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User's Guide
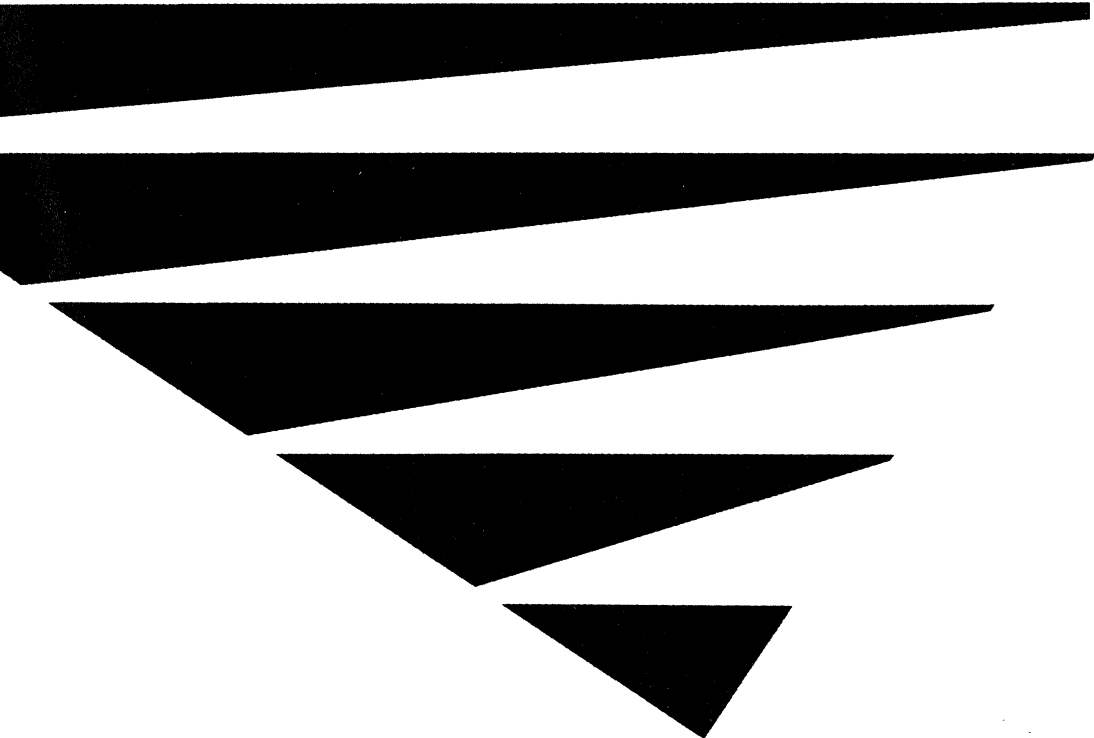
NetWare®

FOR MACINTOSH®

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User's Guide

NetWare

FOR MACINTOSH®

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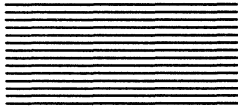
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Contents

Chapter 3 Working on the Network

Chapter 4   Understanding NetWare Security

Chapter 5   Security and the NetWare Desk Accessory

Chapter 6   Using the NetWare Control Center

Chapter 7   If Something Goes Wrong

Appendix A About the Current Startup Disk

Appendix B DOS File Naming Conventions

Glossary

Trademarks

Index

Figures

About This Guide

This guide explains what you should know to work on a NetWare network from your Macintosh. It explains what a NetWare file server is and how you use the file server from your workstation to store and share your folders and files.

Chapter 1 is a general introduction to NetWare. It explains what a NetWare network is and the concepts you should be familiar with to work on the network.

Chapter 2 explains how to access a NetWare file server from your workstation.

Chapter 3 covers the typical tasks you will be performing as you use the NetWare file server to create, manipulate, print, and store documents.

Chapter 4 examines how NetWare security works.

Chapter 5 shows you how to use the NetWare desk accessory to view and change trustee security.

Chapter 6 presents the NetWare Control Center application. You can use this chapter as a reference for viewing network information and modifying security.

Chapter 7 offers some possible solutions for problems that might come up as you work on the network.

Appendix A provides additional information about startup disks.

Appendix B explains file naming rules for DOS files, and how Apple filenames are affected when displayed on a DOS-based computer.

A glossary of technical terms and an index are also included.

What You Need to Know

To use this guide, you need to be familiar with basic Macintosh vocabulary and skills. If opening files and using folders are not familiar tasks, you need to review your Macintosh owner's guide before you read this guide.

To access a NetWare file server, you need to find out if your supervisor has assigned you a username and password. (If you don't have a username and password, you may still be able to access the file server as "guest.")

Do You Have What You Need?

To work on a NetWare network, you need a copy of the *NetWare Workstation Installer* disk. Ask your supervisor for a copy if you do not have one.

Also, this guide assumes that a NetWare file server is set up on your network and your Macintosh is properly connected to it.

Chapter 1
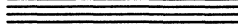
Welcome to NetWare

This chapter explains what you need to know to begin working on a NetWare network. It covers the important NetWare terms and concepts and the special features NetWare has developed for networking Macintosh.

This chapter answers the following questions:

- What is a NetWare network?

- How does NetWare for Macintosh work?

- How does NetWare security work?

- Who can use NetWare?

The answers to these questions will prepare you to work with NetWare from your Macintosh.

What Is a NetWare Network?

Networks create a way for personal computers to work with each other and with different information systems. Connecting your personal computer to a network lets you communicate with other personal computer users and share folders and files with them. A network also lets you share network resources, such as hard disks and printers.

A NetWare network is designed around the concept of a file server, a computer that controls network activity. The file server provides an extensive security system that determines what users can do on the network. Within this security system, users are given specific rights which define how they can work with files and folders on the network. As a user, you will use the file server to set user security within the folders and files you create.

The Role of the File Server

The file server is a personal computer that provides networking services to other personal computers (or workstations). Workstations use the file server to share files, send messages, and access network information. Printers and other resources connected to the file server are also available for workstations to use.

NetWare
File Server

Disk
Storage

Printer
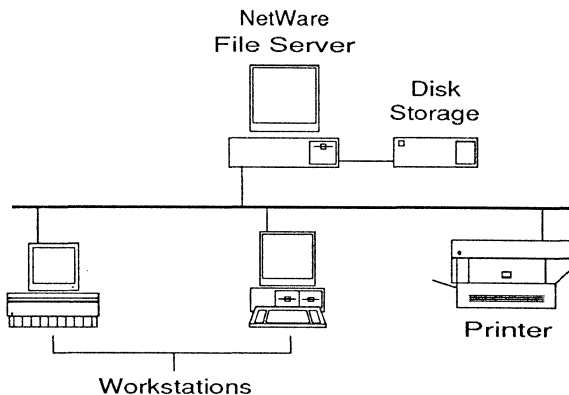
Workstations

Figure 1.1
A NetWare Network

The file server monitors and processes workstations'
requests for network resources or information. Each request
is answered according to the security status of the person
using the workstation. If the user is not authorized to make
the request, the request is denied.

Two or more file servers can be connected together to form
an internetwork. On an internetwork, workstations can
access many file servers at once. If your Macintosh is
connected to an internetwork, your workstation can access
other file servers on the internetwork.

Network Disk Storage

The main advantage in networking your Macintosh with other personal computers is the opportunity to share the file server's disk storage. Information stored on the network can include documents and the applications that create them, system files that control the network, and NetWare applications that access network information. All of this information is readily available to any workstation connected to the network, provided the user has been given the rights to folders and files on the file server.
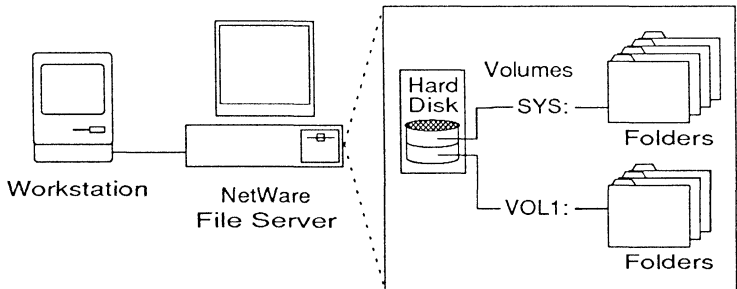
Figure 1.2
File Server Disk Storage

A file server's disk storage is divided into volumes. Volumes are the largest units of data on the network. Whenever you access a file server, you select the volumes you want to open. From your Macintosh, you work with volumes in much the same way you work with disks, clicking them open and moving folders and files around inside them.

Who Can Use the Network?

A network **user** is anyone who accesses the file server from a workstation. Most network users want to use the file server's resources and security features without being bothered with the file server's maintenance and managerial needs. These responsibilities are assumed by two special types of users: the file server's supervisor and its operators.

Supervisor   User   Operator   Groups
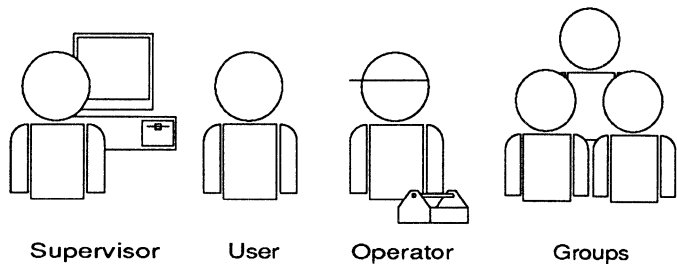
Figure 1.3
Types of Network Users

The **supervisor** (also known as an **administrator** on Macintosh networks) is a special user created when the network is installed. The supervisor has complete control over the file server and is responsible for organizing the file server's disk storage and updating its system files as needed. The supervisor also adds users to the network and manages each user's activity on the network by assigning them rights. To better organize and control the network, the supervisor can assign supervisor equivalences to other users, allowing them to share in the supervision of the network. (See page 4-10.)

The supervisor can assign some users special duties over particular areas of the network; these users are called **operators**. An operator is given additional privileges within the network utilities that apply to that operator's area. For example, a Print Queue operator uses NetWare's printing utilities to make sure the network's printing services continue to run smoothly.

The supervisor can also organize users with similar needs into **groups**. Groups offer a convenient way to assign network security, as well as distribute information over the network. Groups are assigned their own rights, and the users that belong to a group share the rights assigned to that group.

For example, there could be several people on your network who are working on a method for creating more durable ice cubes. The supervisor could make each person involved in this effort a member of the group ICEBREAKERS and assign the group rights in a folder, "Iceberg Tips." With this single assignment, the supervisor is able to give all members in the group the same rights within the folder.

How Does NetWare Security Work?

NetWare provides an extensive security system that allows users to define security for each folder they create. Depending on the kind of information that is stored on the network, it may not be desirable for some folders to be available to every network user. You will probably have some folders that you would like to protect from other users and other folders that you would like to share.

Network security is a combination of login security, folder security, and file security. These three areas form a flexible security system that can be as thorough or routine as your supervisor desires.
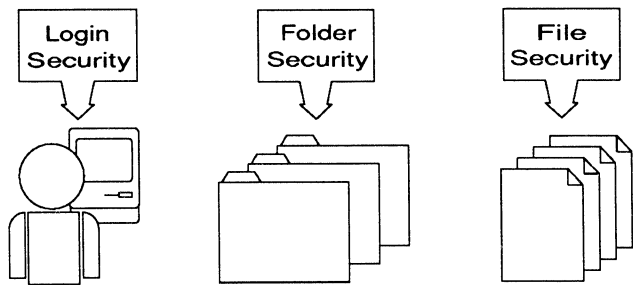
Figure 1.4
NetWare Security

Login security controls who can access a file server. Your supervisor will give you a special name that the file server will recognize each time you log in. A file server can also require each user to provide an individual password before logging in. Also, the supervisor can restrict when certain users can log in, and which files and folders they can access.

Folder security uses a system of rights that determines what users can do with folders and with files inside of folders stored on the file server. Your rights in particular folders define exactly what you can do on the network. In addition to rights, folders can be assigned folder attributes that determine how folders behave on the network (for example, whether a folder is visible).

File security is created with file flags. Just as folder attributes affect how a folder behaves, file flags can affect how a file behaves. You can flag any file that you store on a file server to specify how the file can be used (such as whether the file can be written to). However, not all flags perform security functions. The Needs Archiving flag, for example, indicates whether a file has been archived since it was last modified. For more details about NetWare security, see Chapter 3.

File security is also based on folder rights. Without the necessary folder rights, you cannot make changes to files in the folder, no matter how the files are flagged.

How Does NetWare for Macintosh Work?

Macintosh uses a special language called AppleTalk to transmit information over the network. Because NetWare and AppleTalk are different languages, or "protocols," they can't exchange information directly. Instead, NetWare uses an enhancement feature, called the Service Protocol Gateway, that overcomes the language barrier.

The Gateway is a software program installed in the file server (or in a specialized personal computer called a bridge). The Gateway acts as a translator between NetWare and AppleTalk, allowing the two systems to understand and respond to one another.
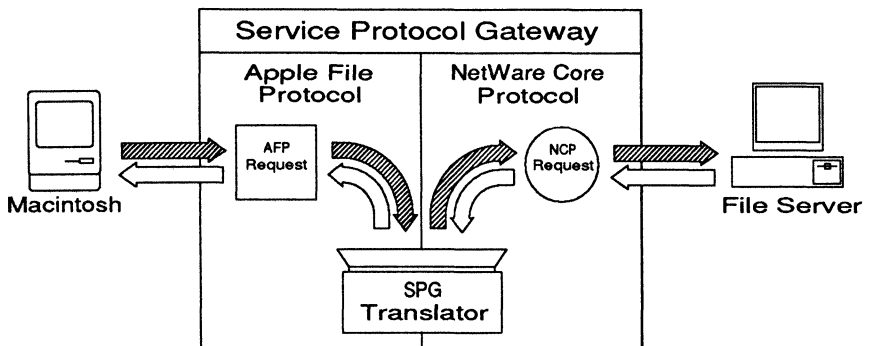
Figure 1.5
How the "Gateway" Works

From your Macintosh, you can ask your NetWare file server to do many different tasks for you, such as print a document or show information about a folder. Some files can be shared by Macintosh and DOS-based computers. Whether or not a file can be shared depends on the format of the file and the application that will be using the file.

Where to Go from Here

Now that you know the basics of a NetWare network, you can prepare your workstation software and log in to a NetWare file server. To access the file server, you need a network startup disk. Chapter 2 explains how to create a startup disk and log in.

Chapter 2
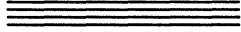
Getting Started

This chapter explains how to set up your Macintosh on the network and access a NetWare file server. To access a file server you need to

- Create a workstation startup disk;
- Log in with your username and password;
- Select the volumes you want to access.

Creating a Startup Disk

To access the file server, you need a startup disk. A startup disk contains the software that lets your workstation communicate over a network, as well as the system files your Macintosh normally requires. If you already have a startup disk for your Macintosh, you can update it to use on the network. If you do not already have a startup disk, you must use an 800KB two-sided floppy diskette as a startup disk. If the disk is not initialized, follow the procedure explained in your Macintosh owner's guide to initialize the disk.

Creating the startup disk for a NetWare workstation involves two major steps:

- First, you install the System and AppleShare files on the startup disk with the Installer utility.

- Second, you use the Font/DA Mover utility to copy the NetWare desk accessory into the System folder.

The *Macintosh System Tools* disk and the *NetWare Utilities* disk have everything you need to get started, including the latest versions of the following software:

- System

- Finder

- Chooser

- AppleShare

The System folder on the *Macintosh System Tools* disk contains the latest versions of the system files, the Finder, and the Chooser.

If you are installing system files on a Macintosh with 512KB RAM or a Macintosh Plus, you may not want to use the latest system files, which use more RAM than previous versions. Consult your Macintosh manual for the recommended system version. NetWare for Macintosh works with v4.2 and above.

Installing the System and AppleShare Files

1.   **Insert a copy of the** *Macintosh System Tools* **disk into your floppy disk drive and turn on your Macintosh.**

     If you don't have a copy of this disk, ask your network supervisor for one.

2.   **Open the disk.**

     The *Macintosh System Tools* disk contains several icons, including a system folder, the Installer scripts, and the Installer utility.

3.   **Double-click the Installer utility icon.**

     The Installer dialog box appears. In the top-right corner of the box, the name of the targeted disk is shown. This should be the name of the startup disk on which you will be installing the System and AppleShare files. If any other disk name appears, click the "Drive" box to select the startup disk.

     If you are using a single floppy disk drive, use the Eject button to swap disks when copying the system files to your startup disk. You may have to swap disks 20 times or more.

Target Disk

```
┌─────────────────────────────────────────────────────────────────┐
│ ┌───────────────────────────────────────────────────────────────┐ │
│ │  v2.5                    Installer              ▼                │ │
│ │ ┌───────────────────────────────────┐┌─┐    HARD DISK          │ │
│ │ │ AppleShare (v1.1)                 ││⇧│                        │ │
│ │ │ Macintosh II Installation (v4.2)  │└─┘    ┌──────────┐       │ │
│ │ │ Macintosh Plus Installation (v4.2)│       │  Eject   │       │ │
│ │ │ Macintosh SE Installation (v4.2)  │       └──────────┘       │ │
│ │ │ ImageWriter (v2.6)                │       ┌──────────┐       │ │
│ │ │ LaserWriter (v5.0)                │       │  Drive   │       │ │
│ │ │                                   │       └──────────┘       │ │
│ │ │                                   │                          │ │
│ │ │                                   │       ┌──────────┐       │ │
│ │ │                                   │       │ Install  │       │ │
│ │ │                                   │       └──────────┘       │ │
│ │ │                                   │       ┌──────────┐       │ │
│ │ │                                   │       │ Remove   │       │ │
│ │ │                                   │┌─┐    └──────────┘       │ │
│ │ │                                   ││⇩│    ┌──────────┐       │ │
│ │ └───────────────────────────────────┘└─┘    │  Help    │       │ │
│ │                                             └──────────┘       │ │
│ │                                             ┌──────────┐       │ │
│ │                                             │  Quit    │       │ │
│ │                                             └──────────┘       │ │
│ │  Installation will leave 13794K free on this disk;            │ │
│ │  Removal will free zero K.                                     │ │
│ └───────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────┘
```
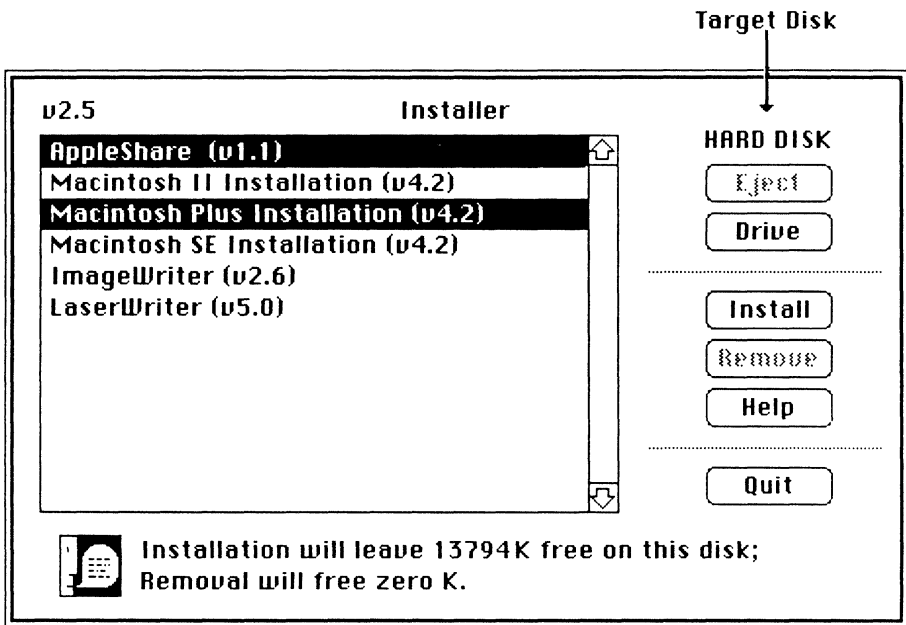
4. **Highlight AppleShare and, if you are updating or installing the System files, shift-click the appropriate system (Macintosh Plus, Macintosh SE, or Macintosh II).**

If you do not need to update your system files, you only need to select AppleShare. Be sure, however, that you have selected your startup disk as the target disk, so that the AppleShare file will be installed in the System folder.

For each selection you highlight, a message appears telling you how much room you will have left on your target disk if you perform the installation. If adequate space is not available, the Install button stays dimmed and a message tells you how much additional room is needed. Refer to your Macintosh owner's guide (and, if

you have a Laserwriter, the LaserWriter and
LaserWriter Plus manual) for help with claiming space
on a startup disk.

5.   **Click the Install button.**

When you click the Install button, the Installer
updates the system files on your startup disk and
installs the AppleShare software. To repeat the
installation on a another startup disk, use the Drive or
Eject button to select a new disk.

Press the Quit button to close the Installer when you are
finished.

Installing the NetWare Desk Accessory

The system files and the AppleShare software are the only
files you need on your startup disk to access the network.
However, you will probably also want to install the NetWare
desk accessory on your startup disk. The NetWare desk
accessory (included on the *NetWare Utilities* disk) provides a
convenient way to view network information. (For more
information on the NetWare desk accessory, see Chapter 5.)

The NetWare desk accessory contains a Rights module that
allows you to examine and modify a folder's security
information. This same information can be viewed and
modified by using the NetWare Control Center application,
but under most circumstances the NetWare desk accessory
will be faster and easier to use.

Like other desk accessories, the NetWare desk accessory
can be installed using the Macintosh Font/DA Mover. A
copy of the Font/DA Mover is included on the *NetWare
Utilities* disk.

For help in using the Font/DA Mover, follow the
instructions in your *Apple Macintosh Utilities User's Guide*.

Copy the Rights module from the *NetWare Utilities* disk to the System folder.

1. **Open the System folder on the startup disk.**

   If the System folder is on a floppy diskette and you have only one disk drive, eject the disk after opening it.

2. **Insert the NetWare Utilities disk and open it.**

3. **Drag the Rights icon from the NetWare Utilities disk to the System folder.**

   The Rights module must be in the same folder with the system files and the Finder; otherwise, the NetWare desk accessory will not be able to access the module.

Chapter 5 of this manual explains more about the NetWare desk accessory and how to use it.

Checking Your Macintosh Clock

Before you log in to a file server, you should check your Macintosh's clock.

1. **Choose the alarm clock from the Apple menu.**

   If no alarm clock is listed in the Apple menu, it may have been removed. It can be installed using the Font/DA Mover.

2. **Click the "lever" on the right side of the clock.**

   A control panel appears below the clock, displaying a date and below that a clockface, a calendar, and an alarm.
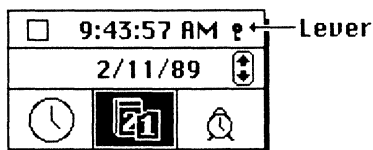
   If the date displayed is incorrect, click the digits you want to change. Then click the Up- or Down-arrow to scroll the numbers higher or lower. Or use the keyboard to type the numbers.

   If the time displayed is incorrect, click the clockface icon. The time appears where the date was formerly displayed. If the time displayed is incorrect, click the digits you want to change. Then click the Up- or Down-arrow to scroll the numbers higher or lower.

When you have finished, you can hide the control panel by clicking the lever again. Click the close box to hide the alarm clock.

Logging In to a File Server

When you have created your startup disk, you can use it to start your Macintosh. Then you can select a file server and log in. To log in, you must know the username that the supervisor has created for you on the file server. If you do not have a username, most file servers will let you log in as GUEST, a user with very limited rights.

Selecting a File Server

The Chooser desk accessory lets you select the file server you want to access. The Chooser lists the names of all available file servers. These are the file servers running NetWare v2.15 or above. (The Chooser is a regular feature of the Macintosh system software and is found under the Apple menu.)

1. **Start up your Macintosh and choose Chooser from the Apple menu.**

    The Chooser displays the AppleShare icon, as well as icons for any other available resources (such as printers).

2. **Click the AppleShare icon.**

    The Chooser lists the NetWare file servers that are currently available from your workstation. It will also show any AppleShare file servers that are connected.

