folders they need. However, as a NetWare for Macintosh user, you will probably want to work with security for your own folders and files. There are several things you can do with security:

◆ You can see the security that has already been set for you in the folders you use.

◆ You can give other users rights to use your folders.

◆ You can even set your own folder attributes and file flags.

To work with NetWare security, you can use either of two NetWare for Macintosh utilities: the NetWare Desk Accessory or the NetWare Control Center. The NetWare Desk Accessory provides a quick and convenient way for you to perform the most common security tasks. The NetWare Control Center is a separate application that offers more comprehensive control than the Desk Accessory.

Caution: Do not use the AppleShare tools to change a folder's security!

AppleShare provides two ways to change AppleShare privileges—an Access Privilege desk accessory and a Get Privileges menu option. However, since simply looking at a folder's security with AppleShare tools is often inexact, just imagine what damage someone could do by trying to change security with AppleShare tools. If you try to change a NetWare folder's security by changing the AppleShare privileges, you could unintentionally overwrite the NetWare rights you wanted to keep.

The only time you should use AppleShare's Access Privilege desk accessory or AppleShare's Get Privileges menu option is if you are using an AppleShare file server. If you are using a NetWare file server, use the NetWare for Macintosh Desk Accessory or Control Center application. If you only have NetWare file servers, you may even want to remove the AppleShare tools so that no one gets confused.

Chapter 9 explains how to use the NetWare Desk Accessory. Chapter 10 describes how to use the NetWare Control Center.

Summary

NetWare security is useful for many reasons. It protects network information from being seen, changed, or damaged by unauthorized users. It can also prevent users from copying or corrupting software applications.

The three keys to NetWare security are:

- ◆ **Passwords and login restrictions** (optional, but recommended). Passwords are a way for the file server to verify that anyone using your name is really you. Login restrictions control when you can log in to the network, how many times you can attempt to log in, what workstations you can use, and so on.

- ◆ **NetWare rights**. There are eight NetWare rights. NetWare 286 rights are slightly different from NetWare 386 rights.

  Your effective rights in a folder dictate what you can do in the folder—whether you can create files, delete them, change them, etc. In NetWare 286, your effective rights are all of the rights you've been granted through user trustee rights, group trustee rights, security equivalences, and inherited rights that are allowed by the folder's Maximum Rights Mask. In NetWare 386, your effective rights are either:

  > All of the rights you've inherited from user trustee rights, group trustee rights, and security equivalences from previous folders that are allowed by the folder's Inherited Rights Mask, or

  > The total of the rights you have been assigned directly in the folder through trustee assignments and security equivalences.

  NetWare 386 allows users to have rights to individual files, in addition to having rights to folders.

  The user SUPERVISOR always has all rights. The group EVERYONE may have some rights in some folders, especially for applications. The user GUEST usually has minimal rights, but you can log in as GUEST if you don't have your own user name on the file server.

◆ **Folder attributes and file flags**. Attributes and flags are security features assigned directly to folders and files. Attributes and flags are universally enforced, meaning that they apply to all users equally (unlike rights, which can vary from user to user).

Since NetWare for Macintosh uses AppleShare software in the workstation, NetWare rights are translated into AppleShare privilege icons that are displayed on the Macintosh workstation. NetWare for Macintosh does not really support AppleShare privileges, but the privilege icons are a built-in feature of the AppleShare workstation software. Therefore, NetWare for Macintosh attempts to match a folder's actual NetWare rights to the AppleShare icons so that the icons will be at least somewhat informative.

There are three AppleShare access privileges: See Folders, See Files, and Make Changes. In addition, there are six AppleShare folder icons that indicate the access privileges you have within those folders. (Only four are supported by NetWare 386, however.)

Because AppleShare privileges don't apply to a NetWare file server, you should look at your NetWare rights if you really want to know what you can do in a folder. Use the NetWare Desk Accessory (explained in Chapter 7) or the NetWare Control Center (explained in Chapter 8) to see or change your rights.

Never use AppleShare's Access Privileges desk accessory or AppleShare's Get Privileges menu option to change your access rights on a NetWare file server. If you do, you could easily change or overwrite the NetWare rights.

NetWare security is powerful and specific enough to satisfy security needs at both the "big picture" level and the individual level. NetWare security provides the network administrator with the flexibility to maintain many different levels of security throughout the network. NetWare security is also flexible enough to let individual network users control security for their own folders and files.

Sharing Files with DOS Users

On a NetWare for Macintosh network, Macintosh and DOS users can share applications, files, printers, and disk storage. But are there any limits? Can Macintosh users really work with DOS files? Can your neighbor use your Macintosh games on his or her DOS computer?

As you've probably guessed, sharing files between dissimilar computers can be more complicated than sharing files between two Macintoshes.

This chapter will look at some of the things that happen when Macintosh and DOS users share files. It will explain:

- ◆ The difference between Macintosh files and DOS files;
- ◆ How Macintosh and DOS users can share files;
- ◆ The differences between Macintosh and DOS filename conventions;
- ◆ How DOS files look from a Macintosh workstation; and
- ◆ How Macintosh files look from a DOS workstation.

File Formats: Apples to Oranges

Sharing files between Macintosh and DOS workstations can appear quite simple to the user. However, the processes that are working beneath the surface are very complex because the two operating systems construct files using completely different formats.

A Macintosh file has two parts: a data fork and a resource fork. Each fork has a different purpose. The data fork contains the actual text of the file. This is often the part of the file you will be most concerned about transferring. The resource fork

contains information about the file, such as the name of the application that created the file, the icon that should be displayed for the file, and graphic information (drawings that are incorporated into the file, etc.). Storing the name of the application in the resource fork enables you to open the file without first opening the application. When you open the file, the resource fork tells the Finder which application to open for you automatically.

DOS files don't have a resource fork. DOS files contain only information that corresponds to the Macintosh's data fork. DOS doesn't know what to do with the resource fork of a Macintosh file. This is one of the fundamental reasons why transferring files between DOS and Macintosh applications can sometimes be difficult. However, this certainly does not mean it is impossible to transfer files; in fact, there are several ways to share Macintosh and DOS files.

How Can I Share Files?

NetWare for Macintosh can handle both the DOS and Macintosh file formats. It knows how to store, copy, delete, and back up both types of formats. But just because NetWare for Macintosh can handle both file formats doesn't automatically mean that DOS users can use all Macintosh files on the network, nor does it mean that Macintosh users can use all DOS files.

Whether or not DOS and Macintosh users can share a file on the network (and how easy sharing the file will be) depends on the application that was used to create the file in the first place.

To share files, Macintosh and DOS users can try any of the following methods.

◆ Use an application that has both a DOS and a Macintosh version.

◆ Use an application that can accept and automatically convert files created in the other format.

◆ Use a conversion program to convert files from one computer's format to the other computer's format.

◆ Convert files into ASCII format before trying to open them from the other computer.

The process you use will depend on your application. Your reseller or the application's manufacturer should be able to tell you which method you should use to transfer your files. Let's look briefly at each of these methods.

Using a Common Application. Because of the differences in DOS and Macintosh file formats (and other differences in how the two operating systems work), applications are written specifically for one operating system or the other. You cannot run a Macintosh application on a DOS computer. (This rules out letting your DOS neighbor use your Macintosh games.) However, some manufacturers will create more than one version of their application, each version designed to run on a separate operating system.

If the application you are using comes in both a Macintosh and a DOS version, you're in luck. This is the easiest way to share files. A Macintosh user can use the Macintosh version of the application to work with the file, and a DOS user can use the DOS version of the application to work with the same file. No formatting information is lost, and the DOS application automatically handles the information in the resource fork.

WordPerfect and Microsoft Excel are examples of applications that can work on both computers. However, if the Macintosh application you are running does not have a DOS version, there are other ways to transfer files.

Using an Application that Automatically Converts Files. Many applications can automatically convert a file from another application's format into its own. These applications can open a file from the other operating system and filter the information in such a way that most of the critical information is retained. Claris MacWrite II is an example of this type of application.

With some of these applications, you may find that you can convert a file in one direction, but not the other. In other words, you may be able to convert files from DOS to Macintosh, but not from Macintosh back to DOS. It depends entirely upon the application you use.

Using a Conversion Program. If you use an application that cannot automatically convert a file from another application, you may be able to purchase a separate conversion program that will.

The degree of success you will have in retaining resource fork information and formatting elements will depend on the conversion program and on the applications you are using.

Converting Files into ASCII Format. If you are mainly concerned with transferring the text of a file and you don't really care about the formatting or any of the resource fork information, you can convert the file into ASCII format. ASCII format is a very simple DOS text format. Many Macintosh applications and most DOS applications allow you to convert a file into this format.

When you convert a file into ASCII format, all you can really transfer is the text that consists of standard letters, numbers, and punctuation. You will lose the resource fork and any formatting in the file, such as font changes, tab settings, etc. In addition, if you used any extended characters, they may look different when you transfer them.

Extended characters are the characters that aren't on the keyboard—such as accented letters, Greek symbols, and bullets—but which you can create using different key combinations. Both DOS and Macintosh operating systems support these extended characters. Unfortunately, they often assign different characters to the same value (key combination). This means that if you use an extended character in a Macintosh file, it may appear as a completely different symbol after it is transferred into DOS.

What If I Can't Share Files?

Whether or not you can share files with your DOS counterparts, you can still display their files and folders from your Macintosh workstation (provided you have the appropriate rights). They, in return, can display your Macintosh files and folders from their DOS workstations.

Folders, in fact, are exactly the same, no matter whether they were created on a Macintosh or a DOS computer. In the DOS world, folders are called directories, but there is no difference between the two. A folder created from a Macintosh on a NetWare 286 network will automatically be set with the Private attribute. However, aside from that, a Macintosh folder will act just the same as a directory created on a DOS workstation, and can contain both DOS and Macintosh files. The only difference you will notice is that the name of a DOS directory will appear in upper-case letters if you look at it from a Macintosh.

Even if you can't share files, being able to display DOS files from your Macintosh (and vice versa) can be useful for several reasons:

◆ You can set up security for folders that may include either DOS or Macintosh files (or both).

◆ You can back up network folders and files that may include either DOS or Macintosh files (or both).

◆ You can perform other types of folder maintenance and housekeeping chores without having to change to a DOS workstation to see the DOS files.

Filenames: More Apples and Oranges

DOS and Macintosh operating systems differ in more ways than just file formats. They also differ in the rules that govern filenames and folder names. DOS puts many more restrictions on filenames and folder names than Macintosh does. If you name a Macintosh file in a manner that isn't legal in DOS, DOS will attempt to display the name in a style it can handle. On the other hand, DOS filenames are more easily displayed on Macintoshes, since the Macintosh allows greater latitude with filenames.

If you know how filenames appear on each system, you will know how to name your files and folders so that you can find them easily from both a Macintosh and a DOS workstation.

DOS Rules for File and Folder Names. When DOS users name files and folders (or directories), they have to abide by some pretty rigid rules. (The rules are the same for both filenames and folder names.)

♦ There is no difference between upper- and lower-case letters. DOS will always display filenames in upper-case letters, no matter how you originally typed the name.

♦ You can use letters, numbers, and some punctuation marks in a filename, but you cannot use the following symbols:

.	,
:	;
|	"
=	+
/	\
[	]
<	>

♦ You can only have up to eight characters in the filename, or up to eleven characters if you use an extension.

An extension is an extra part that can be added to the end of the filename, and it can have up to three characters. The extension is separated from the first part of the filename by a period.

The longest filename you can create in DOS will have eight characters, a period, then a three-character extension, such as

SCHEDULE.NEW

The extension is optional. (If you don't give a filename an extension, you leave off the period.) In addition, you don't have to have eight characters in the first part of the filename in order to add an extension. For example, the following filenames are all valid in DOS:

SCHEDULE.NEW
SCHEDULE
SCHEDULE.1
SCHED.NEW
SCHED-1.90
SCH.2

Extensions can be used to indicate the type of file you are using. Some extensions are specifically recognized by software programs, and some are automatically assigned by the software program that creates the file. For example, the extension .EXE indicates that the file is a program that will execute (run) when you type the filename. (On a Macintosh, you run an application by opening it. With DOS, you run an application by typing its name.) The extension .BAT means that the file is a batch file, which is another type of file that can be executed.

Macintosh Rules for File and Folder Names. Macintosh rules governing file and folder names are much more flexible than DOS rules. When you name a folder or file, you have to keep in mind the following rules. (The rules are the same for both filenames and folder names.)

- Upper-case and lower-case letters are different from each other.
- You cannot use a colon (:) in the name.
- Except for the colon, you can use any other character on the keyboard, including spaces and punctuation.
- You cannot start a filename with a period.
- The filename can have up to 31 characters.

Looking at DOS Files from a Macintosh. Since your Macintosh allows you much more flexibility in naming your files and folders, it is simpler to display DOS filenames on a Macintosh than it is to display Macintosh filenames on a DOS workstation. The DOS filenames don't need to be changed in order to be displayed on the Macintosh.

One difference you will notice is that DOS documents will be marked DOS (Figure 4-1).
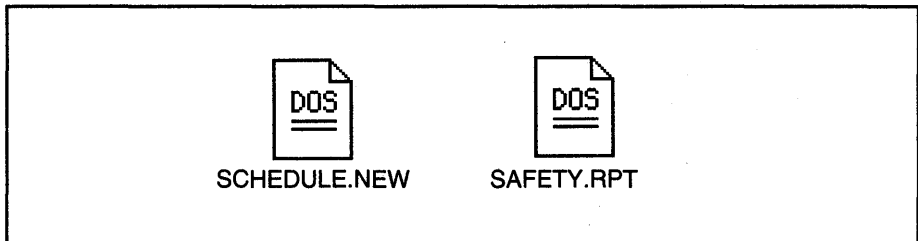
Figure 4-1.

DOS filenames will always be shown in upper-case letters.

When you look inside a folder that has both DOS and Macintosh files in it, you will see both types of files side-by-side.
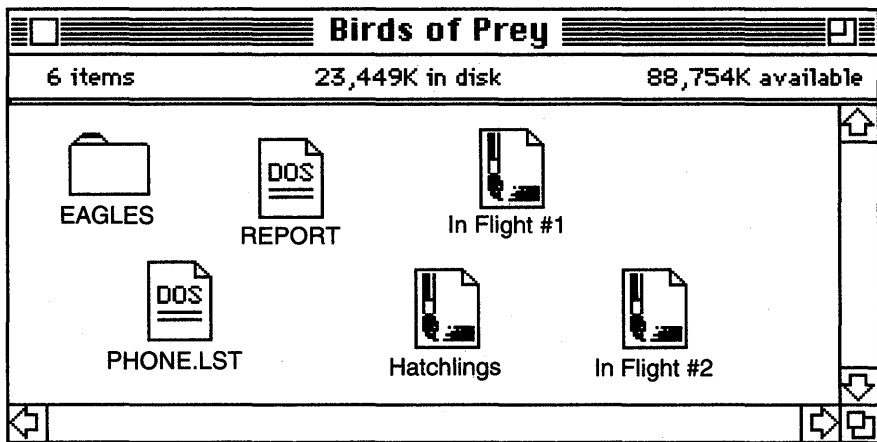

Figure 4-2.

Looking at Macintosh Files from DOS. When you look at Macintosh files from a DOS workstation, you will notice many changes.

- Names that are longer than allowed by DOS will be abbreviated to the first eight characters.

- Characters that are illegal in DOS (including spaces) will be eliminated.

- If the name had a period in it, DOS treats it like an extension and only allows three characters after it.

- If two or more files end up abbreviated to the same name, the filenames will be numbered. The first occurrence of the filename will appear in its normal DOS interpretation. In the second occurrence of the filename, the last character in the filename (before any extension) will be replaced by a 1 (one). The third duplicate filename will get the number 2, and so on.

Keep in mind, however, that DOS is not actually changing the filenames; DOS only changes how the names are displayed. If you look at the files from a Macintosh again, the filenames will be displayed in their original, complete form.

This chart shows how Macintosh filenames will appear from a DOS point of view.

Macintosh Filename	DOS displays as...
Travelogue	TRAVELOG
Bill + Barb's report	BILLBARB
March 20 <Report>	MARCH20R
Mt. Hood article	MT.HOO

Continued...

Macintosh Filename	DOS displays as...
Feb. 28 Memo	FEB.28M
Sect. 6.4	SECT.64
Wildlife Report	WILDLIFE
Wildlife Statistics	WILDLIF1
Wildlife Article	WILDLIF2
Memo Apr. 3	MEMOAPR.3
Memo Apr. 20	MEMOAP1.20
Memo Apr. 24	MEMOAP2.24

Notice how the Wildlife files and the April Memo files are numbered in the DOS display to avoid duplicate filenames. Even though the April Memo files have extensions in the DOS display, the numbers appear before the extension as the last part of the actual filename.

Macintosh filenames may look awful from a DOS workstation, but once you understand how the filenames are abbreviated, you at least will be able to locate your files.

Summary

The formats of Macintosh and DOS files are very different from one another. Macintosh files have two parts: a resource fork and a data fork. The resource fork contains information about the file itself, including graphics. The data fork contains the text of the file. DOS files are made of only one part, which is comparable to the Macintosh's data fork.

Because of these different file formats, Macintosh and DOS users may not be able to share all of their files. The types of files you can share depend on the applications you are using to create the files.

To share files, Macintosh and DOS users can try the following techniques:

◆ Use a common application (one that has both a Macintosh version and a DOS version).

◆ Use an application that automatically converts files from other formats.

◆ Use a separate conversion program to convert files from one format to another.

◆ Convert files into ASCII (DOS text format) before transferring them to the other workstation's application.

Even if you can't share some of your files with DOS users, it still helps to be able to see each other's files without having to change workstations when you are doing network maintenance or housekeeping tasks.

Besides having different file formats, Macintosh and DOS also have different rules for file and folder names. Macintosh allows file and folder names to be longer and to use a greater variety of characters than DOS.

Because Macintosh allows more flexibility in file and folder names, DOS names are displayed unchanged on a Macintosh workstation. (DOS documents are indicated by a special document icon containing the word "DOS.") However, to conform to DOS rules, Macintosh file and folder names are often abbreviated when they are displayed on a DOS workstation. These abbreviations are used only when the files are displayed on a DOS workstation. When they are seen from a Macintosh, the filenames are still in their original form.

Network Printing

Few networks can get along without at least one shared printer. Far from making us a paperless society—a popular speculation at the start of the computer age—computers just have made it easier to generate more paper in less time.

Before computer networking, to print from your personal computer you had to attach your printer directly to your computer. In those days, sharing print services meant taking your diskette over to your friend's computer to use the printer that was attached to his or her computer. Fortunately, times have changed. On a NetWare network, printers can be connected to the network, and all users on the network can print from their own workstations using these network printers.

NetWare for Macintosh allows Apple printers to be connected to the network. This means that both Macintosh and DOS users can now print to Apple printers through the network. (However, Macintosh users still cannot print to non-Apple printers, even through the network.)

This chapter will explain how printing works on a NetWare for Macintosh network, including:

- The two different ways you can print on a network;
- What a print queue does;
- How NetWare for Macintosh allows Macintoshes to use print queues;
- How to print from your Macintosh workstation; and
- How to print to an Apple LaserWriter or ImageWriter printer from a DOS workstation.

Two Ways to Print on a Network

When you print a document from your Macintosh workstation, you usually have two choices. You can either send your document directly to a printer, or you can send it to a NetWare print queue.

You are probably familiar with direct printing. When you print directly to a printer, you

1.   Select the printer you want to use,

2.   Send your file to the printer, then

3.   Wait for it to print. Unfortunately, your workstation can't do much else while it is waiting for the job to print.

But what if there are five users on a network, all trying to send jobs to the same printer at the same time? Whose file gets printed first? What happens to the other users' files?

If all the users send their print jobs directly to the printer at the same time, each workstation must wait for its turn to print. Usually, a workstation that is waiting to print cannot begin another process. This is how an AppleShare network handles printing.

NetWare for Macintosh handles printing traffic by using **print queues**. Instead of sending your document directly to a printer, you send it to a print queue. The print queue takes your document and puts it in a first-come, first-served waiting area. The print queue then takes care of sending each print job to the printer in the assigned order, while you can move on to something else.

The **print server** is the software on the network that regulates all of the network print queues.

Sending your file to a print queue is called **spooling**. Spooling a file to a print queue makes it possible for you to avoid sending your print job directly to the printer. With spooling, your workstation can continue with other tasks much more quickly than if you were sending your print job to a printer directly connected to your workstation.

In this respect, sending your file to a network printer via a NetWare print queue is similar to using your Macintosh's Background Printing feature with a LaserWriter. Only instead of spooling the file to your hard disk, NetWare for Macintosh spools your file to the print queue. And, unlike Background Printing, NetWare print queues let you print to both LaserWriters and ImageWriters. (Background printing only lets you print to LaserWriters.)

Some networks can be set up to allow users to choose whether they want to send print jobs directly to printers or to network print queues. If this is how your network is set up, you don't have to use network queues if you don't want to. You can, if you wish, still print directly to a printer from your Macintosh. Direct printing seldom offers any real advantage. If network queues are available, it's usually more efficient to use them.

What is a Print Queue?

A print queue is a software program that accepts print jobs, then routes them to a printer.

A print queue is a lot like the check-out line in a grocery store. People at grocery stores line up at the check-out stand, waiting for their turn to be served. Each person in line is served in the order they arrived in the line. As different workstations send files to be printed, the files are sent to the queue to wait in line to be printed.

In simple setups, one line of customers usually leads to one cashier. Likewise, the simplest way to set up print queues is to have one queue for each printer (Figure 5-1).
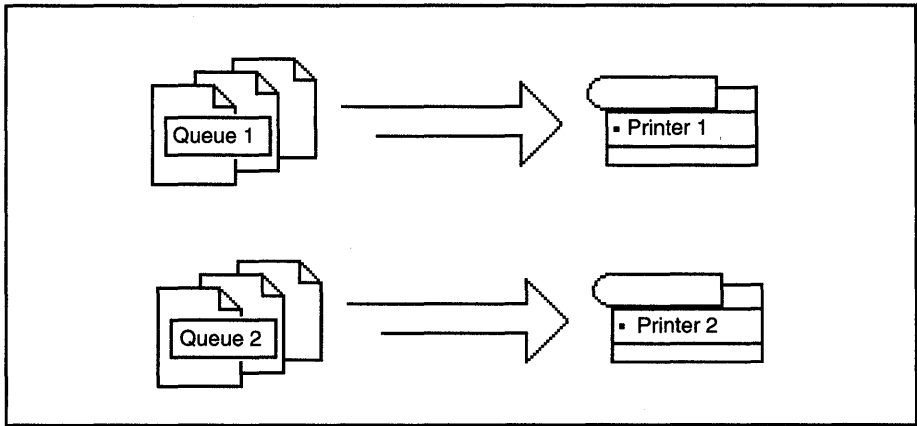
Figure 5-1.

