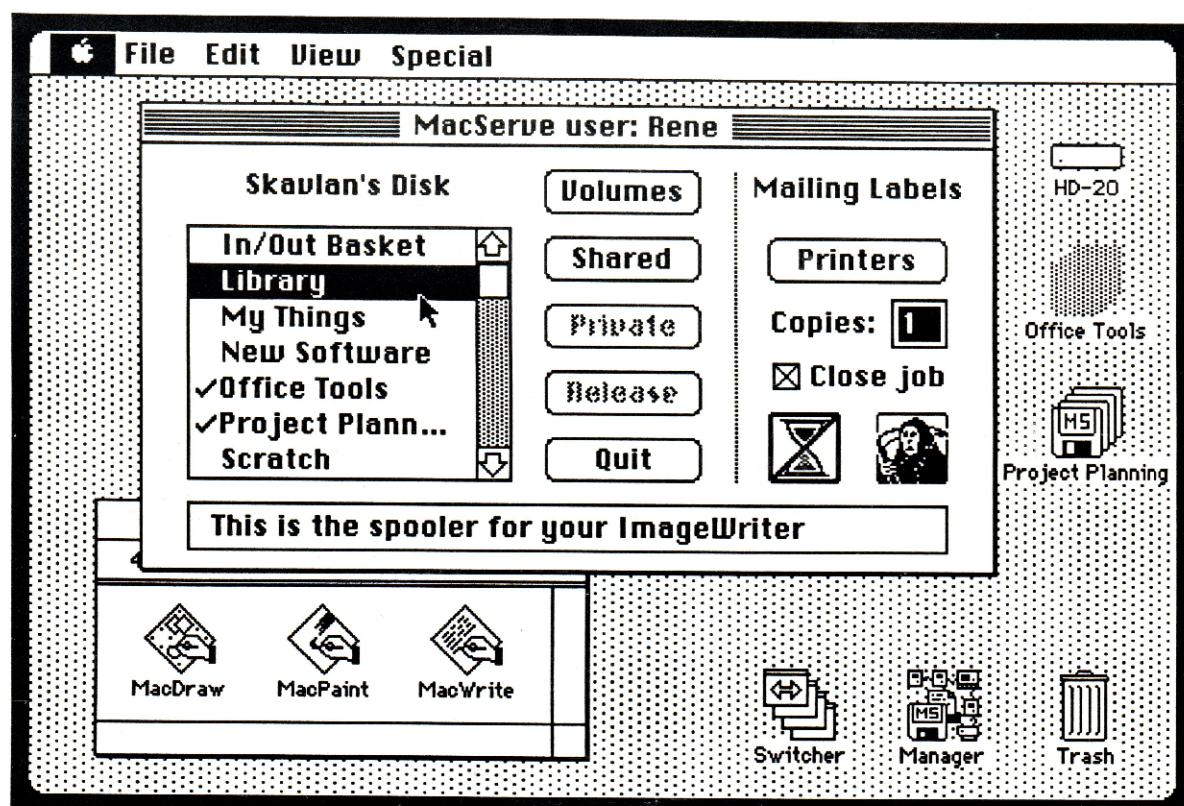


MacServe™



Sharing Resources through AppleTalk

FIRST EDITION
February 1985

Infosphere, Inc.
4730 SW Macadam Avenue
Portland, Oregon 97201
(503) 226-3620

Information in this document is subject to change without notice and does not represent a commitment on the part of Infosphere, Inc. The software described in this manual is furnished under a license agreement and may be used or copied only in accordance with the terms of that agreement.

Copyright © 1986 Infosphere, Inc.

This manual and the software described in it are copyrighted with all rights reserved. Under the copyright laws, this manual or the software may not be copied, in whole or part, without written consent of Infosphere, Inc., except in the normal use of the software or to make a backup copy. The same proprietary and copyright notices must be affixed to any permitted copies as were affixed to the original. This exception does not allow copies to be made for others, whether or not sold, but all of the material purchased (with all backup copies) may be sold, given, or loaned to another person. Under the law, copying includes translating into another language or format.

The MacServe distribution disk includes copyrighted programs of Apple Computer, Inc. licensed to Infosphere to distribute for use only in conjunction with MacServe.

Apple Computer, Inc. makes no warranties, either expressed or implied, regarding the enclosed computer software package, its merchantability or its fitness for any particular purpose. The exclusion of implied warranties is not permitted by some states. The above exclusion may not apply to you. This warranty provides you with specific legal rights. There may be other rights that you have which vary from state to state.