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

  ■▶       🖨          Select a file server:
 ┌──────┐               ┌─────────────────────┐⇧
 │AppleShare│ AppleTalk I...   │ GERONIMO            │
                        │                     │
  ▤                     │                     │
 ▥▥▥                    │                     │⇩
 LaserWriter            └─────────────────────┘
                              ┌──────────┐
                              │   OK     │
                              └──────────┘
                        ···························
                        User Name:
                        ┌─────────────────────────┐
                        │                         │
                        └─────────────────────────┘
                                    ◉ Active
                        AppleTalk   ○ Inactive   3.3
```
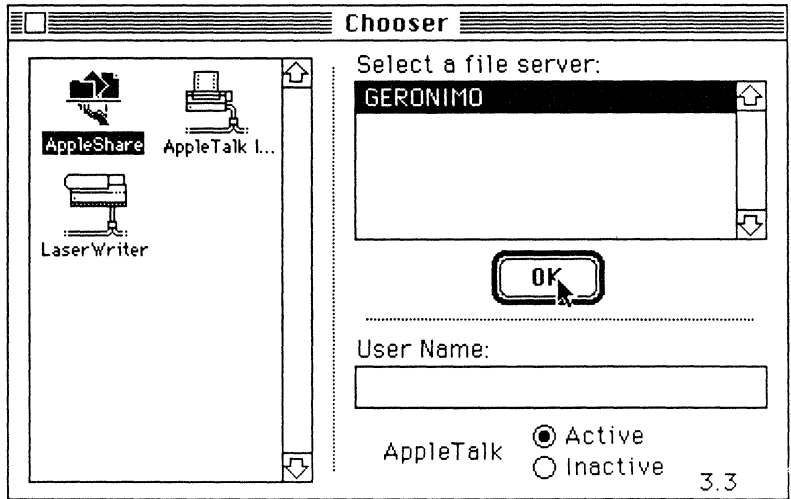
If the AppleTalk option is inactive, a dialog box appears asking if you want AppleTalk turned on. Click OK to make AppleTalk active.

3. **Highlight the name of the file server you want to log in to, and enter your username.**

    If you have a username on the network, type the name in the UserName box. In the future, the startup disk will enter your name in the box for you. If you are logging in as GUEST, do not type a name in the UserName box, unless the supervisor has assigned a password to the username GUEST.

4. **Click OK.**

    A dialogue box appears that allows you to log in to the file server you have selected.

Entering a Password

After you have selected a file server from the Chooser window, the login dialogue box will appear. This dialogue box gives you two login options:

- You can log in as GUEST;

- You can log in as a Registered User.

The GUEST option does not require a password or any additional information, unless a password has been assigned by the system supervisor. If you are logging in as a guest, click Guest, click OK, and continue with "Selecting a Volume" on Page 2-12.

1. **Make sure the Registered User option is checked.**

    This option is checked for you by default.

2. **Make sure your username is entered correctly in the Name box.**

    If you entered your username in the Chooser window, the name appears in the dialog box and you are checked in as a Registered User. If you did not enter your username in the Chooser window, type the name. Click in the password box to enter the password. Use the Backspace key to correct a typing error. (If you entered your username in the Chooser window, it will be entered automatically every time you log in.)

```
┌─────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────┐ │
│ │  ⟦icon⟧                                      │ │
│ │                                              │ │
│ │        Connect to the file server "GERONIMO" as: │ │
│ │                                              │ │
│ │        ○ Guest                               │ │
│ │        ● Registered User                     │ │
│ │                                              │ │
│ │        Name:     ┌─────────────────────────┐ │ │
│ │                  │ Cindy                   │ │ │
│ │                  └─────────────────────────┘ │ │
│ │        Password: ┌──────────┐  (Clear text) │ │
│ │                  └──────────┘                │ │
│ │                                              │ │
│ │        ┌──────────┐  ┌──────────────┐ ┌════════┐ │
│ │        │  Cancel  │  │ Set Password │ ║   OK   ║ │
│ │        └──────────┘  └──────────────┘ └════════┘ │
│ │                                        v2.0.1 │ │
│ └─────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────┘
```

3. **If a password is required on your file server, type
    your password in the Password box.**

    As you type, your password is displayed as a row of
    dots so that others can't see it. A NetWare file server
    does not distinguish between upper-case and
    lower-case characters.

    If you don't know what your password is or whether a
    password is required, check with your supervisor. (For
    details about how to change your password, see page
    6-46.)

4. **After you enter your password, click OK.**

    When you have successfully accessed the file server, a
    new dialog box appears that lets you select server
    volumes.

Selecting a Volume

To finish logging in to a file server after you have entered your username and password, you must select the volumes you want to work with. The volume dialog box provides a list of all the volumes on the file server. You can select as many volumes as you want. There will always be at least one volume, *servername*_SYS, available. If you quit the Chooser without selecting a volume, you are not logged in to the file server. (For more details about working with network volumes, see page 3-2.)

1. **Highlight the name of each volume you want to access.**

   Notice that the name of the server you are accessing appears in the upper-left corner of the dialog box. You can shift-click to select more than one volume at a time. If you check the box to the right of a volume name, that volume is selected for you automatically the next time you log in.

   If a volume name is dimmed, you either don't have rights in that volume or you have already accessed it.

   You can set the automatic access option by clicking "Save My Name and Password." Once automatic access is set up, you will be logged in to the file server automatically each time you turn on your Macintosh. Keep in mind that with this option selected, anyone can log in to the file server using your name and password simply by turning on the computer. If security is important, click "Save My Name Only." You will be prompted to enter your password at system startup time.

```
┌─────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────────────────────────────────┐   │
│  │  ╔══╗  GERONIMO                                       │   │
│  │  ╚══╝                                                 │   │
│  │        Select the server volumes you want to use:    │   │
│  │  ┌──────────────────────────────────────────┬───┬──┐ │   │
│  │  │ GERONIMO/SYS                             │ ⊠ │⇧ │ │   │
│  │  │ VOLUME_1                                 │ ⊠ │  │ │   │
│  │  │                                          │   │  │ │   │
│  │  │                                          │   │⇩ │ │   │
│  │  └──────────────────────────────────────────┴───┴──┘ │   │
│  │        Checked volumes ( ⊠ ) will be opened at       │   │
│  │        system startup time.                          │   │
│  │            ○ Save My Name Only                        │   │
│  │            ◉ Save My Name and Password                │   │
│  │                                                       │   │
│  │       ┌──────────────┐        ┌──────────────┐        │   │
│  │       │    Quit      │        │      OK      │        │   │
│  │       └──────────────┘        └──────────────┘        │   │
│  │                                              v1.1b3   │   │
│  └──────────────────────────────────────────────────────┘   │
└─────────────────────────────────────────────────────────────┘
```
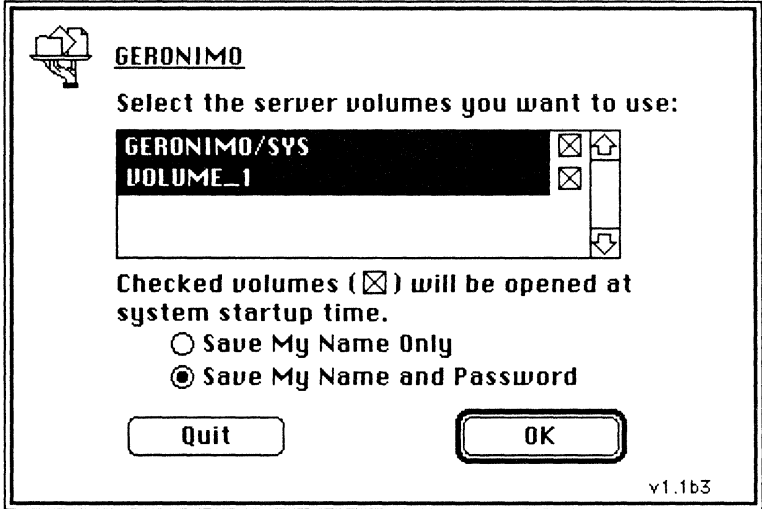
2.   **When you have selected the volumes you want to access, click OK.**

When you click OK, an icon for each volume you selected appears on the desktop and you return to the Chooser window.

Close the Chooser when you have selected all the file servers you want to access. (You can close the Chooser by selecting Close from the File menu, or you can click the close box.)

Logging Out of a File Server

Logging out terminates your connection with the file server. When you are finished working on a file server, you should log out. Also, there may be times when the supervisor needs to have users log out. If you want to use the network after you have logged out, you need to log in again.
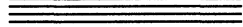
To log out, drag all the volume icons for that file server to the trash.

Where to Go from Here

When you have set up your Macintosh on the network and understand how to log in to the file server, you can begin working on the network. For help with performing basic network tasks, continue with Chapter 3, "Working on the Network."

Chapter 3

Working on the Network

When you have set up your Macintosh on the network and logged in to a file server, you can begin working with files and folders that are stored on the file server's volumes. Working with volumes is not very different from working with local drives. This chapter explains how to do everyday tasks such as

- Working with folders and files

- Using applications

- Printing

- Accessing multiple file servers

Before you begin working on the network, check with your supervisor to find out what volumes and folders you have rights in. You can only work in volumes and folders in which you have been made a trustee. To find out more about how trustee assignments work, see Chapter 4.

Accessing Volumes

All folders and files on a file server's hard disks are stored in volumes. When you logged in to the file server, you selected the volumes you wanted to access. For each volume you accessed, a volume icon appeared on the desktop. Whenever you access your network folders, you will be working within one or more of the network's volumes.

For the most part, a volume icon works the same way on the desktop as a disk icon does. By double-clicking the volume icon, you can access the folders and files inside. As with local disk storage, folders on a volume can be nested within other folders to create a hierarchy of folders. You can open several volumes at a time and copy folders and files between them.

One of the things you can't do with a volume is move items out of the volume and leave them on the desktop. If you try to do this, an error message appears telling you it can't be done.

The number of volumes on your network depends on how your supervisor has divided up the file server's disk storage. Every NetWare file server has a volume called **SYS**, which contains some standard folders that help organize the files that network users depend on. These folders include the LOGIN, MAIL, PUBLIC, and SYSTEM folders. These are NetWare system folders, and you should not alter them or their contents in any way.

Your supervisor will create other volumes and folders to suit the needs of your network.

Using the Finder on the Network

One of the things you will notice as you work within volumes is the different icons that are used to represent folders. On the network, these additional icons are added to the Finder to give you an idea of what your rights are in a folder. The finder displays five basic folder icons:

Gray folders
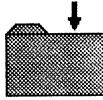
Dropbox folders

Plain folders
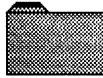
Black-tab gray folders

Black-tab plain folders

In addition to folder icons, the Finder may display any or all of these three Access Privilege icons:
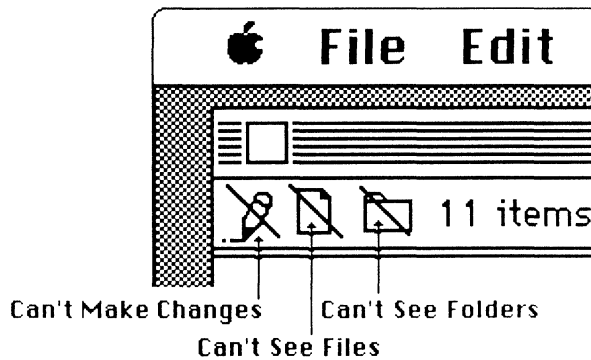
The Access Privilege icons appear in the upper left-hand corner of the window of an open folder.

None of the icons tells the whole story about your rights in a folder. To understand exactly how the icons relate to trustee security, read the discussion of NetWare security in Chapter 4. (You can use the NetWare desk accessory to find out what your rights are in a specific folder. See Chapter 5.)

Folder Icons

Gray Folders

A gray folder icon means the folder is not available for you to use. You can't open the folder, and you can't copy files into it, unless there is an arrow above the folder. (See "Dropbox Folders" on the next page.) You can't change its name or make other modifications. You can only see that it is there.

Dropbox Folders

A dropbox folder icon is a gray folder with an arrow above it. A dropbox works as you would expect it to. You can copy folders and files into a dropbox, but you can't open it up and see what's inside. You may or may not have the right to change security for a dropbox folder. Dropbox icons don't show you if you have the right that allows you to control a folder's security.

Plain Folders

A plain folder icon means that you can open the folder and see the name of the folders and files inside. Depending on the rights you've been assigned in the folder, you may or may not be able to manipulate the files and folders in the plain folder.

For example, in one plain folder you may be able to create files but not delete them. In another, you may be able to do everything except set security for the folder. It all depends on the specific rights you have been given within that folder. Those rights are further identified by the three Access Privilege icons.

Black-Tab Folders

A black tab means that you can modify the folder's security. For example, you could use the NetWare desk accessory to change your own rights inside the folder. Naturally, if you changed your rights, the folder's icon might change also. Therefore, even though you can't open a gray folder, if it has a black tab you can give yourself the right to open it. Of course, when you give yourself that right, it will appear as a black-tabbed plain folder.

All folder icons appear either gray or plain. In every case, you can open a plain folder but not a gray one. The dropbox and black-tab icons are just gray or plain folders in which you have some specific rights. To find out if you can do something that an icon does not explicitly show, you can use the NetWare desk accessory to look at your rights.

Access Privilege Icons

Can't See Files

The Can't See Files icon is the standard file icon, only crossed out. It means you can't read any files the folder might contain. Depending on your rights, you may be able to see the filenames inside the folder, but you can't open the files.

Can't Make Changes

The Can't Make Changes icon is a crossed-out pencil, which means you can't write to files within the folder. If the Can't Make Changes icon appears without the Can't See Files icon, you may be able to open and read files even though you can't write to them.

Can't See Folders

The Can't See Folders icon is a crossed-out folder. It means you can't see folders within the folder.

Working with Folders and Files on the Network

Aside from questions of security, folders and files stored on the network are handled in much the same manner as when they are stored on a local disk. As long as you have the required rights, you can create, open, update, and copy your folders and files as you usually would.

Creating Folders

You can create folders on volumes by using the New Folders command the same way you would create folders on a local disk drive. In most cases, your supervisor will set up work areas for you on volumes. These are folders in which you are given all the rights you need to create your own folders and work within them.

To create a folder, open the volume or folder you want to create it in and then choose the New Folder command from the File menu. An empty folder appears inside the volume or folder.

Naming Folders

You can name the folder just as you would a folder on a local disk. Naming folders and files creates a problem for DOS, which has greater restrictions for filenames. NetWare for Macintosh solves this problem by changing how filenames appear on the DOS side. A file saved as "Jim's Notes," for example, becomes JIMSNOTE to a DOS workstation. For a detailed discussion, read Appendix B, "DOS File Naming Conventions."

Creating Files

You can create files on a volume with any application you normally use on your Macintosh. If the application is stored on a local disk or in a different folder from the one you want to create the file in, you can create the file and then save it to the desired volume and folder. When you save the file, use your application's Save dialog box to specify the volume as the drive and then select the desired folder.

```
┌─────────────────────────────────────────────────┐
│         ┌───────────────────┐                   │
│         │ 🗁 Projects       │                   │
│         ├───────────────────────────┬──┐        │
│         │ 🗀 Dan's folder          │⇧ │        │
│         │ 🗀 Marilyn's folder      │  │        │
│         │ 🗀 Robyn's folder    ▶   │  │        │
│         │ 🗀 Susan's folder        │  │        │
│         │ 🗀 Trent's folder        │⇩ │        │
│         └───────────────────────────┴──┘        │
│                                                  │
│   Save Current Document As      ▭ GERONIMO      │
│   ┌─────────────────────────┐                   │
│   │ │                       │    ┌──────────┐   │
│   └─────────────────────────┘    │  Eject   │   │
│                                  └──────────┘   │
│   ┌──────────┐   ┌──────────┐   ┌──────────┐   │
│   │  Save    │   │  Cancel  │   │  Drive   │   │
│   └──────────┘   └──────────┘   └──────────┘   │
│      ◉ Entire Document       ○ Text Only       │
└─────────────────────────────────────────────────┘
```
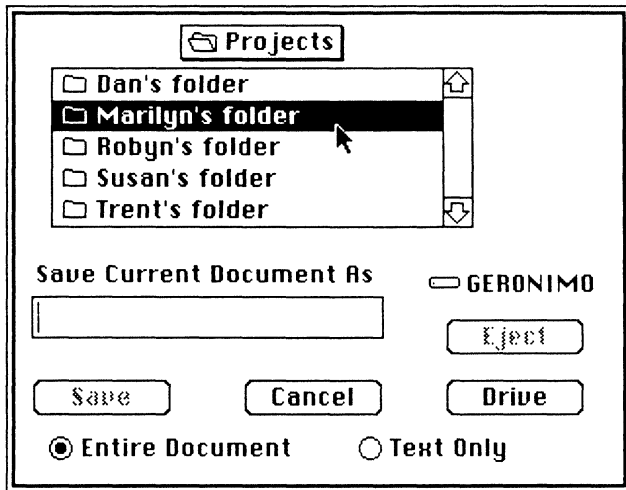
Opening Files

You can open a file on a volume as usual—by specifying the file from within the application or by double-clicking on the file's icon. If you double-click on the file's icon, both local disks and the network volumes you have accessed are searched to find the application.

Since both Macintosh and DOS workstations can store files on a volume, you may see DOS files inside of folders. DOS files are represented by a "DOS" file icon. If your Macintosh application is designed to read the format of a particular DOS file, you can access these files from your Macintosh. Whether or not a DOS file can be opened by a Macintosh application depends on both the application that created the file and the application that is attempting to read the file. WordPerfect files, for example, can be read by WordPerfect for Apple and WordPerfect for DOS. If you try to open a DOS application from your Macintosh, an error message appears saying that an application could not be found for the document.

Although you can't access DOS files without the appropriate software, you can use the NetWare Control Center application to obtain information about a DOS file just as you would about any other file.

Copying Folders and Files

You can copy folders and files between volumes as you would between disks—by dragging the items across the desktop. If you are unfamiliar with copying folders and files, see your Macintosh computer user's guide.

Modifying Files

NetWare has many security features governing what a user can do with files in any given folder. For example, modifying a file's name and modifying a file's content are two very different activities, each controlled by a different right. In most cases, if you can't perform a certain task, you probably lack sufficient rights for the folder you are working in.

A common situation is for a user to be able to read a file but not modify it. If you want, you can copy the file to a local drive and modify the copy there without any problem. If you need to modify a file on a volume and cannot, discuss your security status with your supervisor.

Flagging Files

You can flag the files you store on a file server to give them special properties. There are seven file flags you can assign. Two of the flags, Read-Only and Shareable, are explained in Chapter 4. The other five are explained below.

Hidden

Hidden files do not appear in the Finder. However, a hidden file can be detected using the NetWare Control Center Application or other software. You can use the Hidden flag to hide the existence of a file from other users.

Indexed

Indexing a file allows it to be more quickly retrieved from the file server's disk storage. The Indexed flag is most effective for files larger than 1MB. When a large file is indexed, data within the file can be found much more quickly by an application. This is especially important in large database files.

Modified Since Last Backup

The Modified Since Last Backup flag indicates whether a file has been modified since it was last archived. If your network uses archiving software, changing this flag may affect whether the file will be archived.

System

The System flag indicates that a file is used by the DOS operating system. Like a hidden file, a system file does not appear in the Finder; in fact, to the Macintosh user a file flagged System behaves the same as a file flagged Hidden.

Transaction Tracking

Files flagged Transaction Tracking are protected from possible harm caused by disruption of the file server. If for some reason you cannot complete the changes you are making to a transactional file, the file is returned to its previous condition, thus saving it from possible corruption. Check with your supervisor to find out if Transaction Tracking is effective on your file server.

Using Applications

You can use applications stored on volumes the same way you would use them if they were stored on a local drive. Your supervisor probably has created a folder where applications are kept for your use.

If you have problems trying to open an application stored on the file server, you will probably see the message, "The file *filename* could not be opened/printed (the application is busy or missing)." It is possible that someone else is using the application and it can't be shared. If you want access to an application that can't be shared on the network, you should obtain a private version and store it locally or in a private network folder.

You may also have problems accessing an application if the application is stored in a folder that you don't have sufficient rights in. Without sufficient rights, you may not be able to access the application at all, or you may be able to access the application but not use it to create, see, or modify files.

To overcome a security conflict, try quitting the application and accessing it from another folder. You can do so by having ready an existing document that was created with that application. Place the document in a folder where you have all rights and see if the application will open it. If the application opens the document, you can exit that document and create another from within the current folder. If you can't solve the problem, ask your supervisor to assign you the rights you need to access the application.

Some applications are not compatible with networks and must be copied to your workstation's drive before being launched.

Printing on the Network

There are two ways to access printers on the network. You can send a print job directly to a printer from your workstation as you normally would, or you can send it to a print queue that will submit the job to the printer. If your network is set up with Ethernet cable, you must send your print jobs to the network print queue.

A print queue is a place where the NetWare file server stores print jobs that are waiting to be serviced. Jobs move through a print queue on a first-come-first-serve basis. A supervisor will often create several print queues on a file server to help organize jobs and assign them priorities.

By sending your job to a network queue, you can cut down on the amount of time your workstation spends getting a document to a printer. As soon as the queue receives your job, your Macintosh is free to do something else. When a printer is available, it picks up the job from the queue and prints it. Without the network queue, you would have to wait until the printer was ready to accept each print job before you could continue.

Print queues are defined by type; therefore, only one type of printer will service jobs for a queue (for example, only ImageWriters). However, a printer can serve several queues, and, likewise, a queue can have several printers serving it. If you send a job to a queue that is served by several printers, the job will be printed by the first printer available (assigned to that queue). You can't know in advance which printer will do the job, only that it will be taken care of.

Figure 3.1 illustrates a situation where two queues are serviced by two printers. In this case, a job in Queue A might be printed by either printer, but a job in Queue B can be printed only by Printer B. Ask your supervisor which printers on your network serve which print queues.
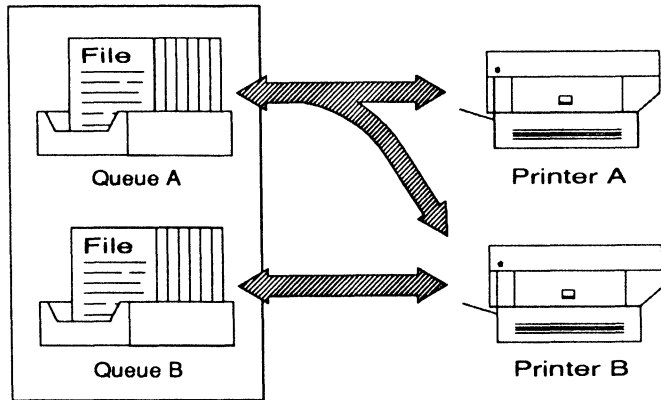
Figure 3.1
Queue Configurations

In order to send jobs to a print queue, you must select the queue in advance. Once you select a queue, you can print as you normally would from within an application, and your print jobs will be sent to that queue automatically.

1. **Open the Chooser.**

    The Chooser displays the AppleShare icon and the icons for any print drivers in your system folder.

2. **Click the icon that represents the type of printer you want to use.**

    For example, if you want to print to a LaserWriter, click the LaserWriter icon. A list of LaserWriters and LaserWriter queues appears in the right-hand side of the Chooser. Also, the Background Printing option appears. **Leave this option off.** Background Printing allows your Macintosh to work on a print job "in the background" while you work with another application.

The network print queue is a faster way to do the same thing, and Background Printing will cause the network queue to ignore the print job.

Note   The Chooser lists both the printer and its network queue unless your network uses EtherTalk cable, in which case only the network queue will be displayed. You can find out from your supervisor the name of the queue that is serviced by the printer you want to use.

---

3.   **Highlight the print queue you want to submit your print jobs to.**

You can only select one queue. In the example on the next page, a queue for LaserWriters is selected. In this case, the supervisor named the queue "LaserQueue."

AppleShare   AppleTalk I...

LaserWriter

Select a LaserWriter:

LaserQueue
LaserWriter

Background Printing: ○ On ● Off

User Name:

AppleTalk   ● Active
            ○ Inactive

3.2
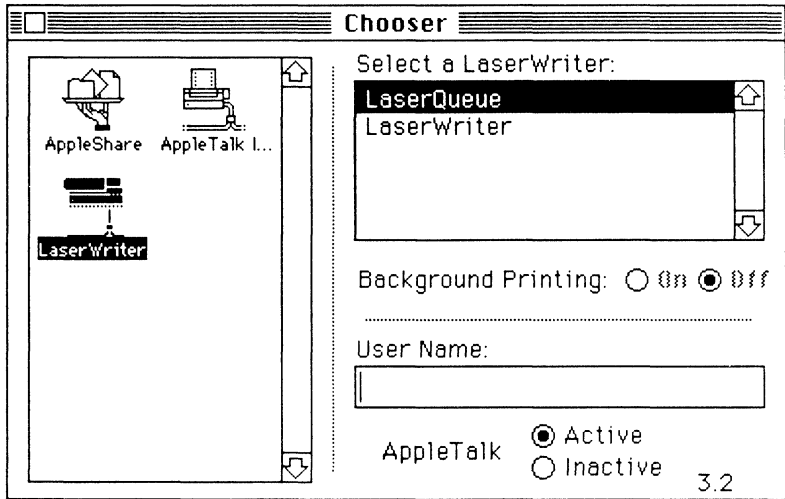
When you are finished selecting a print queue, close the
Chooser. Your selection is saved, and your print jobs will be
submitted to that queue whenever you print a document.
You can change your queue selection any time the Chooser
is available.
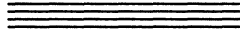
Note   When you use a network queue to print a job, the file server
will act as a PostScript Document Manager. This means
that the definitions of downloaded fonts are placed in the
file server's disk storage. If a particular procedure is ever
required again, you don't have to reload it from your
Macintosh.

Where to Go from Here

The basic tasks you must know to work with files and folders on the network were covered in this chapter. However, to really take advantage of the file server's potential, you need to study the details of how NetWare security operates. Chapter 4 explains NetWare security and how it affects you as a NetWare user.

Chapter 4

Understanding NetWare Security

NetWare provides an extensive security system that controls access to information stored on network volumes. Network security operates in three areas:

- Login security

- Folder security

- File security

The supervisor uses NetWare security to decide which areas of the network you have access to. Some folders will be off-limits to you; you may not even be able to see they are there. In some folders you may have limited rights. In others, including the ones you create, you will have complete control to decide what anyone else can see and do within them.

Login Security

Login security is general access security—it establishes your right to use the file server from your Macintosh.

Username

A username is the identity a supervisor has created for you on a file server. Each time you log in to a file server, you must provide a username (either a registered name or GUEST). The file server uses this identity to determine your security status in network folders.

Passwords

A supervisor has the option of requiring passwords on a file server. If password security is in effect, a supervisor assigns a password to go with your username, or allows you to choose your own password. On most file servers, you will be able to change your password at any time using the NetWare Control Center application. In fact, a supervisor may set up password restrictions that require you to change your password periodically.

Other Login Restrictions

Your network supervisor may have also set up the following
optional login restrictions:

- A limit to the hours of the day when you can log in

- A limit to the particular stations you can log in from

- A limit to the number of stations you can log in from
  simultaneously

- Accounting features that monitor usage

- Intruder lockout features that monitor inaccurate
  login attempts

If you are not sure whether any of these restrictions apply
to you, ask your supervisor.

Folder Security

The majority of NetWare security is managed on the folder level. Folder security uses an assortment of rights to define exactly what you can do in any given folder on the network. There are eight NetWare rights:

Read   The right to read from open files.

Write   The right to modify a file that is open.

Open   The right to open a file that already exists.

Create   The right to create new folders and files.

Delete   The right to delete folders and files.

Parental   The right to modify a folder's security and create, rename, and erase folders within the folder.

Search   The right to "see" folders and files.

Modify   The right to change filenames and file and folder attributes.

For the sake of brevity, each NetWare right is commonly abbreviated to its initial letter. Thus, if you have all NetWare rights in a folder, you have [ROWCDPSM].

As a Macintosh user, you may be familiar with AppleShare privileges:

See Folders   The right to see folder icons within a folder. Whether or not you can open those folders depends on the privileges you have for those folders.

See Files   The right to see, open, and copy files within a folder.

Make Changes   The right to alter the contents of folders and files within a folder. You can open, copy, move, and delete the folders and files.

Because NetWare's rights are much more comprehensive, there is no direct correlation between NetWare rights and AppleShare privileges. The AppleShare icons discussed in Chapter 3 tell only part of the NetWare story. Both the NetWare desk accessory and the NetWare Control Center application have been designed to help you examine—and possibly modify—your NetWare security restrictions.

The following chart shows the mapping of AppleShare privileges to NetWare rights and vice versa.

AppleShare Privileges		NetWare Rights
	No rights	No rights
	See Folders	[S]
	See Files	[ROS]
	See Folders & Files	[ROS]
	Make Changes	[WOCM]
	Make Changes & See Folders	[WOCSM]

AppleShare Privileges	NetWare Rights

▭ ◻ ✎   Make Changes
           & See Files   [ROWCDSM]

▭ ◻ ✎   Make Changes,
           See Files, &   [ROWCDSM]
           See Folders

One NetWare right, the Parental right, is absent in the preceding list. This is because the Parental right has no AppleShare equivalent. Any or all of the combinations of rights listed above can exist with or without the Parental right.

Throughout the remainder of this manual, security will be discussed in terms of NetWare rights, rather than AppleShare privileges. AppleShare privileges apply only when you are accessing an AppleShare file server; NetWare rights apply whenever you are accessing a NetWare file server.

Effective Rights

The rights you have in a folder—to see, make changes to, create, copy, move, delete, or open files and folders—are, in NetWare terminology, your **effective rights**. In some folders you may be able to see the files in the folder, but not use them. In others, you may be allowed to access applications and open folders within the folder, but you won't be able to copy or delete them.

NetWare allows supervisors—and users with the Parental right—to set security in a folder in two ways: for the folder itself, and for the users who will be working with the folder. It is the combination of these two sets of rights that determines a user's effective rights. If the rights assigned to the folder include ROS (Read, Open, and Search), and the rights assigned to you as a user include RWOCSM (Read, Write, Open, Create, Search, and Modify), you will have only three rights in the folder: ROS (Read, Open, and Search).

[R O S]	folder assignments
[R W O C S M]	your assigned rights
[R O S]	effective rights

In this example, you would have the equivalent of AppleShare's See Folders and See Files.

Maximum Rights Mask

The rights assigned to a folder are called the folder's maximum rights mask. The purpose of a **maximum rights mask** is to restrict the rights that are available within a folder.

When you create a folder, the folder's maximum rights mask contains all eight rights. When you remove a right from the mask, no user can exercise that right within that folder, no matter what rights he or she may have been assigned.

Only a user with the Parental right in a folder or in its parent folder can change the maximum rights mask. A supervisor automatically has all rights in every folder, and can therefore change the maximum rights mask of any folder.

Trustee Rights

Any user who has been given any rights at all in a folder is called a **trustee** of that folder. A supervisor, therefore, is a trustee of all folders. A user with the Parental right in any folder can make another user a trustee of that folder.

The rights a user has in a folder, aside from any restrictions placed on the folder by the maximum rights mask, are called **trustee rights**. Three factors make up trustee rights:

- Individual trustee assignments

- Rights assigned to a group the user is a member of

- Rights assigned to another user or group of users that the user has been made equivalent to

Individual Trustee Assignments

A user can be assigned any or all of the eight NetWare rights in a folder. These rights will be assigned by a supervisor or by another user with the Parental right in the folder. If you create a new folder, you automatically have the Parental right in that folder and can therefore assign rights to other users or groups.

Obviously, creating a trustee assignment for every user who wants to access a folder could become an exasperating task for all concerned. NetWare simplifies trustee assignments by extending an assignment in one folder to all the folders nested within it. In other words, you will have the same rights in any nested folder that you have in the parent folder—unless rights have been specifically revoked in the nested folder.

As an example, suppose two folders, "Dancing Elephants" and "Better Mousetraps," are nested within a folder, "Promotional Ideas." If you have rights to open and read files in "Promotional Ideas," then you would have those rights in both nested folders.

However, your trustee assignment in "Dancing Elephants" could be **redefined**. Perhaps the right to delete files is added, and the right to open files is taken away. Your new trustee assignment in "Dancing Elephants" will not affect your rights in "Promotional Ideas," or in "Better Mousetraps."