Sometimes, however, two lines of customers can be directed to one cashier, or one line of customers can be helped by two or more cashiers. Similarly, one printer can service several queues, and one queue can be serviced by several printers (Figure 5-2).
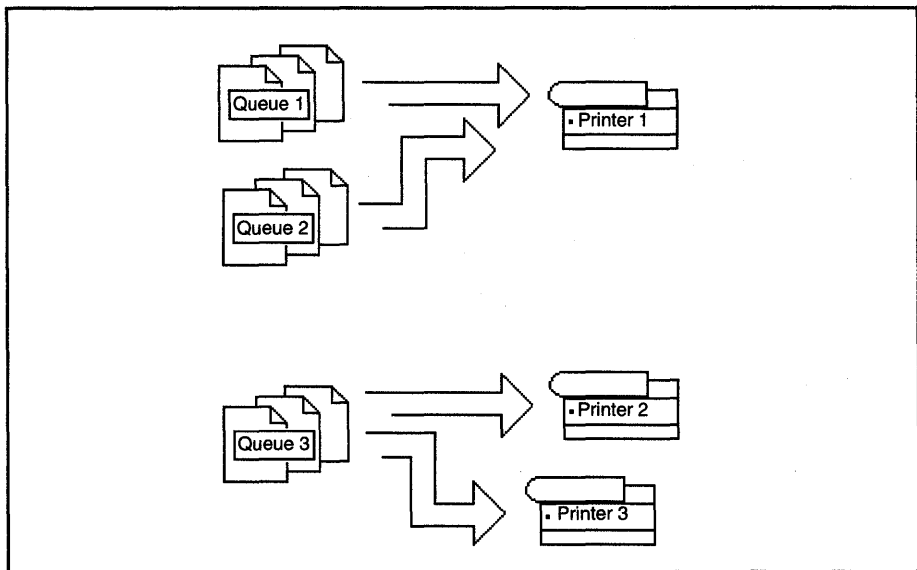

Figure 5-2.

If you send a print job to a queue that is serviced by more than one printer, there is no way to tell which printer will actually print your document. The queue will just send your document to whichever printer becomes available first.

Occasionally, a cashier will close a check-out stand when there are customers waiting in its line. The customers don't just disappear—they get redirected into a different line. In the same manner, if the network supervisor decides to turn off a network printer, the supervisor can reroute that printer's queues to another printer. The print jobs that were in the queue simply get moved to the new printer.

One advantage offered by print queues that you probably won't find in grocery store check-out lines is priorities. Queues can be given different priorities, so that if your file is in a higher priority print queue than your neighbor's, your file will print first, even if you submitted it last.

With NetWare for Macintosh, print queues can be created that send print jobs to any Apple printers on the network. Both Macintosh workstations and DOS workstations can use Apple printers through these print queues. However, Macintosh workstations can't print to DOS printers, even through a print queue.

A separate print queue must be created for each type of printer on your network. In other words, a LaserWriter printer can only service a queue that was set up specifically for LaserWriters, and an ImageWriter can only service an ImageWriter queue.

How Can Macintoshes Print to Queues?

Print queues are a foreign concept to Macintoshes because Macintoshes are set up to print directly to printers. So is AppleShare. AppleShare sends all print requests from users directly to the printer, where everyone must wait in the same line.

To enable Macintoshes to use NetWare print queues, NetWare for Macintosh tricks the AppleShare software that resides in the workstations into thinking that it's sending files directly to a printer. To do this, NetWare for Macintosh adds another

step to the process. This extra step is well-hidden, however. Users don't even have to know it exists—only the administrator who installs NetWare for Macintosh needs to know about it.

This extra step is called an AppleTalk queue server. Since AppleShare needs to send print jobs directly to printers, NetWare for Macintosh sets up a queue server that emulates an Apple printer. AppleShare happily sends print jobs to this queue server, thinking it is sending the jobs directly to a printer.

The queue server then takes the print jobs and sends them to the NetWare print queues. From there, the process continues as normal; the queues send the jobs to the correct printers, in the right order. Figure 5-3 illustrates this process.
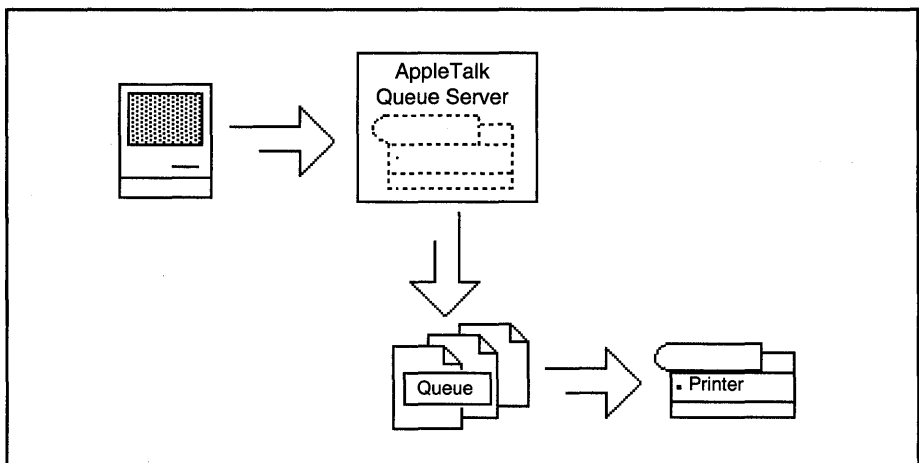
Figure 5-3.

Printing from a Macintosh

Printing from your Macintosh workstation to a print queue is no more complicated than printing directly to a printer. In fact, you use exactly the same procedure.

First, you select the print queue (or printer) you want to use, then you print the file using your application's normal printing features. That's it.

To accomplish the first step—selecting the print queue—you will have to use the Chooser.

1. **Find out the name of the queue you want to use.**
   When the printer was installed, its print queues were assigned names. To select the appropriate print queue, you'll need to know the queue's name. Ask the network administrator for the name of the print queue.

2. **Select the Chooser from under the Apple ( ) menu.**
   The left-hand panel displays icons for various devices, including printers.

3. **Select the icon for the type of printer you want to use.**
   Each print queue can only service one type of printer. If you want to print to a LaserWriter, you will have to send your files to a LaserWriter queue. Therefore, to display the available LaserWriter printers and print queues, click the LaserWriter icon.

   After you select a type of printer, the right-hand panel of the Chooser window lists all available printers and the print queues that support those printers.

   Depending on how your network is set up, both printers and print queues may be displayed. As a Macintosh user, you may still have the option of sending print jobs directly to printers or to print queues. Most of the time, it will be faster and more convenient to send jobs to print queues.

   In the screen below, LaserWriter is the name of the printer, and BARBQUE and QUEUEBALL are the two LaserWriter queues that are available. Because AppleShare doesn't know the difference between a printer and a print queue, the Chooser window displays the phrase **Select a LaserWriter:** even though the list includes both LaserWriters and LaserWriter queues.
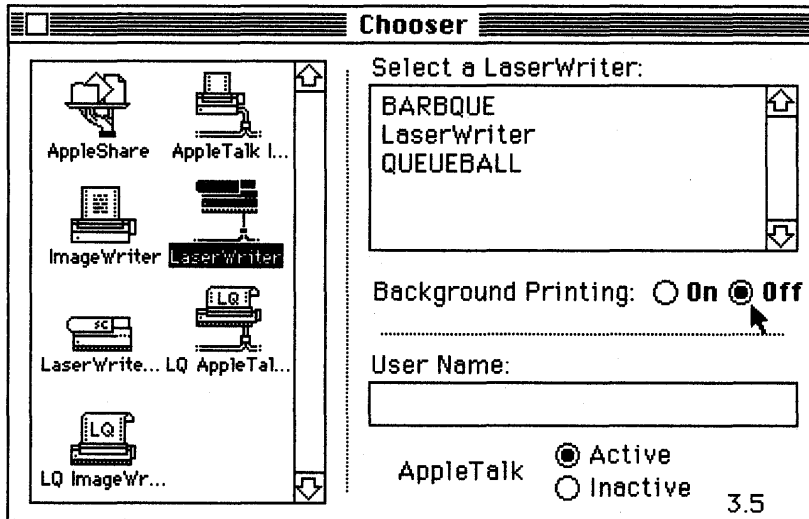
Figure 5-4

If your network is set up in AppleTalk zones, you may have to select a different zone (from the bottom left-hand panel of the Chooser window) to display the print queue you need.

4. **Click Off for Background Printing.**
   Beneath the list of printers and print queues, you'll see two buttons for the Background Printing feature. Background printing spools your print job to your hard disk instead of to a print queue. If you were using a stand-alone Macintosh, spooling the job to your hard disk would free up your Macintosh more quickly than sending your job directly to the printer. However, if you are on a network, using print queues is usually faster than using Background Printing. If you want to use a print queue, make sure Background Printing is turned off.

5. **Select the name of the print queue you want to use.**
   Be sure you select the print queue, and not the printer.

6. **Close the Chooser.**

You have now selected a print queue. From now on, any document you print from within any application will be submitted to this print queue.

Any time you want to change print queues, use the Chooser and go through these steps again. You can change print queues any time that the Chooser is available. However, if you intend to change to a different queue, be sure to change to it before you try to print a document. If you've already sent the document to be printed, it's too late to change which queue the job goes to.

Printing from a DOS Workstation

With NetWare for Macintosh, you can send your print jobs from a DOS workstation to an Apple printer.

Many DOS users are discovering that being able to print to a LaserWriter means they can use PostScript graphics programs on their DOS workstations. PostScript is a popular printer language, and LaserWriters support PostScript applications.

Before DOS users can print to Apple printers, however, the network administrator has to prepare the file server. The administrator must use a NetWare command line utility called PRINTDEF to import the Apple printer's device definition files. These files describe the printer to the file server.

After the administrator has prepared the file server to accept the Apple printer, you can use the Apple printer from your DOS workstation. To print to an Apple printer, you must first select the Apple queue. From a DOS workstation, you can only see print queues for the Apple printers; you cannot see the actual printers. This is because, unlike Macintoshes, DOS workstations on a network cannot print directly to Apple printers.

After you select the queue, print your file as usual.

You can use regular NetWare command line utilities (NPRINT or CAPTURE) to print to the Apple printer. You can also send files to an Apple printer from within your application.

Can I Work with Print Queues?

If you are using NetWare for Macintosh version 1.0 or 1.1, you cannot work with print queues from your Macintosh.

If you have NetWare for Macintosh version 2.0, you **can** work with print queues. The NetWare Desk Accessory in version 2.0 has a Print Queue module, which you can use to see a print queue. Using the Print Queue module, you can:

◆ See the list of jobs waiting in the print queue.

◆ See each print job's status (whether it is printing, waiting to be printed, being held indefinitely, etc.).

◆ Choose a different queue to display.

For most users, seeing the list of print jobs in a queue is all that the desk accessory will allow.

The network administrator, however, can use the Print Queue module for more than just seeing the print jobs and their status. From the Print Queue module, the administrator can:

◆ Delete print jobs.

◆ Put jobs on hold.

◆ Reactivate a job that was on hold.

◆ Change the order in which jobs get printed.

If the administrator doesn't want to be the only person who can control the print queues, he or she can assign another user to be a **print queue operator**. Like the administrator, the print queue operator can change the jobs in a print queue. Any user can be made a print queue operator.

Chapter 7 explains how to use the NetWare Desk Accessory and the Print Queue module.

Summary

NetWare for Macintosh allows Apple printers to be connected to the network. Both Macintosh and DOS workstations can print to Apple printers, but Macintosh users cannot print to non-Apple printers on the network.

If you are using a Macintosh, you can send files to a NetWare print queue to be printed. Some networks can be configured so that users can send files to print queues, but can still choose to send files directly to the printer. Other networks only allow Macintosh users to send jobs to print queues.

Backing Up

Anyone who has ever watched in horror as several days' worth of work vanishes because of a bad disk knows the importance of file backups.

Every software package you buy recommends that you make backup copies of your new disks before you do anything else. If you don't make a backup copy and something happens to the disk, you could learn the value of backups the hard way.

Backing up folders and files that are stored on the NetWare for Macintosh network is just as important as backing up the information on your hard disk. In fact, most network administrators back up all of the network folders and files at least once a week. Many do daily backups.

This chapter describes how you can back up your NetWare for Macintosh files. It explains:

- ◆ The difference between backing up your files with NetWare for Macintosh and just making copies of your files;
- ◆ Why you have to use a DOS workstation to back up your Macintosh files;
- ◆ Which backup utility you should use; and
- ◆ How to use the NBACKUP utility to back up and restore your files.

What's Wrong with Just Making Copies?

There are two ways to back up your folders and files. You can simply copy them to another disk, or you can archive them by using a NetWare backup utility.

Ordinarily, if you aren't on a network, you make a backup copy of a disk by copying its contents to another disk. With this approach, you end up with two copies of the data—an original and a backup. However, network folders and files usually contain more than data. If all you do is copy a network folder, you've backed up the folder's data, but you've lost all the network information relating to that folder. You've left behind the folder's owner, Rights Mask, trustees, and attributes.

If you use the NetWare NBACKUP utility to back up your folder, you effectively archive both the folder's data and all of its network information. Then, if something happens to the original folder on the network, you can restore the folder—complete with its accompanying security. You don't have to reassign any of the folder's trustees, rights, or attributes.

This ability to restore both data and security can be a tremendous time-saver. Suppose the file server's hard disk suddenly breaks down. If the network administrator has been making network backups, he or she can restore all of the network volumes, folders, and files to a new hard disk. In the same process, the administrator can restore all of the users, groups, and security. The only information lost will be any changes made to the network since the last backup was made.

Whether or not your network administrator backs up the network on a regular basis, you may find you want to back up your own network folders and files. If so, decide whether you need a simple copy of the data, or an archived record of both the data and the security information. If all you need is the data, by all means simply copy the files to a disk. However, if you also need the network information, use NetWare's NBACKUP utility.

First, Find a DOS Workstation...

Yes, that's right. To back up Macintosh files on a NetWare for Macintosh network, you have to use a DOS workstation. That may seem a little absurd at first, but there really is a good reason.

For the most part, the majority of those who back up network information regularly are network administrators. Ordinary users probably only need to make simple copies of their own folders and files. Therefore, it makes sense that the people who are primarily responsible for backups (administrators) should be able to back up everything—both Macintosh and DOS files—from one workstation.

That is why NetWare for Macintosh allows administrators to use the same workstation to back up both Macintosh and DOS files. However, since NetWare for Macintosh is an optional feature that can be added to a NetWare network, the NetWare NBACKUP utility wasn't designed to run on a Macintosh—it runs on a DOS-based workstation.

Even if you aren't a network administrator, you may still want to use the NetWare NBACKUP utility to back up and restore your own files.

Then Get the Latest NBACKUP Utility...

The first version of NetWare for Macintosh, version 1.0, included a backup utility called MACBACK. MACBACK only backed up and restored Macintosh files; to back up and restore DOS files you had to use additional utilities.

The second version of NetWare for Macintosh (version 1.1), replaced MACBACK with an improved utility called NBACKUP. NBACKUP backs up and restores both Macintosh and DOS files. It also works with every version of NetWare for Macintosh that has been released.

Since NetWare for Macintosh version 1.1 was released, Novell has updated the NBACKUP utility.

What all of this means to you is that you probably will want to get the latest version of the NBACKUP utility before you try to back up your files, regardless of the version of NetWare for Macintosh you are using. You should be able to get the latest version of NBACKUP from your authorized Novell reseller or from Novell's electronic bulletin board service (NetWire on CompuServe) if you have an account.

To use NBACKUP, you need to know how to access folders from a DOS workstation. If you don't understand DOS directories and paths, be sure you read the next section, "Using DOS Paths," before you try to use NBACKUP.

Using DOS Paths

Since DOS workstations don't show folders on the desktop, you will need to type the names of any folders you want to access from a DOS workstation. The hierarchy of the volume and folders that contain your folder is called a **path**. Instead of the word **folder**, DOS uses the word **directory**, so the path is sometimes referred to as the directory path.

In the NBACKUP utility, you will have to specify a DOS path to indicate your Macintosh files and folders.

First, we'll see how DOS paths normally work. Then we'll look at the changes NBACKUP requires in the DOS path to indicate Macintosh folders and files.

DOS Path Rules. To type a normal DOS directory path, use this format:

VOLUME:FOLDER\FOLDER\\(etc.)\FILE (optional)

The volume is always followed by a colon, and the folders and files are separated by backslashes (\). DOS is not case-sensitive, so you can type either upper- or lower-case letters.

Suppose the volume SYS contains a folder called Playtime, which contains a folder called Fun, which contains a folder called Games. To specify the Games folder, you would need to type:

SYS:PLAYTIME\FUN\GAMES

NetWare users do have a shortcut, however—they can specify different letters of the alphabet to stand for particular directories (folders). This is called **mapping a drive letter to a directory**. When you access one of these drive letters, it's almost like accessing a separate disk. For example, if you often use the Games folder, you

could specify that the drive letter H means the Games folder. Then, to access Games, you can type **H:** instead of typing SYS:Playtime\Fun\Games. The colon tells the operating system that H is a drive letter.

Figure 6-1 compares how you see folders on a Macintosh with what you must type on a DOS workstation.
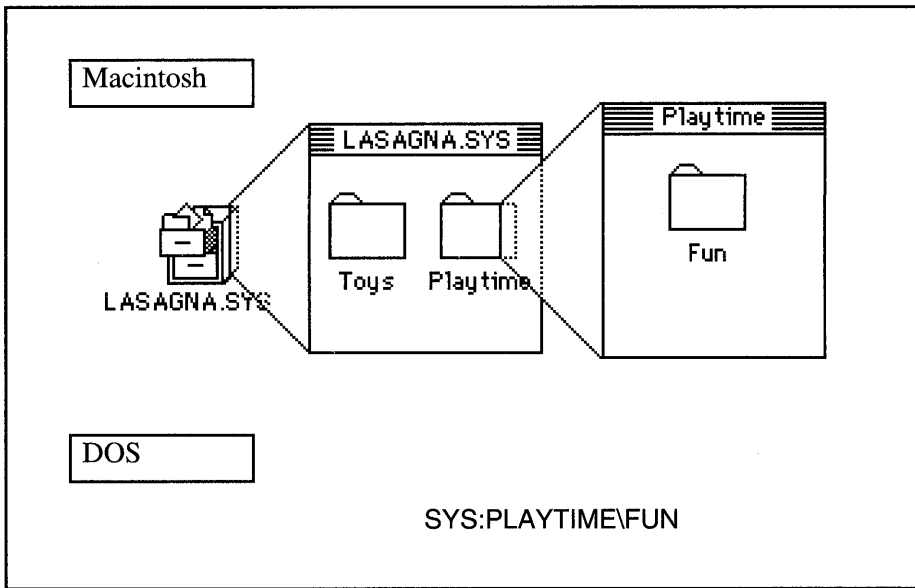
Figure 6-1.

If you want to specify a single file, you can add the file's name at the end of the path. Separate the filename from the last folder's name by a backslash. For example, to specify the Pretzel file in the Games folder, type

SYS:PLAYTIME\FUN\GAMES\PRETZEL

Although the filename doesn't look any different from the folder names, the operating system can tell the difference. If the Games folder is mapped to drive letter H:, you could specify the Pretzel file by typing:

H:PRETZEL

NetWare also allows you to use wildcards in DOS filenames. Wildcards allow you to specify several files at the same time (much like shift-clicking on several Macintosh files), as long as the filenames have some identical letters. There are two different wildcards: * and ?. These wildcards can be used to represent any character in a DOS filename.

The question mark (?) replaces any single character in a filename. For example, if you type **REPORT?.NEW**, the operating system will find all of the files that exactly match the pattern:

Found	Skipped
REPORT1.NEW	REPORT1.OLD
REPORT2.NEW	REPORT45.NEW
REPORT3.NEW	REPORT6

The files have to exactly match every character in the filename you typed; the only character that can vary is the one where the ? is located.

The asterisk (*) can be used to indicate several characters. For example, if you type **REPORT*.NEW**, the operating system will find all of the following files:

Found	Skipped
REPORT1.NEW	REPORT1.OLD
REPORT2.NEW	REPORT6
REPORT3.NEW	
REPORT45.NEW	

The asterisk replaces all characters to its right in the filename, up to the extension. You can also use another asterisk in the extension. For example, type **REPORT*.*** to find all files that start with REPORT:

Found	Skipped
REPORT1.NEW	
REPORT2.NEW	
REPORT3.NEW	
REPORT45.NEW	
REPORT1.OLD	
REPORT6	

Now that you know how DOS paths normally work, you need to learn the exceptions that NBACKUP requires for Macintosh files and folders.

NBACKUP Path Rules. NBACKUP has to be told the difference between Macintosh and DOS folders and files so that it can back them up accurately. You have to tell NBACKUP that the file you want to back up is a Macintosh file so that it can handle the file's Macintosh characteristics, such as its resource fork.

Because of this, NBACKUP has slightly different rules for using paths to indicate Macintosh files or folders. These exceptions are for Macintosh files and folders only. The normal path rules apply if you are indicating DOS files or directories.

◆ Macintosh file and folder names are case-sensitive. If a Macintosh folder was named MiXeDuP, you have to type MiXeDuP.

♦ NBACKUP will handle Macintosh filename restrictions, which means you don't have to change your Macintosh filename to the abbreviated DOS version.

♦ You cannot use DOS wildcards with Macintosh filenames.

♦ To indicate a path that contains both DOS and Macintosh folders, use all upper-case letters for the DOS folders, and the appropriate mixed-case letters for the Macintosh folders.

♦ To indicate a Macintosh file or folder, add a colon to the beginning of the file or folder's name instead of the backslash. If a Macintosh folder name follows the volume name, use two colons to separate the names. This is because the volume name is always followed by a colon, and the Macintosh folder name is preceded by a colon.

Examples. If volume SYS contains the Macintosh folder called Macaroni, which contains the Macintosh folder called Dandy, type:

SYS::MACARONI:DANDY

If SYS contains a DOS folder called Reports, which contains a DOS folder called Weekly, which contains the Macintosh file Special, type:

SYS:REPORTS\WEEKLY:SPECIAL

This should be enough information about filenames, paths, and wildcards to get you through the NetWare NBACKUP utility. However, if you feel that a little information only makes you dangerous, refer to a DOS manual for more in-depth details about using DOS paths.

Using NBACKUP

NBACKUP is a menu utility that you can use to back up and restore both Macintosh and DOS files. This means you type the name of the utility (NBACKUP), then select and type answers to the options presented to you on the screen.

To back up and restore your Macintosh files, you will need:

✔ A DOS workstation with a NetWare version 2.15 (or higher) shell. The shell is software that lets DOS workstations communicate with the file server.

✔ Rights to the folders you want to back up or restore.

In the NBACKUP utility, you will sometimes be asked to specify a path, as explained before. There are three ways to specify the path:

◆ Type the path in the box that appears on the screen. Remember to specify the volume name and all folders in the path, and don't forget the special rules for indicating Macintosh folders.