MacServe and XL/Serve are trademarks of Infosphere, Inc. Apple, AppleTalk, ImageWriter, LaserWriter, MacDraw, MacPaint, and MacWorks are trademarks of and Macintosh is licensed to Apple Computer, Inc.

This manual was created in a Macintosh Office with Aldus PageMaker, MacPaint, and Microsoft Word and was printed on the Apple LaserWriter.

Production by Best Impressions, Inc.

Infosphere Product Update Program

We are always looking for ways to improve our software, and we want you to be able to take advantage of our continuing efforts. You can assure your eligibility in the Infosphere Product Update Program by returning your registration card today.

As a registered MacServe user, you will be notified by mail about updates to the product. These notices will give the price of the update, a list of the added enhancements, and ordering instructions. Most updates will be available at a reduced price.

Only registered owners will receive these update notices, so send in your registration card now!

MacServe Product Support

We want you to get the most out of MacServe and we would like to help. If you have a technical question or problem, check this manual first. Most of the time you will find the answer right there. In fact, Appendix C has been specifically written to assist in troubleshooting. You may also want to give your dealer a call. If you still need assistance, call our Technical Support Department at (503) 226-1407. They will be happy to answer your questions, if you are a registered MacServe user.

Register now for technical support and upgrades!

Please complete and return this registration card before you use your new MacServe software for the first time. Register now so that you will be able to take advantage of the following benefits:

- Infosphere Product Update Program
- MacServe Product Support
- Advance information on new Infosphere products

Serial number **M00022038**

Name _____
Company _____
Address _____
Phone _____

Date purchased _____
Purchased:

- ☐ With my Macintosh
☐ At a later time

Purchased from _____
City _____ State _____

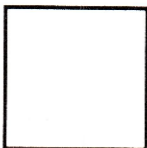
I learned about MacServe through:

- | | |
|--|--|
| ☐ Apple salesperson | ☐ Ad in _____ |
| ☐ Dealer | ☐ Computer show |
| ☐ Friend | ☐ Direct Mail |

My Macintosh Office includes:

- | | |
|--|---|
| ☐ Mac Plus (Qty _____) | ☐ 512K Mac (Qty _____) |
| ☐ Mac XL (Qty _____) | ☐ 128K Mac (Qty _____) |
| ☐ LaserWriter | ☐ Other _____ |
| ☐ These hard disks: _____ | |

Infosphere, Inc
4730 SW Macadam Ave
Portland OR 97201
USA



MacServe™ 2.0 Release Notes

Disk contents

Your MacServe distribution disk is based upon Apple's 3.1 System file. This is the latest System at the time of MacServe's release. It corrects a number of problems encountered with the 3.0 System (first shipped with the Mac Plus) and bugs in the 128K ROMs. Most of the Apple fonts and desk accessories have been removed to make room for MacServe.

To make additional space available, the disk uses a Mini-Finder. This is significantly smaller than the Finder. However, it only supports a small set of capabilities, appropriate for installing MacServe and performing basic maintenance. *You will not want to transfer this "Finder" to your working disks.*

The Mini-Finder is described in your Macintosh documentation. To escape from it, either select "Shut Down" or run an application from a different disk using "Open Other".

The disk also includes the MacServe Installer, Manager, and Help file. A disk updater (described below) is useful if you have been using XL/Serve or prerelease versions of MacServe.

Before you install

The Macintosh System environment is changing significantly because of the introduction of new components:

- 128K ROMs for the Macintosh Plus
- The Hierarchical File System
- System 3.0 and 3.1
- New system utilities and printing resources

These elements may still contain bugs. There also may be incompatibilities between them (depending on versions) and existing Macintosh software.

We recommend that you make a back-up copy of your System file before you install MacServe. You might also want to do this before adding fonts or desk accessories. By doing so, you can prevent a lot of grief if anything goes awry. Just copy the System (and Finder) to a diskette before proceeding.

You will probably need to reinstall MacServe after using one of Apple's System Update procedures.

About the Updater

If you have been using XL/Serve or a prerelease version of MacServe, you will find the Updater utility on the MacServe disk useful. It is not documented in the MacServe manual.

Use the Updater to copy the contents of your MacServe disk to an XL/Serve or earlier MacServe disk. Since it preserves all serial number information, it will make your old disk functionally identical to the master disk you update from.