```
                    ┌─────────────────────┐
                    │  Promotional Ideas  │
                    │     Open  Read      │
                    └──────────┬──────────┘
              ┌────────────────┴────────────────┐
    ┌─────────┴──────────┐           ┌──────────┴──────────┐
    │ Dancing Elephants  │           │ Better Mousetraps   │
    │   Delete Read      │           │    Open  Read       │
    └────────────────────┘           └─────────────────────┘
```
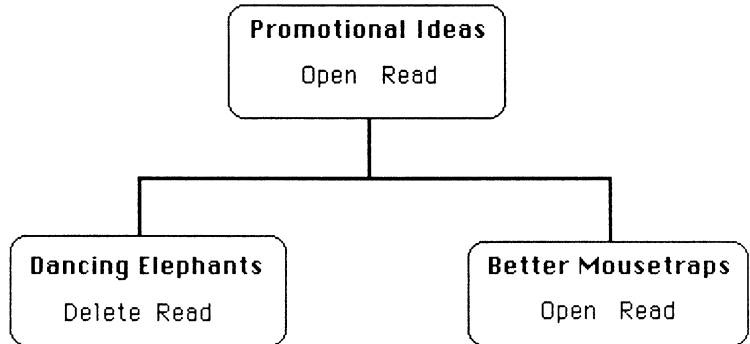
Group Assignments

If you are a member of a group, you will share any rights assigned to the entire group. Granting rights to groups is an easy way to distribute trustee rights uniformly among certain users. A single group assignment ensures that the entire group will share a specific level of authority within a folder.

Once again, rights in a folder can be granted to a group only by a supervisor or a user with the Parental right in that folder.

Security Equivalence

The third way for you to receive trustee rights is through a **security equivalence**. A security equivalence gives you all the trustee rights of another user or group of users—you share that user's or group's trustee rights in *all* directories. A user given security equivalence to a supervisor becomes,

in essence, another supervisor, with all rights in all
directions.

Note   Security equivalences can be granted only by a supervisor.

A user's trustee rights in a folder include all three
assignments of rights: individual trustee assignments, group
assignments, and security equivalence. If a right is granted
in any of the three categories, the user will have that right
as part of his or her trustee rights.

For example, if a user is given the rights [ROS] (Read,
Open, and Search) in a folder; belongs to a group with
[WOC] (Write, Open, and Create); and has security
equivalence to a user with [DS] (Delete and Search), then
the user will have six rights in the folder: [RWOCDS] (Read,
Write, Open, Create, Delete, and Search).

[RO S]	Individual trustee assignment
[WOC]	Group trustee assignment
[DS]	Security equivalence
[RWOCDS]	Trustee rights

Effective Rights Revisited

Let's put these combinations of rights together in an
example. Remember, you as a user are interested in your
effective rights. We'll set you up with the following rights in
a particular folder:

Maximum rights mask	[RWODS]
Individual trustee assignment	[RWC]
Group trustee assignment	[CP]
Equivalent to user "Jim"	[OPS]
Equivalent to group "Manual Readers"	[RS]

To figure out your effective rights you must first figure out your trustee rights by adding together individual assignment, group assignment, and security equivalences:

[RW C]	Individual trustee assignment
[CP]	Group trustee assignment
[PS]	Equivalent to user "Jim"
[RO S]	Equivalent to group "Manual Readers"
[RW O CPS]	Trustee rights

Remember, if you are granted a right in any of the three categories, you have that right in your trustee rights.

Now add all rights that appear in *both* your trustee rights list and in the maximum rights mask:

[RWO D S]	Maximum rights mask
[RWOC P S]	Trustee rights
[RWO S]	Effective rights

The net effect is that you can open files, read from and write to open files, and search the folder (see the folder and file icons in the finder). You cannot create new files, nor can you delete files or modify file and folder attributes.

You will not have to make these calculations to determine your effective rights in a file or folder. Both the NetWare desk accessory and the NetWare Control Center can display your effective rights.
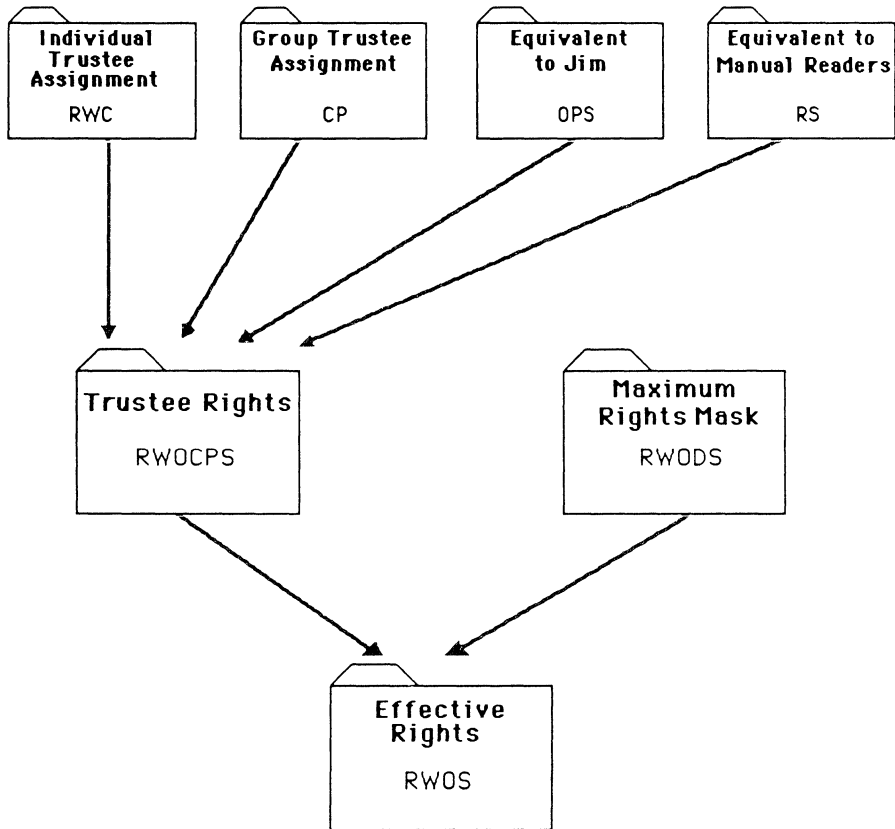
Note that in this example the Parental right is a trustee right, but not an effective right. (This is the right that allows you to add trustees, create nested folders, and change security.) In a sense, it's a master key of rights. However, the Parental right has been removed from the maximum rights mask, so it isn't an effective right.

How Folder Attributes Affect Security

You can use folder attributes to assign special properties to individual volumes or folders. There are three folder attributes that may or may not be set:

- Private

- Invisible

- System

The Private attribute plays an important role in network security. The Invisible and System attributes are not as vital as the Private attribute to folder security, but they can provide some additional protection.

Private Attribute

When you create a new folder on a file server, using a Macintosh computer, the folder is automatically set up as a private folder (one with the Private attribute assigned to it). A private folder icon will appear gray to other users if they don't have rights in the folder. If a folder is created using a DOS computer, the private attribute is not set, and the folder icon appears as a plain folder.

Your private folders cannot be opened by other users unless you have given them the Search right. To allow individual users or groups to open a private folder, you can give them the Search right. (Make sure the Search right is included in the folder's maximum rights mask.) The Search right lets trustees open a private folder and see the files and folders it contains. Of course, the Search right does not guarantee they can do anything more than look. That would depend on the other rights you assign them.

You can use the NetWare desk accessory or the NetWare Control Center application to set or remove the Private attribute from a folder. Removing the Private attribute makes a folder "public." Other users can open your public folders and see the folders inside, but they cannot open any files unless they have Search as one of their effective rights.

Note In order to make a folder private, you must have the Parental right in either the folder you are making private or the folder's parent folder.

Invisible and System Attributes

When you set either of the Invisible or System attributes, a folder is hidden from view—your own and others'. Both attributes operate the same way, the main difference being that the System attribute indicates that a folder contains files used by the DOS operating system. You can't throw away a hidden folder until you remove the Invisible or System attribute.

Note Setting the Invisible or System attribute is not a reliable security device. A determined effort will probably succeed in disclosing an Invisible or System folder; therefore, the Invisible attribute is best used to protect a folder from casual users and inadvertent harm.

File Security

In addition to protecting your files through folder security, you can protect individual files by assigning them file flags (also called file attributes).

File Flags

There are seven file flags, but only two affect NetWare security: Read-Only and Shareable. These flags create an absolute level of file protection. If you set or remove a file flag, the flag applies to anyone who accesses the file, including yourself.

Chapter 6 explains how to use the NetWare Control Center application to flag a file. For more details about how the other flags operate, see page 3-11.

Like a user's effective rights, these flags indicate a trustee's maximum permissible rights.

Read-Only

The Read-Only flag controls whether users can modify a file. A Read-Only file can be read but not modified. Any user with the necessary NetWare rights within the folder can read the file, but no user can write to, rename, or delete the file, even if those rights are part of that user's trustee assignment.

Shareable

When you create a file, it can be used only by one user at a time. If you flag a file Shareable, more than one user can access the file simultaneously—if the application has been designed to be shareable. Most Macintosh applications, however, cannot be used by more than one person at a time, no matter how the file is flagged.

In most cases, the Read-Only flag is used in conjunction
with the Shareable flag to allow many users to access a file,
but none to change it.

NetWare Security and Folder Icons

NetWare security is reflected in the icons that appear on
your desktop when you access a network volume. These
icons were introduced in Chapter 3, but here we look at
them as they are affected by NetWare rights.
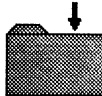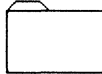
When you open a network volume, a typical window showing
information by icon might look something like the one
below.

VOL 1			
15 items	16,708K in disk		130,668K available
Judy's	Chris's	Reviews	Reports
Susan's	Trent's	Schedules	Big ideas
Robyn's	Robb's	Suggestions	Planning
Juan's	Kelley's		
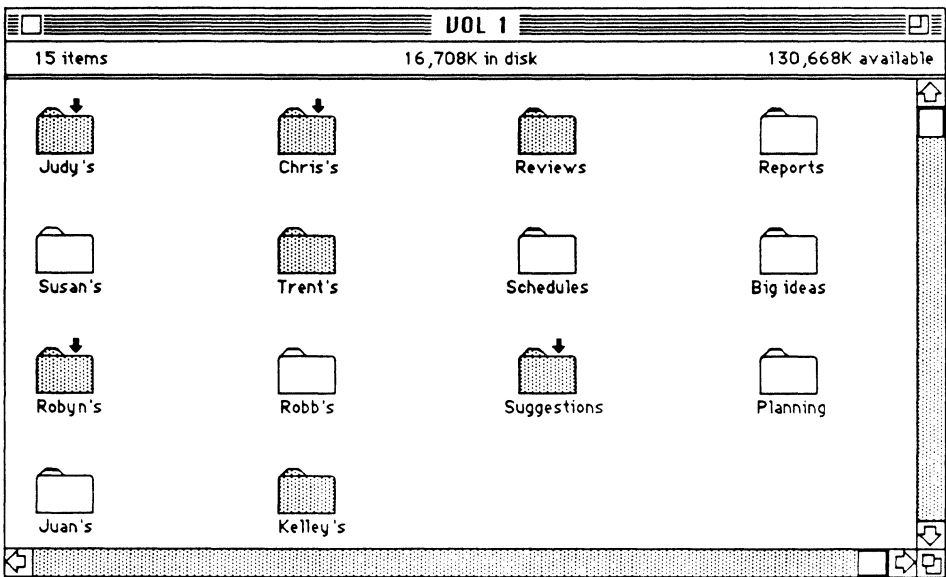
Notice that this screen shows a variety of folder icons. The specific icons you see when you open a volume depends on the rights you are assigned in the folder.

As explained in Chapter 3, each folder icon represents a specific level of security within a folder. However, a folder icon does not necessarily reflect all of your rights within a folder. A folder icon may denote that some specific rights are granted or denied, but other rights may or may not exist.

Each folder icon is listed below, followed by an explanation of the specific security conditions that it corresponds to.

Folder Type	**NetWare Rights**
Gray	Private folder attribute Does not have: Search, Parental May have: Delete, Modify, Read, Write, Open, Create
Dropbox	Private folder attribute Does have: Create, Open, Write Does not have: Search, Parental May have: Delete, Modify, Read
Plain	Private folder attribute AND Search OR Public folder (no Private attribute) Does not have: Parental May have: Read, Write, Open, Create, Delete, Search, Modify
Black-Tab Gray	Does have: Parental Does not have: Search May have: Read, Write, Open, Create, Delete, Modify

Folder Type	NetWare Rights
Black-Tab Plain	Does have: Parental May have: Read, Write, Open, Create, Delete, Modify, Search
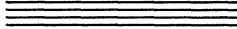
Where to Go from Here

Now that you know how NetWare security works, you can set security for your own files and folders. Chapter 5 explains how to view and modify trustee security with the NetWare desk accessory. Chapter 6 explains how to do similar tasks with the NetWare Control Center, as well as how to access folder and file attributes, change your password, and view network information.

Chapter 5

Security and the NetWare Desk Accessory

This chapter explains how to use the NetWare desk accessory to access security information for a volume or folder. The NetWare desk accessory contains a Rights module that lets you view and modify folder security without closing any documents or applications you may have open. Some tasks you can use the NetWare desk accessory's Rights module for include

- Making a folder private

- Creating trustees in a folder

- Modifying a maximum rights mask

- Modifying trustee rights

- Setting up a dropbox

- Giving others ownership of a folder

Learning how to use the NetWare desk accessory will give you control over the information you store on your file server.

Accessing the Rights Module

The NetWare desk accessory's Rights module is a fast and convenient way to work with trustee security. You can access the Rights module anytime you are working on the network.

Note The NetWare desk accessory must be installed in the system, using the Font/DA mover utility, and the Rights module must be in the same folder as the System and Finder. If the NetWare desk accessory isn't installed properly, it will not work. (See page 2-5.)

1. **Choose NetWare from the Apple menu.**

    The NetWare desk accessory begins searching for NetWare file servers. If no file servers are found, a message appears telling you that no servers were found. Select the OK button to close the NetWare desk accessory. Then, using the Chooser desk accessory, log in to a file server and try the NetWare desk accessory again.

    When a file server is found, the NetWare window appears. The left side of the window contains module icons. The right side of the window provides an area for displaying module information.

2. **Click on the Rights icon.**

    A dialog box appears listing the folders on one of the volumes you have selected. The name of the volume is shown both at the top of the list of folders and in the upper-right corner of the dialog box.

```
┌─────────────────────────────────────────────────────────┐
│                      NetWare                            │
├──────────────┬──────────────────────────────────────────┤
│              │                                          │
│    O━━━       │                                          │
│              ├──────────────────────────────────────────┤
│   Rights     │                                          │
│              │   Select a folder to view NetWare rights:│
│              │                                          │
│              │         ┌────────┐         ⊂⊃ TEST       │
│              │         │⊂⊃ TEST │                        │
│              │      ┌──────────────────┐⟨⇧⟩┌───────────┐ │
│              │      │ ▢ Applications   │   │Folder Info│ │
│              │      │ ▢ DESKTOP        │   └───────────┘ │
│              │      │ ▢ Planning       │   ┌───────────┐ │
│              │      │ ▢ Projects       │   │Volume Info│ │
│              │      │ ▢ Reports        │   └───────────┘ │
│              │      │ ▢ Schedules      │   ············· │
│              │      │ ▢ Utilities      │   ┌───────────┐ │
│              │      │                  │⟨⇩⟩│  Volume   │ │
│              │      └──────────────────┘   └───────────┘ │
│              │                             ┌───────────┐ │
│   ┌──────┐   │                             │Open Folder│ │
│   │ 1.0  │   │                             └───────────┘ │
│              │                             ┌───────────┐ │
│              │                             │  Cancel   │ │
│              │                             └───────────┘ │
└──────────────┴──────────────────────────────────────────┘
```
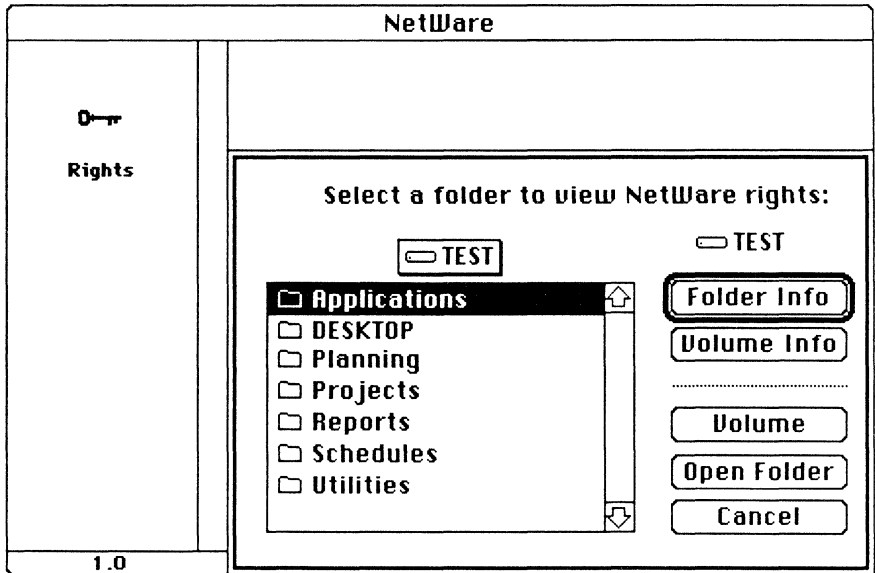
3.   **Highlight the folder you want to view security for.**

If the folder you want is nested in another folder,
highlight the parent folder and click the Open Folder
button (or double-click the parent folder). The list of
folders changes to the names of those nested in the
parent folder. The name of the parent folder is shown
above the list.

If the folder you want is on a different volume, click
the Volume button. The dialog box displays the
contents of another volume. (The volume must be one
of those you selected when you logged in.)

If you need to move back up the folder path to a
parent folder, click the volume or folder name at the
top of the folder list. The folder path appears, allowing
you to highlight the level you want to move to.

4. **Click the Folder Info button. (For volume information, click the Volume Info button.)**

The Rights module appears with the name of the volume or folder you selected in the upper left-hand corner.
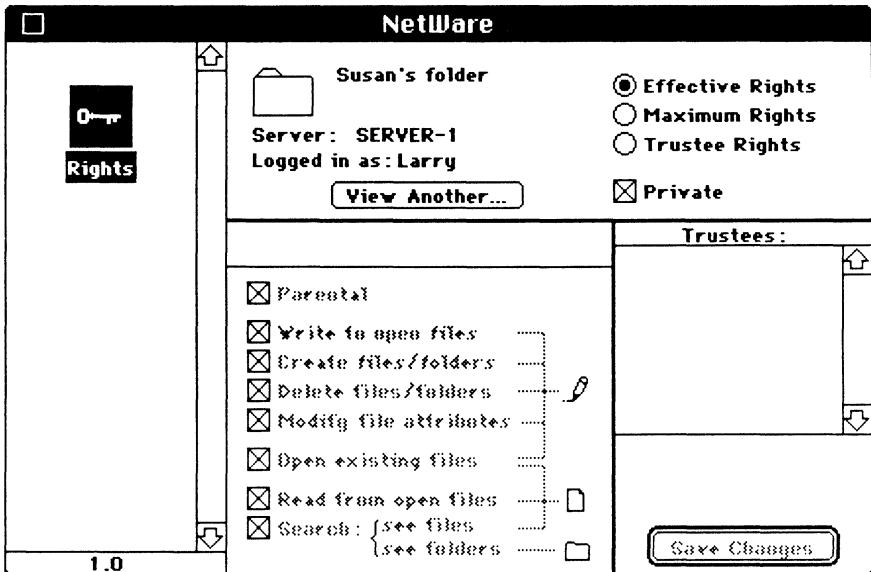
The Rights module is divided into three panels. The top panel displays

- The name of the volume or folder for which you are viewing security

- The name of the file server and the username

- The "View Another" button you can click to return to the original dialog box

- The Private attribute, which will be checked if the folder is Private

- Three radio buttons you can click to view effective rights, maximum rights mask, and trustee rights

The bottom left-hand panel displays the eight NetWare rights. Each right is mapped to a corresponding AppleTalk access privilege icon. The bottom right-hand panel contains a field where trustees can be displayed, and a button for saving changes.

Viewing Your Rights in a Folder or Volume

The Rights module lets you view your effective rights, maximum rights mask, and trustee rights for any folder or volume. If you have the proper rights, you can also view the assigned trustees of the volume or folder. If you have problems accessing or working in a folder, one of the first things you should do is check to see if you have sufficient rights in that folder.

Viewing Your Trustee Rights

Your trustee rights are the rights you have been assigned in a volume or folder. You must have the Parental right in a folder or in its parent folder to change your trustee rights or assign rights to others.

1.   **Access the Rights module and select the volume or folder you want to view security for.**

     For help accessing the Rights module, see page 5-3.

2.   **Click the Trustee Rights button.**

     If you have the rights to modify trustee rights, the Trustee Rights button will be available (not dimmed) and you can see and modify rights. If the Trustee Rights button is dimmed, you do not have the rights necessary to make changes.