◆ If a drive letter is mapped to the folder you want, type the drive letter in the box that appears on the screen.

◆ If you can't remember the path, you can select folders from menus. To do this, use these steps:

1. When you are asked to enter a path, press the Insert key. After you press the Insert key, a menu (list) of folders will appear.

2. Use the arrow keys to move to the folder you want, then press the Enter key to select it. Another list of folders appears. These are the folders contained in the folder you just selected.

3. If you want one of these folders, select it the same way—use the arrow keys to move to the folder name, then press the Enter key.

4. If you choose the wrong folder, you can move back to the previous folder by selecting the two dots (..) at the top of the folder list.

5. When you've selected the path you need, press the Escape key. The list of folders disappears, and the box on the screen now displays the path you selected.

Backing Up with NBACKUP. To back up your Macintosh files, use the following steps.

1. **From a DOS workstation, log in to the file server that contains the files you want back up.**

   Use the same user name and password you use on your Macintosh workstation. Ask a DOS user or your administrator to help you log in, since there are several different ways a DOS workstation can be set up and they can't all be explained here.

2. **Type NBACKUP.**

   A menu of options appears, one of which is "DOS Devices." This menu lets you choose the type of device you want to use to store your backup files.

   If you are simply backing up your own files, you will probably choose the "DOS Devices" option. DOS devices include floppy disks, network drives, and some tape drives that use a DOS device driver (special software). Ask your network administrator if you are not sure which option to use.

3. **Choose the backup device you want to use.**

   To select the backup device, use the arrow keys to move from one item to another, then press the Enter key to select the item you want.

   After you choose the type of backup device to use, the Main Menu appears.

   The first item in the Main Menu is "Change Current Server." If you are not logged in to the file server you want to use, select this option, then press the Insert key. From the list that appears, select another server and log in.

4. **Choose "Backup Options."**

5. **Choose "Select Working Directory."**

    In the box that appears, you will enter the name of the working directory (folder). The working directory holds two files that record the backup session. These files are very important because without them, you will not be able to restore the files you back up. Be sure you keep track of your working directory—you may want to designate a folder for backup session files. (As a safeguard, however, these files are also backed up along with the folders you select, so they can be found if you delete your working directory.)

6. **Enter the name of the working directory into the box.**

    Remember, you can type either the path or a drive letter for the working directory, or you can choose the directory from menus.

7. **Press the Enter key to select the path you've specified.**

8. **Select "Backup By Directory."**

    This option will let you specify the folders you want to back up. After you select this option, the "Backup Options" window appears.

    Network administrators with supervisor rights can use an option called "Backup File Server" to back up all of the folders on the network. You will not see this option if you do not have supervisor rights.

9. **Enter answers for each option in the "Backup Options" window.**

    Use the arrow keys to move to each option, then type the answer. To answer Yes or No options, type either Y or N. To answer options that require a location or path, press the Enter key, then enter the path.

    The following chart describes each option.

Option	Description
Session Description	Identifies the backup session so you can find it again. Type any brief description, up to 30 characters long. This description is required.
Backup Subdirectories	Backs up folders within the folder you selected. If you choose *No*, only files will be backed up, not folders.
Backup Trustees	Backs up the folder's trustee assignments. If you choose *No*, the folder will be backed up but the trustee assignments will not.
Modified Files Only	Only backs up files that have been changed since the last time they were backed up. If you choose *No*, **all** files will be backed up.
Clear Modify Bit	The Modify bit is a DOS file flag. If a file has been set with the Modify bit, that means the file has been changed and needs to be backed up. If you choose *Yes*, the bit will be removed after the file is backed up, indicating that the file no longer needs to be backed up. If you choose *No*, the file will retain the Modify bit, so it will be backed up again the next time, whether or not it has been changed.

Continued...

Option	Description
Files to Include/Exclude Directories to Include/Exclude	Lets you choose which files and folders to back up and which to skip. You can use wildcards in DOS filenames, but not Macintosh filenames. If you type the same file or folder in both the "Include" and "Exclude" lists, it will be excluded. Remember to preface Macintosh names with a colon.
Backup Hidden Files/System Files	Backs up files flagged Hidden and System. If you choose *No*, thesefiles will be skipped.
Source Directory	Specifies the volume or folder you want to back up.
Destination Directory	Specifies the location of the DOS device where you want the backup files to go. If you want to send the files to another file server, press the Insert key twice, log in to the file server you want, then choose the path.

10. **After filling in all the answers, press the Escape key and answer** *Yes*
    to save your answers.

    The "Start Backup" window appears. This window lets you decide
    whether you want to start the backup process now or set it to start at a
    later time.

11. **Select either "Start Backup Now" or "Start Backup Later."**

   If you choose "Start Backup Now," the backup session begins. You'll notice status windows indicating the progress of the backup session. Until the backup procedure is completed, you will not be able to use your workstation for any other tasks.

   If you choose "Start Backup Later," another window appears that allows you to select the date and time when the backup session should begin. If you choose this option, you put the workstation you're using in a dedicated state. This means your workstation can't do anything except wait for the backup session to start. You won't be able to use the workstation to do anything else until after the backup session is finished. To interrupt this process and abort the backup session, you can press the Escape key. You will be prompted for your password. If you enter the correct password, the backup session will be cancelled and you will exit the NBACKUP utility, but you will still be logged in to the file server. If you enter an incorrect password, the backup session will be terminated and you will be automatically logged out of the file server.

12. (Optional) **If you need to stop the backup in the middle of the session, press the Escape key.**

   The backup session will stop. You cannot restart the backup session once you've stopped it. If you want to continue backing up your files, you will have to restart the backup session from the beginning.

13. **When the backup is finished, press the Enter key.**

   You will return to the Main Menu.

14. (Optional) **If any errors happened during the backup session, select "Backup Options" again, then "View Error Log." Then select the backup session from the list that appears.**

   Any error messages that occurred during the backup process will be displayed.

15. **To quit the NBACKUP utility, press the Escape key, then answer** *Yes*
    when it asks you if you want to exit NBACKUP.

Restoring with NBACKUP. If you have backed up your files using NBACKUP,
you can also restore them using NBACKUP.

You have to restore folders to the same type of device from which they were
backed up. In other words, if you backed up files from a local disk drive, you have
to restore the files to a local disk drive. Similarly, if you backed up files from a
NetWare version 2.15 file server, you have to restore them to a NetWare version 2.15
file server.

In addition, NBACKUP restores files to their original folders. If you have
deleted the original folders, NBACKUP will re-create them for you during the
restoration process.

To restore files using NBACKUP, use the following steps.

1. **From a DOS workstation, log in to the file server you need.**

   Use the same user name and password you use on your Macintosh
   workstation. You may want to ask a DOS user or your administrator to
   help you log in.

2. **Type NBACKUP.**

3. **Choose the backup device you originally used to back up your**
   folders.

   After you choose the type of backup device you used, the Main Menu
   appears.

4. **Choose "Restore Options."**

5. **Choose "Select Working Directory."**

6. **Enter the name of the working directory into the box.**

   Enter the name of the working directory where the session files are
   stored. The working directory must be the same directory you specified
   during the backup session.

If NBACKUP cannot locate the session files in the working directory you specify, you will need to restore the session files from the backup device. To do this, press the Insert key, then specify the path for your backup device. For example, if you backed up to a diskette in drive A, type A: and press the Enter key. Then you will be prompted to insert the last media of the backup session you made. Place the last media (diskette) in the drive you specified and press the Enter key. NBACKUP will find the log files and copy them into your working directory.

7. **Press the Enter key to select the path you've specified.**

8. **Select "Restore Session."**

After you select this option, the "Restore Options" window appears.

The following chart describes each option.

Option	Description
File exists	If a file with the same name already exists in the folder you're trying to restore to, you can choose the following options: **Do Not Overwrite** — Will not restore the file. **Interactive** — Prompts you for a decision at each file. **Overwrite Existing File** — The restored file overwrites the existing file. **Rename Existing File** — The existing file is given an extension of .B*nn*. **Rename Restored File** — The restored file is given an extension of .B*nn*.

Continued...

Option	Description
Files to Include/Exclude Directories to Include/Exclude	Lets you choose which files and folders to restore and which to skip. You can use wildcards in DOS filenames, but not Macintosh filenames. If you type the same file or folder in both the "Include" and "Exclude" lists, it will be excluded. Remember to preface Macintosh names with a colon.
Data Location	Specifies the location of the files you want to restore. If you have not changed the original location of the files, NBACKUP will display the path recorded in the session files. If you have changed the location of the restored files, enter the new path.

9. **After filling in all the answers, press the Escape key and select *Yes* to save your answers.**

   The "Start Restore" window appears.

10. **Select *Yes*.**

    The restore session begins. You'll notice status windows indicating the progress of the restoration.

11. (Optional) **If you need to stop the restoration in the middle of the session, press the Escape key.**

    The restoration will stop. You cannot restart the restoration session once you've stopped it. If you want to continue restoring your files, you will have to restart the session from the beginning.

12. **When the restore session is finished, press the Enter key.**

    You will return to the Main Menu.

13. (Optional) **If any errors happened during the restore session, select "Restore Options" again, then "View Error Log." Then select the restore session from the list that appears.**

    Any error messages that occurred during the restore process will be displayed.

14. **To quit the NBACKUP utility, press the Escape key, then answer** *Yes* **when it asks you if you want to exit NBACKUP.**

Summary

Always make backup copies of your files and folders. A backup is like insurance—you may never need it, but if you ever do, you'll be very glad you have it.

There are two ways to make backups of your files and folders.

♦   If you just need the data and don't need any network or security information, simply copy your files to another disk.

♦   If you want to archive both the data and its network and security information, use NetWare's NBACKUP utility.

You can use NBACKUP to back up and restore both Macintosh and DOS files. To use NBACKUP, you have to use a DOS workstation. Therefore, you need to understand how DOS directory paths work.

Backing up your files on a regular basis will help insure yourself against losing too much of your hard work and time, should something happen to your original files.

Touring the NetWare Desk Accessory

The NetWare Desk Accessory is a convenient tool to help you manage network security. If you have NetWare for Macintosh version 2.0, you can also use the NetWare Desk Accessory to manipulate print queues and to send and receive messages across the network. Like other desk accessories, you can use the NetWare Desk Accessory even while you are working in an application.

If you have NetWare for Macintosh version 1.0 or 1.1, the NetWare Desk Accessory contains only one module—the Rights module:

◆ **Rights** lets you work with security. With this module, you can see and sometimes change the NetWare security for folders and volumes.

If you have NetWare for Macintosh version 2.0, the NetWare Desk Accessory contains the Rights module and three additional modules—About, Message, and Print Queue:

◆ **About** displays information about the NetWare Desk Accessory.

◆ **Message** lets you send messages to other users on the network. If you have installed the Notify INIT file in your System folder, you can also receive messages from other users and from the file server.

◆ **Print Queue** lets you see the list of the print jobs in a print queue and see the status of each print job. If you are a print queue operator, you can also use this module to change the status and the order of the jobs in the print queue.

This chapter explains how to access and use the NetWare Desk Accessory and its modules.

Opening the NetWare Desk Accessory

To open the NetWare Desk Accessory, follow these steps.

1. **Log in to a file server and open a volume.**
   Use the Chooser under the Apple ( ) menu to log in. If you need help, see Chapter 2 for instructions. If you don't log in to a file server, the NetWare Desk Accessory won't work.

2. **Choose NetWare from the Apple ( ) menu.**
   The NetWare window appears. From this window, you can select a module to work with.

   If you have NetWare for Macintosh version 1.0 or 1.1, you can only use the Rights module (Figure 7-1). The Rights icon is displayed in the left-hand panel of the window. The right-hand panel is blank.
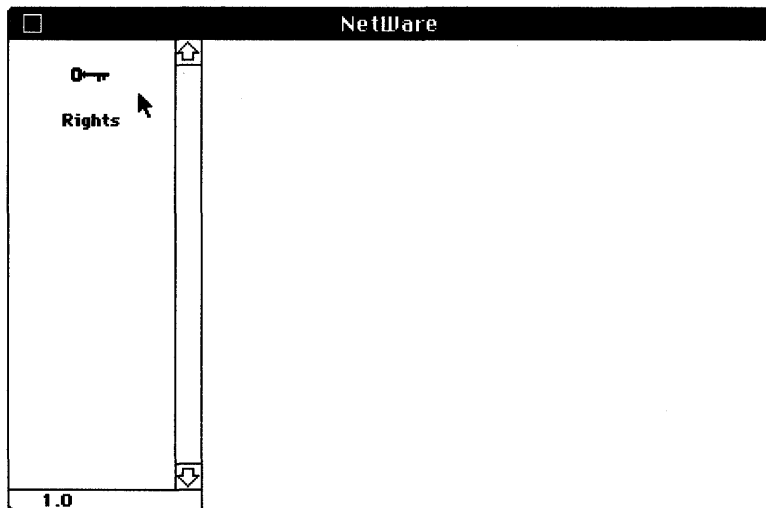
Figure 7-1.

If you have version 2.0, you can use the About, Message, Print Queue, and Rights modules. When the NetWare window appears, the icons for the modules are displayed in the left-hand panel, and the right-hand panel automatically displays the About module (Figure 7-2).
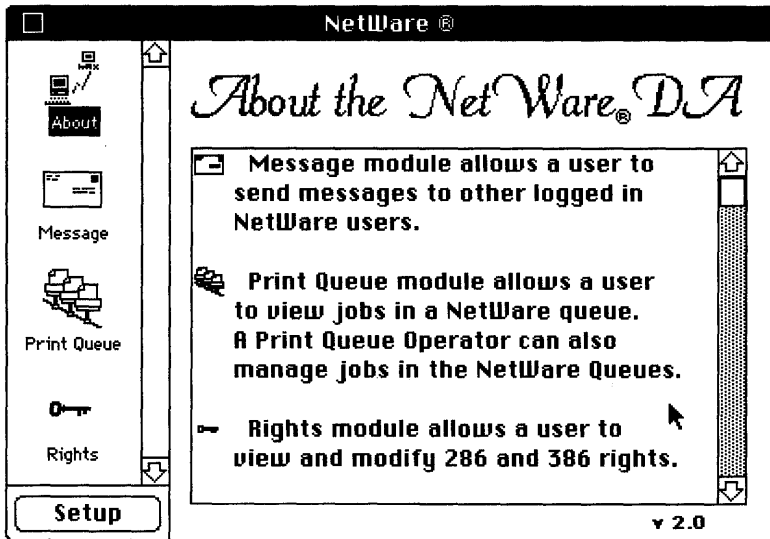
Figure 7-2.

Using the About Module

If you are using NetWare for Macintosh version 2.0, the About module's information window is automatically displayed whenever you open the NetWare Desk Accessory.

The About window briefly explains each of the modules in the desk accessory. You can use the scroll bar to read all of the information.

To close the About module, select another module from the left-hand panel of the NetWare window.

If you don't want the About module to appear in the NetWare Desk Accessory, you can delete the module from your System folder. However, you may want to keep a copy of the module on your original *NetWare Utilities* disk in case you ever want to reinstall the module.

Using the Message Module

You can use the Message module to send messages to other users on the network. If you installed the Notify INIT file in your System folder, you also will be able to receive messages from other users.

To send a message to another user, follow these steps.

1. **Open (click) the Message module.**
   The Message window appears, displaying the list of users currently logged in to your file server (Figure 7-3). These are the users you can select to receive the message you want to send.
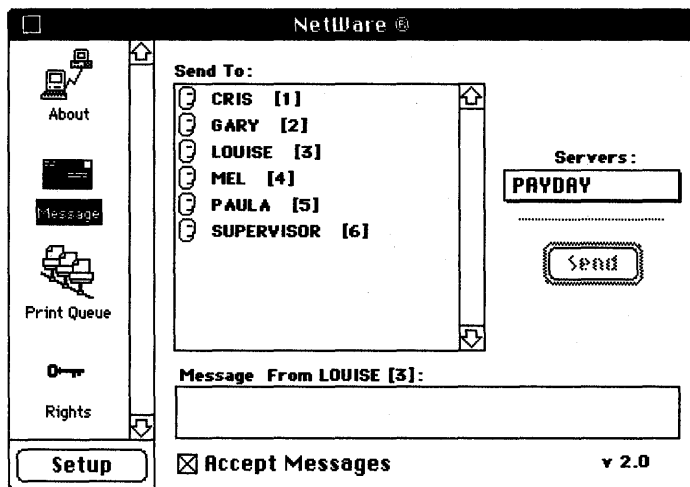
Figure 7-3.

2. **Click the names of the users you want to receive your message.**
   To select several users, hold down the Shift key and click on each user you want to select.

   To send a message to a user on a different file server, pull down the list of file servers under **Servers:** and select the file server you need. You can only select servers that you are already logged in to. The list of users will change to display the users who are logged in to the new server.

3. **Type your message in the box at the bottom of the window.**
   Keep the message brief. Your message must fit on only one line (Figure 7-4).
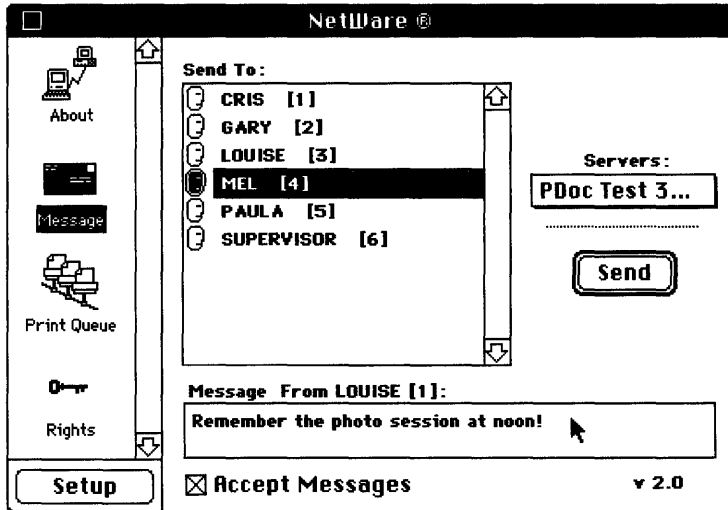
Figure 7-4.

4. **Click the Send button.**
   Your message will now be sent to the users you selected. The message will show up on their screens momentarily, as long as they have installed their Notify INIT file in their System folders.

5. **To make sure you can receive messages from other users, including the Supervisor, make sure the Accept Messages box is checked.**
   The **Accept Messages** box is located at the bottom of the window. If the box is not checked, click it to mark it. Remember, you must also have the Notify INIT file in your System folder before you can receive any messages.

6. **If you do not want to receive messages from other users, click the Accept Messages box to clear it.**

Using the Print Queue Module

You can use the Print Queue module to see the list of jobs in a print queue. You can also see each job's status (that is, whether it is printing, waiting to be printed, being held indefinitely, etc.).

If you are a print queue operator, you also can change the status of jobs in a print queue. For example, you can delete jobs, put them on hold, and change the order in which they get printed.

To see the print jobs that are in a print queue, open (click) the Print Queue module. The Print Queue window appears, displaying a list of the print jobs in the queue (Figure 7-5).

To see the print jobs in a different print queue, pull down the menu under **Print Queues:** (at the bottom of the window). Then select another print queue from the menu that appears. You can also see a queue on a different file server by selecting a new file server from the pull-down menu under **Servers:**.

Seq	Name	Status	Job
1	andy	Active	4
2	andy	Ready	5
3	ray	Held	6
4	jennifer	Adding	7

Servers: PAYDAY
Print Queues: LASER-Q

Delete   Hold   Continue   ▼ 2.0
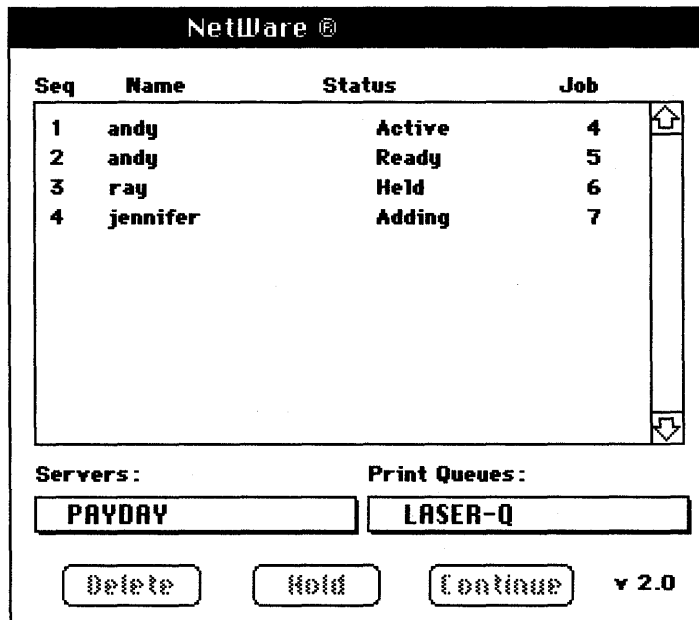
Figure 7-5.

The Print Queue window shows each print job's sequence in the queue, the name of the user who created the job, the job's status, and the job's number. The following chart describes what this information means.

Seq (Sequence)	Shows the order in which the jobs will be printed.
Name	Shows the print job's banner name. For Laser-Writers, the Name column shows who created the print job. For ImageWriters, the Name column displays the name "AppleTalk."
Status	Explains what is happening to the print job. The print job can be in one of the following states: **Active** — The job is being sent to the printer. Only one job at a time can be active. **Adding** — The job is being added to the print queue. **Held** — The print queue operator has put the job on hold. This means the job will stay in the queue and will not be printed until the print queue operator releases the job. **Ready** — The job is ready to go to the printer whenever its turn arrives. **Waiting** — The print queue operator has delayed this print job, specifying that the job be printed at a later time. Print jobs can only be postponed from a DOS workstation.

Continued ...

Job	Identifies each job. The job number is assigned when a job is added to the queue. For example, Job #1 was the first job in the queue. However, the job number doesn't necessarily have anything to do with the sequence in which the jobs will be printed. If the print queue operator changes the order of the jobs, the job number remains the same, but the sequence number of each job changes.

If you are a print queue operator, you can change the jobs in the print queue.

To delete a job, select (click) the job you want, then click the **Delete** button. A window appears, asking if you're sure you want to delete the job. Again, click the **Delete** button. The job will soon disappear from the list.

To put a job "on hold," select (click) the job you want, then click the **Hold** button. In a few moments, the job's status in the list will change to "Held."

To restart a job that is "on hold," select (click) the job you want, then click the **Continue** button. The job's status will soon change to "Ready."

To change the order in which print jobs are to be printed, select (click) a job and drag it to its new place in the list. In a few moments, the sequence numbers of the jobs in the queue will be changed to reflect the new order.