To use it, boot your MacServe disk on a 512K Mac, Mac Plus, or 1 Mb Mac XL. It will guide you through the update process. If you run it by mistake, just click the Quit button in the initial dialog.

The Updater is not suitable for making back-up copies. For this, you need a disk copy utility that makes full sector copies. Or, you may purchase a back-up from Infosphere by sending a check for \$15.00 when you submit your registration card.

RAM HFS

Apple introduced a prototype of their new Hierarchical File System (HFS) with the Hard Disk 20 in the fall of 1985. It is used by add-on disk drive vendors to provide HFS support on 512K Macs. It is also used to support 800K diskette drives on Macs that do not have the 128K ROMs.

This prototype is found in the "Hard Disk 20" file of startup disks and can be identified by creation and modification dates of fall 1985. It is not fully compatible with HFS embodied in the 128K ROMs.

You may encounter two problems using it with MacServe:

- It fills the system heap so full that you may not be able to open many MacServe volumes.
- Volumes you have open may not be automatically released when you select Finder's "Shut Down" option.

We expect Apple to release an upgraded version of RAM HFS in the near future that is compatible with the 128K ROMs. It will alleviate these problems.

Errata and Adenda

The following notes are organized by page number in the MacServe manual.

14: Installing MacServe

If you copy the MacServe Help file to a Mac XL that previously supported XL/Serve, the icon will be lost and double-clicking the icon fails to start the Manager. These symptoms will be corrected if you rebuild the desktop (hold down the Command and Option keys while starting the Finder).

24: Releasing volumes

Clicking the "Go-away" box in a window that represents a MacServe volume under some applications does not release the volume. Instead, doing so may place your Mac in a very confused state where it knows about a volume it can no longer access.

If you reboot a Mac that had a volume open whose contents had changed, without releasing the volume, the next time you open the volume Finder may report the volume needs "minor repairs".

35: Archiver features

Incremental copies made with the **Partial** option are not considered part of a Back-up Set. They may be restored as **Full** or **Partial Appends**.

You may use Finder to individually restore files if the files are visible, unProtected, and not split across the media of the Back-up Set.

Back-up Sets made using the **Full** and **Replace** options can only be restored by the Archiver as **Full Replace**, even if they fit on a single volume.

Files that qualify for **Append** to copies will not replace files with matching names on the destination media if the destination file is Locked, Protected, or in-use.

48: Creating volumes

Automatic is an option that only affects hosts. Remote nodes must manually open volumes using the MacServe desk accessory.

Contents

2 BEFORE YOU BEGIN

- 3 How to use this manual
- 4 What MacServe can do for you
- 6 What you need to get started
- 6 Are you ready?
- 7 Getting help from MacServe

9 CHAPTER 1: GETTING STARTED

- 10 Preparing your equipment
- 12 Installing MacServe
- 15 Testing your MacServe host
- 17 Checking your MacServe network

19 CHAPTER 2: USING MACSERVE

- 22 Desk accessory basics
- 27 Watching your network in action
- 30 Altering print jobs
- 32 Erasing volumes
- 33 Rebuilding your hard disk
- 35 Backing-up and restoring volumes

41 CHAPTER 3: MANAGING MACSERVE HOSTS

- 42 Managing your host's resources
- 47 Creating volumes
- 49 Altering a volume's features
- 51 Removing volumes
- 52 Setting the server startup features
- 54 Setting network access features
- 56 Setting the printer options
- 58 Setting the print spooler features
- 60 The manager's password

61 MACSERVE REFERENCE

- 62 Appendix A: Tips and gotchas
- 70 Appendix B: Error messages
- 85 Appendix C: Troubleshooting tips
- 90 Appendix D: Technical notes
- 94 Glossary
- 97 Index

Before You Begin

You have purchased a special kind of product, known as "system software", for the most powerful computer family Apple has ever sold. Perhaps, the most exciting computers ever mass produced.

System software is different from applications, such as MacPaint. It forms the environment within which you use applications. The Finder is an example. You use the Finder to manage your disks and start applications.

You use an application directly; it is the focus of your work. Over time, you want to learn as much as you can about it so you can accomplish your work more effectively.

A good piece of system software does not interfere. You quickly forget it is there, but notice its absence. You also prefer to know as little as possible about it. Like the lighting of a room, the level becomes insignificant yet strongly influences your effectiveness.