```
┌─────────────────────────────────────────────────────────────┐
│ ☐              NetWare                                        │
├──────┬──────────────────────────────────────────────────────┤
│      │┌┐                                                     │
│ ┌──┐ │⌂  ┌────┐  Planning        ○ Effective Rights         │
│ │O⊸│ │   │    │                  ○ Maximum Rights            │
│ └──┘ │   └────┘  Server: SERVER-1 ● Trustee Rights           │
│Rights│          Logged in as: Larry                         │
│      │          ┌──────────────┐  ☒ Private                 │
│      │          │ View Another…│                            │
│      │          └──────────────┘                            │
│      ├──────────────────────────────┬───────────────────────┤
│      │ 📖 📖 🗀 📖 📖 🗀              │   Trustees:           │
│      │                              │ ┌──┐              ┌┐   │
│      │ ☒ Parental                   │ │👥│ EVERYONE     │⌂│   │
│      │                              │ └──┘              └┘   │
│      │ ☒ Write to open files   ⋯⋯┐  │                       │
│      │ ☒ Create files/folders  ⋯⋯┤  │                       │
│      │ ☒ Delete files/folders  ⋯⋯┼⋯ ✎│                      │
│      │ ☒ Modify file attributes⋯⋯┘  │                  ┌┐   │
│      │                              │                  │⇩│   │
│      │ ☒ Open existing files   ⋯⋯   │                  └┘   │
│      │                              │ ┌──────────────────┐  │
│      │ ☒ Read from open files  ⋯⋯ ▯ │ │  Remove Trustee  │  │
│      │┌┐                            │ └──────────────────┘  │
│      ││⇩│☒ Search: ⎧see files   ⋯⋯  │ ┌──────────────────┐  │
│      │└┘          ⎩see folders ⋯ 🗀 │ │   Add Trustee    │  │
│      │     1.0                      │ └──────────────────┘  │
│      │                              │ ┌──────────────────┐  │
│      │                              │ │   Save Changes   │  │
│      │                              │ └──────────────────┘  │
└──────┴──────────────────────────────┴───────────────────────┘
```
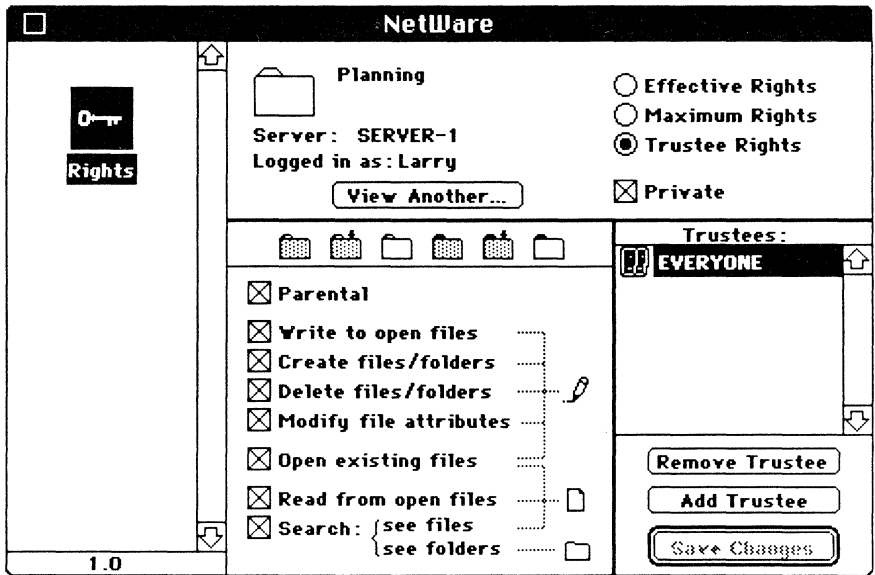
**3.   Highlight any username or group name in the list
of trustees.**

The NetWare rights are displayed in the lower
left-hand panel.

Depending on the volume or folder's maximum rights mask,
you may not be able to exercise all the rights you have been
assigned in a folder. The rights you can exercise are called
your effective rights. You can view your effective rights by
following the steps on the next page.

Viewing Your Effective Rights

Your effective rights in a volume or folder are the trustee rights you have been assigned that are included in the maximum rights mask. If you have been assigned a trustee right that is omitted from the maximum rights mask, you cannot exercise that right.

1. **Access the Rights module and select the volume or folder you want to view security for.**

   For help accessing the Rights module, see page 5-3.

2. **Click the Effective Rights button.**

   The trustee rights in the left-hand panel are checked to show your effective rights. If you are not a trustee of the volume or folder, no rights are checked.

```
┌──────────────────────────────────────────────────────────────┐
│ ☐            NetWare                                           │
│ ┌──┬─┐ ↷                                                       │
│ │  │ │    ☐ Planning        ◉ Effective Rights               │
│ │0─┐│ │                      ○ Maximum Rights                 │
│ │Rights│  Server: SERVER-1   ○ Trustee Rights                │
│ │  │ │    Logged in as: Larry                                │
│ │  │ │    ( View Another... )   ☐ Private                    │
│ │  │ │                                                        │
│ │  │ │                              Trustees:                │
│ │  │ │   ☒ Parental                                          │
│ │  │ │   ☒ Write to open files    ┄┄                        │
│ │  │ │   ☒ Create files/folders   ┄┄                        │
│ │  │ │   ☒ Delete files/folders   ┄┄ ✎                     │
│ │  │ │   ☒ Modify file attributes ┄┄                        │
│ │  │ │   ☒ Open existing files    ┄┄                        │
│ │  │ │   ☒ Read from open files   ┄┄ ☐                     │
│ │  │↴│   ☒ Search: {see files     ┄┄                        │
│ │1.0│            {see folders   ┄┄ ☐  ( Save Changes )      │
└──────────────────────────────────────────────────────────────┘
```
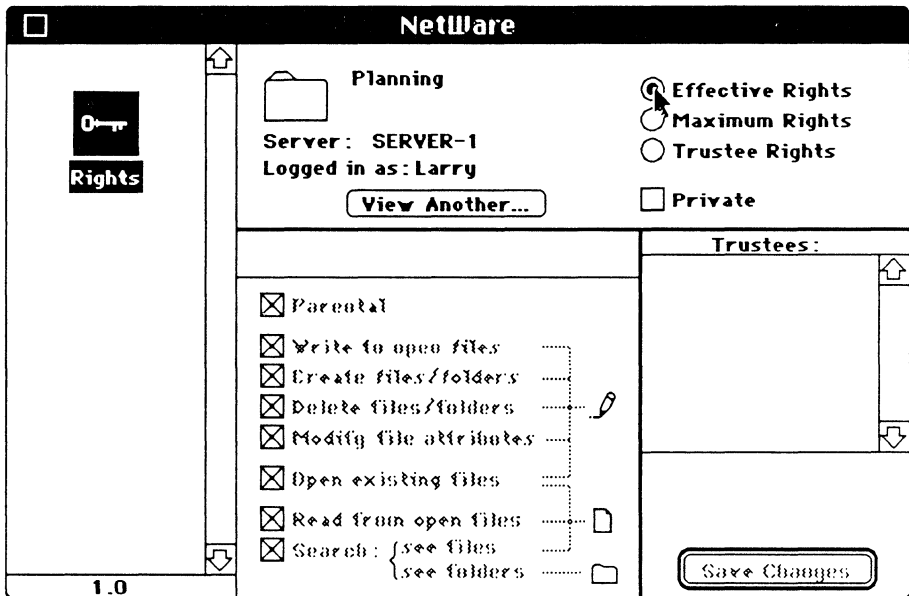
For your effective rights to be broadened, someone must assign you additional trustee rights, or the maximum rights mask in the volume or folder must be modified. Try increasing your rights yourself. If you can't change your rights, ask someone with the necessary rights to do it for you.

Viewing and Modifying a Maximum Rights Mask

A maximum rights mask defines the maximum rights that can be exercised in a volume or folder. If a right is omitted from a maximum rights mask, trustees cannot exercise that right even if it has been assigned to them. (See Chapter 4 for a complete explanation of these rights.)

A maximum rights mask applies only to the current folder or volume and does not affect nested folders. You can modify a maximum rights mask if you have the Parental right in the volume or folder or in its parent folder.

1. **Access the Rights module and select the volume or folder you want to view security for.**

    For help accessing the Rights module, see page 5-3.

2. **Click the Maximum Rights button.**

    The NetWare rights in the left-hand panel are checked to show the maximum rights mask.
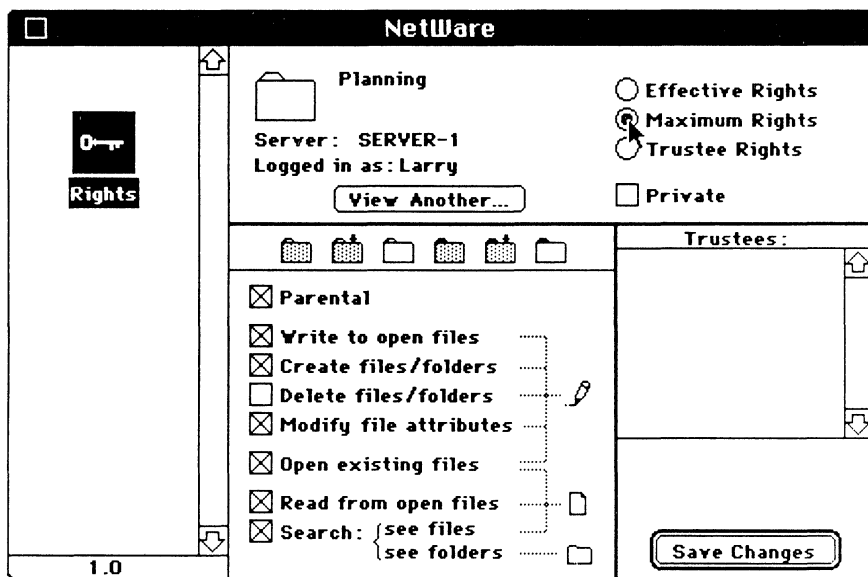
If you have the Parental right in this volume or folder, or in its parent folder, you can add or remove a right from the mask by clicking on the right's check box. After you have modified the maximum rights mask, click the Save Rights button.

You can also select rights by clicking the folder icons above the rights list. As you select an icon, the default settings of NetWare rights boxes will be checked automatically. (For a complete description of folder icons, see page 3-5 or 4-18.)

Sharing Your Folders with Others

As you store information on the file server, you may find you want or need to share your folders and files with others. NetWare gives you a great deal of control over what others can do in your folders. For example, you can allow them to place files inside a folder without being able to look inside. Or you can allow them to read documents but not modify them. You can even make others co-owners of a folder by giving them the Parental right, thus letting them share in making trustee assignments.

The following sections describe some ways you can use NetWare security to create special kinds of folders. In these examples, the NetWare desk accessory is used to change the folders. You can also use the NetWare Control Center to perform these tasks.

Making a Folder Private

Folders can be public or private. A public folder works the way a folder normally does—other users can open it and view the names of the folders inside. A private folder is closed to all users except those who have the Search right in that folder. By making a folder private, you can be sure that only users you have given permission to are able to view its contents.

You make folders private by setting the private attribute. You must have the Parental right either in the folder you are making private or in its parent folder.

1. **Access the Rights module and select the folder you want to make private.**

   For help accessing the Rights module, see page 5-3.

2. **Click the Private check box.**

   The Private check box is in the top panel across from the View Another button. Make sure the folder named in the top panel is the one you want to make private.
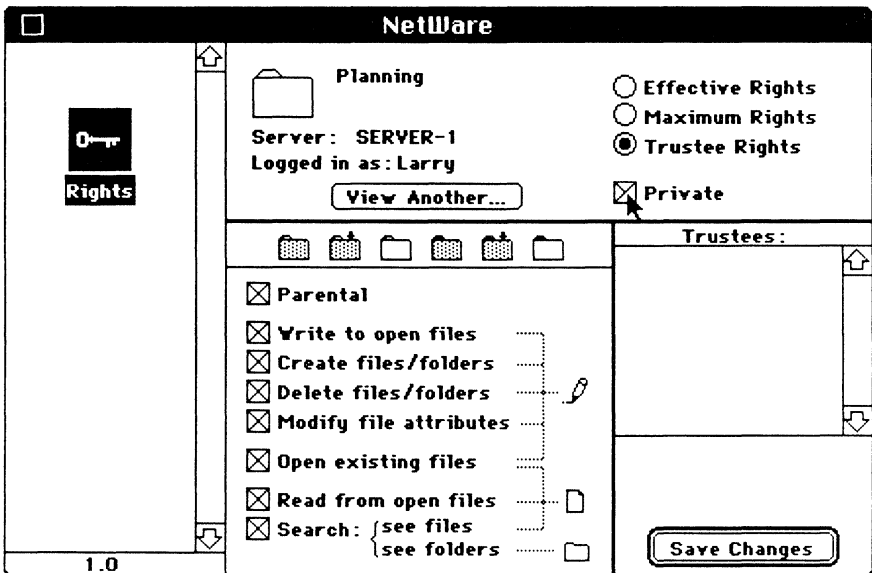
To allow another user to look inside one of your private folders, you must make that user a trustee and give the user the Search right.

Adding Trustees

Before you can assign specific rights to other users in a volume or folder, you must make those users trustees. Of course, to add trustees, you must have the Parental right in the volume or folder, or in its parent folder.

1. **Access the Rights module and select the volume or folder you want to add trustees to.**

   For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

   The names of trustees appear in the lower right-hand panel. These are the users and groups who already have trustee assignments in this volume or folder.

3. **Click the Add Trustees button.**

   The left-hand panel displays a list of users and groups on the file server. These are the users and groups who have not been made trustees.
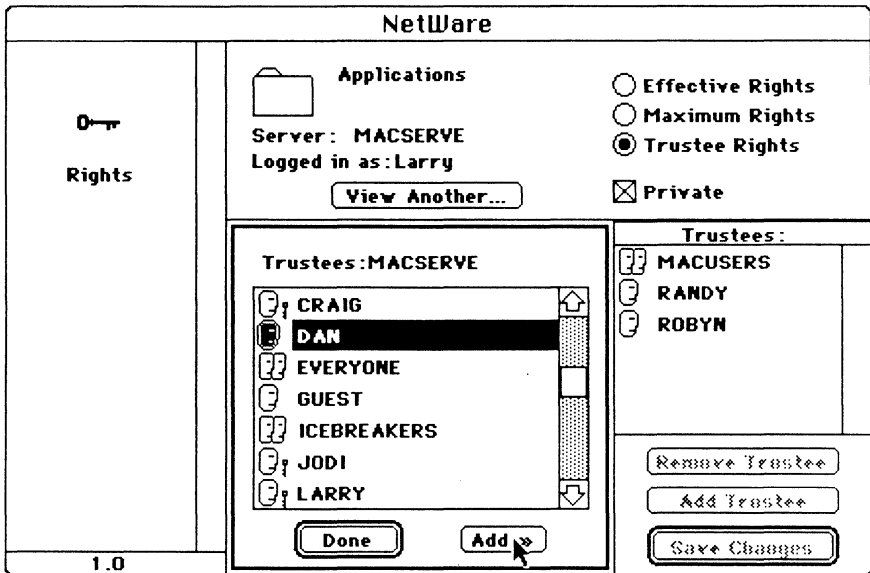
4. **Highlight the name of the trustee you want to assign to this volume or folder and click the "Add >>" button.**

You can shift-click or drag select to highlight more than one user or group at a time.

When you have finished adding trustees, click the Done button.

New trustees are automatically given all rights. You can modify the rights of one or more trustees, or you can use the maximum rights mask to define what any user can do in a volume or folder. However, changing a maximum rights mask affects all trustees, yourself included.

Removing Trustees

If you have the Parental right in a volume or folder, or in its parent folder, you can remove users and groups from the list of trustees.

1. **Access the Rights module and select the volume or folder you want to remove trustees from.**

    For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

    The names of trustees appear in the lower right-hand panel. These are the users and groups who have trustee assignments in this volume or folder.
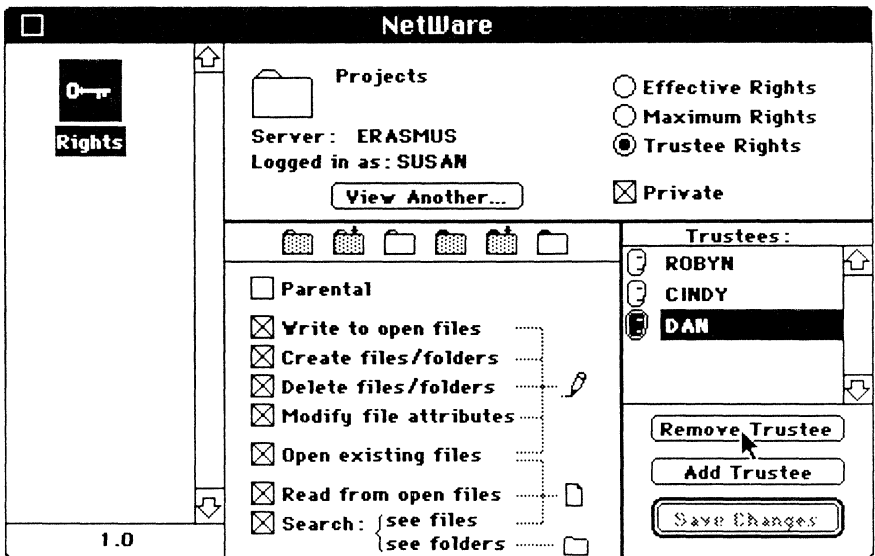
3. **Highlight the name of the trustee you want to remove and click the Remove Trustees button.**

The trustee is removed from the list.

Important   Since trustee rights extend down through nested folders, removing a trustee from a folder could remove that trustee from other nested folders also. Before you remove a trustee from a folder, make sure the trustee is not depending on those trustee rights to work in other folders.

Letting Others Make Changes

You can set up a folder so that other users can work with the files within the folder but can't modify the folder's security. NetWare lets you combine rights to define exactly what changes trustees can make in a folder, whether they can write to files, create new files, delete old ones, or modify file attributes.

1. **Access the Rights module and select the volume or folder you want to modify trustee rights for.**

For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

The names of trustees appear in the lower right-hand panel. These are the users and groups who have trustee assignments in this volume or folder.

3. **Highlight the name of the trustee you want to modify rights for.**

Shift-click to highlight more than one trustee at a time. When you select multiple trustees, the rights for all the trustees are set at once.

4. Select the rights you want to give the trustee.

To modify the trustee's rights, you can click the check box next to each right you want to change. The rights you click are checked (added) or unchecked (removed).

To allow a trustee to make changes in a folder, you should give the trustee Write, Open, Read, and Search rights.
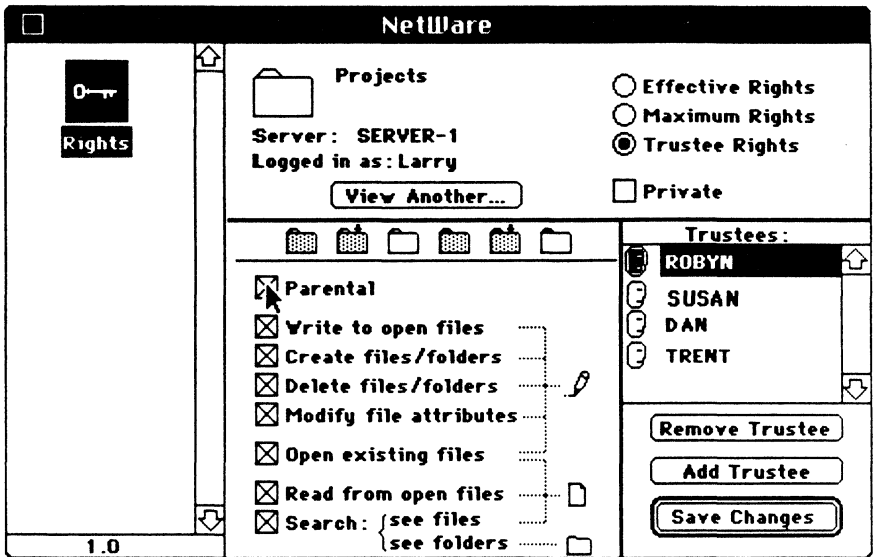
An easy way to assign a trustee all the rights for making changes is to use the folder icons above the NetWare rights list. Click the plain folder icon. The trustee is automatically given all the rights needed to make changes in the folder (all rights except Parental). These rights are equivalent to AppleShare's Make Changes, See Folders, and See Files privileges.

Important	Because of the mapping that NetWare uses to accommodate AppleShare's security design, some rights may rely on others in order to operate. For example, to write to a file, a trustee must be assigned both Write and Create rights, but to create files a trustee needs only the Create right.

Creating a Bulletin Board

A bulletin board is a special kind of folder. Trustees of a bulletin board can open and read the files inside the bulletin board, but they can't make any changes. You can create a bulletin board by assigning trustees Read, Open, and Search rights and denying all other rights.

1. **Access the Rights module and select the volume or folder you want to make a bulletin board.**

    For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

    The names of trustees appear in the lower right-hand panel. These are the users and groups that have trustee assignments in this volume or folder.

3. **Highlight the name of the trustee you want to modify rights for.**

    Shift-click to highlight more than one trustee at a time. When you select multiple trustees, the rights for all the trustees are set at once.

4.   Select the Read, Open, and Search rights and click Save Changes.

To modify the trustee's rights, click the check box next to each right you want to change. The rights you click are checked (added) or unchecked (removed).
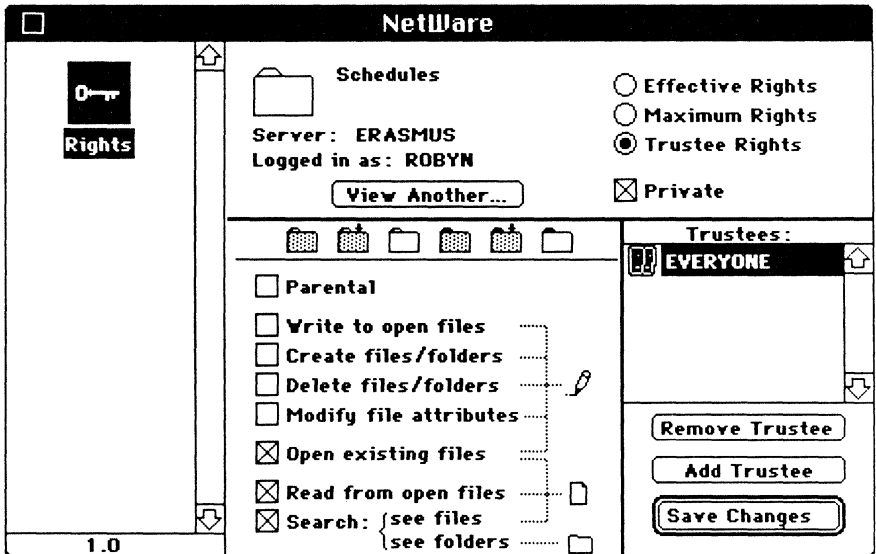
You can allow some trustees to post things in the bulletin board by giving them Write and Create rights. That way they can copy files into the bulletin board folder. You can give them rights to make other changes as well. To prevent users who are not trustees from seeing what files are inside a bulletin board, set the bulletin board's private attribute by clicking the Private box.

Creating a Dropbox Folder

Trustees of a dropbox can put files into the folder but they can't open the folder and see what's inside. You can create a dropbox by giving trustees the rights to make changes. By setting the Private attribute and withholding the Search right, you prevent trustees from seeing inside the dropbox.

1. **Access the Rights module and select the volume or folder you want to make a dropbox.**

    For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

    The names of trustees appear in the lower right-hand panel. These are the users and groups that have trustee assignments in this volume or folder.

3. **Highlight the name of the trustee you want to modify rights for.**

    Shift-click to highlight more than one trustee at a time. When you select multiple trustees, the rights for all the trustees are set at once.

4. **Select the rights you want to give the trustee and click Save Changes.**

    To use the folder as a dropbox, a trustee needs Open, Create, Write, and Modify rights. To modify the trustee's rights, you can click the check box next to each right you want to change. The rights you click are checked (added) or unchecked (removed).
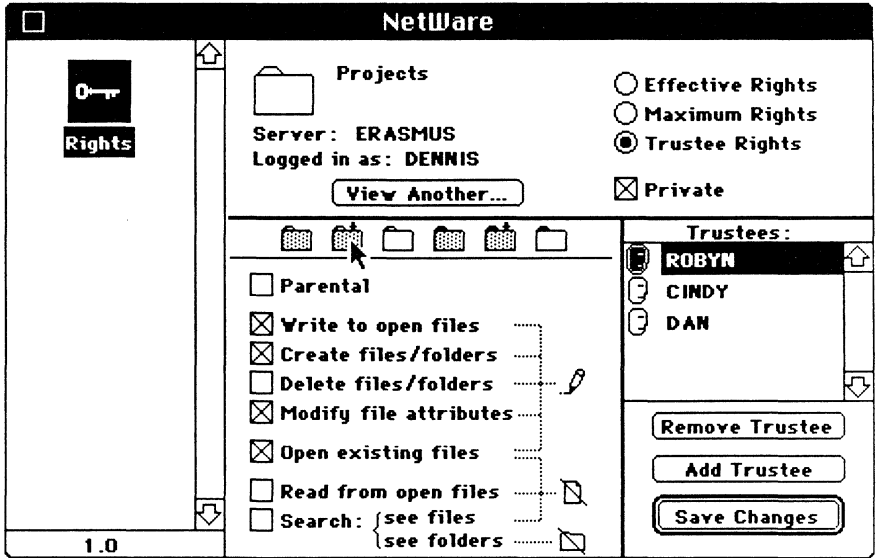
An easy way to assign a trustee all the rights for a drop box is to use the folder icons above the rights list. Click the gray folder with the arrow and the plain tab (the second to the left). This will give the trustee the Open, Write, Create, and Modify rights, and will set the Private attribute. These rights are equivalent to AppleTalk's Make Changes privilege. (For a complete description of folder icons, see page 3-5 or 4-18.)

Giving Others Ownership in a Folder

You can let others share the ownership rights in a folder. By sharing ownership, you give others the right to assign trustees and modify the folder's security. However, you remain the folder's owner in the sense that you are the one who created the folder.

To share a folder's ownership, you give a trustee the Parental right within the folder. Assigning trustees the Parental right does not automatically give them all rights in a folder. You can give trustees the Parental right in special folders, for example in a dropbox. This allows them to change security if they need to. Of course, to assign the Parental right to another trustee, you must possess it yourself.

1. **Access the Rights module and select the volume or folder you want to modify trustee rights for.**

   For help accessing the Rights module, see page 5-3.

2. **Click the Trustee Rights button.**

   The names of trustees appear in the lower right-hand panel. These are the users and groups that have trustee assignments in this volume or folder.

3. **Highlight the name of the trustee you want to share ownership with.**

   Shift-click to highlight more than one trustee at a time. When you select multiple trustees, the rights for all the trustees are set at once.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ■                          NetWare                                   │
├──────────┬──────────────────────────────────────────────────────────┤
│        ⇧ │   ┌───┐   Planning          ○ Effective Rights          │
│  ┌─────┐ │   │   │                      ○ Maximum Rights            │
│  │ o━┳━ │ │   └───┘                      ● Trustee Rights            │
│  └─────┘ │   Server: SERVER-1                                        │
│  Rights  │   Logged in as: Bruce                                     │
│          │      ( View Another... )      ⊠ Private                  │
│          ├──────────────────────────────────┬───────────────────────┤
│          │  🖿  🖿  ▭  🖿  🖿  ▭            │  Trustees:           │
│          │  ⊠ Parental                      │ [▦] EVERYONE      ⇧  │
│          │  ↖                               │                       │
│          │  ⊠ Write to open files  ·······┐ │                       │
│          │  ⊠ Create files/folders ······· │ │                   ⇩  │
│          │  ⊠ Delete files/folders ······┼ ⬭                      │
│          │  ⊠ Modify file attributes ·····┤ ├───────────────────────┤
│          │  ⊠ Open existing files   ······ │  ( Remove Trustee )   │
│        ⇩ │  ⊠ Read from open files ·····┼·▯ │  ( Add Trustee )     │
│   1.0    │  ⊠ Search: ⌠see files    ······┘                        │
│          │            ⌡see folders ······· ▭  ( Save Changes )     │
└──────────┴──────────────────────────────────────────────────────────┘
```
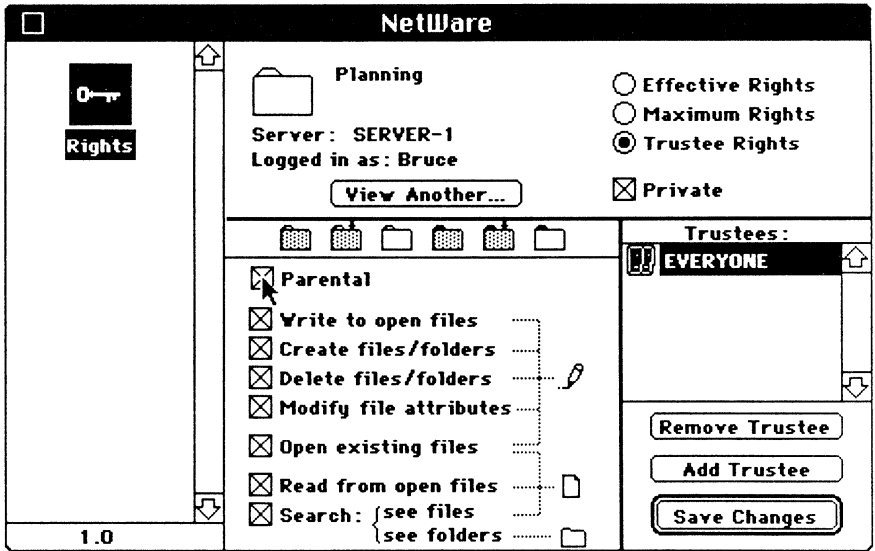
4.   Select the Parental right and click Save Changes.