Using the Rights Module

You can use the Rights module of the NetWare Desk Accessory to work with NetWare security. With this module, you can:

♦   See your effective rights in a folder;

- See a folder's Rights Mask;

- See other users' trustee rights in a folder;

- Change other users' rights in your folder; and

- Make a folder public or Private.

If you have the correct rights, you can also use the Desk Accessory to see and modify security for volumes, just as you can use it to work with folders.

To open the Rights module, follow these steps.

1. **Open the NetWare Desk Accessory.**
   If you need help, see "Opening the NetWare Desk Accessory" at the beginning of this chapter for instructions.

2. **Click the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

   Now you need to choose the volume or folder whose security information you want to see.

3. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. If the folder you need is on a different volume, you can change to a different volume. You can only get to a different volume if you opened that volume when you first logged in. If you didn't, you must close the Desk Accessory and open the volume you need, then reopen the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

4. **Highlight the folder whose security you want to view.**

   To get to a folder that is inside one of the folders in the list, highlight the first folder and click **Open Folder** (or **Open** in version 2.0). Keep doing this until you get to the folder you need. Then highlight that folder.

   If you need to, you can go back to a folder you have already opened. Above the list of folders is the name of the folder or volume you're currently in. Click this name to display the previous folders, and choose the folder you want from this menu.

5. **Click either Volume Info or Folder Info.**

   The right-hand side of the window now displays information about the volume or folder you selected. The Volume Info and Folder Info windows display the same type of information.

   The top section of the window shows the name of the volume or folder you selected, the file server you're logged in to, and your user name. It also contains three buttons you can click to display either your effective rights, the Maximum Rights Mask (or Inherited Rights Mask for NetWare 386 networks), or your trustee rights for the folder or volume.

   If the folder you're looking at is on a NetWare 286 network, a checkbox for making the folder Private appears below the three buttons.

   The **View Another** button, which is used to select a different volume or folder, also appears in this window.

From this window, you can see your effective rights, the Maximum Rights (or Inherited Rights) Mask, or your trustee rights for the volume or folder. You can also make a NetWare 286 folder or volume Private. You can even add or remove trustees for the volume or folder if you have the appropriate rights.

Looking at Your Effective Rights. When you first select Folder Info or Volume Info, the Info window will display your effective rights in the folder or volume (Figure 7-6). You can verify this by looking at the three buttons in the top right-hand corner of the window. The **Effective Rights** button should be selected. If it isn't, click on the button to display your effective rights.
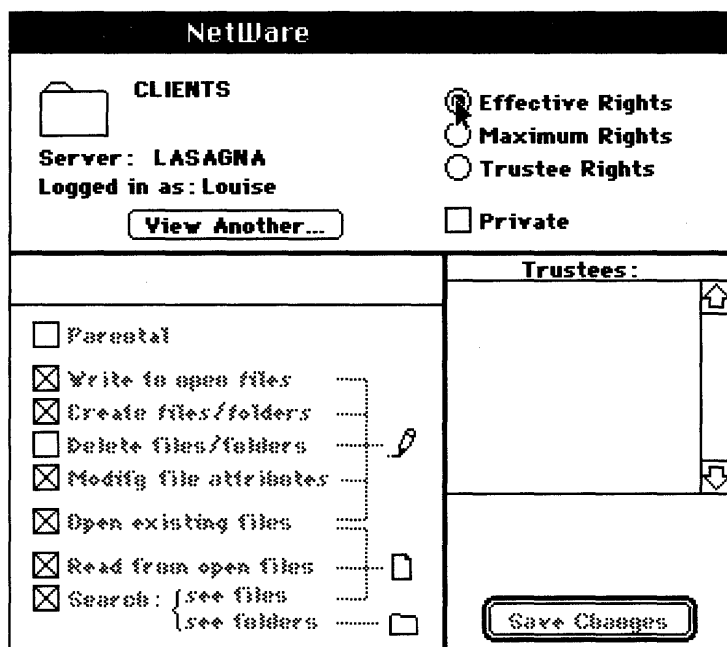
Figure 7-6.

The eight NetWare rights are listed in the center panel of the window. Your effective rights are indicated by the checked boxes. If a box is not checked, you cannot exercise that right. Since in this example, NetWare 286 rights are displayed, the Private checkbox is also displayed.

Next to the NetWare rights are shown the three AppleShare privilege icons. These icons reflect the AppleShare equivalent for the NetWare rights that are checked.

Looking at the Maximum Rights (or Inherited Rights) Mask. From the Volume Info or Folder Info window, click the **Maximum Rights** button (or **Inherited Rights** button for a NetWare 386 folder) to display the Rights Mask for the folder or volume you've selected.

The Maximum Rights (or Inherited Rights) window allows you to:

◆ See the Rights Mask, and

◆ Change the Rights Mask if you have the appropriate rights.

The Maximum Rights (or Inherited Rights) window looks similar to the Effective Rights window, with one addition. The AppleShare folder icons are displayed. NetWare 286 displays six AppleShare folders; NetWare 386 displays only four of the folders.

Figure 7-7 shows the Maximum Rights window for a NetWare 286 folder. The Inherited Rights window for a NetWare 386 folder looks very similar, except that there is no Private checkbox.
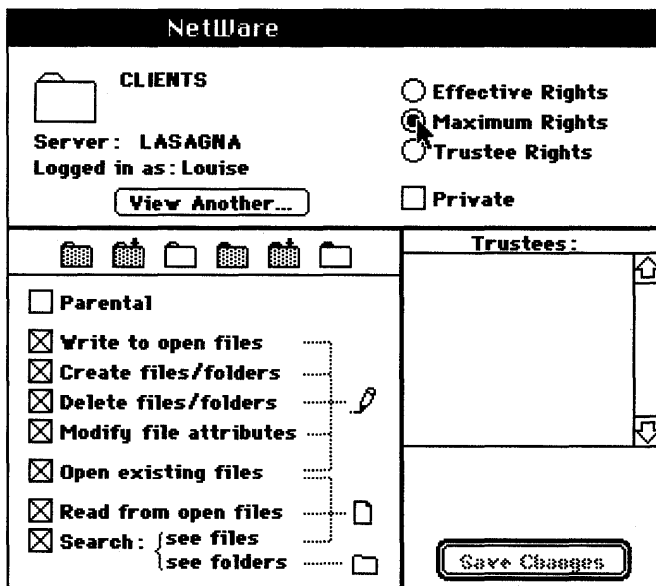
Figure 7-7.

The NetWare rights currently permitted by the Rights Mask are checked. With NetWare 286, any rights that aren't checked cannot be exercised by any user except the Supervisor. On a NetWare 386 network, any rights that aren't checked cannot be inherited by any user except the Supervisor.

If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in this folder or volume, and if the Rights Mask allows you to use that right, you can change the Rights Mask. (To see what rights you can use in this folder or volume, return to the Effective Rights display.) There are two ways to change the Rights Mask:

1. You can click on the box beside the NetWare right. If the box was already checked, clicking the box will clear it and remove the right from the Mask. If the box was clear, clicking the box will mark it and add the right to the Mask.

2. You can click on one of the AppleShare folder icons above the list of rights. If you select one of these folder icons, the NetWare rights will automatically reflect the combination of rights necessary for that type of folder.

If you make any changes to the Rights Mask, save them by clicking the **Save Changes** button. If you do not save the changes here, you will be asked if you want to save the changes you've made when you quit the Desk Accessory.

Looking at Other Trustees' Rights. The **Trustee Rights** button in the Volume or Folder Info window may or may not be available to you, depending upon your rights. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the folder or volume you've selected, you can click the **Trustee Rights** button. If you do not have the Parental or Access Control right, this button will be dimmed and you will not be able to select it. (To see what rights you can use in this folder or volume, return to the Effective Rights display.)

The Trustee Rights window allows you to:

◆ See a list of users and groups that have rights in this volume or folder,

◆ Add trustees (in other words, give other users rights to use this folder or volume),

◆ Remove trustees,

◆ Change a trustee's rights, and

♦ Make the folder or volume Private (or public) if it is on a NetWare 286 network.

If the **Trustee Rights** button is available to you, click it to see the users and groups that have trustee rights for the selected folder or volume.

The Trustee Rights window looks similar to the Rights Mask window and displays a list of all of the users and groups that are trustees of this volume or folder. Figure 7-8 shows a NetWare 386 folder's trustee rights. The NetWare 286 Trustee Rights window looks very similar.
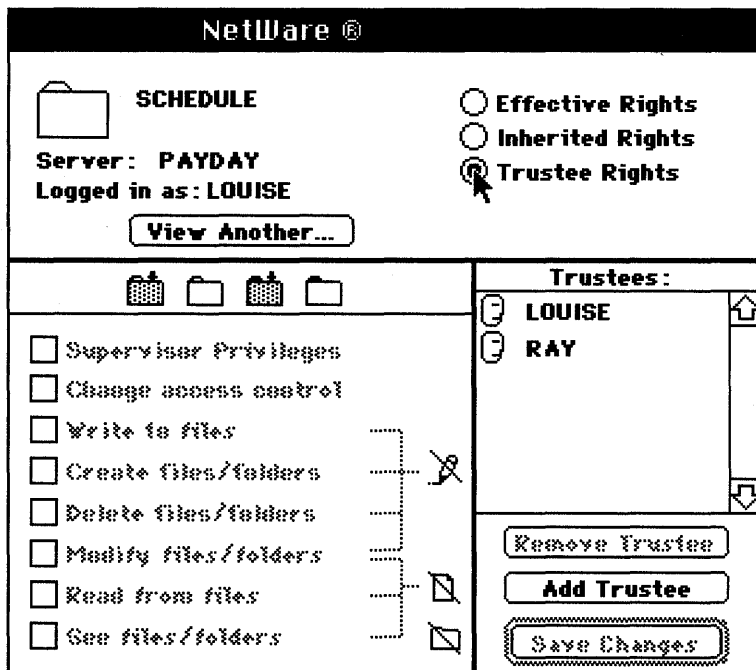
Figure 7-8.

If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in this folder or volume, you can add and remove trustees or change their trustee rights. You can also make a NetWare 286 folder or volume public or Private if you have the Parental right.

Adding a Trustee. To add a trustee to this folder or volume, follow these steps.

1. **Click Add Trustee.**

    A new panel appears, displaying a list of all of the network users and groups who are not already trustees of this folder or volume (Figure 7-9).
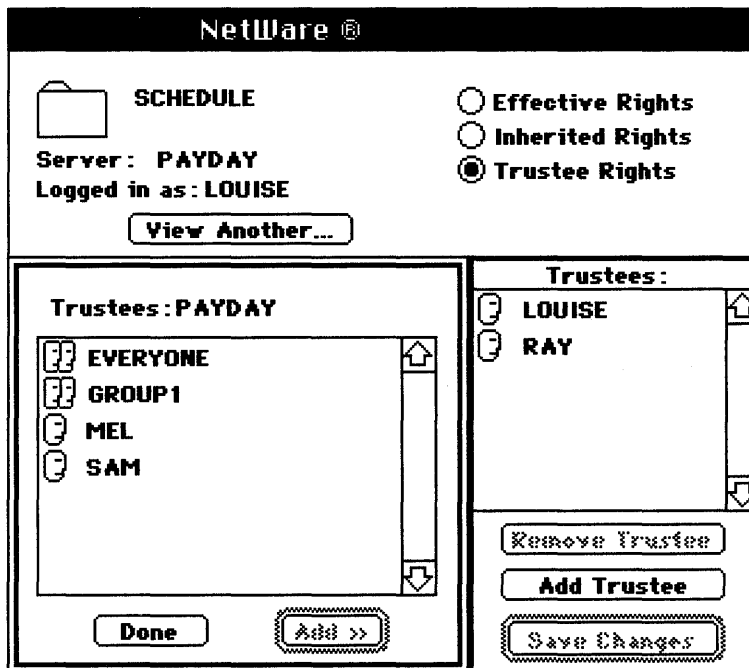
Figure 7-9.

2. **Click the user or group you want to add as a trustee.**
    To select several users or groups, hold down the Shift key and click on each user or group you want to select.

3. **Click ADD>>.**

4. **Click Done.**

The new trustees you've added are now displayed in the Trustees list.

Removing a Trustee. To remove a trustee from this folder or volume, first select the trustee (either a user or a group) from the Trustees list (Figure 7-10). Then click the **Remove Trustee** button. The trustee will be deleted from the list.

```
┌─────────────────────────────────────────────────────┐
│                   NetUUare ®                          │
├─────────────────────────────────────────────────────┤
│   ┌────┐   SCHEDULE            ○ Effective Rights     │
│   │    │                       ○ Inherited Rights     │
│   └────┘ Server: PAYDAY        ● Trustee Rights       │
│   Logged in as: LOUISE                                │
│        ( View Another... )                            │
├──────────────────────────────┬──────────────────────┤
│    🗄  🗁  🗄  🗀              │      Trustees:        │
│                              ├──────────────────────┤
│  ☐ Supervisor Privileges     │ 📄 LOUISE         ⬆  │
│  ☒ Change Access Control      │ 📄 RAY               │
│  ☒ Write to files                                    │
│  ☒ Create files/folders  ┄┄┄┈ 📖                     │
│  ☒ Delete files/folders  ┄┄┄┈                        │
│  ☒ Modify files/folders  ┄┄┄┈             ⬇          │
│  ☒ Read from files       ┄┄┄┈ ☐  ( Remove Trustee )  │
│  ☒ See files/folders     ┄┄┄┈ ☐  ( Add Trustee )     │
│                                  ( Save Changes )     │
└──────────────────────────────┴──────────────────────┘
```
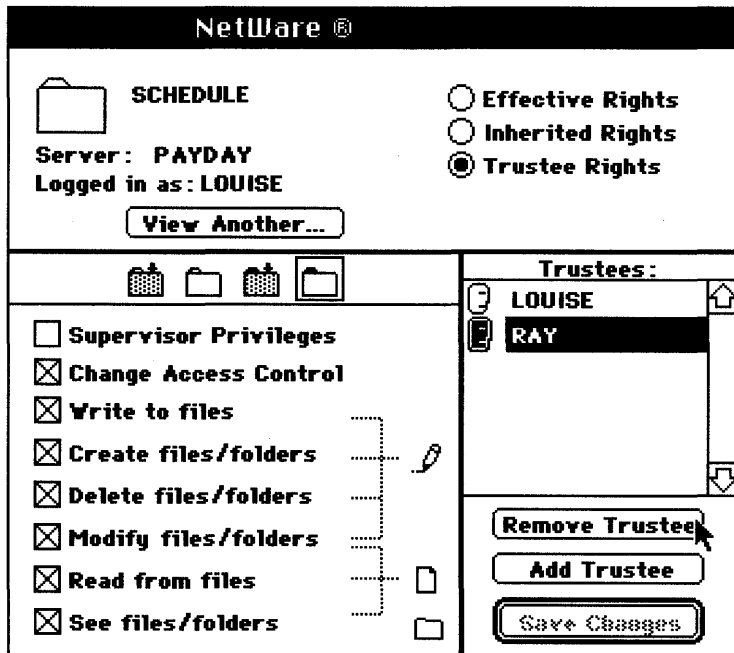
Figure 7-10.

Seeing and Changing a Trustee's Rights. To see a trustee's rights in this volume or folder, select the trustee (either a user or a group) from the list of trustees.

The list of NetWare rights will change to display that trustee's rights. Any rights that aren't checked have not been assigned to the trustee.

The Trustee Rights window does not display rights the user or group may be inheriting from the folder or the volume that contains the current folder.

To change the trustee's rights, you can use one of two methods:

1. You can click on the box beside the NetWare right. If the box was checked, clicking the box will clear it so that the trustee will no longer have that right. If the box was clear, clicking the box will mark it and give that right to the trustee.

2. You can click on one of the AppleShare folder icons above the list of rights. If you select one of these folder icons, the NetWare rights will automatically reflect the combination of rights necessary for that type of folder. The trustee now has these rights.

Making a Folder or Volume Private (NetWare 286 Only). NetWare 286 allows folders and volumes to be marked Private. NetWare 386 does not.

If the **Private** button is checked, the NetWare 286 folder or volume is designated Private. The only users who can see inside a Private folder are those who have been given the Search right for that folder. You cannot change a folder's Private or public status unless you have the Parental right in the folder.

If the **Private** button is clear, the folder or volume is public, which means anyone can see inside this folder or volume. What they can do once they're in the folder depends on their NetWare rights. If the **Private** button is clear, you can click it to make the folder or volume Private.

To make a Private folder or volume public, clear the **Private** button by clicking it again.

Saving Your Changes. If you make any changes to the Trustee Rights window, save them by clicking the **Save Changes** button. If you do not save the changes now, you will be asked if you want to save the changes you've made when you quit the Desk Accessory.

Summary

The NetWare Desk Accessory is a quick and easy tool you can use to see the security that controls access to folders and volumes. With it, you can see your effective rights and the Maximum Rights Mask (or Inherited Rights Mask) for a folder or volume.

If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in a folder or volume, you can use the NetWare Desk Accessory to change the Rights Mask, add and remove trustees, and change the rights of other trustees. You can also make a NetWare 286 folder or volume Private, or you can make it public.

If you are using NetWare for Macintosh version 2.0, you can use the NetWare Desk Accessory to send and receive messages across the network. You can also use the desk accessory to look at the list of print jobs in a print queue. If you are a print queue operator, you can modify the jobs in the queue.

This chapter explained the basics of using the NetWare Desk Accessory. Part II of this book—Chapters 9 through 14—provides a complete reference guide to the tasks you can perform on the network by using either the NetWare Desk Accessory or the NetWare Control Center.

Touring the NetWare Control Center

The NetWare Control Center is an application you can use to work with NetWare security. The NetWare Control Center is more comprehensive than the NetWare Desk Accessory.

Because it is an application itself, you cannot run the NetWare Control Center while you are using another application (unless you are using MultiFinder).

There are three different versions of the NetWare Control Center:

◆ The first version, which came with NetWare for Macintosh version 1.0, allows you to see and change NetWare security for volumes, folders, files, users, and groups.

◆ The second version, which came with NetWare for Macintosh version 1.1, added the ability for network administrators to create, delete, and rename network users and groups.

◆ The third version, which came with NetWare for Macintosh version 2.0, added support for NetWare 386 rights.

This chapter explains how to:

◆ Open the NetWare Control Center.

◆ Use the Server window (the main window), and hide and display windows.

◆ Log in to a file server from the Server window.

◆ List volumes and see security information about them.

◆ List folders and files and see security information about them.

◆ List users and groups and see security information about them.

Opening the NetWare Control Center

To open the NetWare Control Center, follow these steps.

1. **Log in to a file server and open a volume.**

   Use the Chooser under the Apple ( ) menu to log in. If you need help, see Chapter 2 for instructions.

2. **Locate the NetWare Control Center.**

   Like any other application, the NetWare Control Center can be run from a floppy disk or from a folder on the network. Ask the network administrator where the NetWare Control Center is located.

3. **Open the NetWare Control Center.**

   To open the NetWare Control Center, double-click its icon.

   If you are not logged in to a file server, the NetWare Control Center will try to find a file server. If it cannot find any file servers, it will ask you either to try again or cancel. If the NetWare Control Center finds some file servers but you are not logged in to any of them, it will display the servers' icons. You can log in to these file servers by double-clicking their icons and supplying your name and password.

   When the NetWare Control Center finds the file server you're logged in to, the Server window appears. The Server window is the main window in the NetWare Control Center.

Using the Server Window

The Server window is the first window displayed by the NetWare Control Center (Figure 8-1). Every task you perform using the NetWare Control Center starts at this window, since this is where you choose the type of object whose security information you want to see.
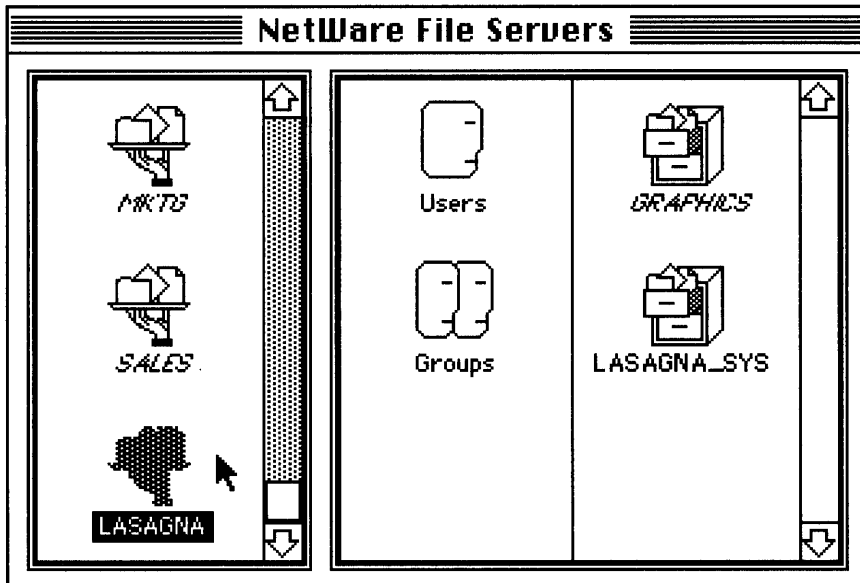
Figure 8-1.

You can use the Server window to:

◆ Log in to a file server.

◆ List a file server's volumes.

◆ List a volume's folders and files.

◆ List the file server's users and groups.

Using the Server window to list volumes, folders, files, users, or groups is the first step toward seeing and changing their security.

Since you will be using the Server window often, you need to know how to move between it and other windows.

As you continue to use the NetWare Control Center, you may end up with several windows open at the same time. Three NetWare for Macintosh features allow you to move easily between these windows:

Hide or display the Server window	To hide the Server window, choose **Hide Server Window** under the **Server** menu (the **Windows** menu in version 2.0). To display the File Servers menu, choose **Show Server Window** under the **Server** menu (the **Windows** menu in version 2.0).
Close any active window	Choose **Close Window** under the **File** menu (the **Windows** menu in version 2.0).
Close all windows **except the Server window**	Choose **Close All Windows** under the **File** menu (the **Windows** menu in version 2.0).

Logging In to a File Server

You can log in to another file server from the Server window. You can tell whether or not you are logged in to a file server by looking at the file server's name in the icon.

◆   If the name of the file server is in italics, you are <u>not</u> logged in to it.

◆   If the file server's name is in plain type, you <u>are</u> logged in to it.

To log in to a file server from the Server window, follow these steps.

1.   **Open (double-click) the icon for the file server you want to log in to.**

Choose a file server whose name is in italics. If the file server's name is displayed in plain type, you are already logged in to that server. You can also open the server by selecting the icon, then choosing **Open Server** from under the **File** menu.

If your network is set up in AppleTalk zones, NetWare for Macintosh versions 1.1 and 2.0 let you log in to a file server that is in a different zone. To change zones using version 1.1, choose **Select Zone** under the **Server** menu. Then, from the list of zones that appears, double-click the icon for the zone you want to access. (You can also click the icon and then click the **Change Zone** button.) The list of file servers in the Server window will change to display the servers in the zone you've selected. Then you can open the file server you need.