We have tried, with MacServe, to create system software that makes it easier and faster for you to do the things you bought your Macintosh to do. Simple things like printing documents, and managing your hard disk. Even sharing applications and documents with your colleagues.

Things that you want to take for granted. Things that others do easily, all the time, on large computers.

Things not possible before on personal workstations.

How to use this manual

MacServe is not a program, but rather a number of program elements. That calls for a different format than classic Macintosh software documentation. We have chosen a cookbook approach that leads you through each of these program elements as you install and learn to use MacServe.

Throughout this manual are short sections entitled *About* They provide background material for the specific topics described in the How To sections, like the sidebars in magazine articles. We hope they make the technical issues underlying the choices you make digestible.

Chapter 1, *Getting Started with MacServe*, shows you how to quickly set up a working MacServe network, including installation instructions. It refers you to the places in the other sections of this manual where you can learn more about using MacServe.

The largest part of this manual is Chapter 2, of interest to all MacServe users. *Using MacServe* discusses the techniques you will use day-to-day to communicate with MacServe. (If someone has installed MacServe for you, you could start here.) Step-by-step instructions detail each task you normally do to manage disk volumes and print documents from the applications you use in your daily work.

Special material for MacServe administrators is included in Chapter 3. *Managing MacServe Hosts* has detailed instructions for setting up and changing the way MacServe manages the resources of your Macintosh. Many of the choices presented there only need to be made once.

The Appendices contain valuable information that helps you get the most out of your MacServe system. They also show you how to avoid and get out of trouble.

Lastly, if computers or networks are new to you, the Glossary explains some of the less common terminology used in this manual. An index and Problem Report Form wrap up the manual.

What MacServe can do for you

MacServe performs the following services to increase the performance, convenience, and security of your Macintosh:

- **Simultaneously runs Macintosh applications in the foreground while acting as a "server" for other Macintoshes on the network.** Your Macintosh remains your workstation, even though others share its resources.
- **Partitions your hard disk into as many as 16 logical "volumes".** Each volume appears to be a separate disk and can be any size you choose (from 100 Kbytes to 32 Mbytes). Volumes can be structured with your choice of MFS or HFS (assuming your Mac supports HFS). You can have several volumes open simultaneously, giving you access to thousands of files.
- **Shares volumes with other Macintoshes.** The same volumes you create for use on your Macintosh can also be shared by other Macs over the network, just as if they were disks directly attached to the other machines.
- **Controls access to shared network volumes.** Each volume can have a unique password which allows only those who know the password to access the data contained within the volume. You may designate volumes as read-only, allowing simultaneous access by multiple users to libraries. This prevents contention for write access by restricting write privileges to privately mounted volumes.
- **Improves disk performance by using a technique called "disk caching".** MacServe keeps a copy of the most frequently used data from its disk volumes in memory, eliminating the need to reread it from disk when called for by an application. You obtain the performance benefits of a ramdisk but gain increased data security because new data is always written directly to the disk.
- **Improves application performance by spooling printer output while the application continues.** Documents directed to an ImageWriter or similar printer are temporarily stored on your hard disk and then printed in the background. You may be able to resume your application more quickly.
- **Shares printers.** Other network users can direct their documents to the printer attached to your Macintosh, instead of requiring their own printer. Their documents are also stored on your hard disk and then printed in the order received.
- **Makes network services available conveniently from applications through a desk accessory.** The same desk accessory you use on your Mac to open and close volumes is used by all members of the network to choose hosts, select volumes, and select printers.
- **Names devices for access to multiple "hosts".** You give each MacServe system a network name; through those names, you have the ability to select which (of as many as 16) hosts you will obtain disk and print services from.

MacServe is NOT

- **Names users for identification.** You give each MacServe user a network name and, through these names, have the ability to identify who is using your servers and who has created print documents.
- **Simplifies backup and restoration of important files.** An incremental backup facility keeps track of when you last saved files on MFS volumes to an archive device (today, a diskette) and copies only those files that have changed. *HFS volumes are not yet supported due to the lack of technical information about HFS.*
- **Supports virtually every hard disk drive available for the Macintosh.** With MacServe, there is no need to buy special hardware to build a network, nor to commit to a single hardware vendor. You can probably get started with the equipment you already have.
- **Offers incremental expansion to as many as 16 MacServe hosts.** As your network needs grow, you can add additional MacServe hosts for increased performance and capacity.