To modify the user's rights, you can click the check
box next to each right you want to change. The rights
you click are checked (added) or unchecked (removed).

Another way to assign a trustee the Parental right is
to use the folder icons above the rights list. Click a
folder with a black tab. There are three Parental
folders: a plain folder, a gray folder, and a dropbox
folder (a gray folder with an arrow above). The trustee
is automatically given the parental right along with
the rights to make the folder function as indicated by
the icon. (For a complete description of folder icons,
see page 3-5 or 4-18.)

Where to Go from Here

Now that you know how to use the NetWare desk accessory to modify folder security, you have broad control over your networking environment. You can find out what your rights are in any network folder, and you can specify exactly what other users can do in your own network folders.

To access additional information about your network, you can use the NetWare Control Center application, explained in Chapter 6.

If you have problems working on the network (for example, you can't open a file), Chapter 7 offers some troubleshooting information.

Chapter 6
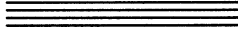
Using the NetWare
Control Center

The NetWare Control Center application lets you view and modify network information. Like the NetWare desk accessory, the NetWare Control Center allows you to work with security; you can use it to see what rights you have been given in any folder and to change the security for folders that you have the Parental right in. But the NetWare Control Center has many other features as well, including the ability to display and modify information for users, groups, servers, volumes, folders, and files.

This chapter explains how to

- Launch the NetWare Control Center application
- Access server, volume, folder, and file information
- Access user and group information
- View and modify security

The information and tasks that you can perform with the NetWare Control Center depend on your rights and security equivalences. If you find you can't use the NetWare Control Center to perform a certain task, you may need to ask your supervisor for additional rights.

Launching the NetWare Control Center

As with any application, you access the NetWare Control Center from the finder. Unless you are using multitasking software, you must quit any applications you have open to run the NetWare Control Center. You can run the NetWare Control Center from a local drive if you have the application on a floppy or hard disk, or you can run it from a folder on the file server. If you are not sure where to find the application, check with your supervisor, or use the Find File desk accessory.

To run the NetWare Control Center, double-click on the NetWare Control Center icon. The NetWare Control Center begins searching for NetWare file servers. If no file servers are found, a message appears allowing you to either try again or cancel the application. If file servers are found, but you are not logged in to any of them, server icons will appear. By double-clicking the icons, you can log in to the file servers. You can also log in by highlighting a file server icon and choosing "Open Server" from the File menu.

When a file server is found, the NetWare menus appear in the menu bar, and the Server window appears on the desktop. The NetWare Control Center includes five special menus: Server, Volumes, Folders/Files, User, and Groups.

NetWare File Servers

FOXANADU   Users   FOXANADUL_SYS

Groups   WORK
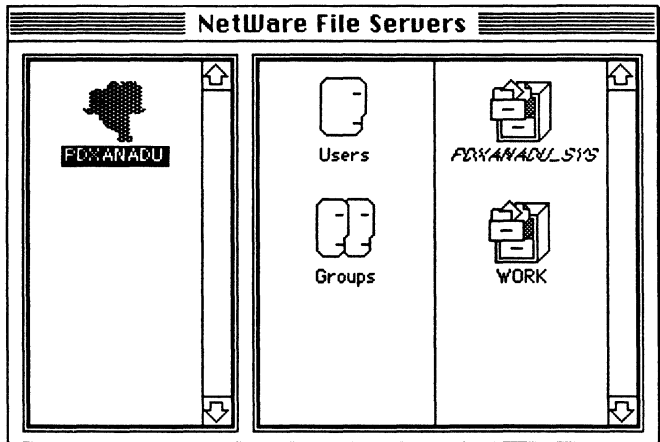
Using the File and Edit Menus

The File and Edit menus appear in the NetWare Control Center application's menu bar. In addition to the Quit command, the File menu includes the following special commands:

Open Server

This command lets you log in to file servers. You can also use the Chooser desk accessory to log in, as described in Chapter 2.

Close Window

This command closes the window that is currently active.

Close All Windows

This command closes all the windows except the Server window.

The Edit menu contains the typical editing commands for cutting, copying, pasting, and clearing text, as well as a command for undoing the most recent change. This menu becomes active whenever a window contains a field you can edit. Your ability to edit information (for example, a filename) depends on your rights.

Understanding the Server Window

The Server window is the main feature of the NetWare Control Center application. The Server window is divided into left and right panels. The left panel contains an icon for each file server on the network. The icons on the right-hand panel let you access information about users, groups, and volumes for a particular file server. Both panels have scrolling fields.

Use the Server window to select the categories of network information you are interested in. It displays all available file servers, and, for the selected server, all volumes. Using the Server window, you can also open the following lists:

- Folders and files on a file server

- Users on a file server

- Groups on a file server

The NetWare menus are dimmed when they are disabled, but respond to the selections you make from the Server window. By selecting Server window icons, you can activate a corresponding menu.

Note   You can access information for only one server at a time, but the number of information windows that can be open at once is limited only by available memory.

Since the Server window plays such an important role in controlling the NetWare Control Center, you will refer to it often whenever you use the NetWare Control Center. To help you get to the Server window when you need it, the Server menu includes options for showing and hiding the window.

Showing and Hiding the Server Window

The Server window appears automatically when you open the NetWare Control Center application. You can open and close this window by using the Server menu. The Server menu alternates a Show Server Window command and a Hide Server Window command, depending on whether the window is visible.

1. **Pull down the Server menu.**

   If the Control Center is the active window, the Server menu contains the command Hide Server Window.

   If the window is not shown or is partially visible, the menu contains the command Show Server Window.

   If the window is hidden from view, the command Show Server Window is also shown.

&	**File**	**Edit**	**Server**	Volumes	Folders/Files	Users	Groups
			Show Server Window ⌘S				
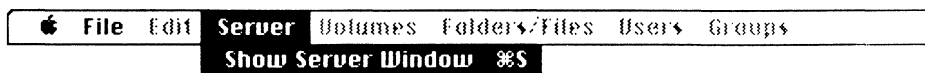
2. **Choose the command to hide or show the Server window.**

   If you choose Hide Server Window, the Server window disappears from the desktop.

   If you choose Show Server Window, the Server window appears at the front of the desktop.

Accessing File Server Information

You can use the Server window to list items on any file server you are logged in to. The left-hand panel of the Server window shows the file servers on your network. The right-hand panel shows the volumes of the selected server, and allows you to open lists of folders, files, users, and groups for each volume.

Using the Server Window to Log In

From the Server window, you can log in to any file server that is represented by an icon. The appearance of a server icon depends on several factors:

Name in italics: server is not logged in to

Name in normal type: server is logged in to

Icon is gray: server is open

Icon is highlighted: server icon is selected

For example, the icon at left is normal type, gray, and highlighted; therefore the server is logged in to, open, and selected.

To log in to a file server, complete the following steps from the Server window.

1. **Select the icon for the file server you are accessing.**

    You can scroll through the list to find the file server you are looking for.

2. **Choose Open Server from the File menu.**

    The Chooser's login box appears. (You can also access the login box by double-clicking the file server's icon.)

3. **Finish logging in as you would from the Chooser.**

    For help using the Chooser's login procedure, see page 2-9.

You can repeat this procedure to log in to multiple file servers. Once you are logged in to a file server, you can use the Server window to view information about the users, groups, and volumes on that server.

Listing Volumes

From the Server window you can view the list of the volumes on a file server by double-clicking a file server's icon. (You must be logged in to the file server you select.) The volumes for the file server you have selected appear in the right-hand panel of the Server window.
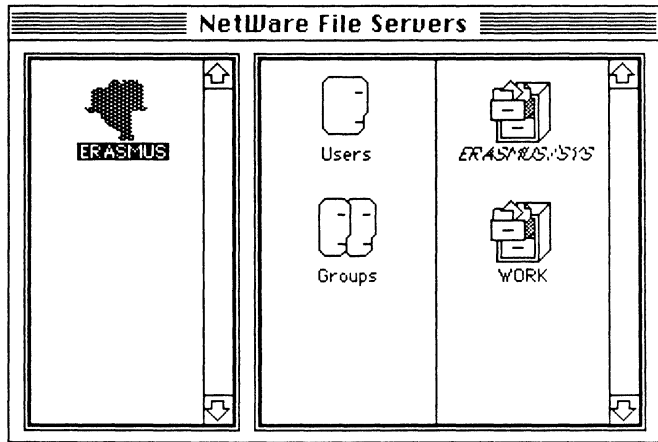
Volume icons look like filing cabinets. The icons for the volumes you selected when you logged in have a drawer open. Volumes that you have not selected appear in the Server window, but their names are italicized and their icons have closed drawers. If the list of volume icons is long, you can scroll through it. (For details about how to access volume information, see page 6-13.)

Listing Folders and Files

From the list of volumes on a file server, you can access lists of network folders and files. You must have sufficient rights to search the volume or folder that you are listing the contents of.

1. **Double-click on the file server's icon.**

    The volumes for the file server you have selected appear in the right-hand panel of the Server window. If the list is long, you can scroll through it.

2. Double-click on the volume whose folders and files you want to view.

A window appears listing the contents of the volume at its root. The name of the volume appears in the title bar.
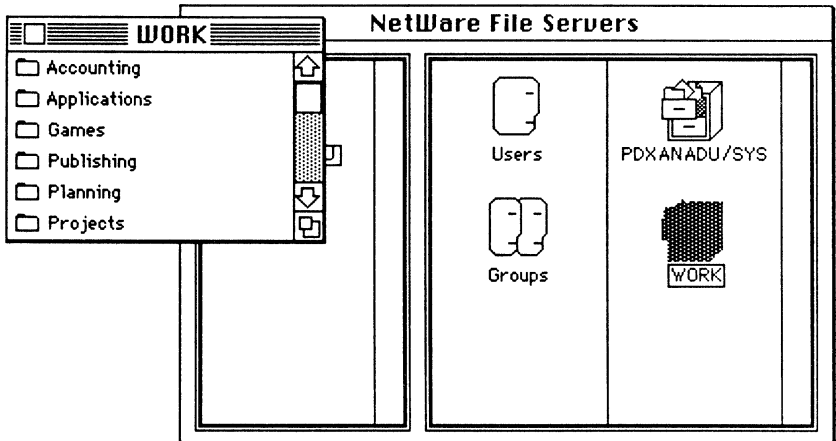
3. To view the contents of a folder in the list, double-click on the folder.

A second window appears listing the contents of the folder. The name of the folder appears in the title bar. The folder icon remains gray until you close the window showing the folder's contents.

You can open as many folders as you like. By selecting folders and files from a list, you can access folder and file information. (See page 6-17.)

Listing Users

The Users icon in the Server window lets you view a list of users on the current file server. You can view a user list for only one file server at a time. You must be logged in to the file server you are viewing users for.

1. **Double-click the icon for the file server you are interested in.**

   The volumes for the file server you have selected appear in the right-hand panel of the Server window.

2. **Double-click on the Users icon.**

   A window appears containing a list of the users on that file server. Your own username is highlighted automatically in the list. If the list is long, you can use the scroll bar.
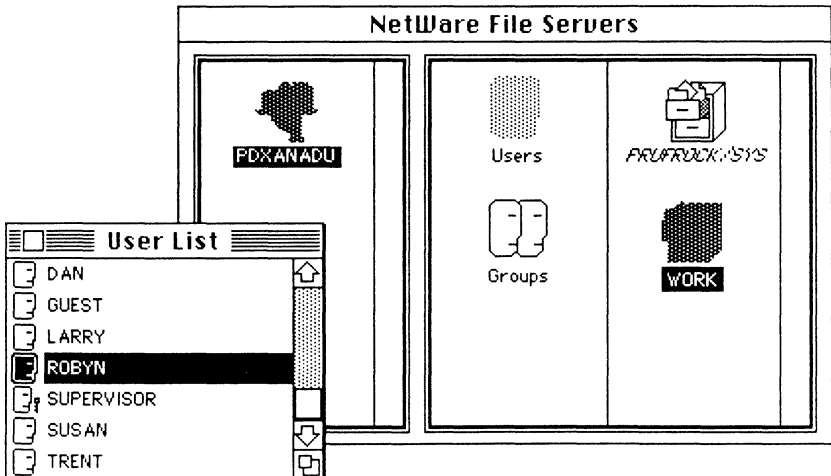
By highlighting usernames, you can use the Users menu to access information about particular users. (See page 6-22.)

Listing Groups

The Groups icon in the Server window lets you view a list of groups on a file server. You can view a group list for only one file server at a time. You must be logged in to the file server you are viewing groups for.

1.   **Double-click on the icon for the file server you are interested in.**

     The volumes for the file server you have selected appear in the right-hand panel of the Server window.

2.   **Double-click on the Groups icon.**

     A window appears containing a list of the groups on that file server. If the list is long, you can use the scroll bar.
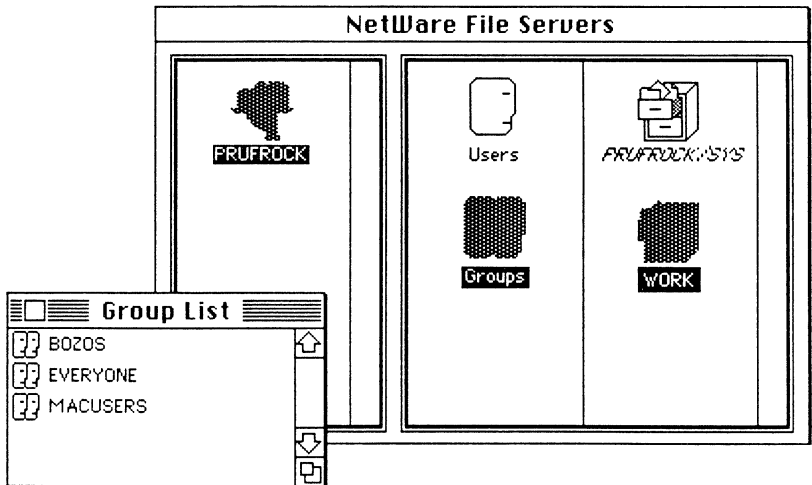
By highlighting group names, you can use the Groups menu to access information about particular groups. (See page 6-24.)

Accessing Volume Information

You can use the Volume Information command under the Volumes menu to access information about any volume shown in the Server window. You can access information for several volumes at a time as long as each volume is on the same file server. The Volumes menu does not provide information about folders within the volume. For folder information, you must use the Folders/Files menu. (See page 6-17.)

The Volume Information command identifies a volume's owner and type and displays its size in terms of files, folders, and bytes. You must be logged in to the file server you are seeking volume information for. The volume does not have to be mounted for you to access information about it, but the volume icon must be selected. If the volume is unmounted, its name will be italicized.

1. **Click the icon for the volume you want information about.**

   If the volume icons are not displayed, double-click the file server that contains the volumes. You can select any volume on the file server, including volumes that weren't mounted when you launched the NetWare Control Center.

2. **Pull down the Volumes menu and choose Volume Information.**

🍎 File	Edit	Server	**Volumes**	Folders/Files	Users	Groups

Volume Info	⌘I
Volume Effective Rights	⌘E
Volume Maximum Rights	⌘M
Volume Trustee Rights	⌘T
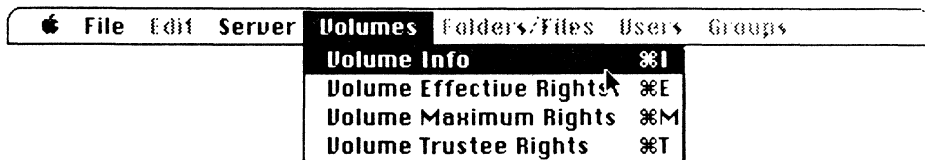
The Volume Information window appears. You can display the Volume Information window also by using Command-I.

▦☐▦▦▦ Volume Information ▦▦▦

Name: TEST

Owner: ▣ SUPERVISOR

Volume Type: Fixed

Volume Size: 150,913,024 bytes

Available Space: 141,709,312 bytes

Maximum Directory Entries: 9,728

Directory Entries Available: 9,274

(Calculate Contents)
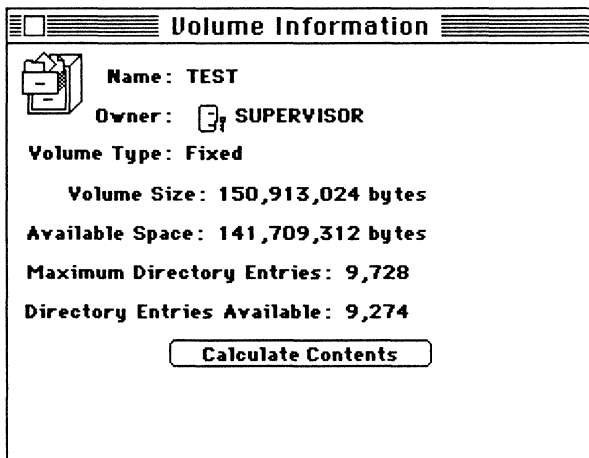
The Volume Information window shows you the following information:

Name

This is the name of the volume. If the volume name is SYS, it will be preceded by the name of the file server.

Owner

This is the name of the user who created the volume. This should always be the supervisor.

Volume Type

This indicates whether a volume is "fixed" or "removable."

Volume Size

This is the size of the volume in bytes.

Available Space

This is the space available on the volume in bytes.

Maximum Directory Entries

This is the maximum number of entries that can be created for this volume. (A Macintosh file will take up two entries, a DOS file only one.)

Directory Entries Available

This is the number of entries that remain available for this volume.

Calculate Contents

The calculate contents button lets you find out how the volume is currently being used. The current usage is displayed in terms of actual bytes, allocated kilobytes, number of files, and number of folders. Since it may take a minute or two for the application to add up the total number of files, this information is optional. If you want to see the number of files in the volume, click the Calculate button.

Note   Calculating the content of a volume displays both the actual bytes used and the allocated kilobytes on the disk. The allocated kilobytes are the space the file server has set aside for the existing files to occupy. NetWare allocates space in blocks of 4 kilobytes each.

Accessing Folder and File Information

You can use the Folders/Files menu to view information such as ownership or size for any folder or file stored on a NetWare file server. To access folder and file information, you must log in to the file server and select the volume that contains the folder or file.

1. **Double-click the volume that contains the folder or file you are interested in.**

    A window will open, showing the folders and files in the volume. (Subfolders will not be shown, of course, until their parent folders are opened.)

2. **Double-click the folder that contains the folder or file you want information about.**

    If you want information about a folder that is nested within other folders, you must double-click each folder until you open a window that contains the folder you are seeking. (For help with using the Server window to list the contents of a folder, see page 6-5.)

3. **Highlight the name of the folder or file you want information about.**

    Shift-click or drag-select to highlight more than one item at a time.

```
 File  Edit  Server  Volumes  Folders/Files  Users  Groups
                                Folder Info              ⌘I
                                Folder Effective Rights  ⌘E
                                Folder Maximum Rights    ⌘M
                                Folder Trustee Rights    ⌘T
                                File Info                ⌘I
                                File Flags               ⌘F
```
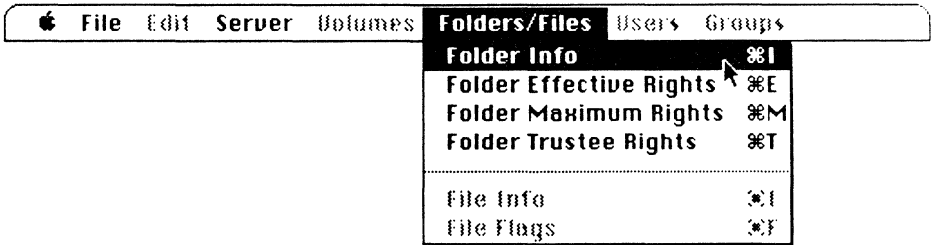
4. **Choose the Information command from the Folders/Files menu for the type of information you want, folder or file.**

    If you choose Folder Information, a Folder Information window appears. If you choose File Information, a File Information window appears. If you selected both folders and files in Step 2, all menu items for folders and files will be active (if you have the necessary rights). You can access either information window also by pressing Command-I.


```
≡□≡≡≡≡≡≡≡ Folder Info ≡≡≡≡≡≡≡≡≡
┌─────┐
│     │   Name:  │Reports                        │
│     │
          Owner:  ▣ LARRY
                     ┌──────────────────┐
                     │ Calculate contents │
                     └──────────────────┘
          Created:  Sun, May 29, 1988   4:28:02 AM

            ☐ Invisible          ☐ System (DOS)
```
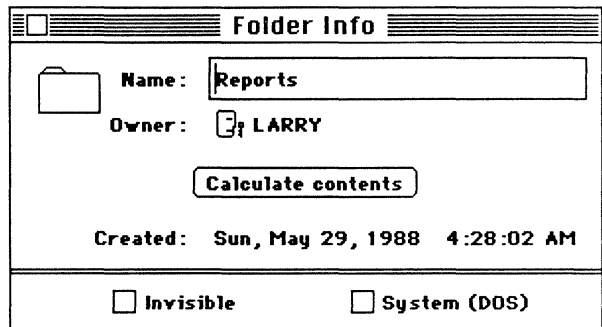
The Folder Information window shows you the following information about the folder:

Name

This is the name of the folder. If you have the Modify right in this folder, you can edit the folder's name in this field, providing the file is not locked.