To change zones using version 2.0, choose **Change Zone** under the **File** menu. From the list of zones that appears, select (click) the icon for the zone you want to access. If you want this zone to be selected automatically every time you use the NetWare Control Center, click the **Set** button. The zone's name will appear in the box beneath the **Set** button. Then click **Change Zone**. The list of file servers in the Server window will change to display the servers in the zone you've selected. Then you can open the file server you need.

When you open the file server, the Chooser's login window appears.

2. **If necessary, type your user name.**

3. **If you have a password, type it in the Password box.**

4. **Click OK.**
   The volume window appears.

5. **Select a volume if you need one that isn't already selected.**

6. **Click OK.**

When you have finished logging in, you will return to the Server window.

Seeing Information about Volumes

You can use the Server window to see all the volumes on a file server—both the volumes you selected when you logged in and the ones you didn't.

1. **Open (double-click) a file server to display its volumes.**

   Make sure you open a file server you are already logged in to. (The file server's name should be in plain type.) The file server you are currently using may already be open.

   Icons for all of the file server's volumes appear in the right-hand panel of the Server window (Figure 8-2).

   The volumes you have already selected appear with their names in plain type. Volumes you have not yet selected appear with their names in italics.
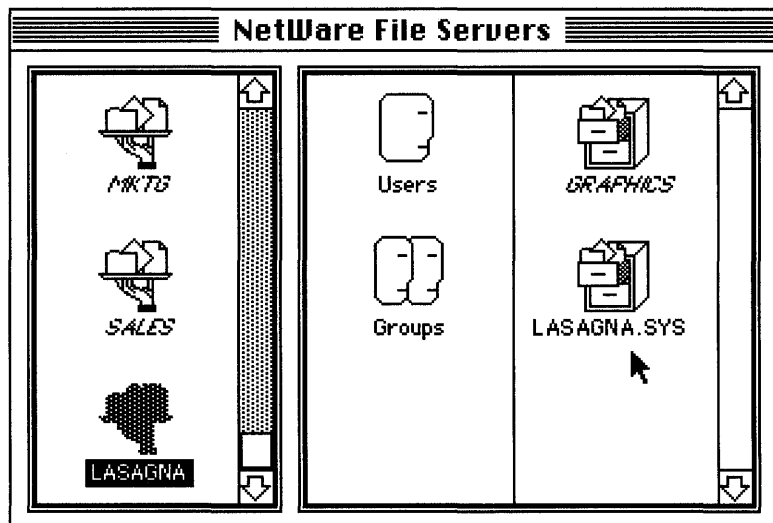
Figure 8-2.

2. **Click a volume's icon.**

   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu.**

   There are four options under the **Volumes** menu. The following chart explains each of the options.

Volume Information	Displays the volume's name and owner, and shows whether the volume is fixed (such as a hard disk) or removable (such as an optical drive). Also displays the volume's size and how much of its capacity is being used.
Volume Effective Rights	Displays your effective rights in the volume.
Volume Maximum Rights or **Volume Inherited Rights**	Displays the Maximum Rights Mask for NetWare 286 volumes, and the Inherited Rights Mask for NetWare 386 volumes. If you have the Parental or Access Control right in this volume, you can change the Rights Mask.
Volume Trustee Rights	Displays the users and groups that have rights in this volume. If you have the Parental or Access Control right in this volume, you can add and remove trustees or change a trustee's rights.

Seeing Information about Folders and Files

You can also use the Server window to see information about the folders and files within volumes.

1. **Open (double-click) the file server to display its volumes.**

    Make sure you open a file server you are already logged in to. (The file server's name should be in plain type.) The file server you are currently using may already be open.

    Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

    The volumes you have already selected appear with their names in plain type. Volumes you have not yet selected appear with their names in italics.

2. **Open (double-click) the icon for the volume that contains the folders and files you want to see.**

    A window displaying a list of the folders and files in the volume appears (Figure 8-3).

    Each folder in the list may contain other folders or files. To open a folder in the list, double-click the folder's icon. Then the window will display the list of folders and files contained in the first folder. Continue to open folders until you get to the folder or file you want.
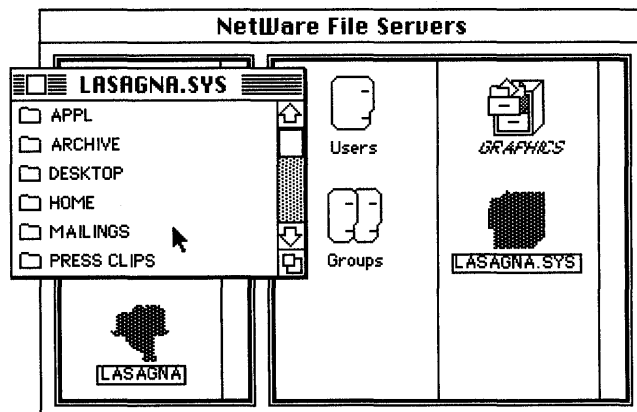
Figure 8-3.

3. **Click the folder or file whose information you want to see.**

    To select several folders or files, hold down the Shift key while you click on each item in the list. You can select folders, files, or a combination of both.

4. **Pull down the Folders/Files menu.**

    The upper set of options under the **Folders/Files** menu deals with folder information; the lower set of options deals with file information. If you selected both folders and files in Step 3, all options will be available for you to use. If you selected all folders or all files, only the corresponding options will be available. The options you see depend on your version of NetWare for Macintosh. The following chart explains each option.

Folder Information	Displays the folder's name and owner, the date and time that it was created, and its folder attributes. If you have the appropriate rights, you can change the folder's name and attributes from this window. The **Calculate Contents** button lets you display more information about the folder's size and the number of folders and files it contains.
Folder Effective Rights	Displays your effective rights in the folder.
Folder Maximum Rights or **Folder Inherited Rights**	Displays the Maximum Rights Mask for NetWare 286 folders, and the Inherited Rights Mask for NetWare 386 folders. If you have the Parental or Access Control right in the folder, you can change the Rights Mask.

Continued...

Folder Trustee Rights	Displays the users and groups that have rights in this folder. If you have the Parental or Access Control right in the folder, you can add and remove trustees or change a trustee's rights.
File Information	Displays the file's name, owner, and size (including the size of its data fork and its resource fork). Also displays the date the file was created, and the dates and times that the file was last modified, last accessed, and last archived.
File Flags	Displays the flags that have been set for the file. If the box beside the name of a flag is checked, that flag has been set for the file. If the box is clear, the file does not have that flag. You can change the file's flags from this window if you have the appropriate rights.
File Effective Rights (Version 2.0 only)	Displays your effective rights in this NetWare 386 file.

Continued...

File **Inherited Rights** (Version 2.0 only)	Displays the Inherited Rights Mask for this NetWare 386 file. If you have the Access Control right in the file, you can change the Rights Mask.
File Trustee Rights (Version 2.0 only)	Displays the users and groups that have rights in this NetWare 386 file. If you have the Access Control right in the file, you can add and remove trustees or change a trustee's rights.

Seeing Information about Users

You can use the Server window to see all the users that are on a file server—even if those users aren't logged in.

1. **Open (double-click) a file server.**
   Make sure you open a file server you are already logged in to. (The file server's name should be in plain type.) Icons for the file server's volumes appear in the right-hand panel.

2. **Double-click the Users icon in the middle panel.**
   A **User List** window appears (Figure 8-4). This window lists all of the users who are authorized to use the file server. Your name is automatically highlighted in the list.
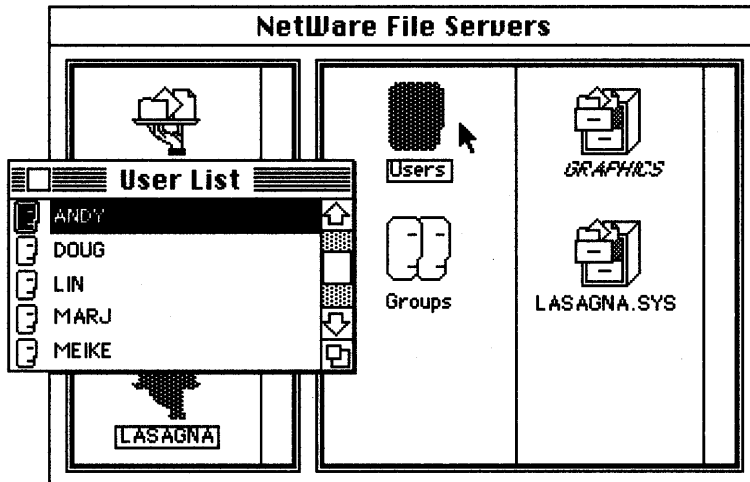
Figure 8-4.

3. **Click the name of the user whose information you want to see.**

   To select several users, hold down the Shift key while you click on each name in the list.

4. **Pull down the Users menu.**

   The options that appear under the **Users** menu depend on your version of NetWare for Macintosh. These options are explained in the following chart.

User Information	Displays the user's login name, full name (optional), and ID number (used by the network), as well as the groups to which this user belongs. If you are looking at information about yourself, you can see any security equivalences you have been assigned. You can also use the **Change Password** button to change your password.

Continued...

Trustee Assignments	Only available if you selected your own user name. Displays your login name and the folders to which you have rights. Click a folder in the list to display both your NetWare rights for that folder and the folder's path (the list of the volume and folders that contain the folder you've selected).
Create Home Folder (Version 2.0 only)	Allows the network administrator to create a home folder for a network user. A home folder is given the user's name and is located inside a folder called Users. Creating a home folder is a quick way to create a working folder for a new user.
Create New User (Versions 1.1 and 2.0 only)	Allows the network administrator to create network users.
Delete User (Versions 1.1 and 2.0 only)	Allows the network administrator to delete network users.

Seeing Information about Groups

You can also use the Server window to see all the groups that are on a file server.

1. **Open (double-click) a file server.**
   Make sure you open a file server you are already logged in to. (The file server's name should be in plain type.) Icons for the file server's volumes appear in the right-hand panel.

2. **Double-click the Groups icon in the middle panel.**
   A **Group List** window appears (Figure 8-5). This window lists all of the groups that are authorized to use the file server.
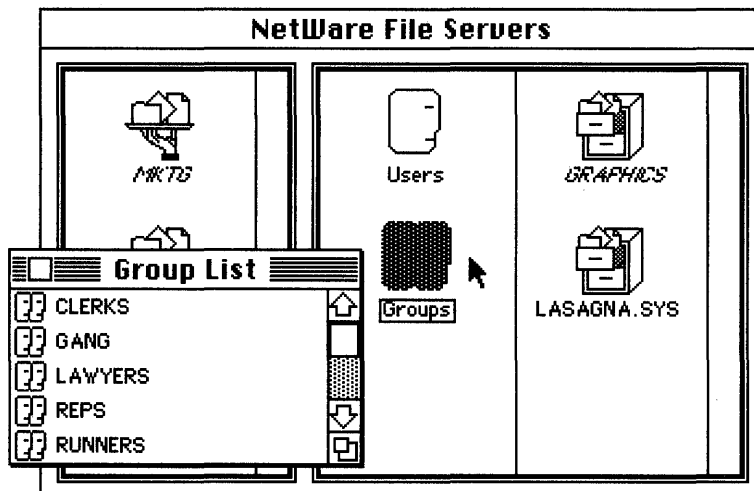
Figure 8-5.

3. **Click the name of the group whose information you want to see.**
   To select several groups, hold down the Shift key while you click on each name in the list.

4. **Pull down the Groups menu.**
   The options that appear under the **Groups** menu depend on your version of NetWare for Macintosh. These options are explained in the following chart.

Group Information	Displays the group's name, full name (optional), and ID number (used by the network), as well as the users that belong to this group.
Trustee Assignments	Only available if you selected a group to which you belong. Displays your group name and the folders to which your group has rights. Click a folder in the list to display both the group's NetWare rights for that folder and the folder's path (the list of the volume and folders that contain the folder you've selected).
Create New Group (Versions 1.1 and 2.0 only)	Allows the network administrator to create network groups.
Delete Group (Versions 1.1 and 2.0 only)	Allows the network administrator to delete network groups.

Summary

The NetWare Control Center is an application you can use to see and modify NetWare security.

With the NetWare Control Center, you can see the volumes, folders, files, users, and groups that exist on a file server. Then, if you have the appropriate NetWare rights, you can use the NetWare Control Center to see and modify security information for each of these items.

This chapter explained the basics of using the NetWare Control Center. Part II of this book—Chapters 9 through 14—provides a complete reference to the tasks you can perform on the network by using either the NetWare Control Center or the NetWare Desk Accessory.

Task Reference

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Task Reference: Volumes

This reference chapter describes how to use the NetWare Desk Accessory and the NetWare Control Center to work with volumes. Step-by-step instructions guide you through each task.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

✔ Access and move around in the NetWare Control Center (as explained in Chapter 8).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a Volume

◆ Usage and Storage Statistics for a Volume

◆ A Volume's Security

Basic Information about a Volume

List All Volumes. You can use the NetWare Control Center to list all of the volumes on a file server.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Make sure you open a file server you are already logged in to. (The file server's name should be displayed in plain type.) The file server you are currently using may already be open.

Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

The volumes you have already selected to use appear with their names in plain type. Volumes you have not yet selected appear with their names displayed in italics.

See a Volume's Owner. You can use either the NetWare Control Center or the NetWare Desk Accessory to see who owns the volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume you want to examine.

3. **Pull down the Volumes menu and select Volume Information.**
   The window that appears shows the name of the volume's owner, as well as other information.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
   The right-hand side of the window now displays the name of the volume's owner, as well as other information.

See the Volume's Type (Fixed or Removable). You can use the NetWare Control Center to see whether a volume is fixed or removable. Fixed volumes, such as hard disks, are permanently installed in the file server. Other volumes, such as tapes or optical drives, can be removed.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**
   The window that appears shows the volume's type, indicating whether it is fixed or removable.

List the Folders and Files in a Volume. You can use both the NetWare Control Center and the NetWare Desk Accessory to see the names of the folders and files in a volume.

From the NetWare Control Center:

1. **Open (double-click) the file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders and files you want to see.**
   A window displaying a list of the folders and files in that volume appears. Each folder in the list may also contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will display the list of folders and files contained in the
   first folder. You can continue to open folders to display their contents.

   From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears which lists the folders in the volume you've
   opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the
   top of the dialog box. You can change to a different volume, as long
   as that volume is on your desktop before you open the Desk Acces-
   sory. If you are using NetWare for Macintosh version 1.0 or 1.1,
   click **Volume** until the correct volume is displayed. If you are using
   version 2.0, pull down the menu of volumes under **Volumes:** and
   select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**.
   Then the window will display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

Usage and Storage Statistics for a Volume

See the Volume's Total Size and Available Space (in Bytes). You can use the
NetWare Control Center to see the total size of the volume (measured in bytes) and
the amount of space still available on the volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**
   The window that appears shows the volume's total size and its available storage space.

See the Total Number of Directory Entries Allowed and the Number Unused. You can use the NetWare Control Center to see the maximum number of directory entries that the volume can contain and the number of directory entries still available on the volume. Directory entries are used by the network operating system to keep track of the files and folders on the network. Each folder and each DOS file uses one directory entry. Each Macintosh file uses two directory entries—one for the data fork and one for the resource fork. If the volume runs out of directory entries, you cannot create any more files or folders.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**
   The window that appears shows the maximum number of directory entries on the volume and the number of directory entries that are still available. This window also displays other information about the volume.

See the Number of Bytes Currently Being Used. You can use the NetWare Control Center to see the number of bytes that are currently in use by network users.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
    This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**

4. **Click Calculate Contents.**
    The window that appears displays the current number of bytes in use.
    This window also displays other information about the volume.

See the Number of 4KB Blocks Currently Being Used. You can use the NetWare Control Center to see the number of blocks that are currently being used by files on the volume. NetWare allocates storage space for files in blocks of 4 kilobytes (KB) each.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
    Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
    This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**

4. **Click Calculate Contents.**
    The window that appears displays the current number of 4KB blocks in use. This window also displays other information about the volume.

See the Number of Files and Folders in the Volume. You can use the NetWare Control Center to see how many files and folders are in the volume. This does not list the files or folders—it merely indicates how many files and folders the volume contains.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
    Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Information.**

4. **Click Calculate Contents.**
   The window that appears displays both the number of files in the volume and the number of folders. This window also displays other information about the volume.

A Volume's Security

See Your Effective Rights. You can use both the NetWare Control Center and the NetWare Desk Accessory to see your effective rights in the volume. Your effective rights are the rights you can actually exercise in a volume after all of your trustee assignments and inherited rights are matched against the volume's Rights Mask.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Effective Rights.**
   The window that appears displays your effective rights in the volume. You cannot change your effective rights from this window.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
   The window that appears displays your effective rights in the volume. (The Effective Rights button at the top of the window should be checked. If it is not, click it to display your effective rights.) You cannot change your effective rights from this window.

See and Change the Volume's Rights Mask. You can use both the NetWare Control Center and the NetWare Desk Accessory to see the volume's Maximum Rights Mask (or Inherited Rights Mask in NetWare 386). The NetWare 286 Maximum Rights Mask controls which rights users and groups can exercise in the volume. The NetWare 386 Inherited Rights Mask controls which rights users and groups can inherit in the volume. If you have the NetWare 286 Parental right or NetWare 386 Access Control right in the volume, you can change the volume's Rights Mask.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Maximum Rights (or Volume Inherited Rights for NetWare 386).**

The window that appears displays the volume's Rights Mask. The rights that are checked are permitted by the Mask. In NetWare 286, a right that is not checked cannot be exercised by a trustee, even if the trustee has been assigned that right. In NetWare 386, a right that is not checked cannot be inherited by any trustee; however, if a trustee has been assigned that right specifically for the volume, he or she can exercise that right.

4. **To change the Rights Mask, click the box for each right you want to change.**
If the box beside a right was clear, clicking it will mark it and add that right to the Mask. If the box was checked, clicking it will clear the box and remove the right from the Mask.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**
The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
The window that appears displays your effective rights in the volume.

4. **Click the Maximum Rights button (or the Inherited Rights button for NetWare 386).**

The window changes to display the volume's Rights Mask. The rights that are checked are permitted by the Mask. In NetWare 286, a right that is not checked cannot be exercised by a trustee, even if the trustee has been assigned that right. In NetWare 386, a right that is not checked cannot be inherited by any trustee; however, if a trustee has been assigned that right specifically for the volume, he or she can exercise that right.

5. **To change the Rights Mask, click the box for each right you want to change, or click the AppleShare folder icon for the type of rights you want the volume to have.**
   If the box beside a right was clear, clicking it will mark it and add that right to the Mask. If the box was checked, clicking it will clear the box and remove the right from the Mask. If you click an AppleShare folder icon, the list of rights will automatically change to reflect the necessary rights.

See a Volume's Trustees. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the volume, you can use both the NetWare Control Center and the NetWare Desk Accessory to see the users and groups who have rights in that volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Trustee Rights.**
   The window that appears displays a list of users and groups who have been given rights in the volume.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
   The window that appears displays your effective rights in that volume.

4. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who have been given rights in the volume.

Add Trustees to a Volume. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the volume, you can use both the NetWare Control Center and the NetWare Desk Accessory to add a trustee to the volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Trustee Rights.**
   The window that appears displays a list of users and groups who have been given rights in this volume.

4. **Leave the Volume Trustee Rights window open, and display the Server window again.**

   Either click a part of the Server window that still shows, or choose **Show Server Window** from under the **Server** menu (or the **Windows** menu in version 2.0).

5. **Open (double-click) either the Users or Groups icon.**

   If you want to assign a user to be a trustee of the volume, double-click the **Users** icon to display the list of all network users. If you want to make a group a trustee of the volume, double-click the **Groups** icon to display the list of available network groups.

6. **Drag the icon for the new trustee from the User List or Group List window to the Trustees list (in the Volume Trustee Rights window).**

   To select more than one trustee, hold down the Shift key while you click on each user's or group's name. After you drag the icon for a new trustee to the Trustees list, that user or group becomes a trustee of the volume.

7. **Click Save Changes to make the new trustees permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**

   A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
    The window that appears displays your effective rights in the volume.

4. **Click the Trustee Rights button.**
    The window changes to display a list of the users and groups who have been given rights in the volume.

5. **Click the Add Trustee button (located beneath the Trustees list).**
    A list of all available network users and groups is displayed to the left of the Trustees list.

6. **Click the names of the users and groups that you want to be trustees of the volume.**
    To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

7. **Click the Add>> button.**
    The new trustees' names are added to the list of trustees in the right-hand panel.

8. **When you finish assigning trustees to the volume, click Done.**

9. **Click Save Changes to make the new trustees permanent.**

Remove Trustees from a Volume. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the volume, you can use both the NetWare Control Center and the NetWare Desk Accessory to remove a trustee from the volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
    Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
    This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Trustee Rights.**
    The window that appears displays a list of users and groups who have been given rights in the volume.

4. **In this list, click the names of the users and groups that you do not want to be trustees of the volume.**

   To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

5. **Click the Remove Trustee button (located beneath the Trustees list).**

   The names of the trustees you selected are removed from the list of trustees.

6. **Click Save Changes to make the removal permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**

   A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**

   The window that appears displays your effective rights in the volume.

4. **Click the Trustee Rights button.**

   The window changes to display a list of the users and groups who have been given rights in the volume.

5. **In this list, click the names of the users and groups that you do not want to be trustees of the volume.**

   To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

6. **Click the Remove Trustee button (located beneath the Trustees list).**

   The names of the trustees you selected are removed from the list of trustees.

7. **Click Save Changes to make the removal permanent.**

See and Change a Trustee's Rights. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the volume, you can use both the NetWare Control Center and the NetWare Desk Accessory to see and modify a trustee's rights in the volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**

   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**

   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select Volume Trustee Rights.**

   The window that appears displays a list of users and groups who have been given rights in that volume.

4. **In this list, click the name of the user or group whose rights you want to see.**

   The list of NetWare rights to the left of the Trustees list changes to display the rights assigned to the trustee you selected. The rights that are checked are assigned to that trustee. The rights that are not checked cannot be exercised by that trustee.

5. **To change the trustee's rights, click the box for each right you want to change.**

   If the box beside a right was clear, clicking it will mark it and assign the right to the trustee. If the box was checked, clicking it will clear the box and remove the right from the trustee.

6. **If you changed the trustee's rights, click Save Changes to make the trustee's rights permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**
The window that appears displays your effective rights in the volume.

4. **Click the Trustee Rights button.**
The window changes to display a list of the users and groups who have been given rights in the volume.

5. **In this list, click the name of the user or group whose rights you want to see.**
The list of NetWare rights to the left of the Trustees list changes to display the rights assigned to the trustee you selected. The rights that are checked are assigned to the trustee. The rights that are not checked cannot be exercised by the trustee.