Owner

This is the name of the user who created the folder.

Calculate Contents

When you click this button, the content of the folder is displayed in terms of logical bytes, physical disk space, number of files, and number of folders. Since it may take a minute or two for the application to add up the contents, this information is optional.

Created

The is the date and time that the folder was created.

Two folder attributes, Invisible and System, are located at the bottom of the Folder Information window. If you have the Parental right in the folder or its parent folder, you can click one of these attributes to change the setting.

The File Information window shows the following:

```
┌─────────────────────────────────────────────┐
│ ▤□▤▤▤▤▤▤▤▤▤▤ File Info ▤▤▤▤▤▤▤▤▤▤▤ │
│        Name: March Report                     │
│                                               │
│                                               │
│       Owner:  □ LARRY                         │
│                                               │
│       State: Closed                           │
│ Resource Fork: 0 Bytes                        │
│    Data Fork: 11,776 Bytes                    │
│   Total Size: 11,776 Bytes                    │
│                                               │
│  Created:   Sun, Jan 2, 1989                  │
│  Modified:  Thu, Jan 5, 1989    3:32:54 AM    │
│  Accessed:  Thu, Jan 5, 1989                  │
│  Archived:  Tue, Jan 3, 1989    8:58:16 AM    │
└─────────────────────────────────────────────┘
```
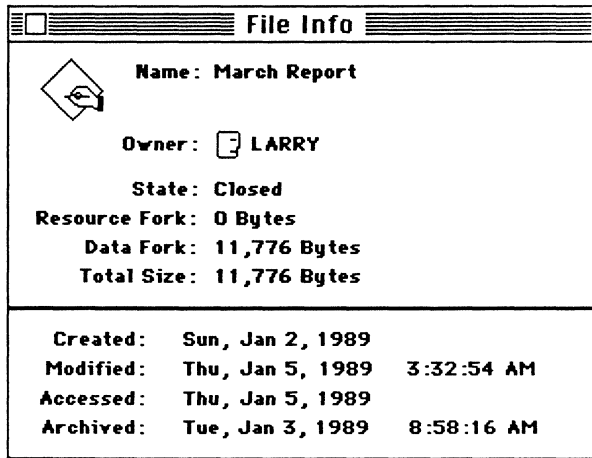
Name

This is the name of the file. If you have the Modify right in this folder, you can edit the folder's name.

Owner

This is the name of the user who created the file.

State

This shows the current status of the file, whether it is Open or Closed.

Resource Fork

This is the number of bytes used by the file's resource fork. (For DOS files, this value is always zero.)

Data Fork

This is the number of bytes used by the file's data fork.

Total Size

This the total number of bytes used by the resource fork and data fork.

The bottom of the File Information window displays these dates:

Created

This is the date the file was created.

Modified

This is the date and time the file was last modified.

Accessed

This is the date the file was last opened.

Archived

This is the date and time the file was last archived. If the file has never been archived, NetWare will insert the DOS default date of January 1, 1980 and flag the file Modified Since Last Backup.

Accessing User Information

You can use commands under the Users menu to view information about users on a file server, such as group memberships. You can also use this menu to view your own security equivalences and trustee assignments. (You must be logged in to the file server you are viewing information for.)

1. **Use the Server window to access the file server's list of users.**

    For help accessing the list of users on a file server, see page 6-11.

2. **Highlight the name of the user you want information about.**

    Shift-click or drag-select to highlight more than one user at a time. Be sure to drag-select the user names, not the icons.

3. **Choose User Information from the Users menu.**

    You can display the User Information window also by pressing Command-I. If you are accessing information for a single user, you can display the User Information window for that user simply by double-clicking on the username.

⚫ File Edit Server Volumes Folders/Files	Users	Groups

User Info	⌘I
Trustee Assignments	⌘T
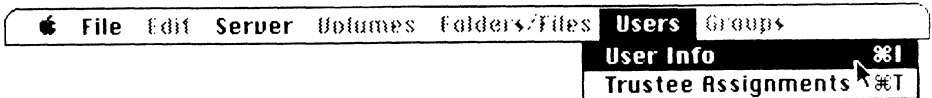
The User Information window is divided into two
sections. The upper portion always shows three pieces
of information: the user's login name, full name, and
ID number. Full Name will be blank unless a full name
was specified when the supervisor created the user.

```
┌─────────────────────────────────────────────────────────────┐
│ ▤□ ▭▭▭▭▭▭▭▭▭▭▭▭ User Info ▭▭▭▭▭▭▭▭▭▭▭▭ │
│   ┌──┐    User Name: TRENT                                    │
│   │ ─│                                                        │
│   └──┘                                                        │
│           User ID: 0001A2C0          ( Change Password )      │
│        Full Name:                                             │
│                                                               │
│   ──────────────────────────────────────────────────────     │
│     Member of these groups:        Security equivalent to:    │
│   ┌────────────────────┬──┐  ┌────────────────────┬──┐        │
│   │ ⊞ EVERYONE        │⬆ │  │ ⊞ EVERYONE        │⬆ │        │
│   │ ⊞ MACUSERS        │  │  │ ⊞ MACUSERS        │  │        │
│   │                   │  │  │ ⊟ SUSAN           │  │        │
│   │                   │  │  │                   │  │        │
│   │                   │⬇ │  │                   │⬇ │        │
│   └────────────────────┴──┘  └────────────────────┴──┘        │
└─────────────────────────────────────────────────────────────┘
```

If you are viewing your own user information, your ID
number and a Change Password button are also
displayed.

The lower portion of the User Information window
contains two scrolling lists. On the left is a list of the
groups the user belongs to. On the right is a list of the
user's security equivalences. You can't see any security
equivalences unless you are viewing your own user
information.

Accessing Group Information

You can use the commands under the Groups menu to view information about the groups on a file server. For the groups you belong to you can view the list of group members and the group's trustee assignments. (You must be logged in to the file server you want information for.)

1. **Use the Server window to access the file server's list of groups.**

    For help with accessing the list of groups on a file server, see page 6-12.

2. **Highlight the name of the group you want information about.**
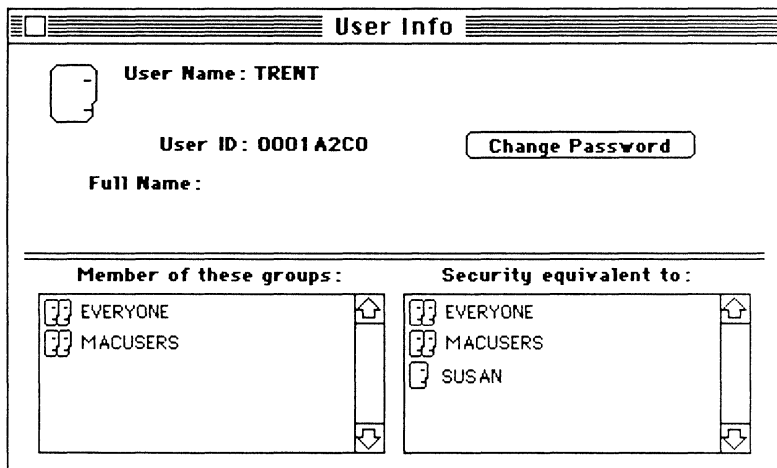
    Shift-click or drag-select to highlight more than one group at a time. Be sure to drag-select the group names, not the icons next to the names.

3. **Pull down the Groups menu and choose Group Information.**

    You can display the Group Information window also by pressing Command-I. If you are accessing information for a single group, you can display the Group Information window for that group simply by double-clicking on the group's name.
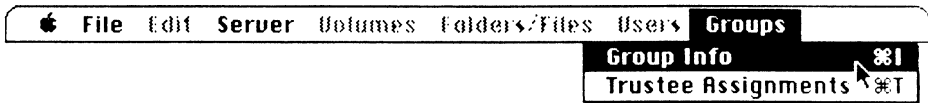
The Group Information window is divided into two portions. The upper portion always shows three pieces of information: the group's name, full name, and ID number. Full Name will be blank unless a full name was specified when the supervisor created the group.

```
≣▢≣══════════════ Group Info ≣══════════════

        Group Name:  ACCOUNTING

           Group ID:  42310135

  Full Name:  Accountants, Sec. II


═══════════════ Group Members: ═══════════════
  ▢ BRUCE                                    ⬆
  ▢ LARRY
  ▢ ROBYN

                                            ⬇
```
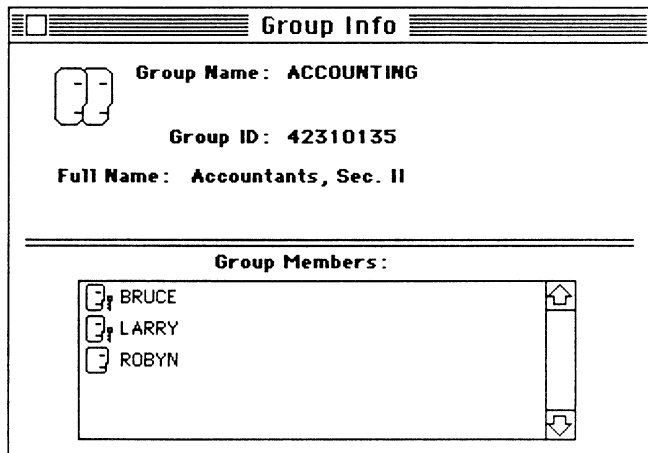
The lower portion of the Group Information window contains a scrolling list that contains the names the group's members.

Security and the NetWare Control Center

The NetWare Control Center application is a comprehensive security tool. You can use it to change your password, to view and modify folder security, and to flag files.

Viewing Your Trustee Assignments

The Trustee Assignments command under the Users menu lets you view a list of all folders in which your trustee rights are defined.

1. **Use the Server window to access the file server's list of users.**

    For help with accessing the list of users for a file server, see page 6-11.

2. **Highlight the desired name in the users list.**

    Your name is highlighted for you automatically when you first access the user list.

3. **Choose Trustee Assignments from the Users menu.**

File Edit Server Volumes Folders/Files	**Users**	Groups

User Info	⌘I
Trustee Assignments	**⌘T**
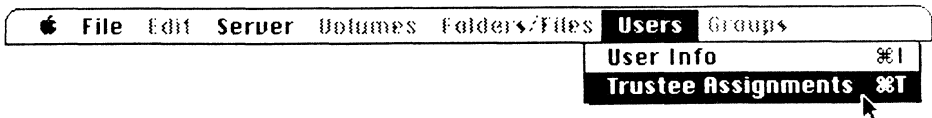
The Trustee Assignments window appears. Your name appears at the top of the window. Below your name are the names of the folders you are a trustee in.

4. **To view the rights you have been assigned in a folder, highlight the folder's name.**

The lower left-hand panel of the window displays the rights you are assigned in the highlighted folder. Dotted lines associate the NetWare rights with icons representing their AppleShare privilege equivalents.

If an AppleShare icon is crossed out, your NetWare rights are not sufficient to allow that AppleShare privilege. For example, three NetWare rights—Read, Open, and Search—are required to create the equivalent of AppleTalk's See Files and See Folders privileges. In the example below, only the Open right is assigned; therefore, the See Folders and See Files icons are crossed out. (For more details about the relationship between NetWare rights and AppleShare privileges, see Chapter 4.)
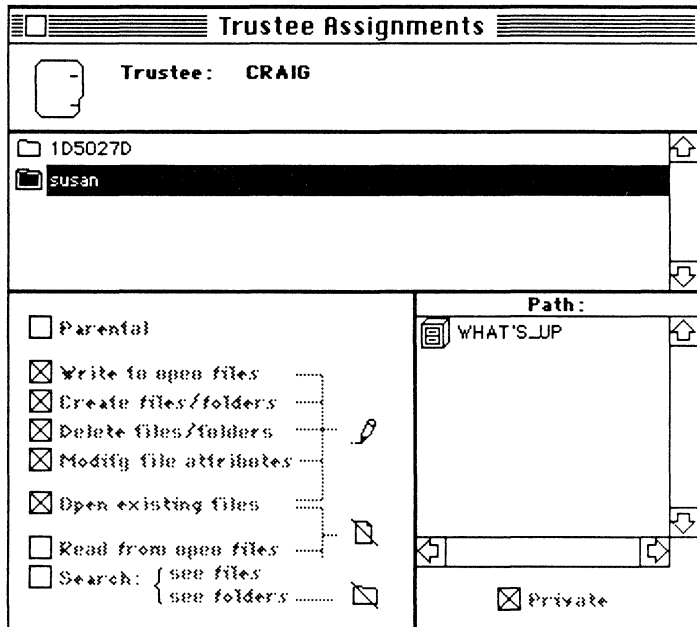
The lower right-hand panel of the Trustee Assignments window displays the path for the highlighted folder. The path represents the hierarchical arrangement of nested folders leading to the folder you have highlighted. In other words, these are the folders that come between the folder you have highlighted and the volume in which it was created.

Since the Private attribute affects how your trustee rights operate within a folder, the Private attribute is shown below the Path display. The attribute is effective if it is checked.

Viewing Your Group's Trustee Assignments

The Trustee Assignments command under the Groups menu lets you view a list of the folders you have trustee rights in as a member of a group.

1. **Use the Server window to access the file server's list of groups.**

   For help accessing the list of groups for a file server, see page 6-12.

2. **Highlight the name of a group in the groups list.**

   If you highlight the name of a group you are not a member of, no trustee assignments are shown.

3. **Choose Trustee Assignments from the Groups menu.**
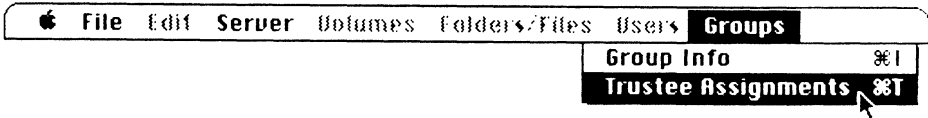
The Trustee Assignments window appears. Your group's name appears at the top of the window. Below your name are the names of the folders your group is a trustee in.

```
┌──────────────────────────────────────────────┐
│ ▤□▦▦▦▦▦ Trustee Assignments ▦▦▦▦▦▦▦            │
│                                                │
│   ┌──┐   Trustee:   ACCOUNTING                 │
│   └──┘                                         │
│  ▣ DOS                                    ⇧    │
│  ☐ PUBLIC                                      │
│  ☐ WP                                          │
│                                            ⇩   │
│                                   Path:        │
│  ☒ Parental              ☐ PUBLIC         ⇧    │
│                          ▣ SYS                 │
│  ☒ Write to open files                         │
│  ☒ Create new files                            │
│  ☒ Delete files                                │
│  ☒ Modify file attributes                      │
│                                                │
│  ☒ Open existing files                     ⇩   │
│                          ⇦            ⇨        │
│  ☐ Read from open files                        │
│  ☐ Search: ⎰ see files                         │
│            ⎱ see folders      ☐ Private        │
└──────────────────────────────────────────────┘
```
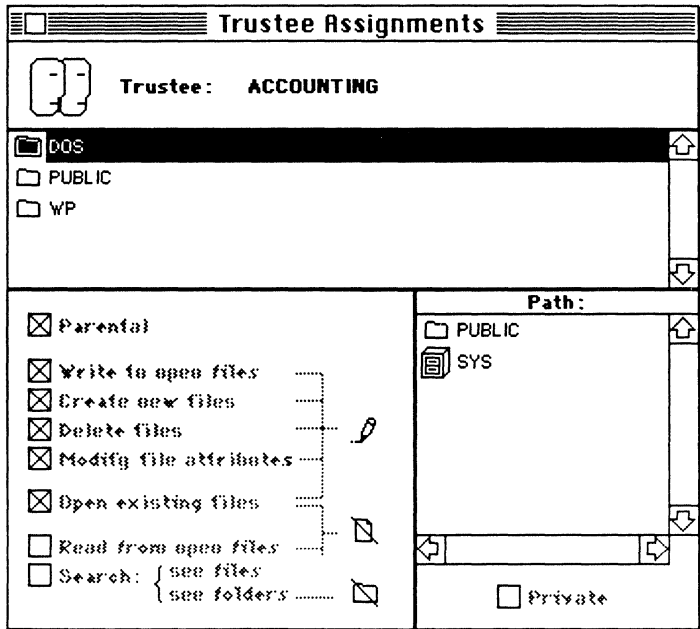
4. To view the rights your group has been assigned in a folder, highlight the folder's name.

The lower left-hand panel of the window displays the rights your group has been assigned in the highlighted folder. Dotted lines associate the NetWare rights with icons representing their AppleShare privilege equivalents.

If an AppleShare icon is crossed out, your group's NetWare rights are not sufficient to allow that AppleShare privilege. For example, three NetWare rights—Read, Open, and Search—are required to create the equivalent of AppleTalk's See Files and See Folders privileges. In the example on the previous page, only the Open right is assigned; therefore, the See Folders and See Files icons are crossed out. (For more details about the relationship between NetWare rights and AppleShare privileges, see Chapter 4.)

The lower right-hand panel of the window displays the path for the highlighted folder. The path represents the hierarchical arrangement of nested folders leading to the folder you have highlighted. These are the folders that come between the folder you have highlighted and the volume in which it was created.

Since the Private attribute affects how your group's trustee rights operate within a folder, the Private attribute is shown below the Path display. The attribute is effective if it is checked.

Working with Trustee Rights

The NetWare Control Center uses two separate menus to access trustee rights, one for volumes and another for folders. The two menus work almost identically, and this section describes them both together. Both menus include commands for viewing information about trustee rights, maximum rights masks, and effective rights.

Viewing Trustee Rights

If you have the Parental right in a volume, or a folder or its parent folder, you can use the Trustee Rights window to view trustee rights.

To view trustee rights, complete the following steps from the Server window.

1. **Activate the menu for the type of trustee assignment you want to view, volume or folder.**

    To activate the Volume menu, click the volume icon for the volume you want information about. The volume icon and Volumes menu heading become bold.

    To activate the Folders/Files menu, highlight the folder's name from the list of folders. (See "Listing Folders and Files" on page 6-9.) The Folders/Files menu becomes bold.

2. **For volume rights, choose Volume Trustee Rights from the Volumes menu. For folder rights, choose Folder Rights from the Folders/Files menu.**

    A Trustee Rights window appears for the volume or folder you selected. (You can open this window also by pressing Command-T.)

Folder Info	⌘I
Folder Effective Rights	⌘E
Folder Maximum Rights	⌘M
Folder Trustee Rights	⌘T
File Info	⌘I
File Flags	⌘F
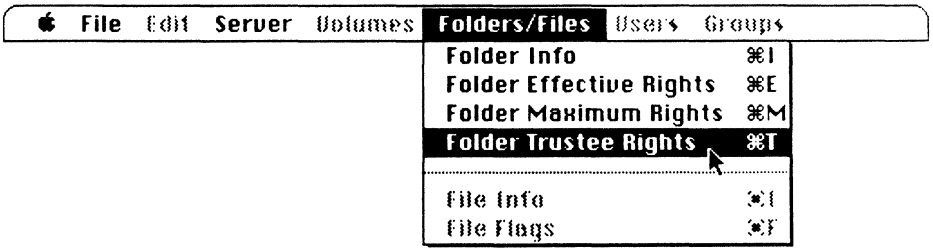
The top panel of the Volume Trustee Rights or Folder Rights window displays the name of the volume or folder. The bottom-right panel contains a Trustees list that shows the name of every user or group that has assigned rights in this volume or folder.

```
┌─────────────────────────────────────────────────────┐
│ ▤□▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ Folder Rights ▰▰▰▰▰▰▰▰▰▰▰▰ │
├─────────────────────────────────────────────────────┤
│     ┌─────┐    Name: Reports                          │
│     │     │       ⊠ Private                           │
│     └─────┘                                           │
├──────────────────────────────┬──────────────────────┤
│                              │       Trustees:       │
│  ▦  ▦  ▱  ▦  ▦  ▱           │  [🎭] EVERYONE      ⬆ │
│  ☐ Parental                  │                       │
│  ⊠ Write to open files  ···┐ │                       │
│  ⊠ Create files/folders ···┤ │                       │
│  ⊠ Delete files/folders ···┼·𝒥│                      │
│  ⊠ Modify file attributes··┤ │                       │
│  ⊠ Open existing files  ····┤ │                    ⬇ │
│  ⊠ Read from open files ···┼·🗋├──────────────────────┤
│  ⊠ Search: ⎰see files  ····┤ │  ( Remove Trustee )  │
│            ⎱see folders ····🗀│  (  Save Changes  )  │
└──────────────────────────────┴──────────────────────┘
```
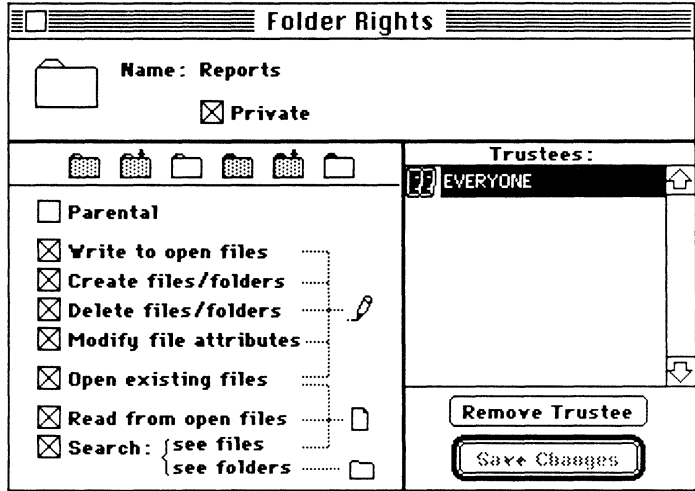
The bottom-left panel of the window displays the eight
trustee rights. (The icons for the AppleShare access
privilege equivalents appear opposite the trustee
rights.) To view the rights for a trustee, highlight the
trustee's name. The rights that the trustee has been
assigned are checked off in the left panel.

Modifying Trustee Rights

If you have parental rights in a volume, or a folder or its
parent folder, you can use the Trustee Rights window to
modify trustee rights.

1.   **Open the Trustee Rights window for the volume
     or folder you want to modify trustee rights in.**

     A fast way to view the Trustee Rights window for a
     volume is to click the volume's icon in the Server
     window and press Command-T. For a folder, highlight
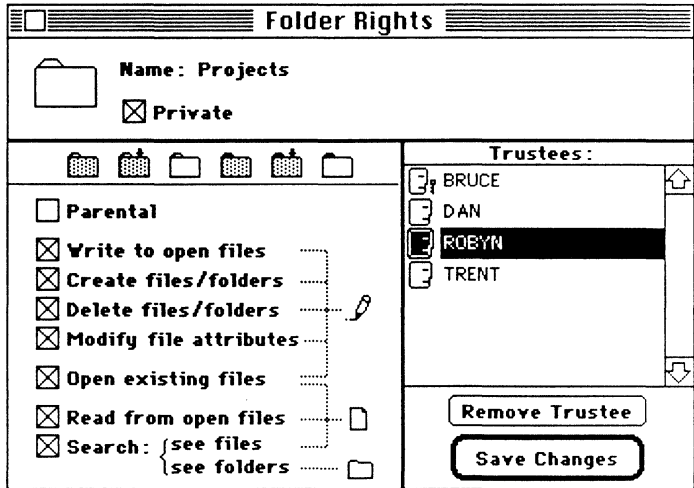   the folder's name and press Command-T.

2. **Highlight the trustee whose rights you want to modify.**

To set the rights for more than one trustee at a time, highlight multiple trustees by shift-clicking or drag-selecting. The rights you check are assigned to all the selected trustees. If more than one trustee is selected, the check boxes will not be checked. This is because the trustees may have varying rights.

3. **Click the check box to the left of each right you want to change.**

The rights you click are checked (added) or unchecked (removed) for the trustee you selected. The icons to the right of the rights list show the AppleShare access privileges: Make Changes (Write, Create, Delete, Modify), See Files (Open, Read, Search), and See Folders (Search). As rights are removed, the icons are crossed out to reflect the AppleShare equivalents.

When you change any of a trustee's rights, the Save Rights button becomes activated.

```
┌────────────────────────────────────────────────────┐
│ ▤□▤▤▤▤▤▤▤▤▤▤▤ Folder Rights ▤▤▤▤▤▤▤▤▤▤ │
│ ┌──────┐  Name: Projects                            │
│ │      │                                            │
│ └──────┘  ☒ Private                                 │
│ ┌────────────────────────────┬─────────────────────┐│
│ │  ▦  ▦  ▭  ▦  ▦  ▭          │   Trustees:         ││
│ │                            │ ▯ BRUCE          ⬆  ││
│ │ ☐ Parental                 │ ▯ DAN               ││
│ │ ☒ Write to open files  ⌐   │ ▰ ROBYN             ││
│ │ ☒ Create files/folders ⌐   │ ▯ TRENT             ││
│ │ ☒ Delete files/folders ⌐.·𝒥 │                     ││
│ │ ☒ Modify file attributes⌐  │                     ││
│ │ ☒ Open existing files  ⌐   │                  ⬇  ││
│ │ ☒ Read from open files ⌐·⌐ │─────────────────────││
│ │ ☒ Search: {see files   ⌐   │ ( Remove Trustee )  ││
│ │           {see folders ·⌐  │ ( Save Changes )    ││
│ └────────────────────────────┴─────────────────────┘│
└────────────────────────────────────────────────────┘
```

You can change trustee rights also by using the folder
icons located above the AppleShare icons. When you
click each icon, the rights boxes are automatically
checked to show the NetWare rights equivalents.
There are six folder icons to choose from.

4. **After you have finished changing a trustee's
    rights, click the Save Changes button, or press
    <Return>.**

The new assignment is permanently saved and the
Save Changes button is dimmed again.

If you don't click the Save Changes button, and you
select another trustee or close the window, a message
will be displayed asking if you want to save the
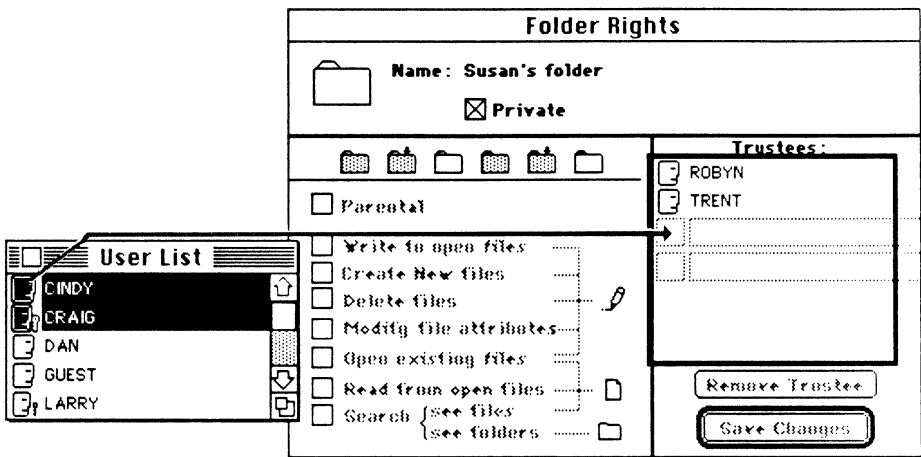changes you've made.

Adding Trustees

To add trustees to a volume or folder, you must work between the volume or folder's Trustee Rights window and the file server's User List or Group List window. Remember that when a window is open, it can be brought to the front of the desktop (activated) by clicking whatever portion of the window may be visible. You must have the Parental right to add a trustee; if you don't have the necessary rights, you cannot open the Trustee Rights window to add trustees.

1. **Open the Trustee Rights window for the volume or folder you want to add a trustee to.**

   A fast way to view the Trustee Rights window for a volume is to click the volume's icon in the Server window and press Command-T. For a folder, highlight the folder's name and press Command-T.

2. **Open the User List or Group List window for the file server that contains the volume or folder.**

   Open the User List or Group List window by activating the server window and then double-clicking the user or group icon.

```
┌─────────────────────────────────────────────────────┐
│                  Folder Rights                       │
│  ┌───┐    Name: Susan's folder                       │
│  │   │              ☒ Private                         │
│  └───┘                                               │
│ ┌──────────────────────────────┬──── Trustees: ────┐ │
│  ▦  ▦  ▭  ▦  ▦  ▭    │ ⊡ ROBYN          │ │
│                                   │ ⊡ TRENT          │ │
│  ☐ Parental                       │                  │ │
│  ☐ Write to open files            │                  │ │
│  ☐ Create New files               │                  │ │
│  ☐ Delete files          ✐        │                  │ │
│  ☐ Modify file attributes         │                  │ │
│  ☐ Open existing files            │                  │ │
│  ☐ Read from open files    ▯      │ ┌ Remove Trustee ┐ │
│  ☐ Search {see files               │ │  Save Changes │ │
│            {see folders   ▭        │ └───────────────┘ │
└─────────────────────────────────────────────────────┘

┌─ User List ─┐
│ ⊡ CINDY    ▲│
│ ⊡ CRAIG     │
│ ⊡ DAN       │
│ ⊡ GUEST    ▼│
│ ⊡ LARRY     │
└─────────────┘
```

3. **Drag the user's icon from the User List or Group
List window to the list of trustees in the Trustee
Rights window.**

Shift-click or drag-select names in the list to select
more than one trustee at a time. When you have
selected the user or users, click and drag the "face"
icon next to a selected name over to the trustee list.
All selected names will be dragged to the trustee list.
When the user's or group's icon enters the trustee list,
the border of the list becomes wider. The user or
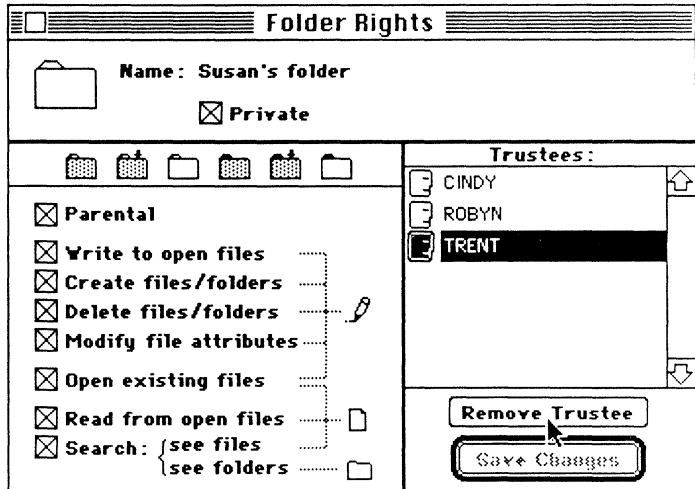group is added to the list when you release the mouse
button.

New trustees are automatically given all rights. You
can use the Trustee Rights window to modify a
trustee's rights as needed.

Removing Trustees

If you have the Parental right in a volume, or in a folder or its parent folder, you can remove trustees. Remember that removing a trustee from one folder can affect a trustee's rights in subfolders. Make sure the trustees you remove are not depending on their trustee assignment to access subfolders.

1. **Open the Trustee Rights window for the volume or folder you want to remove a trustee from.**

    A fast way to view the Trustee Rights window for a volume is to click the volume's icon in the Server window and press Command-T. For a folder, highlight the folder's name and press Command-T.

```
┌────────────────────────────────────────────────────────┐
│ ▤☐══════════════ Folder Rights ══════════════          │
│  ┌─────┐   Name: Susan's folder                        │
│  │     │         ☒ Private                             │
│  └─────┘                                                │
│ ┌──────────────────────────────┬──────────────────────┐│
│  🗀 🗀 🗀 🗀 🗀 🗀         │    Trustees:         ││
│                               │ 🗋 CINDY          ⇧  ││
│  ☒ Parental                   │ 🗋 ROBYN             ││
│  ☒ Write to open files    ┄┄┄ │ █ TRENT             ││
│  ☒ Create files/folders  ┄┄┤  │                      ││
│  ☒ Delete files/folders  ┄┄┼ 🖉│                     ││
│  ☒ Modify file attributes┄┄┤  │                  ⇩  ││
│  ☒ Open existing files    ┄┄ │                      ││
│  ☒ Read from open files  ┄┄ 🗋│ ┌──────────────────┐ ││
│  ☒ Search: ⎰see files    ┄┄  │ │ Remove Trustee   │ ││
│            ⎱see folders ┄┄ 🗀 │ ╭──────────────────╮ ││
│                               │ │  Save Changes    │ ││
│                               │ ╰──────────────────╯ ││
│ └──────────────────────────────┴──────────────────────┘│
└────────────────────────────────────────────────────────┘
```

2. **Highlight the trustee you want to remove from the trustee list.**

    Shift-click or drag-select to highlight more than one trustee.

3.   **Click the Remove Trustee button.**

The trustee's name is removed from the list of trustees.

Accessing a Maximum Rights Mask

The Maximum Rights command is included in both the Volumes and Folders/Files menu. It lets you view a volume's or folder's maximum rights mask.

1.   **Activate the menu (Volume or Folders/Files) for the maximum rights mask you want to view.**

To activate the Volume menu, click the volume icon for the volume you want information about. The volume icon and Volumes menu heading become bold.

To activate the Folders/Files menu, highlight the folder's name from the list of folders. (See "Listing Folders and Files" on Page 6-9.) The Folders/Files menu becomes bold.

2.   **Choose Maximum Rights from the Volume or Folders/Files menu.**

A Maximum Rights window appears for the volume or folder you selected. (You can open this window also by pressing Command-M.)

Folder Info	⌘I
Folder Effective Rights	⌘E
Folder Maximum Rights	⌘M
Folder Trustee Rights	⌘T
File Info	⌘I
File Flags	⌘F
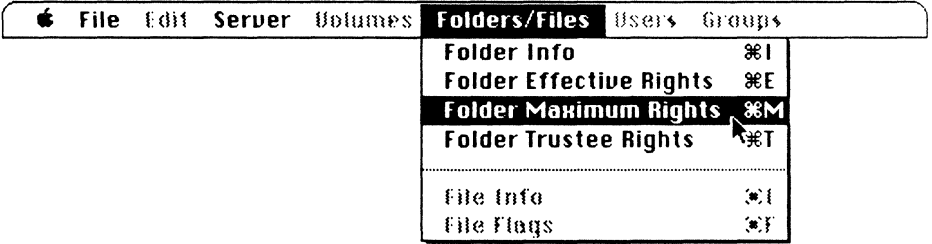
The top panel of the Maximum Rights window displays the name of the volume or folder. The bottom panel contains the maximum rights mask. The rights included in the mask are checked.

```
┌─────────────────────────────────────────┐
│ ▤▢▤  Folder Maximum Rights  ▤       │
│  ┌────┐      Name : Dan's folder        │
│  │    │                                  │
│  │    │      ⊠ Private                   │
│ ├─────────────────────────────────────┤ │
│      🗃  🗃  🗀  🗃  🗃  🗀            │
│ ├─────────────────────────────────────┤ │
│  □ Parental                              │
│  ⊠ Write to open files      ┈┈┐        │
│  ⊠ Create files/folders     ┈┈┤        │
│  ⊠ Delete files/folders     ┈┈┼┈ 𝄃    │
│  ⊠ Modify file attributes   ┈┈┘        │
│  ⊠ Open existing files      ┈┈┈┘        │
│  ⊠ Read from open files     ┈┈┼┈ □     │
│  ⊠ Search: ⎰ see files      ┈┈┘        │
│            ⎱ see folders    ┈┈ □        │
└─────────────────────────────────────────┘
```
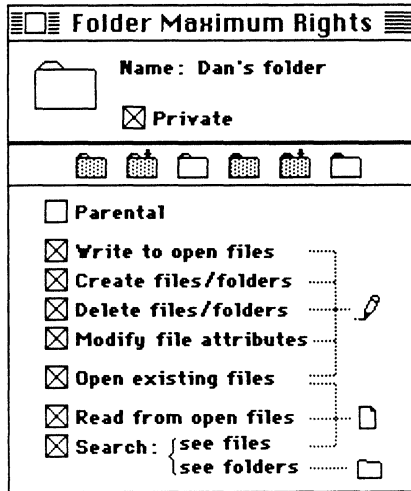
If you have the Parental right in this volume or folder, or the folder's parent folder, you can use the Maximum Rights window to modify the maximum rights mask. To modify the maximum rights mask, click the check box to the left of each right you want to change. The rights you click are checked (added) or unchecked (removed) for the maximum rights mask.

As you remove rights, the AppleShare access privilege icons are crossed out or to reflect equivalent AppleShare privileges.

You can change trustee rights also by using the folder icons located above the AppleShare icons. When you click each icon, the rights boxes are automatically checked to show some default settings of NetWare rights equivalents. There are six folder icons to choose from.

Viewing Your Effective Rights

The Effective Rights command is under both the Volumes and Folders/Files menu, and lets you view your effective rights for a volume or folder.

1. **Activate the menu for the type of effective rights you want to view, volume or folder.**

    To activate the Volume menu, click the volume icon for the volume you want information about. The volume icon and Volumes menu heading become bold.

    To activate the Folders/Files menu, highlight the folder's name from the list of folders. (See "Listing Folders and Files" on page 6-9.) The Folders/Files menu becomes bold.

2. **Choose Effective Rights from the Volumes or Folders/Files menu.**

    An Effective Rights window appears. (You can open this window also by pressing Command-E.)

File Edit **Server** Volumes	**Folders/Files** Users Groups

```
                            Folder Info              ⌘I
                            Folder Effective Rights  ⌘E
                            Folder Maximum Rights    ⌘M
                            Folder Trustee Rights    ⌘T

                            File Info                ⌘I
                            File Flags               ⌘F
```
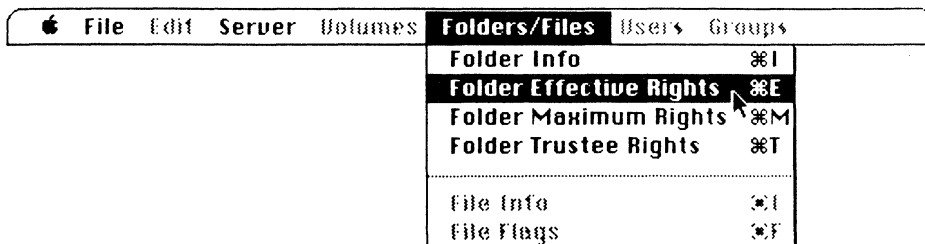
The top panel of the Effective Rights window displays the name of the volume or folder. The bottom panel displays your effective rights.
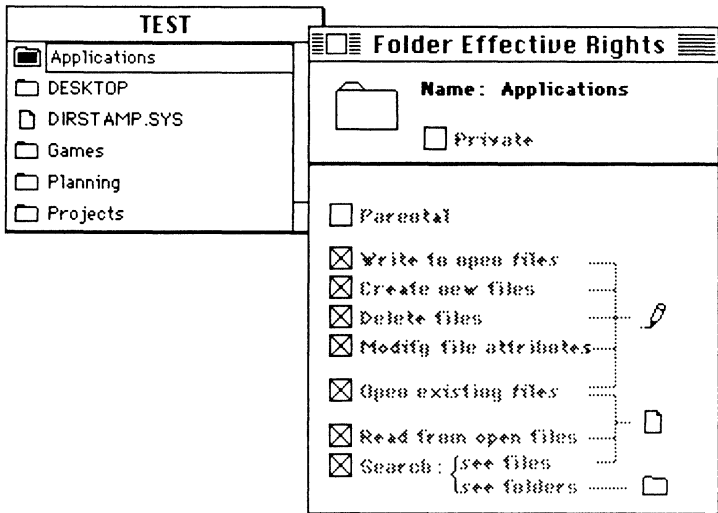
You cannot modify your effective rights directly. To modify your effective rights, you must have either your trustee rights or the maximum rights mask modified.

Viewing and Modifying Folder Attributes

There are three folder attributes: Invisible, System, and Private. You can see a folder's Invisible and System attributes by using the Folder Information command.

1. **Highlight the folder's name in the list of folders and files.**

   For help with listing folders, see page 6-9. Shift-click to highlight more than one folder at a time. If you can't find the file you are searching for, you may lack rights in the folder that contains it.

2. **Choose Folder Information from the Folders/Files menu.**

The Folder Information window appears.

```
≣□≣═════════ Folder Info ≣═════════
┌─────┐  Name:  │Projects
│     │
│     │  Owner:  ⊡ LARRY
└─────┘
            ┌ Calculate contents ┐

      Created:  Sun, May 29, 1988   4:22:56 AM
════════════════════════════════════════════
        □ Invisible          □ System (DOS)
```
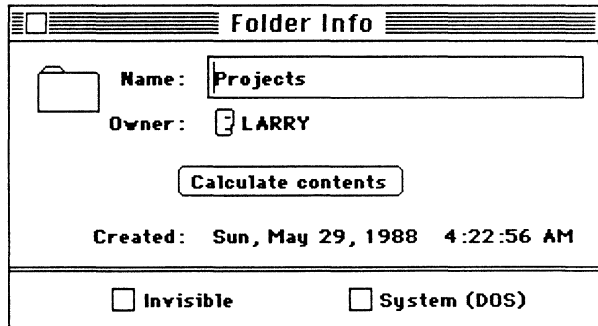
The Invisible and System attributes are shown at the bottom of the window. You can change a folder's attributes if you have the Modify right in the folder.

Click Calculate Contents to display the bytes, physical disk space, number of files, and number of folders used by the folder. This may take a minute or two to calculate, and is therefore optional.

To see a folder's Private attribute, use either the Trustee Rights or Maximum Rights command. To change the Private attribute, you must have the Parental right in either the folder you are making private or its parent folder. Access to the Maximum or Trustee Rights window is explained on pages 6-39 and 6-33, respectively.

Modifying File Flags

The NetWare Control Center application lets you view how a file is flagged. If you have the Modify right in the folder that contains the file, you can change the way the file is flagged.

1. **Highlight the filename in the list of folders and files.**

    For help with listing files, see page 6-9. Shift-click or drag-select to highlight more than one file at a time. If you can't find the file you are searching for, you may lack rights in the folder that contains it.

2. **Choose File Flags from the Folders/Files menu.**

 File	Edit	Server	Volumes	**Folders/Files**	Users	Groups

Folder Info	⌘I
Folder Effective Rights	⌘E
Folder Maximum Rights	⌘M
Folder Trustee Rights	⌘T
File Info	⌘I
File Flags	**⌘F**
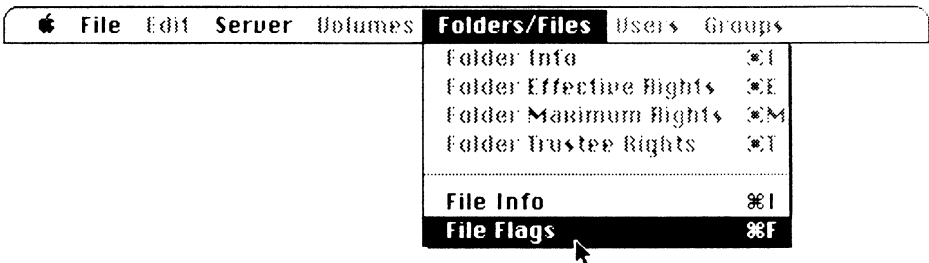
A File Flags window appears. (You can display the File Flags window also by pressing Command-F.)

```
┌─────────────────────────────────────────┐
│ ▤□▥▥▥▥▥▥ File Flags ▥▥▥▥▥▥▥▥▥ │
│  ╱◇╲    Name:  March Report              │
│ ◇ ⬅◇                                     │
│  ╲◇╱                                     │
│         □ Hidden (Invisible)             │
│         □ Indexed                        │
│         □ Modified Since Last Backup     │
│         □ Read-only (Locked)             │
│         □ Shareable (Multi-user)         │
│         □ System                         │
│         □ Transaction Tracking           │
│                                          │
└─────────────────────────────────────────┘
```
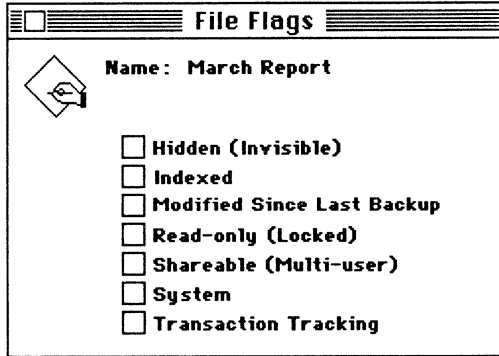
To change how a file is flagged, click the check box to
the left of the flag. Checking a flag makes it effective.
The effect of each flag is explained on page 4-16.

By checking "Modified Since Last Backup," you can
force a file to be backed up when the file server is
backed up, whether or not it was actually modified.

Changing Your Password

You can change your password from your User Information
window inside the Control Center application. Before
setting your password, check with your supervisor to find
out about any password restrictions on your file server. A
password for a Macintosh user cannot exceed eight
characters.

Note   If you want to use your password on both Macintosh and
DOS workstations, you should limit your password to the
regular alphanumeric character set and not use Option-key
characters. Passwords are not case sensitive; that is, upper-
and lower-case letters are the same. (See Appendix B, "DOS
File Naming Conventions.")

1.   **Access your User Information window.**

(For help accessing your User Information window,
see page 6-22.)

2.   **Click the Change Password button in the User
Information window.**

A box appears displaying the prompt "Enter Old
Password."

```
┌──────────────────────────────────────────────────┐
│                     User Info                       │
│ ┌──────────────────────────────────────────────┐   │
│ │                                                │   │
│ │   Enter Old Passuord: ┌──────────────────┐    │   │
│ │                       │                  │    │   │
│ │                       └──────────────────┘    │   │
│ │      ┌──────────┐      ┌────────────────┐     │   │
│ │      │  CANCEL  │      │      OK        │     │   │
│ │      └──────────┘      └────────────────┘     │   │
│ │                                                │   │
│ └──────────────────────────────────────────────┘   │
│                        │          │                 │
│                        │          │      ┌─┐        │
│                      ┌─┐          └─┐     │▽│        │
│                      │▽│                  └─┘        │
└──────────────────────────────────────────────────┘
```
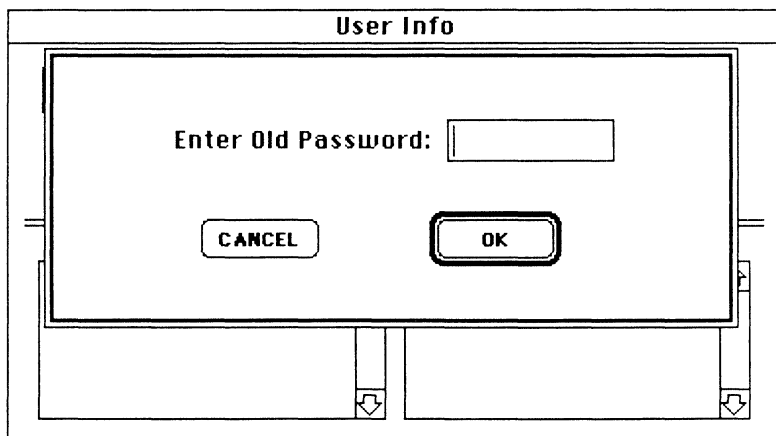
3. **Type your old password and click OK.**

A dot is displayed for each character you type. If you make a mistake before clicking OK, you can edit your typing. When you click OK, you are prompted to enter your new password.

4. **Type your new password and click OK.**

A password on a Macintosh can't be more than eight characters. After you click OK, you are prompted to re-enter your new password.
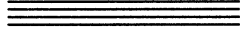
5. **Retype your password and click OK.**

You must type the new password exactly the same both times. If you make a mistake or if your password is too long or too short, a message explains the error and allows you to try again.

When you enter your password the second time, the NetWare Control Center confirms that your password is changed, and returns you to the User Information window.

Chapter 7

If Something Goes Wrong

This chapter discusses some of the common problems you may encounter when you work with the NetWare file server, and offers some solutions. Specifically, this chapter discusses problems that may occur

- When you're logging in to the file server;
- While you're using the file server.

When You're Logging In

Most of the problems that occur when you are logging in to the file server are related to your startup disk. You may have the wrong version System file installed on your startup disk, the AppleShare workstation software may be improperly installed, or the AppleShare software may not be installed at all. (For more information about the current startup diskette, refer to Appendix A.)

The following sections discuss specific problems that may occur when you are logging in to the file server, and some possible solutions.

The Chooser Isn't Present

If the Chooser isn't present in the Apple menu, then it hasn't been installed in the current system file. Use the Font/DA Mover to install the Chooser desk accessory.

If you are using two startup disks, one with current system software and one with earlier software versions, your Macintosh workstation may switch to the startup disk that does not contain the AppleShare software, and you may not find the Chooser (version 3.0 or above) on your Apple menu. (For more information on why the Macintosh switches startup disks, refer to Appendix A.)

Complete the following steps to check your startup disk:

1. **Open the volume in the top-right corner of the desktop.**

    That icon always represents the current startup disk.

2. **Look for the System file in the System Folder.**

    Check the System file version by selecting the System file icon and choosing Get Info from the File menu. NetWare for Macintosh supports System versions 4.2 and above. If your system version is below 4.2, update the System file by using the *Macintosh System Tools* disk. For information on updating your System file, refer to Chapter 2.

You automatically install the Chooser when you install the system update by using the Installer on the *Macintosh System Tools* disk.

The Chooser Won't Open

If you used the Font/DA Mover to put the Chooser on your startup disk, you may get a message telling you the Chooser is not correctly installed. You should use the Installer on the *Macintosh System Tools* disk to correctly install the Chooser.

For information on installing the Chooser using the *Macintosh System Tools*, refer to Chapter 2.

The AppleShare Icon Isn't Present in the Chooser

If the AppleShare icon isn't present in the Chooser, one of the following maybe the cause:

- AppleShare is not installed on the current startup disk. For information on installing AppleShare, refer to Chapter 2.