6. **To change the trustee's rights, click the box for each right you want to change.**
If the box beside a right was clear, clicking it will mark it and assign the right to the trustee. If the box was checked, clicking it will clear the box and remove the right from the trustee.

7. **If you changed the trustee's rights, click Save Changes to make the trustee's rights permanent.**

Make a Private Volume. NetWare 286 allows volumes to be marked Private (NetWare 386 does not support the Private attribute). You can use both the NetWare Control Center and the NetWare Desk Accessory to see if a NetWare 286 volume is Private or public. If you have the Parental right in the volume, you can also change the volume's Private status.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Click a volume's icon.**
   This selects the volume whose information you want to see.

3. **Pull down the Volumes menu and select either Volume Maximum Rights or Volume Trustee Rights.**
   Both the Maximum Rights window and the Trustee Rights window display a Private checkbox. If the checkbox is marked, the volume is Private. If the checkbox is clear, the volume is public.

4. **To change the volume's Private status, click the Private checkbox.**
   If the box was marked, clicking it will clear it and make the volume public. If the box was clear, clicking it will mark it and make the volume Private.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click Volume Info.**

   The window that appears displays a Private checkbox. If the checkbox is marked, the volume is Private. If the checkbox is clear, the volume is public.

4. **To change the volume's Private status, click the Private checkbox.**

   If the box was marked, clicking it will clear it and make the volume public. If the box was clear, clicking it will mark it and make the volume Private.

Task Reference: Folders

This reference chapter describes how to use the NetWare Desk Accessory and the NetWare Control Center to work with folders. Step-by-step instructions guide you through each task.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

✔ Access and move around in the NetWare Control Center (as explained in Chapter 8).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a Folder

◆ Usage and Storage Statistics for a Folder

◆ A Folder's Security

Basic Information about a Folder

List All Folders and Files. You can use both the NetWare Control Center and the NetWare Desk Accessory to see the names of the folders and files in a volume.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've just opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

Change a Folder's Name. If you have the appropriate NetWare rights, you can use the NetWare Control Center to change a folder's name.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose name you want to change.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. The folder's name appears at the top of the window. If you have the NetWare rights required to change the folder's name, the name appears in a box.

6. **To change the folder's name, type the new name in the box.**

See a Folder's Owner. You can use the NetWare Control Center to see who owns the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose owner you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. The name of the folder's owner appears at the top of the window.

Usage and Storage Statistics for a Folder

See the Folder's Size (in Logical Bytes and Physical Disk Space). You can use the NetWare Control Center to determine the size of a folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose size you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected.

6. **Click Calculate Contents.**
   The window that appears shows the size of the folder in terms of both logical bytes and physical disk space.

See the Number of Files and Folders in the Folder. You can use the NetWare Control Center to see how many files and folders are in the folder you select.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected.

6. **Click Calculate Contents.**

   The window that appears shows how many folders and files your selected folder contains.

See When a Folder Was Created. You can use the NetWare Control Center to see the date and time when the folder was created.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying the list of folders and files in that volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose creation time you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. The date and time when the folder was created appear beneath the **Calculate Contents** button.

A Folder's Security

See Your Effective Rights. You can use both the NetWare Control Center and the NetWare Desk Accessory to see your effective rights in a folder. Your effective rights are the rights you can actually exercise in a folder, after all of your trustee assignments and inherited rights are matched against the folder's Rights Mask.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Effective Rights.**
   The window that appears displays your effective rights in the folder. You cannot change your effective rights from this window.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**
   The window that appears displays your effective rights in the folder. (The Effective Rights button at the top of the window should be checked. If it is not checked, click it to display your effective rights.) You cannot change your effective rights from this window.

See and Change the Folder's Rights Mask. You can use both the NetWare Control Center and the NetWare Desk Accessory to see a folder's Maximum Rights Mask (or Inherited Rights Mask in NetWare 386). The NetWare 286 Maximum Rights Mask controls which rights users and groups can exercise in the folder. The NetWare 386 Inherited Rights Mask controls which rights users and groups can inherit in the folder. If you have the NetWare 286 Parental right or NetWare 386 Access Control right in the folder, you can change the folder's Rights Mask.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on
   each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Maximum
   Rights (or Folder Inherited Rights for NetWare 386).**
   The window that appears displays the folder's Rights Mask. The
   rights that are checked are permitted by the Mask. In NetWare 286, a
   right that is not checked cannot be exercised by a trustee, even if the
   trustee has been assigned that right. In NetWare 386, a right that is
   not checked cannot be inherited by any trustee; however, if a trustee
   has been assigned that right specifically for the folder, he or she can
   exercise that right.

6. **To change the Rights Mask, click the box for each right you want
   to change, or click the AppleShare folder icon for the type of
   rights you want that folder to have.**
   If the box beside a right is clear, clicking it will mark it and add that
   right to the Mask. If the box is checked, clicking it will clear the box
   and remove the right from the Mask. If you click an AppleShare
   folder icon, the list of rights will automatically change to reflect the
   necessary rights.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've
   opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**

   You can also highlight the folder in the list and click **Open Folder**. The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**

   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**

   The window that appears displays your effective rights in the folder.

6. **Click the Maximum Rights button (or the Inherited Rights button for NetWare 386).**

   The window changes to display the folder's Rights Mask. The rights that are checked are permitted by the Mask. In NetWare 286, a right that is not checked cannot be exercised by a trustee, even if the trustee has been assigned those rights. In NetWare 386, a right that is not checked cannot be inherited by any trustee; however, if a trustee has been assigned that right specifically for the folder, he or she can exercise that right.

7. **To change the Rights Mask, click the box for each right you want to change, or click the AppleShare folder icon for the type of rights you want the folder to have.**

If the box beside a right was clear, clicking it will mark it and add
that right to the Mask. If the box was checked, clicking it will clear
the box and remove the right from the Mask. If you click an
AppleShare folder icon, the list of rights will automatically change to
reflect the necessary rights.

See a Folder's Trustees. If you have the NetWare 286 Parental right or the
NetWare 386 Access Control right in a folder, you can use both the NetWare Control
Center and the NetWare Desk Accessory to see the users and groups who have rights
in the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the
   folders you want to list.**
   A window displaying a list of the folders and files in the volume
   appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on
   each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Trustee
   Rights.**
   The window that appears displays a list of users and groups who
   have been given rights in the folder.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**
   The window that appears displays your effective rights in the folder.

6. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who have been given rights in the folder.

Add Trustees to a Folder. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the folder, you can use both the NetWare Control Center and the NetWare Desk Accessory to add a trustee to the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list also may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Trustee Rights.**
   The window that appears displays a list of users and groups who have been given rights in the folder.

6. **Leave the Folder Trustee Rights window open, and display the Server window again.**
   Either click a part of the Server window that still shows, or choose **Show Server Window** from under the **Server** menu (or **Windows** menu in version 2.0).

7. **Open (double-click) either the Users or Groups icon.**
   If you want to designate a user as a trustee of the folder, double-click the **Users** icon to display the list of all network users. If you want to make a group a trustee of the folder, double-click the Groups icon to display the list of available network groups.

8. **Drag the icon for the new trustee from the User List or Group List window to the Trustees list (in the Folder Trustee Rights window).**

   To select more than one trustee, hold down the Shift key while you click on each user's or group's name. After you drag the icon for a new trustee to the Trustees list, that user or group becomes a trustee of the folder. New trustees are automatically assigned all rights in the folder.

9. **Click Save Changes to make the new trustees permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**

   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**

   You can also highlight the folder in the list and click **Open Folder**. The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**

   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**

   The window that appears displays your effective rights in the folder.

6. **Click the Trustee Rights button.**
   The window changes to display the list of the users and groups who have been given rights in the folder.

7. **Click the Add Trustee button (located beneath the Trustees list).**
   A list of all available network users and groups is displayed to the left of the Trustees list.

8. **Click the names of the users and groups that you want to become trustees of the folder.**
   To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

9. **Click the Add>> button.**
   The new trustees' names are added to the list of trustees in the right-hand panel.

10. **When you finish assigning trustees to the folder, click Done.**

11. **Click Save Changes to make the new trustees permanent.**

Remove Trustees from a Folder. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the folder, you can use both the NetWare Control Center and the NetWare Desk Accessory to remove a trustee from the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**

   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Trustee Rights.**

   The window that appears displays a list of users and groups who have been given rights in the folder.

6. **In this list, click the names of the users and groups that you want to remove as trustees of the folder.**

   To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

7. **Click the Remove Trustee button (located beneath the Trustees list).**

   The names of the trustees you selected are removed from the list of trustees for that folder.

8. **Click Save Changes to make the removal permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**

   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**

   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**
   The window that appears displays your effective rights in the folder.

6. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who have been given rights in the folder.

7. **In this list, click the names of the users and groups that you want to remove as trustees of the folder.**
   To select more than one trustee, hold down the Shift key while you click on each user's or group's name.

8. **Click the Remove Trustee button (located beneath the Trustees list).**
   The names of the trustees you selected are removed from the list of trustees.

9. **Click Save Changes to make the removal permanent.**

See and Change a Trustee's Rights. If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in a folder, you can use both the NetWare Control Center and the NetWare Desk Accessory to see and modify a trustee's rights in that folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Trustee Rights.**
   The window that appears displays a list of users and groups who have been given rights in the folder.

6. **In this list, click the name of the user or group whose rights you want to see.**
   The list of NetWare rights to the left of the Trustees list changes to display the rights assigned to the trustee you selected. The rights that are checked are assigned to that trustee. The rights that are not checked cannot be exercised by that trustee.

7. **To change the trustee's rights, click the box for each right you want to change.**
   If the box beside a right was clear, clicking it will mark it and assign the right to the trustee. If the box was checked, clicking it will clear the box and remove the right from the trustee.

8. **If you changed the trustee's rights, click Save Changes to make the trustee's rights permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. Then the window will display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose trustees you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Click Folder Info.**
   The window that appears displays your effective rights in the folder.

6. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who have been given rights in the folder.

7. **In this list, click the name of the user or group whose rights you want to see.**
   The list of NetWare rights to the left of the Trustees list changes to display the rights assigned to the trustee you selected. The rights that are checked are assigned to that trustee. The rights that are not checked cannot be exercised by that trustee.

8. **To change the trustee's rights, click the box for each right you want to change.**
   If the box beside a right was clear, clicking it will mark it and assign the right to the trustee. If the box was checked, clicking it will clear the box and remove the right from the trustee.

9. **If you changed the trustee's rights, click Save Changes to make the trustee's rights permanent.**

Make a Dropbox Folder. You can use both the NetWare Control Center and the NetWare Desk Accessory to create a dropbox folder. A dropbox folder is like a mailbox. Users can place files into the folder, but they cannot see or access the files once the files are stored in the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder that you want to make into a dropbox folder.**

5. **Pull down the Folders/Files menu and select Folder Trustee Rights.**
   The window that appears displays a list of users and groups who have been given rights in the folder.

6. **In this list, click the name of the trustee who will be able to use the dropbox folder.**
   To select several users or groups, hold down the Shift key while you click on each trustee in the list. If you select more than one trustee, you can assign the same rights to all of the trustees at the same time.

7. **To give the trustee the rights necessary to use a dropbox folder, click the dropbox folder icon (displayed above the list of rights).**
   The dropbox folder icon is the gray folder with an arrow above it. When you click this folder icon, the list of NetWare rights changes to reflect the rights the trustee must have to use this folder as a dropbox. If this is a NetWare 286 folder, the Private box also becomes checked. Do <u>not</u> choose the dropbox folder with the black tab—the black tab means the user has the NetWare 286 Parental or NetWare 386 Access Control right in the folder, and therefore can change his or her rights to that folder.

8. **After you change the trustee's rights, click Save Changes to make the trustee's rights permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**.
   Then the window will display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the folder that you want to make into a dropbox folder.**

5. **Click Folder Info.**
   The window that appears displays your effective rights in that folder.

6. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who
   have been given rights in the folder.

7. **In this list, click the name of the trustee who will be able to use
   the dropbox folder.**
   To select several users or groups, hold down the Shift key while you
   click on each trustee in the list. If you select more than one trustee,
   you can assign the same rights to all of the trustees at the same time.

8. **To give the trustee the rights necessary to use a dropbox folder,
   click the dropbox folder icon (displayed above the list of rights).**
   The dropbox folder icon is the gray folder with an arrow above it.
   When you click this folder icon, the list of NetWare rights changes to
   reflect the rights the trustee must have to use the folder as a dropbox.
   If this is a NetWare 286 folder, the Private box also becomes
   checked. Do not choose the dropbox folder with the black tab—the
   black tab means the user has the NetWare 286 Parental or NetWare
   386 Access Control right in the folder, and therefore can change his
   or her rights to that folder.

9. **After you change the trustee's rights, click Save Changes to
   make the trustee's rights permanent.**

Make a Bulletin Board Folder. You can use both the NetWare Control Center and the NetWare Desk Accessory to create a bulletin board folder. A bulletin board folder lets users read the files inside the folder, but prevents them from creating, changing, or deleting files in the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder that you want to make into a bulletin board.**

5. **Pull down the Folders/Files menu and select Folder Trustee Rights.**

   The window that appears displays a list of users and groups who have been given rights in the folder.

6. **Click the name of the trustee on this list who will be able to use the bulletin board folder.**
   To select several users or groups, hold down the Shift key while you click on each trustee in the list. If you select more than one trustee, you can assign the same rights to all of the trustees at the same time.

7. **For a NetWare 286 folder, change the trustee's list of rights to include only the Read, Open, and Search rights. For a NetWare 386 folder, change the trustee's list of rights to include only the Read and File Scan rights.**

If the box beside a right was clear, click the box to mark it and assign the right to the trustee. If the box was checked, click it to clear the box and remove the right from the trustee.

8. **After you change the trustee's rights, click Save Changes to make the trustee's rights permanent.**

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders that are in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder.** The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder that you want to make into a bulletin board.**

5. **Click Folder Info.**
   The window that appears displays your effective rights in that folder.

6. **Click the Trustee Rights button.**
   The window changes to display a list of the users and groups who have been given rights in the folder.

7. **In this list, click the name of the trustee who will be able to use the bulletin board folder.**
To select several users or groups, hold down the Shift key while you click on each trustee in the list. If you select more than one trustee, you can assign the same rights to all of the trustees at the same time.

8. **For a NetWare 286 folder, change the trustee's list of rights to include only the Read, Open, and Search rights. For a NetWare 386 folder, change the trustee's list of rights to include only the Read and File Scan rights.**
If the box beside a right was clear, click the box to mark it and assign the right to the trustee. If the box was checked, click it to clear the box and remove the right from the trustee.

9. **After you change the trustee's rights, click Save Changes to make the trustee's rights permanent.**

Make a Private Folder. NetWare 286 allows folders to be marked Private (NetWare 386 does not support the Private attribute). You can use both the NetWare Control Center and the NetWare Desk Accessory to see if a NetWare 286 folder is Private or public. If you have the Parental right in the folder, you can also change the folder's Private status.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder that you want to make Private.**

5. **Pull down the Folders/Files menu and select either Folder Maximum Rights or Folder Trustee Rights.**
   Both the Maximum Rights window and the Trustee Rights window display a Private checkbox. If the checkbox is marked, the folder is Private. If the checkbox is clear, the folder is public.

6. **To change the folder's Private status, click the Private checkbox.**
   If the box was marked, clicking it will clear it and make the folder public. If the box was clear, clicking it will mark it and make the folder Private.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder that you want to make Private.**

5. **Click Folder Info.**
   The window that appears displays your effective rights in the folder.

6. **Click either the Maximum Rights or the Trustee Rights button.**
   Both the Maximum Rights window and the Trustee Rights window
   display a Private checkbox. If the checkbox is marked, the folder is
   Private. If the checkbox is clear, the folder is public.

7. **To change the folder's Private status, click the Private checkbox.**
   If the box was marked, clicking it will clear it and make the folder
   public. If the box was clear, clicking it will mark it and make the
   folder Private.

Make an Invisible (Hidden) Folder. If you have the NetWare 286 Parental right
or the NetWare 386 Access Control right in the folder, you can use the NetWare
Control Center to make a folder invisible (hidden) to other users. You also can make
an invisible folder become visible. You make a folder invisible by assigning the
folder the Invisible attribute (or the Hidden attribute in NetWare for Macintosh
version 2.0). Some utilities (such as NetWare's NDIR utility) let users or supervisors
see invisible folders, so don't rely on the Invisible (or Hidden) attribute to fully
protect your folders. In addition, you cannot back up or delete invisible folders—you
must remove the Invisible (or Hidden) attribute first.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the
   folders you want to list.**
   A window displaying a list of the folders and files in the volume
   appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. It also displays the Invisible (or Hidden) checkbox. If the checkbox is marked, the folder is invisible. If the checkbox is clear, the folder is visible.

6. **To change the folder's invisible status, click the Invisible (or Hidden) checkbox.**
   If the box was marked, clicking it will clear it and make the folder visible. If the box was clear, clicking it will mark it and make the folder invisible.

Make a System Folder (for DOS System Files). If you have the NetWare 286 Parental right or the NetWare 386 Access Control right in the folder, you can use the NetWare Control Center to assign the folder the System attribute. The System attribute indicates that the folder contains DOS system files (which are similar to the files in the Macintosh System folder). A folder with the System attribute behaves like an invisible folder. You cannot back up or delete folders marked with the System attribute—you must remove the System attribute first.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list also may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. It also displays the System checkbox. If the System checkbox is marked, the folder is a DOS system folder. If the checkbox is clear, the folder is a normal folder.

6. **To change the folder's status, click the System checkbox.**
   If the box was marked, clicking it will clear it and make the folder a DOS system folder. If the box was clear, clicking it will mark it and make the folder a normal folder.

Make a Purgeable NetWare 386 Folder (Version 2.0 Only). If you have the Access Control right in a NetWare 386 folder, and you are using NetWare for Macintosh version 2.0, you can use the NetWare Control Center to assign the Purgeable attribute to the folder. When files and folders are deleted from a NetWare 386 network, those files and folders are held in a special directory for a specified amount of time so that they can be restored (salvaged). If you do not want deleted files to be saved in this directory, you can purge the files from the network. Purged files are completely removed from the network and cannot be restored. If you assign the Purgeable attribute to a folder, files deleted from that folder are instantly purged from the network.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
    A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
    The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
    To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
    The window that appears displays information about the folder you selected. It also displays the Purgeable checkbox. If the checkbox is marked, the folder is set to be purged instantly when it is deleted. If the checkbox is clear, the deleted folder and its deleted files can be salvaged.

6. **To change the folder's status, click the Purgeable checkbox.**
    If the box was marked, clicking it will clear it and make the folder Purgeable. If the box was clear, clicking it will mark it and make the folder salvageable.

Prevent Users from Deleting a NetWare 386 Folder (Version 2.0 Only). If you have the Access Control right in a NetWare 386 folder and you are using NetWare for Macintosh version 2.0, you can use the NetWare Control Center to assign the Delete Inhibit attribute to that folder. The Delete Inhibit attribute prevents users from deleting the folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
    Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. It also displays the Delete Inhibit checkbox. If this checkbox is marked, the folder cannot be deleted. If the checkbox is clear, the folder can be deleted.

6. **To change the folder's status, click the Delete Inhibit checkbox.**
   If the box was marked, clicking it will clear it and allow users to delete the folder. If the box was clear, clicking it will mark it and prevent users from deleting the folder.

Prevent Users from Renaming a NetWare 386 Folder (Version 2.0 Only). If you have the Access Control right in a NetWare 386 folder, and you are using NetWare for Macintosh version 2.0, you can use the NetWare Control Center to assign the Rename Inhibit attribute to the folder. The Rename Inhibit attribute prevents users from changing the folder's name.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the folder whose information you want to see.**
   To select several folders, hold down the Shift key while you click on each folder in the list.

5. **Pull down the Folders/Files menu and select Folder Information.**
   The window that appears displays information about the folder you selected. It also displays the Rename Inhibit checkbox. If this checkbox is marked, the folder cannot be renamed. If the checkbox is clear, the folder can be renamed.

6. **To change the folder's status, click the Rename Inhibit checkbox.**
   If the box was marked, clicking it will clear it and allow users to change the folder's name. If the box was clear, clicking it will mark it and prevent users from changing the folder's name.

Task Reference: Files

This reference chapter describes how to use the NetWare Desk Accessory and the NetWare Control Center to work with files. Step-by-step instructions guide you through each task.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

✔ Access and move around in the NetWare Control Center (as explained in Chapter 8).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a File

◆ Usage and Storage Statistics for a File

◆ A File's Security

Basic Information about a File

List All Files. You can use both the NetWare Control Center and the NetWare Desk Accessory to see the names of the files in a folder.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears. This box lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **To open a folder in the list, double-click the folder's icon.**
   You can also highlight the folder in the list and click **Open Folder**. The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

See and Change a File's Name. If you have the appropriate NetWare rights, you can use the NetWare Control Center to change a file's name.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the
   folders you want to list.**
   A window displaying a list of the folders and files in the volume
   appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the file whose name you want to change.**
   To select several files, hold down the Shift key while you click on
   each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you
   selected. The file's name appears at the top of the window. If you
   have the NetWare rights required to change the file's name, the name
   appears in a box.

6. **To change the file's name, type the new name in the box.**

See a File's Owner. You can use the NetWare Control Center to see who owns
the file.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose owner you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you selected. The name of the file's owner appears at the top of the window.

Usage and Storage Statistics for a File

See a File's Size: Resource Fork, Data Fork, and Total. You can use the NetWare Control Center to see the size of the file's resource fork, the size of the file's data fork, and the total size of the file (the combined size of both forks).

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays the size of the file's resource fork, the size of the file's data fork, and the total size of the file (the combined size of both forks).

See When a File was Created. You can use the NetWare Control Center to see the date when the file was created.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you selected. The lower portion of the window displays the date on which that file was created.

See When a File was Last Modified. You can use the NetWare Control Center to see the most recent date and time that a file was modified.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you selected. The lower portion of the window displays the date and time when the file was most recently modified.

See When a File was Last Accessed. You can use the NetWare Control Center to see the most recent date and time that a file was opened, even if the file wasn't modified.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you selected. The lower portion of the window displays the date and time when the file was most recently opened (accessed).

See When a File was Last Backed Up (Archived). You can use the NetWare Control Center to see the most recent date and time when a file was backed up.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you selected. The lower portion of the window displays the last date and time when the file was backed up (archived). If the file has never been archived, the message **Not Archived** appears instead of a date.

See Whether a File is Open or Closed. You can use the NetWare Control Center to see if a file is currently open and being used by a network user, or if it is closed.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the folders you want to list.**
   A window displaying a list of the folders and files in the volume appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained in the first folder. You can continue to open folders to display their contents.

4. **Click the file whose information you want to see.**
   To select several files, hold down the Shift key while you click on each file in the list.