- AppleShare has been moved from your System Folder. Reinstall it from the *Macintosh System Tools* Disk, using the Installer utility.

A Dialog Box with a Bomb Icon Appears

If you select the AppleShare icon or select a file server and a dialog box with a bomb icon appears, one of the following may be the cause:

- You may have one or more desk accessories installed on your startup disk that don't work with AppleShare. To correct this, create a new startup disk, following the instructions in Chapter 2. The new startup disk will contain only the desk accessories that came on the *Macintosh System Tools* disk. All of these desk accessories work with AppleShare.

  After creating the new startup disk, restart your workstation. If you want to add additional desk accessories to the startup disk, add them one by one, by using the Font/DA Mover. After you add each desk accessory, quit the Font/DA Mover and try to log in to the file server.

  If you are unable to log in, the last desk accessory you installed probably doesn't work with AppleShare.

- You may have too many different brands of hard disks attached to your workstation's SCSI port. To correct this, remove all but one. Attach the additional hard disks one at a time and try to log in to the file server after each addition.

  If you are unable to log in, you have too many different brands of hard disks attached to your workstation. Remove one brand.

- You may have too many of one of the following:
     drivers
     Cdev's
     inits

The Chooser Won't Let You Select a File Server

If you've selected the AppleShare icon and the list of available file servers appears but you can't select a file server, one of the following may be the cause:

- You don't have sufficient rights to access the server. See your supervisor.

- You may not be using the latest Chooser. If you used the Installer to install printing resources after you installed AppleShare, you must update the System file on your startup disk. To ensure that your startup diskette has the latest version of the Chooser, go through the steps for creating a startup disk on page 2-3.

- You may not be using the latest version of the Finder. To check the Finder version, choose About the Finder from the Apple menu. NetWare for Macintosh will support Finder version 5.5 and above. If you are using the wrong version of the Finder, you should update your startup disk's Finder by using the *Macintosh System Tools* disk as explained in Chapter 2.

  See your Apple documentation for recommended versions of Chooser, System, and Finder.

The File Server Isn't Listed in the Chooser

If you select the AppleShare icon in the Chooser and the file server you want to log in to is not listed, one of the following may be the cause:

- The file server has been taken out of service. Check with your network supervisor.

- There is a problem in the network between your workstation and the file server you want to use. The problem may be either logical or physical. If the file server is running, check your cabling, and ensure that your network cable is attached to the printer port at the back of your Macintosh. Check with your network supervisor.

- The name of the file server may have been changed. Check with your network supervisor.

You Can't Log in with Your Registered Username or Password

If you select a file server in the Chooser, but you can't log in with your registered username or password, one of the following may be the cause:

- You are typing your name or password incorrectly. You should check with your network supervisor to see how your registered username and password should be typed. If you created your own password and have forgotten it, the supervisor will not be able to retrieve it; however, the supervisor can help you create a new password.

- The network supervisor has not given you proper access to the file server. Check with your network supervisor.

- The file server is being shut down. Check with your network supervisor.

- The file server has been shut down. If your network server is tied to an internetwork, Chooser may "think" the file server you are attempting to log in to is still running, and will interpret the login failure as an incorrect password entry.

Your Startup Disk Failed to Automatically Access the File Server

If you have set the automatic access option on your workstation startup disk (see page 2-13), but the disk failed to access the file server at startup time, one of the following may be the cause:

- The file server has been taken out of service. Check with your network supervisor.

- There is a problem in the network between your workstation and the file server. Check with your network supervisor.

- The AppleShare Prep file has been moved or deleted from your System Folder. Run Chooser to log in again, and save your name and password. A new AppleShare Prep file will be created.

When You're Using the File Server

Most problems you encounter while you are using the file server happen because you don't have sufficient access rights in the folder in which you are trying to work. For more information on rights, refer to Chapter 4. For more information on using the NetWare desk accessory, refer to Chapter 5.

The following sections discuss specific problems that may occur when you are using the file server, and some possible solutions.

You Can't Open a Volume that Appears on the Desktop

If you can't open a volume icon that appears on your desktop, you may not have access rights to that volume. When you try to open the volume, a message will appear, indicating that you don't have access rights. To find out your rights in the volume, use the NetWare desk accessory. (See Chapter 5.)

You Can't Delete a Folder

If you can't successfully drag a folder to the Trash to delete it, one of the following may be the cause:

- You may not have sufficient access rights in the folder. To delete a folder, you must have the Delete right in the folder and any folders it contains.

- The folder you are trying to delete may contain a folder owned by another user for which you don't have the Delete right. If so, drag the folder out of your folder.

- Someone may be working with the folder you're trying to delete. If you've determined that you have the rights required to delete the folder and still can't, try again later.

You Can't Open an Application Stored on the File Server

If you can't open an application that is stored on the file server, one of the following may be the cause:

- System files may be stored in the folder along with the application. Remove the System file and Finder from the folder.

- The application may require other resources to be in the same folder. Check the application's documentation.

- The application may require that you have Write, Open, Modify, and Create rights in the folder in which it is stored. Use the NetWare desk accessory to change the rights for the folder that contains the application you want to use, and try to open the application again.

- If the application is stored in a shared folder, it may be in use. Most Macintosh applications can be opened by only one user at a time.

- The application may not run on the file server, and must first be copied to a local drive. Copy the application to a local drive and try opening it again.

The Folder You Want Doesn't Appear in the Directory

If you are looking for a folder in a directory but can't find it, one of the following may be the cause:

- The folder is nested in another folder, or located on a different volume.

- The folder is nested in a private folder for which you do not have the Search right.

- The folder may be flagged Invisible. Use the NetWare Control Center to view and change the folder's invisible status.

You Can't Copy a Folder Stored on the File Server

If you can't copy a folder stored on the file server, one of the following maybe the cause:

- You may not have sufficient access rights to the folder you are trying to copy. To copy a folder, you must have Read, Open, and Search rights in the folder. Use the NetWare desk accessory to check your rights for the folder.

- You may not have sufficient access rights to the folder you are trying to copy to. You must have Create, Open, and Write rights for the folder. To check this, try copying the folder to a disk at your workstation.

You Can't Close, Save, or Continue Your Document

If you're working with an application that is stored on the file server and you can't continue, close, or save your document, one of the following may be the cause:

- File service has been unexpectedly discontinued, or there is a problem in the network cabling somewhere between your Macintosh and the file server you're using. The application you're using is probably unable to get the information it needs to continue. In this case, you usually will receive an error message. Check with your network supervisor.

- You don't have sufficient access rights to make changes in the folder that contains the document. For you to save a newly created document in a folder, your rights in the folder must include Write. Use the NetWare desk accessory to check your rights.

- Another user may have the document open. Most Macintosh applications allow only one user at a time to open a document.

The NetWare Desktop Accessory Won't Work

- The Rights module may not be in the same folder as the System and Finder files. Drag the Rights module from the *NetWare Utilities* disk to the system folder.

- There may not be enough available RAM memory. Turn off any RAM cache that may be active; remove RAM disks; or remove system inits from the system folder.

- If the message "No Servers Found" appears, check cable connections, try running Chooser to log in, or check with the system supervisor.
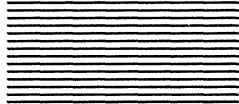
Appendix A
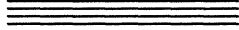
About the Current Startup Disk

Your current startup disk is the one whose system files your Macintosh is currently using. To access a NetWare file server, your current startup disk needs the AppleShare software installed on it. (Chapter 2 explains how to create an AppleShare workstation startup disk or install AppleShare on a startup disk.)

If your Macintosh switches to a startup disk that does not have AppleShare installed, the Chooser will no longer show you NetWare file servers. (See Chapter 7.) By understanding how the Macintosh determines the current startup disk, you can decide which startup disk should be the current one.

When you start or restart your Macintosh workstation, it looks for a startup disk in its built-in disk drive. If the workstation doesn't find a startup disk there, it looks for a startup disk in attached devices in the following order: an external 3.5-inch drive, a hard disk (starting with the one attached to the workstation, if there's more than one), and a disk device (such as a Hard Disk 20SC) attached to the SCSI port.

Note   Since system files are not shareable, a file server volume cannot be used as a startup disk.

A Macintosh may switch to a different startup disk when you

- Open an application on another startup disk;

- Open a document that's started by an application on another startup disk. (Your Macintosh may switch to the startup disk containing the application it's starting, no matter where the document is located.)

When you use a hard disk as the current startup disk, your Macintosh will not switch to another startup disk on its own.

Note　When you're using a floppy disk, the System and Finder files must be together in the same folder. This is because the Macintosh workstation looks only in the System folder for the System and Finder files rather than looking at the entire disk.

To change your current startup disk, do one of the following:

- Press the Option key while you open an application on another startup disk.

- Press the Option and Command keys at the same time while you double-click the Finder icon on another startup disk.

- Choose Restart from the Special menu.

By using one of these methods, you should be able to return control to an original startup disk or switch to a new startup disk as needed.

Appendix B

DOS File Naming Conventions

This appendix explains how DOS files are named, how DOS file names differ from Apple file names, and how NetWare for Macintosh handles the conversion of filenames from one format to the other.

DOS Filenames

When a file is stored using DOS, its name consists of two parts, much like having a first and last name. The first name, called the filename, can be from one to eight characters. The second name, called the filename extension, can be up to three characters. (The extension is not required, however, so a complete file name can be as short as one character or as long as 11 characters.)

When a file is saved, the filename and the extension are separated by a period.

The following characters cannot be used in either the filename or the extension:

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

The following are examples of valid filenames:

MYDOC.001
apple.eat
1989
ANT.EAT
Account.88

DOS doesn't differentiate between upper- and lower-case letters; when files in a folder (or *directory*, in DOS language) are listed, they appear in upper case.

Apple Filenames

Apple's file-naming rules are much more lenient: you can use any character on the keyboard except the colon (:), and the name cannot begin with a period. You can use upper- and lower-case letters as well as spaces. Document and folder names can be up to 31 characters long.

NetWare for Macintosh Conversion

NetWare for Macintosh must provide a way for Apple document names to appear in DOS directories, and for DOS filenames to appear in Apple folders.

Apple to DOS

When an Apple file is displayed in a DOS directory, the following rules apply:

- If there is no period in the filename, the first eight valid characters are displayed without spaces. For example, the Apple file **[We] the people** appears as **WETHEPEO** in a DOS directory. Likewise, **My letter to mom** becomes **MYLETTER**.

- If a period appears in the filename, DOS will interpret it as a separator between the filename and extension, and will list the first three valid characters after the period as the extension. Therefore, **Mr. Roberts** appears as **MR.ROB** in a DOS directory, and **<Ron>.and.<Nancy>** becomes **RON.AND**.

- To prevent two Apple filenames from being converted to the same DOS filename, NetWare changes the last character in the second filename (in the DOS display only) to a number. For example, two files named **My . File 1** and **My . File 2** would appear in a DOS directory as **MY.FIL** and **M1.FIL**. Note that NetWare changes the last character in the filename, not the extension.

DOS to Apple

When DOS filenames are displayed in Apple folders, the following rules apply:

- The word *DOS* will appear in the document icon.

- All letters will be converted to upper case.

- A period will appear between the filename and the extension.

NetWare Conversion: Example

In the example below, there are four files stored in a folder named "ACCTG." Two files are Apple files: **Quarterly Taxes** and **Payroll 1988.** Two are DOS files: **CHECK.REG** and **DISBURSE.88.**
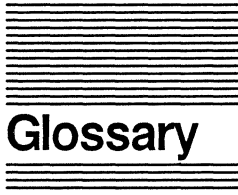
This is how the names will appear in a DOS directory:

QUARTERL
PAYROLL1
DISBURSE 88
CHECK REG

Here is how the same files look in the Apple finder:


```
═□═══════ ACCTG ═══════□≡
 4 items    19,815K in disk  127,560K ava

    ┌───┐         ┌───┐
    │DOS│         │DOS│
    │ ═ │         │ ═ │
    └───┘         └───┘
  CHECK.REG      DISBURSE.88

    ┌───┐         ┌───┐
    │   │         │   │
    │   │         │   │
    └───┘         └───┘
 Quarterly Taxes  Payroll 1988
```
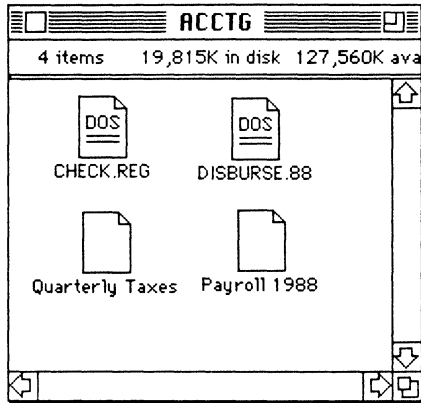
Some care should be taken in naming files that will be
needed by DOS users. Keep in mind that only the first eight
characters before a period and only the first three
characters after the period will be displayed. A dozen files
that begin with **Dr. West** will appear as **DR.WES**,
D1.WES, **D2.WES**, through **D11.WES**.

Glossary

Access Rights: *See* Rights.

Administrator: *See* Supervisor.

AppleShare Server: A Macintosh computer dedicated as a file server in an AppleTalk Network.

AppleTalk Network: Apple Computer's networking system, in which Apple Macintosh computers are tied together to share disk storage and printer resources. The network is controlled through the AppleShare file server.

Attributes: *See* Folder Attribute.

Black-Tab Folder: A folder in which the user has the Parental right and can therefore modify the folder's security. *See also* Parental Right, Rights.

Bridge: A software and hardware connection between two networks, usually of similar design. A NetWare bridge can connect networks that use different kinds of network interface boards or transmission media, as long as both sides of the connection use the IPX protocol. There are two types of NetWare bridges: internal and external. If a bridge is located in a file server, it is an internal bridge. If a bridge is located in a workstation, it is an external bridge. *See also* Internetwork.

Bulletin Board: A folder in which a trustee is given rights to open, search, and read files, but not to make any changes. *See also* Open Right, Read Right, Search Right, Rights.

Can't Make Changes Icon: An icon in the form of a crossed-out pencil, indicating that you can't write to files within the folder.

Can't See Files Icon: An icon in the shape of a crossed-out file, indicating that you can't read any files in the folder. Depending on your rights, you may be able to see the filenames, but you can't open the files.

Can't See Folders Icon: An icon in the shape of a crossed-out folder, indicating that you can't see folders nested within the active folder.

Control Center: *See* NetWare Control Center.

Create Right: The right given to a user or group of users to create new files and folders in a given folder. *See also* Rights.

Delete Right: The right given to a user or group of users to delete files and folders in a given folder. *See also* Rights.

Desk Accessory: *See* NetWare Desk Accessory.

Dropbox Folder: Represented by a gray folder with a black arrow above it, a dropbox folder is one in which a user has the following rights: Read, Open, Create, and Write. The user can create a file and copy it into the folder, but cannot delete files in the folder or search the folder. *See also* Rights.

Effective Rights: The rights a user can exercise in a given folder. Two factors determine effective rights: trustee rights the user has in the folder; and rights specified in the folder's maximum rights mask. Since folder rights always take precedence over trustee rights, effective rights are those trustee rights not denied in the maximum rights mask. *See also* Maximum Rights Mask, Rights.

Equivalence: *See* Security Equivalence.

File: A collection of data stored as one unit, under a filename. A file may contain many separate items (for example, names, addresses, formulas), continuous text, or an application program. Files are stored in folders, either on a local floppy or hard disk, or on the file server's hard disk. *See also* Appendix B, "DOS File Naming Conventions."

File Flag: An attribute assigned to a file that affects how it functions. There are seven file flags: Hidden, Indexed, Needs Archiving, System, Transaction Tracking, Shareable, and Read-Only. Two flags—Shareable and Read-Only—affect file security. For more information, see the glossary entry for each flag.

File Server: A computer that controls all network activity. The NetWare Operating System is loaded into the file server, and all shareable devices (disks, printers, and so forth) are attached to it. The file server controls all access to shared devices and the system security. A dedicated file server can be used only as a file server while it is on the network. A nondedicated file server can be used simultaneously as a file server and a workstation.

Flag: *See* File Flag.

Folder: A holder of documents, applications, or other folders on the desktop. In DOS-based systems a folder is called a directory.

Folder Attribute: A property that can be assigned to a folder. There are three folder attributes: Private, Invisible, and System. For a complete description of each, see Private Attribute, Invisible Attribute, and System Attribute.

Gateway: *See* Service Protocol Gateway.

Gray Folder: When a folder icon displayed in the finder is gray, the folder cannot be opened by the user. Files cannot be copied from the folder, but they can be copied into the folder if there is an arrow above the folder icon. *See also* Rights.

Group Trustee Assignments: Access rights to folders given to an entire group of users. *See also* Rights, Trustee Assignments.

GUEST: A username created automatically when the network is installed. By default, GUEST has no password and limited rights. The purpose of GUEST is to allow a user without a registered username to log in to the network. The supervisor can change the rights of GUEST, or remove the username entirely.

Hidden Flag: An attribute assigned to a file, preventing it from appearing in the finder. The file can be detected using the NetWare Control Center. You can use the Hidden flag to hide a file from other users.

Indexed Flag: An attribute assigned to a file, allowing it to be more quickly retrieved from the file server's disk storage. When a large file is indexed, data within the file can be found much more quickly by an application. This is especially important in databases in excess of one megabyte.

Internetwork: Two or more networks connected by a bridge. Users on an internetwork may use the resources (files, printers, disk drives, and so forth) of all connected networks (if the users have access rights).

Invisible Attribute: A folder attribute that prevents the folder name from appearing in the finder. The Invisible attribute will not prevent another user from accessing the folder, and has no effect on other rights.

Log In (verb): To gain access to the network. Logging in to the network involves entering a username (and, optionally, a password), and selecting a file server and volume to work with. A user can log in to more than one file server simultaneously, and work with multiple volumes.

Maximum Rights Mask: A security feature that controls the rights that all trustees can exercise in a folder. If a particular right is removed from a folder's rights mask, no user will be able to exercise that right in that folder, even if the user has that trustee right. *See also* Rights, Trustee Assignments.

Modified Since Last Backup Flag: A file attribute that indicates whether a file has been changed since it was last archived.

Modify Right: The right given to a user or a group of users to change filenames and file flags in a particular folder. *See also* Rights.

NetWare Control Center: The application program that controls all aspects of NetWare security maintenance. Using the Control Center, a user (who has the necessary rights) can view and modify all flags and rights for users, groups, servers, volumes, folders, and files.

NetWare Desk Accessory: A desk accessory that allows users to access NetWare modules. *See also* Rights Module.

NetWare Operating System: The operating system sold by Novell, Inc. The NetWare operating system is loaded into the file server when the file server is booted; it controls all system resources and the way information is processed on the entire network or internetwork.

Network: A collection of computers connected to allow users to share data and peripherals (such as hard disks and printers). A NetWare network consists of one or more file servers, workstations, and peripherals.

Open Right: A trustee right that allows the user to open files in a particular folder. If the trustee has Read and Write rights, he or she can then view and change the contents of the files.

Ownership: An AppleShare concept, equivalent to having the Parental right. When File Info is displayed, the owner listed will be the person who created the folder; however, any user can be assigned the Parental right in the folder, and becomes a co-owner. *See also* Parental Right, Rights.

Parental Right: The right to assign rights in and add trustees to or remove trustees from a particular folder. The Parental right is symbolized by a folder icon with a black tab. *See also* Ownership, Black-Tab Folder, Rights.

Password: A security feature of NetWare for Macintosh. Each registered user can be assigned a password, to prevent other users from logging in with the same name. The password is entered as part of the login process. *See also* Log In.

Plain Folder: A white folder icon with no markings. When a plain folder appears in the finder, it means you can open the folder and see the names of the folders and files inside. You may or may not be able to create, delete, or modify files, depending on other rights assigned in the folder. The plain folder is equivalent to the Search right. *See also* Rights, Search Right.

Print Queue: A sequence of print job requests stored and processed in the order they are received while they await servicing by the print server. *See also* Print Server.

Print Server: A process that takes print jobs from the print queue and sends them to the printer. *See also* Print Queue.

Private Attribute: A feature that prevents unauthorized users from viewing the contents of a folder. A private folder is closed to all users except those who have the Search right in that folder. You must have the Parental right in either the folder you are making private or its parent folder. *See also* Search Right, Parental Right, Rights.

Privilege: An AppleShare concept, similar to NetWare rights. There are three AppleShare privileges: See Files, See Folders, and Make Changes. See Files is equivalent to Search, Read, and Open rights; See Folders is equivalent to the Search right; and Make Changes is equivalent to Write, Create, Delete, Modify, and Open rights. For more information, see the glossary entry for each right, and Rights.

Protocol: A format for exchanging and interpreting information. Apple Computer uses AppleTalk Filing Protocol; Novell's NetWare Operating System uses NetWare Core Protocol. The key to NetWare for Macintosh is the Service Protocol Gateway, which translates between the two protocols. *See also* Service Protocol Gateway.

Queue: *See* Print Queue.

Read-Only Flag: A file attribute that allows users to open and read the file, but not to delete, rename, or modify the file. The Read-Only flag overrides the NetWare rights; that is, even if users have Delete, Write, and Modify rights, they cannot alter a file that has been flagged Read-Only.

Read Right: The right to read from open files in a particular folder. Without the Open and Search rights, the Read right is meaningless. *See also* Open Right, Search Right, and Rights.

Rights: Privileges (assigned by the network supervisor or by a user with the Parental right) that control how users can work with files in a given folder. Trustee rights are assigned to individual users, and control each user's rights within folders. A maximum rights mask is assigned to each individual folder and restricts the rights of all users in the folder, overriding the individual rights of trustees. *See also* Create Right, Delete Right, Open Right, Search Right, Modify Right, Parental Right, Read Right, Write Right, Group Trustee Assignments, Trustee Rights, Maximum Rights Mask, Trustee Assignments, Effective Rights.

Rights Module: A module accessed by the NetWare Desk Accessory that allows users to view and modify security information for users, groups, servers, volumes, folders, and files.

Search Right: The right to list the filenames in a folder. You may or may not be able to view or modify the contents of the files, depending on other rights assigned. Without the Search right, if the folder is private, the folder icon in the finder will be gray.

Security: The control over users' abilities to access and work with folders and files on the network. There are four levels of NetWare security: login/password, trustee rights, folder security (folder attributes and maximum rights mask), and file flags. *See also* Rights, Password, Trustee Assignments, Folder Attributes, Maximum Rights Mask, File Flags.

Security Equivalence: Allows one user to exercise the same rights as another user or group of users. Assigning rights with security equivalence is often easier and more efficient than assigning rights directly to individual users.

Server: *See* File Server.

Service Protocol Gateway: A software program installed in the file server (or in a bridge) that acts as a translator between NetWare Core Protocol and AppleTalk Filing Protocol, allowing the two systems to understand and respond to one another. *See also* Protocol.

Shareable Flag: A file attribute that allows more than one user to open the same file simultaneously. The Shareable flag is usually used together with the Read-Only flag, to allow multiple users to open the same file without changing its contents.

Supervisor: A user responsible for the operation of the network. The network supervisor maintains the system, reconfiguring and updating it as the need arises. The supervisor will log in with the username SUPERVISOR, which is created automatically when the network is installed. Other users can be assigned supervisor equivalence. *See also* Security Equivalence.

System Attribute: A folder designation that indicates the files in the folder are DOS system files. Folders marked System will be hidden from view in the finder.

Transaction Tracking Flag: Transaction Tracking is a
NetWare feature that prevents loss of data when the
computer fails in the middle of a transaction. Each
database change is viewed as one transaction, which
must be either completed successfully or abandoned
entirely. If the workstation fails in the middle of a
transaction, the transaction is "backed out" and the
database is restored to its last completed state. If a file
is flagged Transaction Tracking, it will be protected
from data loss—if Transaction Tracking has been
enabled on the file server.

Trustee: A user who has been given rights in a particular
folder is a trustee of the folder. *See also* Trustee
Assignments.

Trustee Assignments: All rights a trustee has in a
particular folder. *See also* Rights, Trustee.

Trustee Rights: *See* Trustee Assignments.

User: A person who logs in to the network.

Username: A name recognized by the network, which a
user can use to gain access to the network. Each user
will be assigned a username (generally, the person's
first name) and a password for logging in. The
usernames GUEST and SUPERVISOR are created
automatically during network installation. *See also*
Supervisor, GUEST, Password, Log In.

Volume: A portion of a hard disk of predetermined size.
Hard disk storage is divided into three hierarchical
levels: volumes, folders, and files. The system
supervisor will create the volumes for the file server's
disk, and users can choose (mount) each volume they
need to work with.

Workstation: A personal computer connected to a network. Each user on the network logs into the file server through his or her workstation, and each workstation functions as a standalone computer except when using the network's shared resources.

Write Right: The right to change the contents of an open file. Without the Search and Open rights, the Write right is meaningless; the Search right allows the file to appear in the finder, and the Open right allows the user to open a file. *See also* Search Right, Open Right, Rights.

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Index

Transaction Tracking flag, defined
   3-12
Trustee
  adding 5-14, 6-36
  removing 5-16
Trustee rights
  assigning 5-17
  defined 4-6
  groups 6-28
  modifying 6-33
  viewing 5-7, 6-26, 6-31

Username, logging in 2-10, 4-3
Users
  defined 1-6
  information 6-22
  listing 6-11

Volumes
  accessing 3-3
  defined 1-5
  icon, using 3-3
  information 6-13
  listing 6-8
  multiple 2-13
  selecting 2-13

Workstation, introduction 1-3
Write right, defined 4-5

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