5. **Pull down the Folders/Files menu and select File Information.**
   The window that appears displays information about the file you
   selected. The **State** option indicates whether the file is currently open
   or closed.

A File's Security

See and Change a File's Flags. If you have the NetWare 286 Parental right or
the NetWare 386 Access Control right in the file's folder (or if you have the Access
Control right to the individual NetWare 386 file), you can use the NetWare Control
Center to see and change the file's flags.

From the NetWare Control Center:

1. **Open (double-click) a file server to display its volumes.**
   Icons for all of the file server's volumes appear in the right-hand
   panel of the Server window.

2. **Open (double-click) the icon for the volume that contains the
   folders you want to list.**
   A window displaying a list of the folders and files in the volume
   appears. Each folder in the list may contain other folders or files.

3. **To open a folder in the list, double-click the folder's icon.**
   The window will then display the list of folders and files contained
   in the first folder. You can continue to open folders to display their
   contents.

4. **Click the file whose flags you want to see.**
   To select several files, hold down the Shift key while you click on
   each file in the list.

5. **Pull down the Folders/Files menu and select File Flags.**
   The window that appears displays a list of NetWare file flags. The
   flags that are checked are currently assigned to the file. The flags that
   are not checked are not assigned to the file.

6. **To change the file's flags, click the box for each flag you want to change.**

   If the box beside a flag was clear, clicking it will mark it and assign that flag to the file. If the box was checked, clicking it will clear the box and remove the flag from the file.

Task Reference: Users

This reference chapter describes how to use the NetWare Desk Accessory and the NetWare Control Center to work with users. Step-by-step instructions guide you through each task.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

✔ Access and move around in the NetWare Control Center (as explained in Chapter 8).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a User

◆ Sending and Accepting Messages

◆ Your Own Security

Basic Information about a User

See a User's Login (User) Name and Full Name. You can use the NetWare Control Center to see both a user's login name (usually called the **user name**) and his or her full name. When creating a new network user, the network administrator may assign the user's first name (for example, Ray) as the user name. The administrator can then indicate a full name (Raymond D. Snow) as part of the information about that user that is stored on the network. The full name is optional. However, the user doesn't need to type his full name to log in to the network. He only types his user name—Ray.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are authorized to use that particular file server. Your name is automatically highlighted in the list.

3. **Click the name of the user whose name you want to see.**
   To select several users, hold down the Shift key while you click on each name in the list.

4. **Pull down the Users menu and select User Information.**
   The window that appears displays both the user name and the full name for the user, if the administrator entered a full name.

See a User's ID Number. You can use the NetWare Control Center to see a user's ID number. The ID number is used by the network to help keep track of the user. The ID number is also used as the name of a special folder created by the network for each user. These folders, called Mail directories, hold important network information about the user.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are authorized to use the file server. Your name is automatically highlighted in the list.

3. **Click the name of the user whose ID number you want to see.**
   To select several users, hold down the Shift key while you click on each name in the list.

4. **Pull down the Users menu and select User Information.**
   The window that appears displays information about the user,
   including the user's ID number.

See the Groups that a User Belongs To. You can use the NetWare Control
Center to see all the network groups to which a user belongs.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are
   authorized to use the file server. Your name is automatically high-
   lighted in the list.

3. **Click the name of the user whose information you want to see.**
   To select several users, hold down the Shift key while you click on
   each name in the list.

4. **Pull down the Users menu and select User Information.**
   The window that appears displays information about the user. It also
   displays a list of the network groups to which that user belongs.

Sending and Accepting Messages (Version 2.0 Only)

Sending a Message to a User. If you are using NetWare for Macintosh version
2.0, you can use the NetWare Desk Accessory to send messages to other users on the
network.

From the NetWare Desk Accessory:

1. **Open the Message Module by clicking the Message icon.**
   The Message window appears, displaying a list of users who are
   currently logged in to your file server. You can send messages to any
   of these users.

2. **To send a message to users on a different file server, pull down the menu of file servers under Servers: and select the file server you need.**
   You can only select servers to which you are already logged in. The list of users changes to display the users who are logged in to the new server.

3. **Click the names of the users you want to receive your message.**
   To select several users, hold down the Shift key and click on each user you want to select.

4. **Type your message in the box at the bottom of the window.**
   Keep the message brief. Your message must fit on only one line.

5. **Click the Send button.**
   Your message will now be sent to the users you selected. The message will show up on their screens momentarily, as long as they have installed their Notify INIT file in their System folders.

Accepting Messages from Other Users. If you are using NetWare for Macintosh version 2.0, you can receive messages from other users on the network, including the supervisor. To receive messages, you must have installed the Notify INIT file in your System folder. You can then use the NetWare Desk Accessory to specify whether or not you want to receive messages.

From the NetWare Desk Accessory:

1. **Open the Message Module by clicking the Message icon.**
   The Message window appears, displaying a list of the users currently logged in to your file server.

2. **To make sure you can receive messages from other users, verify that the Accept Messages box is checked.**
   If the box is not checked, click it to mark it. Remember, you must also have the Notify INIT file in your System folder before you can receive any messages.

3. **If you do not want to receive messages from other users, click the Accept Messages box to clear it.**

Your Own Security

See Your User Name. You can also use the NetWare Desk Accessory to see the name you used when you logged in.

From the NetWare Desk Accessory:

1. **Open the Rights Module by clicking the Rights icon.**
   A dialog box appears that lists the folders in the volume you've opened.

2. **Make sure you're using the correct volume.**
   The name of the volume you are currently using is displayed at the top of the dialog box. You can change to a different volume, as long as that volume is on your desktop before you open the Desk Accessory. If you are using NetWare for Macintosh version 1.0 or 1.1, click **Volume** until the correct volume is displayed. If you are using version 2.0, pull down the menu of volumes under **Volumes:** and select the volume you want.

3. **Click either a volume or a folder.**

4. **Click either Volume Info or Folder Info.**
   The window that appears displays information about the volume or folder you selected. In the upper portion of the window, your user name appears beside the words **Logged in as**.

Change Your Password. Using the NetWare Control Center, you can change the password you use to log in to the network.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are authorized to use the file server. Your name is automatically highlighted in the list.

3. **Click your user name.**

4. **Pull down the Users menu and select User Information.**
   The window that appears displays information about you. It also
   displays a **Change Password** button.

5. **Click the Change Password button.**
   The first window that appears asks you to enter your old password.
   This is to ensure that someone else isn't trying to change your
   password to gain unauthorized access to your files. (If you are the
   network supervisor, you won't be asked to enter your old password.)

6. **Type your old password and click OK.**
   The next window that appears asks you to enter a new password.

7. **Type a new password and click OK.**
   Another window appears, asking you to re-enter your password. This
   ensures that you didn't make a typing mistake the first time.

8. **Type your new password again, and click OK.**
   A message appears, telling you that your password has been
   changed.

9. **Click OK to return to the User Information window.**

See Your Own Security Equivalences. You can use the NetWare Control
Center to see a list of the users and groups to which you have a security equivalence.
If you have been given a security equivalence, your security has been made equal to
another user's security.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are
   authorized to use the file server. Your name is automatically high-
   lighted in the list.

3. **Click your user name.**

4. **Pull down the Users menu and select User Information.**
   The window that appears displays information about you. The right-
   hand panel lists your security equivalences.

See All the Folders that You Have Rights In. You can use the NetWare Control
Center to list all the folders to which you have been assigned rights. If you have been
assigned rights to a folder, you are called a trustee of that folder.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are
   authorized to use the file server. Your name is automatically high-
   lighted in the list.

3. **Click your user name.**

4. **Pull down the Users menu and select Trustee Assignments.**
   The window that appears displays your user name and a list of all the
   folders to which you are a trustee. It also displays the list of
   NetWare rights.

See Your Trustee Rights in a Folder. You can use the NetWare Control Center
to see the rights you have been assigned in a folder.

From the NetWare Control Center:

1. **Open (double-click) the file server whose users you want to see.**
   The **Users** icon appears in the center panel of the Server window.

2. **Open (double-click) the Users icon.**
   A User List window appears. This window lists all users who are
   authorized to use the file server. Your name is automatically high-
   lighted in the list.

3. **Click your user name.**

4. **Pull down the Users menu and select Trustee Assignments.**
    The window that appears displays your user name and a list of all the
    folders to which you are a trustee. It also displays the list of NetWare
    rights.

5. **Click a folder in the list to see the rights you have in that folder.**
    The list of NetWare rights in the left-hand panel changes to display
    your trustee rights in the folder you selected. If the folder is a
    NetWare 286 Private folder, the Private checkbox will be marked.

    The right-hand panel (labeled **Path**) changes to display the hierarchy
    of folders and the volume that contains the folder you selected.

Task Reference: Groups

This reference chapter describes how to use the NetWare Desk Accessory and the NetWare Control Center to work with groups. Step-by-step instructions guide you through each task.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

✔ Access and move around in the NetWare Control Center (as explained in Chapter 8).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a Group

◆ Your Own Group's Security

Basic Information about a Group

See a Group's Full Name. You can use the NetWare Control Center to see a group's full name. When creating a network group, the network administrator assigns the group a network name (for example, Gang). The administrator can also indicate a full name (such as Wildlife Research Team) as part of the information about that group that is stored on the network. The full name is optional, however.

From the NetWare Control Center:

1. **Open (double-click) the file server whose groups you want to see.** The **Groups** icon appears in the center panel of the Server window.

2. **Open (double-click) the Groups icon.**
   A Group List window appears. This window lists all groups that exist on the file server.

3. **Click the name of the group whose full name you want to see.**
   To select several groups, hold down the Shift key while you click on each name in the list.

4. **Pull down the Groups menu and select Group Information.**
   The window that appears displays both the group's network name and the group's full name.

See a Group's ID Number. You can use the NetWare Control Center to see a group's ID number. The ID number is used by the network to help keep track of the group.

From the NetWare Control Center:

1. **Open (double-click) the file server whose groups you want to see.**
   The **Groups** icon appears in the center panel of the Server window.

2. **Open (double- click) the Groups icon.**
   A Group List window appears. This window lists all groups that exist on the file server.

3. **Click the name of the group whose full name you want to see.**
   To select several groups, hold down the Shift key while you click on each name in the list.

4. **Pull down the Groups menu and select Group Information.**
   The window that appears displays information about the group, including the group's ID number.

See the Users in the Group. You can use the NetWare Control Center to see all the users that are members of a particular group.

From the NetWare Control Center:

1. **Open (double-click) the file server whose groups you want to see.**
   The **Groups** icon appears in the center panel of the Server window.

2. **Open (double-click) the Groups icon.**
   A Group List window appears. This window lists all groups that exist on the file server.

3. **Click the name of the group whose members you want to see.**
   To select several groups, hold down the Shift key while you click on each name in the list.

4. **Pull down the Groups menu and select Group Information.**
   The window that appears displays information about the group. It also displays the list of users who are members of that group.

Your Own Group's Security

See the Folders that Your Group Has Rights In. You can use the NetWare Control Center to list all the folders to which your group has been assigned rights. If your group has been assigned rights to a folder, the group is called a trustee of that folder. If you are not a member of a group, however, you cannot see that group's trustee assignments.

From the NetWare Control Center:

1. **Open (double-click) the file server whose groups you want to see.**
   The **Groups** icon appears in the center panel of the Server window.

2. **Open (double-click) the Groups icon.**
   A Group List window appears. This window lists all groups that exist on the file server.

3. **Click the name of your group.**

4. **Pull down the Groups menu and select Trustee Assignments.**
   The window that appears displays your group's name and a list of all the folders to which your group is a trustee. It also displays the list of NetWare rights.

See Your Group's Trustee Rights in a Folder. You can use the NetWare Control Center to see the rights your group has been assigned in a folder.

From the NetWare Control Center:

1. **Open (double-click) the file server whose groups you want to see.**
   The **Groups** icon appears in the center panel of the Server window.

2. **Open (double-click) the Groups icon.**
   A Group List window appears. This window lists all groups that exist on the file server.

3. **Click the name of your group.**

4. **Pull down the Groups menu and select Trustee Assignments.**
   The window that appears displays your group's name and a list of all the folders to which your group is a trustee. It also displays the list of NetWare rights.

5. **Click a folder in the list to see the rights your group has in it.**
   The list of NetWare rights in the left-hand panel changes to display your group's trustee rights in the folder you selected. If the folder is Private, the Private checkbox will be marked.

   The right-hand panel (labeled **Path**) changes to display the hierarchy of folders and the volume that contain the folder you selected.

Task Reference: Print Queues

This reference chapter describes how to use the NetWare Desk Accessory in NetWare for Macintosh version 2.0 to work with print queues. (Previous versions of NetWare for Macintosh do not include the Print Queue module.) Step-by-step instructions guide you through each task. If you are a print queue operator, you can work with the jobs in the queue, changing their status and their order. If you are not a print queue operator, you can see the status of the print jobs in a print queue.

Before using this chapter, be sure you know how to:

✔ Log in to the network (as explained in Chapters 2 and 8).

✔ Access and move around in the NetWare Desk Accessory (as explained in Chapter 7).

The tasks in this chapter are organized into the following sections:

◆ Basic Information about a Print Queue

◆ Working with a Print Queue (for Print Queue Operators Only)

Basic Information about a Print Queue

See the Print Jobs in a Print Queue. In NetWare for Macintosh version 2.0 only, you can use the NetWare Desk Accessory to see a list of the print jobs that are currently in a print queue. You can also see each job's status—whether it is printing, waiting in line, on hold, and so on.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of the print jobs currently in the queue. If there are no print queues on the file server you're logged in to, the list will be empty and the **Print Queues:** box at the bottom of the screen will say *No Queues*.

2. **To see a print job's status, look under the Status column.**
   The Status column shows what is currently happening to the print job in the queue. There are five options for the Status column:

Active	The job is being sent to the printer. Only one job can be active at a time.
Adding	The job is being added to the print queue.
Held	The print queue operator has put the job on hold. This means the job will stay in the queue and will not be printed until the print queue operator releases the job.
Ready	The job is ready to go to the printer whenever its turn arrives.
Waiting	The print queue operator has delayed this print job, specifying that the job is to be printed at a later time.

See a Different Print Queue. You can use the NetWare Desk Accessory (in NetWare for Macintosh version 2.0 only) to see a different print queue.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of all the print jobs in the queue.

2. **Pull down the menu under Print Queues (in the bottom right-hand corner of the window) and select a different print queue from the list.**
   The list of print jobs will change to show the print jobs in the queue you just selected.

See a Print Queue on a Different File Server. In NetWare for Macintosh version 2.0 only, you can use the NetWare Desk Accessory to change the file server whose print queues you wish to view. You can choose any file server to which you are already logged in.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of all the print jobs in the queue.

2. **Pull down the menu under Servers (in the bottom left-hand corner of the window) and select a different file server from the list.**
   The only file servers that appear in the list are those to which you are already logged in. The window will change to show a print queue on the file server you just selected. If there are no print queues on the file server you selected, the list will be empty and the **Print Queues:** box at the bottom of the screen will say *No Queues*.

Working with a Print Queue (for Print Queue Operators Only)

Changing the Order of the Jobs in a Queue. If you are a print queue operator, you can use the NetWare Desk Accessory (in NetWare for Macintosh version 2.0 only) to change the order in which the jobs in a print queue are sent to the printer. You can only change the position of one job at a time, moving it either ahead or behind other jobs in the print queue.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of the print jobs currently in the queue.

2. **Click the print job you want to move in the queue, and drag it to its new position in the list.**
   In a few moments, the sequence numbers of the jobs in the queue will change to reflect the new order.

Deleting a Print Job. If you are a print queue operator, you can use the NetWare Desk Accessory (in NetWare for Macintosh version 2.0 only) to delete a print job from the print queue.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of the print jobs in the queue.

2. **Click the print job you want to delete.**

3. **Click the Delete button.**
   A window appears, asking if you're sure you want to delete the job.

4. **Click the Delete button again.**
   The job will disappear from the list.

Putting a Print Job on Hold. If you are a print queue operator, you can use the NetWare Desk Accessory (in NetWare for Macintosh version 2.0 only) to put a print job on hold indefinitely. The print job will stay in the queue and will not be printed until the print queue operator continues the job.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of all the print jobs in the queue.

2. **Click the print job you want to place on hold.**

3. **Click the Hold button.**
   In a few moments, the print job's status in the queue will change to "Held."

Continuing (Restarting) a Print Job. If you are a print queue operator, you can use the NetWare Desk Accessory (in NetWare for Macintosh version 2.0 only) to continue (restart) a print job that has been placed on hold.

From the NetWare Desk Accessory:

1. **Open the Print Queue Module by clicking the Print Queue icon.**
   The Print Queue window appears, displaying a list of the print jobs in the queue.

2. **Click the print job that is currently on hold.**

3. **Click the Continue button.**
   In a few moments, the print job's status in the queue will change to "Ready."

Troubleshooting

This appendix explains how to solve some of the more common problems you might encounter while using NetWare for Macintosh. Remember, if you have a problem while working with your network files, try checking your effective rights in the folder first. Many problems turn out to be a lack of sufficient NetWare rights.

This appendix offers troubleshooting tips for problems you may have with:

◆   Logging in and changing passwords;

◆   Using folders, files, and applications;

◆   Using the NetWare Desk Accessory;

◆   Using the NetWare Control Center;

◆   Printing; and

◆   Receiving messages.

Logging In and Changing Passwords

I can't find the AppleShare workstation software in the *System Tools* disk I'm using to create my startup disk.

You may not have the correct *System Tools* disk. Use the *System Tools* disk that came with NetWare for Macintosh versions 1.0 and 1.1, or find a more recent version of the *System Tools* disk that has the AppleShare software on it.

I can't find any file servers in the Chooser.

The AppleShare workstation software may not be installed on your startup disk, or you may have accessed the wrong startup diskette. See Chapter 2 for instructions on updating your startup disk and for hints on making sure you've accessed the correct startup disk.

The file server I want isn't listed in the Chooser window.

1. Make sure the AppleShare icon appears in the left-hand panel. If it doesn't, the AppleShare workstation software isn't installed on your startup disk, or you may have accessed the wrong startup diskette. See Chapter 2 for instructions on updating your startup disk and for hints on making sure you've accessed the correct startup disk.

2. Are you using AppleTalk zones? If the lower left-hand portion of the Chooser window lists AppleTalk zones, make sure the zone your file server belongs to is selected.

3. The file server may not be running. Check with your network administrator.

4. The cabling between your Macintosh and the file server could be faulty. Make sure the network cable is correctly attached to the back of your Macintosh. If you cannot see any physical problem with the cabling, check with your network administrator.

5. The file server may not have been established as a NetWare for Macintosh target file server. Check with your network administrator.

When I enter my password, a message tells me my password is incorrect.

You may have mistyped your password, or the network administrator has changed your password. Try retyping your password. There may be a limit to the number of times you can try entering your password. If you exceed your limit, you will be locked out of the network until the administrator unlocks your account. If you are sure you typed it correctly and it still isn't accepted, ask your administrator to give you a new password.

I can log in from one workstation, but not from another.

If you are a DOS user and have a password that is longer than eight characters, you won't be able to log in from a Macintosh.

When I try to change my password, a message tells me the new password has been used previously and my password is not changed.

The network administrator has put a limit on whether you can use the same password more than once. Choose a different password.

Using Folders, Files, and Applications

I can't open a volume or folder.

You may have insufficient NetWare rights in the volume or folder, or the volume or folder may be Private. Use the NetWare Desk Accessory or the NetWare Control Center to check your rights in that volume or folder.

I can't find a folder.

The folder may be flagged Invisible (Hidden in NetWare for Macintosh version 2.0).

I can't open an application.

1. You may have insufficient NetWare rights to the application or the folder that contains the application. Use the NetWare Desk Accessory or the NetWare Control Center to check your rights for that application and its folder.

2. The application may not be network-compatible. If the application can be used by only one person at a time, and someone else has already opened it, you will not be able to open the application. Check the file flags.

I can't delete a file or folder.

1. You may have insufficient NetWare rights to the file or folder. Use the NetWare Desk Accessory or the NetWare Control Center to check your rights for that file or folder.

2. The file or folder may have been flagged with a flag or attribute that prevents you from deleting it. Use the NetWare Desk Accessory or the NetWare Control Center to check the file flags or folder attributes.

3. Someone else may be working in the file or folder. If someone else has opened the file or folder and has not yet closed it, you will not be able to delete the file or folder.

I can't copy/rename/save a file or folder.

1. You may have insufficient NetWare rights to the file or folder. Use the NetWare Desk Accessory or the NetWare Control Center to check your rights for that file or folder.

2. The file or folder may have been flagged with a flag or attribute that prevents you from changing that file or folder. Use the NetWare Desk Accessory or the NetWare Control Center to check the file flags or folder attributes.

3. Someone else may be working in the file or folder. If someone else has opened the file or folder and has not yet closed it, you may not be able to change the file or folder.

I can't open a DOS file from my Macintosh.

You probably aren't using an application that can convert the file into Macintosh format. Obtain a conversion program or see if a Macintosh version of the application used to create the file exists.

I can't find my Macintosh files from a DOS workstation.

Macintosh filenames are often abbreviated when viewed from a DOS workstation, and you may not recognize your file's name. See Chapter 4 for information about how DOS and Macintosh filenames are translated.

Using the NetWare Desk Accessory

When I try to open the NetWare Desk Accessory, a message tells me that I am not connected to any NetWare file servers.

You must be logged in to a file server before you can use the NetWare Desk Accessory. Use the Chooser to log in to a file server, then try opening the NetWare Desk Accessory again.

When I try to open the NetWare Desk Accessory, a message tells me the Desk Accessory cannot get enough memory.

If you are working in an application, try closing the application you're using, then reopening the Desk Accessory.

When I open the NetWare Desk Accessory, a message tells me no NetWare modules were found.

1. In NetWare for Macintosh versions 1.0 and 1.1, the Rights module for the NetWare Desk Accessory must be in your startup disk's System folder. Copy the Rights module into your System folder, restart your Macintosh, then reopen the Desk Accessory.

2. In NetWare for Macintosh version 2.0, the Desk Accessory modules can be in any folder, but the Desk Accessory looks first in the System folder. If the modules are not in your System folder, the Desk Accessory asks you to specify their location. Once you indicate the folder that contains the modules, the NetWare Desk Accessory will be able to find the modules.

When I open the NetWare Desk Accessory, some of the NetWare modules appear in the window, but some do not.

Some of the NetWare modules are missing from System folder (or from the folder you may have specified as containing the modules). If you know which folder contains the missing modules, you can tell the Desk Accessory where to find the missing modules by clicking the **Setup** button, then specifying the correct folder.

Using the NetWare Control Center

When I open the NetWare Control Center, the file server I need isn't listed in the Server window.

Are you using AppleTalk zones? If you are, the wrong zone may be displayed. Choose **Change Zone** under the **Server** menu (or **File** menu in NetWare for Macintosh version 2.0). From the list of zones that appears, select the zone you want to access. (In version 2.0, you can click the **Set** button to specify that this is the zone you always want displayed automatically.) When the Server window reappears, the file server you need should be displayed in the left-hand panel.

Printing

I tried to print a document, but it didn't go to the printer I thought it would.

1. Did you make sure you selected the print queue you wanted before you tried to print the document? Use the Chooser to select the correct print queue, then try printing the document again.

2. Did the print queue operator reroute the print queues to go to a different printer? Check with your print queue operator or system administrator.

3. If you have two printers that are of the same type (such as two LaserWriters), a single queue might serve both of them. If that is the case, there is no way to tell which printer will receive your job. The print queue will send your document to the first available printer.

The printer I want isn't listed in the Chooser window.

1. Make sure the correct printer icon (such as the LaserWriter icon) appears in the left-hand panel of the Chooser window. If the correct icon is missing, you need to install that printer's software (called a driver) on your startup disk. Use the Macintosh Installer utility to update your startup disk.

2. Are you using AppleTalk zones? If the lower left-hand portion of the Chooser window lists AppleTalk zones, make sure the zone your printer belongs to is selected.

3. The printer may be malfunctioning, it may have been turned off, or the printer's cabling may be faulty. Check with your network administrator.

I tried to print a document, but nothing happened.

1. Your print job may be delayed behind someone else's job in the queue. If you are using NetWare for Macintosh version 2.0, you can open the Print Queue module in the NetWare Desk Accessory to see if your print job is in the queue. If it is, and the first job in the queue is listed as "Active," be patient. If the first job in the queue is not listed as "Active" and no activity seems to be happening in the queue, notify your print queue operator or network administrator.

2. When you selected the print queue from the Chooser, did you make sure you specified that Background Printing should be **Off**? If Background Printing is on, your file may be unable to be spooled to a print queue.

Receiving Messages

I can't receive messages from other users.

1. Make sure the Notify INIT file is in the System folder on your startup disk. You cannot receive messages without the Notify INIT file in your System folder.

2. Make sure the **Accept Messages** box in the NetWare Desk Accessory's Print Queue module is checked.

Quick Reference: Icons

This appendix is a quick reference guide to the icons and abbreviations you will see while using NetWare for Macintosh. The following types of icons and abbreviations are illustrated:

◆ NetWare utility icons

◆ File server icons

◆ Volume icons

◆ File icons

◆ User icons

◆ NetWare 286 and NetWare 386 trustee right abbreviations

◆ AppleShare folder icons

◆ AppleShare privilege icons

NetWare Utilities

NetWare Control Center

NetWare Control Center

NetWare

NetWare Desk Accessory

Rights

NetWare Desk Accessory,
Rights Module

About

NetWare Desk Accessory,
About Module

Message

NetWare Desk Accessory,
Message Module

Notify

Notify INIT file

Print Queue

NetWare Desk Accessory,
Print Queue Module

File Server Icons

LASAGNA

You are logged in to this file server. The file server's name is in plain type.

LASAGNA

You are not logged in to this file server. The file server's name is in italics.

Volume Icons

LASAGNA_SYS

You selected to use this volume, usually when you logged in. The volume's name is in plain type. (NetWare for Macintosh versions 1.0 and 1.1 use an underscore to separate the SYS volume from the file server name.)

LASAGNA.SYS

You did not choose to use this volume. The volume's name is in italics. (NetWare for Macintosh version 2.0 uses a period to separate the SYS volume from the file server name.)

File Icons

DOS SCHEDULE.NEW	A DOS file.
DOS NCOPY.EXE	A DOS-based application or utility.

User Icons

	A network user.
	The network supervisor.
	A network group.

NetWare 286 Trustee Rights

R	Read	Lets you read an open file.
O	Open	Lets you open an existing file.
W	Write	Lets you change an open file.
C	Create	Lets you create new folders and files.
D	Delete	Lets you delete folders and files.
P	Parental	Lets you change a folder's security.
S	Search	Lets you see what folders and files are inside a given folder.
M	Modify	Lets you change the names of folders and files, and lets you change folder and file attributes.

Netware 386 Trustee Rights

S	Supervisory	Gives you all rights in the file or folder.
R	Read	Lets you read an open file.
W	Write	Lets you change an open file.
C	Create	Lets you create new folders and files.
E	Erase	Lets you delete folders and files.
M	Modify	Lets you change the names of folders and files, and lets you change folder and file attributes.
F	File Scan	Lets you see what folders and files are inside a given folder.
A	Access Control	Lets you change a folder's security.

AppleShare Folder Icons

Plain folder. You can open the folder and see its files and folders.
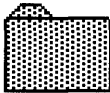
Gray folder. This is a Private folder, and you have no rights in it. Gray folders do not appear in NetWare 386.
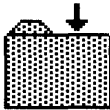
Dropbox folder. You can place files and folders into the dropbox, but you cannot open the folder or any files it contains.

Black-tabbed plain folder. You have the NetWare 286 Parental or the NetWare 386 Access Control right in the folder, so you can change the folder's security.
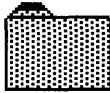
Black-tabbed gray folder. You only have the NetWare 286 Parental right in the folder. However, since you have the parental right, you can give yourself additional rights. These folders do not appear in NetWare 386.
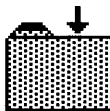
Black-tabbed dropbox folder. You have the NetWare 286 Parental or the NetWare 386 Access Control right and enough additional rights to use the folder as a dropbox. Since you have the Parental (or Access Control) right, you can change the folder's security.

AppleShare Privilege Icons

See Folders. You can open the folder and see the folders inside it.

Can't see Folders, you cannot see the folders inside the folder you opened.

See files. You can open the folder and see, open, and copy the files inside it.

Can't See Files. You cannot open any files inside the folder.

Make Changes. You can make any changes you want to files inside the folder.

Can't Make Changes. You cannot make any changes to files inside the folder.

Index

A Library of Technical References from M&T Books
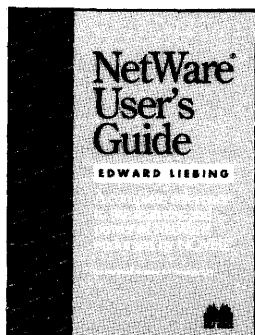
NetWare User's Guide
by Edward Liebing

Endorsed by Novell, this book informs NetWare users of the services and utilities available, and how to effectively put them to use. Contained is a complete task-oriented reference that introduces users to NetWare and guides them through the basics of NetWare menu-driven utilities and command line utilities. Each utility is illustrated, thus providing a visual frame of reference. You will find general information about the utilities, then specific procedures to perform the task in mind. Utilities discussed include NetWare v2.1 through v2.15. For advanced users, a workstation troubleshooting section is included, describing the errors that occur. Two appendixes, describing briefly the services available in each NetWare menu or command line utility are also included.

Book only	**Item #071-0**	**$24.95**
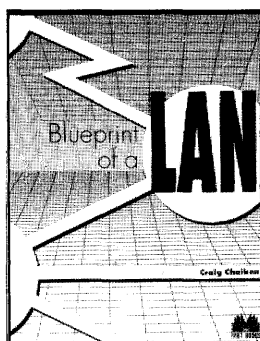
Blueprint of a LAN
by Craig Chaiken

Blueprint of a LAN provides a hands-on introduction to microcomputer networks. For programmers, numerous valuable programming techniques are detailed. Network administrators will learn how to build and install LAN communication cables, configure and troubleshoot network hardware and software, and provide continuing support to users. Included are a very inexpensive zero-slot, star topology network, remote printer and file sharing, remote command execution, electronic mail, parallel processing support, high-level language support, and more. Also contained is the complete Intel 8086 assembly language source code that will help you build an inexpensive to install, local area network. An optional disk containing all source code is available.

Book & Disk (MS-DOS)	**Item #066-4**	**$39.95**
Book only	**Item #052-4**	**$29.95**
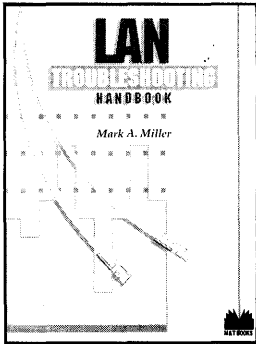
LAN Troubleshooting Handbook
by Mark A. Miller

This book is specifically for users and administrators who need
to identify problems and maintain a LAN that is already installed.
Topics include LAN standards, the OSI model, network docu-
mentation, LAN test equipment, cable system testing, and more.
Addressed are specific issues associated with troubleshooting
the four most popular LAN architectures: ARCNET, Token
Ring, Ethernet, and StarLAN. Each are closely examined to
pinpoint the problems unique to its design and the hardware.
Handy checklists to assist in solving each architecture's unique
network difficulties are also included.

Book & Disk (MS-DOS)	**Item #056-7**	**$39.95**
Book only	**Item #054-0**	**$29.95**
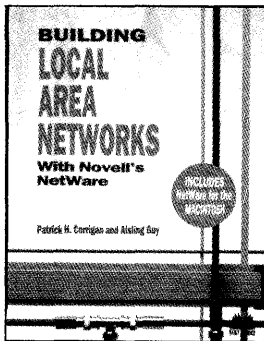
Building Local Area Networks with Novell's NetWare
by Patrick H. Corrigan and Aisling Guy

From the basic components to complete network installation,
here is the practical guide that PC system integrators will need to
build and implement PC LANs in this rapidly growing market.
The specifics of building and maintaining PC LANs, including
hardware configurations, software development, cabling,
selection criteria, installation, and on-going management are
described in a clear "how-to" manner with numerous illustrations
and sample LAN management forms. *Building Local Area
Networks* gives particular emphasis to Novell's NetWare,
Version 2.1. Additional topics covered include the OS/2 LAN
manager, Tops, Banyan VINES, internetworking, host computer
gateways, and multisystem networks that link PCs, Apples, and
mainframes.

Book & Disk (MS-DOS)	**Item #025-7**	**$39.95**
Book only	**Item #010-9**	**$29.95**
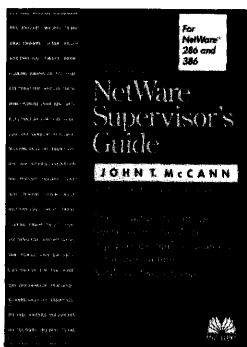
NetWare Supervisor's Guide
by John T. McCann, Adam T. Ruef, and Steven L. Guengerich

Written for network administrators, consultants, installers, and
power users of all versions of NetWare, including NetWare 386.
Where other books provide information on using NetWare at a
workstation level, this definitive reference focuses on how to
administer NetWare. Contained are numerous examples which
include understanding and using NetWare's undocumented
commands and utilities, implementing system fault tolerant
LANs, refining installation parameters to improve network
performance, and more.

Book only   **Item #111-3**   **$24.95**
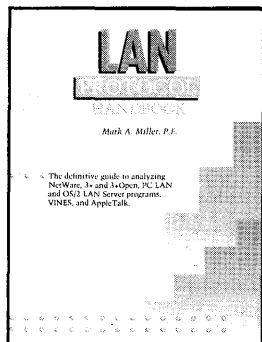
LAN Protocol Handbook
by Mark A. Miller, P.E.

Requisite reading for all network administrators and software
developers needing in-depth knowledge of the internal protocols
of the most popular network software. It illustrates the tech-
niques of protocol analysis—the step-by-step process of unrav-
eling LAN software failures. Detailed are how Ethernet, IEEE
802.3, IEEE 802.5, and ARCNET networks transmit frames of
information between workstations. From that foundation, it
presents LAN performnce measurements, protocol analysis
methods, and protocol analyzer products. Individual chapters
thoroughly discuss Novell's NetWare, 3Com's 3+ and 3+Open,
IBM Token-Ring related protocols, and more!

Book only   **Item 099-0**   **$34.95**
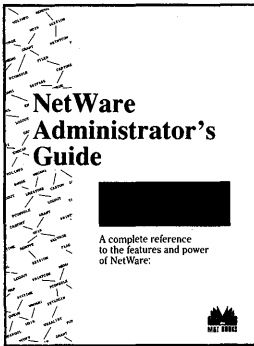
NetWare Administrator's Guide
by Russell Frye

This comprehensive guide is for all NetWare administrators responsible for the daily management of a NetWare network. Through in-depth discussions and detailed explanations, administrators will learn how to increase their network's performance and simplify file server management. All utilities available from the console are thoroughly examined. Readers will learn how to link a NetWare network to other networks, set up and manage remote access services, keep track of cabling layouts, monitor network operations, manage shared resources, and much more.

Book only   **Item #125-3**   **$34.95**
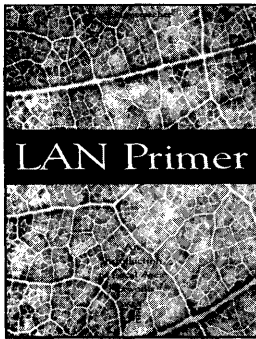
LAN Primer
An Introduction to Local Area Networks
by Greg Nunemacher

A complete introduction to local area networks (LANs), this book is a must for anyone who needs to know basic LAN principles. It includes a complete overview of LANs, clearly defining what a LAN is, the functions of a LAN, and how LANs fit into the field of telecommunications. The author discusses the specifics of building a LAN, including the required hardware and software, an overview of the types of products available, deciding what products to purchase, and assembling the pieces into a working LAN system. LAN Basics also includes case studies that illustrate how LAN principles work. Particular focus is given to ethernet and Token-Ring. Approx. 240 pp.

Book only   **Item #127-X**   **$24.95**
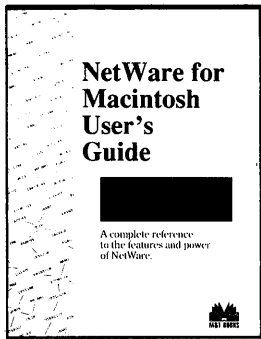
NetWare for Macintosh User's Guide
by Kelley J. P. Lindberg

NetWare for Macintosh User's Guide is the definitive reference to using Novell's NetWare on Macintosh computers. Whether a novice or advanced user, this comprehensive text provides the information readers need to get the most from their NetWare network. It includes an overview of network operations and detailed explanations of all NetWare for Macintosh menu and command line utilities. Detailed tutorials cover such tasks as logging in, working with directories and files, and printing over a network. Advanced users will benefit from the information on managing workstation environments and troubleshooting.

Book only   **Item #126-1**   **$29.95**
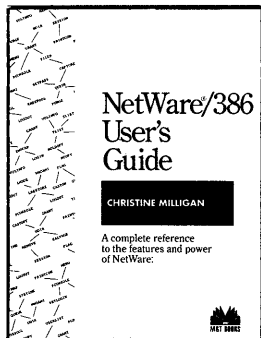
NetWare 386 User's Guide
by Christine Milligan

NetWare 386 User's Guide is a complete guide to using and understanding Novell's NetWare 386. It is an excellent reference for 386. Detailed tutorials cover tasks such as logging in, working with directories and files, and printing over a network. Complete explanations of the basic concepts underlying Net-Ware 386, along with a summary of the differences between NetWare 286 and 386, are included. Advanced users will benefit from the information on managing workstation environments and the troubleshooting index that fully examines NetWare 386 error messages.

Book only   **Item #101-6**   **$29.95**

NetWare 286 Manual Maker

C H R I S T I N E   M I L L I G A N

The Complete Kit for Creating Customized NetWare 286 Manuals

NetWare 386 Manual Maker

C H R I S T I N E   M I L L I G A N

The Complete Kit for Creating Customized NetWare 386 Manuals

NetWare for Macintosh Manual Maker

The Complete Kit for Creating Customized NetWare Macintosh Manuals

The NetWare Manual Makers
Complete Kits for Creating Customized NetWare Manuals

Developed to meet the tremendous demand for customized manuals, The NetWare Manual Makers enables the NetWare supervisor and administrator to create network training manuals specific to their individual sites. Administrators simply fill in the blanks on the template provided on disk and print the file to create customized manuals and command cards. Included are general "how-to" information on using a network, as well as fill-in-the-blank sections that help administrators explain and document procedures unique to a particular site. The disk files are provided in WordPerfect and ASCII formats. The WordPerfect file creates a manual that looks exactly like the one in the book. The ASCII file can be imported into any desktop publishing or word processing software.

The NetWare 286 Manual Maker
The Complete Kit for Creating Customized NetWare 286 Manuals
by Christine Milligan

Book/Disk   **Item #119-9**   **$49.95**

The NetWare 386 Manual Maker
The Complete Kit for Creating Customized NetWare 386 Manuals
by Christine Milligan

Book/Disk   **Item #120-2**   **$49.95**

The NetWare for Macintosh Manual Maker
The Complete Kit for Creating Customized NetWare for Macintosh Manuals
by Kelley J. P. Lindberg

Book/Disk   **Item #130-X**   **$49.95**

NetWare Programmer's Guide
by John T. McCann and Steven L. Guengerich

**NetWare®
Programmer's
Guide**

John T. McCann and
Steven L. Guengerich

Covered are all aspects of programming in the NetWare environment—from basic planning to complex application debugging. This book offers practical tips and tricks for creating and porting applications to NetWare. NetWare programmers developing simple applications for a single LAN or intricate programs for multi-site internetworked systems will find this book an invaluable reference to have on hand. All source code is available on disk in MS-PC/DOS format.

Book/Disk (MS-DOS)	**Item #154-7**	**$44.95**
Book only	**Item #152-0**	**$34.95**

The NetWare Decoder:
A Dictionary of Messages and Commands
by Russell Frye

**The NetWare®
Decoder:**
A Dictionary of
Messages and
Commands

Russell Frye

The NetWare Decoder is a complete glossary of NetWare terms and provides network administrators and users quick and easy access to the information they need. This handy reference presents clear, easy-to-understand definitions that teach administrators and users what different network phrases and commands mean and how to use them. Numerous screen shots demonstrate the commands in use.

Book only	**Item #159-8**	**$24.95**

LAN Manager 2.0: A Supervisor's Guide
by Edward Liebing

**LAN Manager
2.0:**
A Supervisor's
Guide

Edward Liebing

Here is a book for all supervisors, consultants, installers, and users of LAN Manager 2.0, Microsoft's powerful local area network. This book teaches readers how to approach and resolve problems faced by supervisors on a day-to-day basis. Through in-depth discussions, hands-on examples, and numerous tips and techniques, readers will learn everything they need to know to efficiently administer their LAN Manager network.

Book only:	**Item #160-1**	**$34.95**

The Verbum Book of PostScript Illustration
by Michael Gosney, Linnea Dayton, and Janet Ashford

This is the premier instruction book for designers, illustrators and desktop publishers using Postscript. Each chapter highlights the talents of top illustrators who demonstrate the electronic artmaking process. The artist's narrative keys readers in on the conceptual vision, providing valuable insight into the creative thought processes that go into a real-world PostScript illustration project.

Book only   Item #089-3 $29.95

Object-Oriented Turbo Pascal
by Alex Lane

This comprehensive reference explains OOP techniques as they apply to Turbo Pascal 5.5, and teaches programmers how to use objects in Turbo Pascal programs. Extensive explanations familiarize readers with essential OOP concepts, including objects—the focus of OOP, inheritance and methods. Readers will also learn how to apply objects to artificial intelligence, database, and graphics applications. All source code is available on disk in MS/PC-DOS format.

Book/Disk (MS-DOS)   Item #109-1 $36.95

Book only   Item #087-7 $26.95

The Tao of Objects:
A Beginner's Guide to Object-Oriented Programming
by Gary Entsminger and Bruce Eckel

The Tao of Objects is clearly written, user-friendly guide to object-oriented programming (OOP). Easy-to-understand discussions detail OOP techniques teaching programmers teaching programmers who are new to OOP where and how to use them. Useful programming examples in C++ and Turbo Pascal illustrate the concepts discussed in real-life applications.

Book only   Item #155-5 $26.95

Using QuarkXPress
by Tim Meehan

Written in an enjoyable, easy-to-read style, this book addresses the needs of both beginning and intermediate users. It includes numerous illustrations and screen shots that guide readers through comprehensive explanations of QuarkXPress, its potential and real-world applications. Using QuarkXPress contains comprehensive explanations of the concepts, practices, and uses of QuarkXPress with sample assignments of increasing complexity that give readers actual hands-on experience using the program.

Book/Disk	Item #129-6	$34.95
Book only	Item #128-8	$24.95
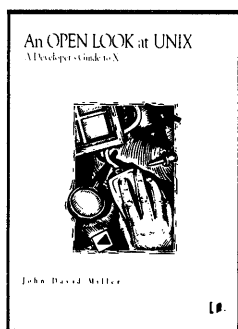
An OPEN LOOK at UNIX
A Developer's Guide to X
by John David Miller

This is the book that explores the look and feel of the OPEN LOOK graphical user interface, discussing its basic philiosophy, environment, and user-interface elements. It includes a detailed summary of the X Window System, introduces readers to object-oriented programming, and shows how to develop commercial-grade X applications. Dozens of OPEN LOOK program examples are presented, along with nearly 13,000 lines of C code. All source code is available on disk in 1.2 MB UNIX cpio format.

Book/Disk	Item #058-3	$39.95
Book only	Item #057-5	$29.95
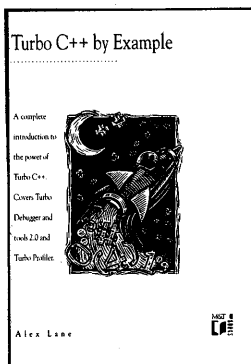
Turbo C++ by Example
by Alex Lane

Turbo C++ by Example includes numerous code examples that teach C programmers new to C++ how to skillfully program with Borland's powerful Turbo C++. Detailed are key features of Turbo C++ with code examples. Includes both Turbo Debugger and Tools 2.0—a collection of tools used to design and debug Turbo C++ programs, and Turbo Profiler. All listings available on disk in MS/PC-DOS format.

Book/Disk (MS-DOS)	Item #141-5	$36.95
Book only	Item #123-7	$26.95

1-800-533-4372 (in CA 1-800-356-2002)

The One Minute Memory Manager
Every PC user's Guide to Faster More Efficient Computing
by Phillip Robinson

Readers will learn why memory is important, how and when to install more, and how to wring the most out of their memory. Clear, concise instructions teach users how to manage their computer's memory to multiply its speed and ability to run programs simultaneously. Tips and techniques also show users how to conserve memory when working with popular software programs.

Book only: **Item #102-4**   **$24.95**

Windows 3.0:
A Developer's Guide

Jeffrey M. Richter

Windows 3.0: A Developer's Guide
Jeffrey M. Richter

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Kelley J. P. Lindberg has been part of Novell's documentation team since 1986, as editor, writer, supervisor, and manager. She supervised the team that produced the documentation for the first re-lease of NetWare for the Macintosh and cur-rently manages the doc-umentation team for Novell's flagship product, Netware 386.
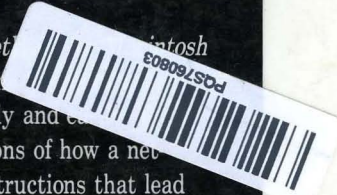
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