- **MacServe IS NOT a file server.** The difference between a disk server, such as MacServe, and a file server is subtle. For most users, what is important is being able to run data base applications designed for multi-user access. MacServe includes a set of protocols for data base vendors who want to offer such support. These products will be available soon for use with MacServe.

We expect to develop file server products in the future, as the technology becomes more stable. For now, MacServe is far more reliable than any Macintosh file server product. As a registered user of MacServe, we will advise you of these developments.

- **MacServe IS NOT a LaserWriter spooler.** MacServe is compatible with the LaserWriter and can share the same AppleTalk network. However, it is not able to spool print jobs for a LaserWriter (or any other AppleTalk printer). Laser printing protocols have not yet evolved to the point where laser spooling is practical.

We are working with other companies to develop protocols for laser spooling. For now, MacServe can effectively reduce the loading on your LaserWriter by providing efficient ImageWriter sharing for document drafts.

What you need to get started

You need the following Apple products to use MacServe stand-alone (or as a network server):

- A 512K Macintosh (or Macintosh Plus) with a hard disk drive (Appendix A describes any software required for the currently supported drives), or a Macintosh XL with MacWorks XL (no earlier than version 3.0); and
- Optionally, a printer that directly attaches to your Macintosh's modem port (such as an ImageWriter), or a specialized printer required by your application.
- At least 200 Kbytes of free disk space (for the MacServe resources and Manager).
- Macintosh System 2.0 software and Finder 4.1, or
- Macintosh System 3.0 (or later) and Finder 5.1 (or later).

The Macintosh 3.0 System file and Finder 5.1 contain significant bugs. We strongly recommend that you convert to versions 3.1 and 5.2 as soon as possible if you have been using version 3.0!

Prerelease Macintosh System files and Finder 5.0 are not supported by MacServe. Using them may cause problems.

For a MacServe user node, use any of the configurations listed above. User nodes do not require a hard disk.

User nodes require approximately 80 Kbytes of free disk space for the MacServe resources that go in the System file.

To connect your Macintoshes over AppleTalk, you also need an appropriate AppleTalk Connector Kit for each Mac and AppleTalk cabling. See "Adapting a Cable" in Appendix A if you have trouble locating the standard AppleTalk Connector Kit needed by your flavor of Mac.

Are you ready?

We assume you are familiar with the Macintosh. If not, read *Macintosh*, the owner's guide you received with your Macintosh. You will also want to review the manual you received with your AppleTalk connectors.

Before continuing with MacServe, you should know how to:

- set up, start, and use your Macintosh
- use the Finder and desktop icons to open, copy, and delete Macintosh documents, applications, and disks
- point, select, and drag with the mouse
- pull down menus and choose commands
- use desk accessories from the Apple menu
- set up, start, and use your hard disk
- set up, start, and use your printer
- connect your Macintosh to an AppleTalk network

Getting help from MacServe

You may want more information while you are using MacServe. On-line help is available from both the MacServe Installer and the MacServe Manager.

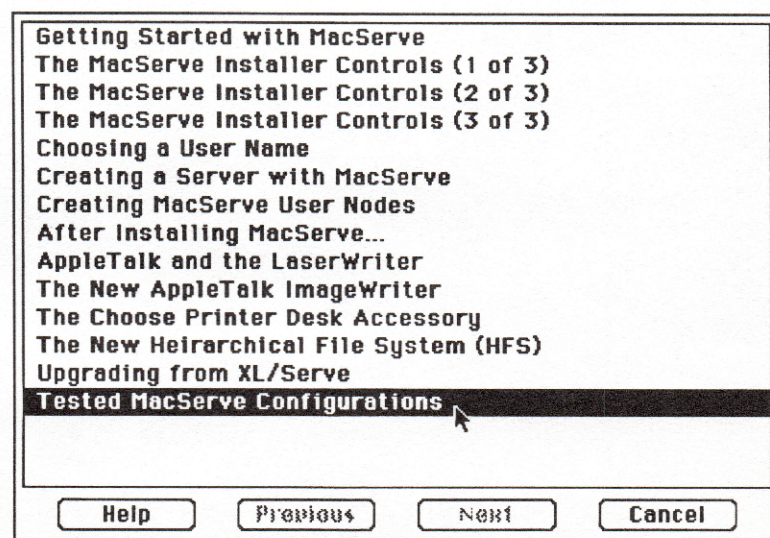
MacServe uses the same help dialog (with different topics) in both of these applications. The method for accessing the dialog differs:

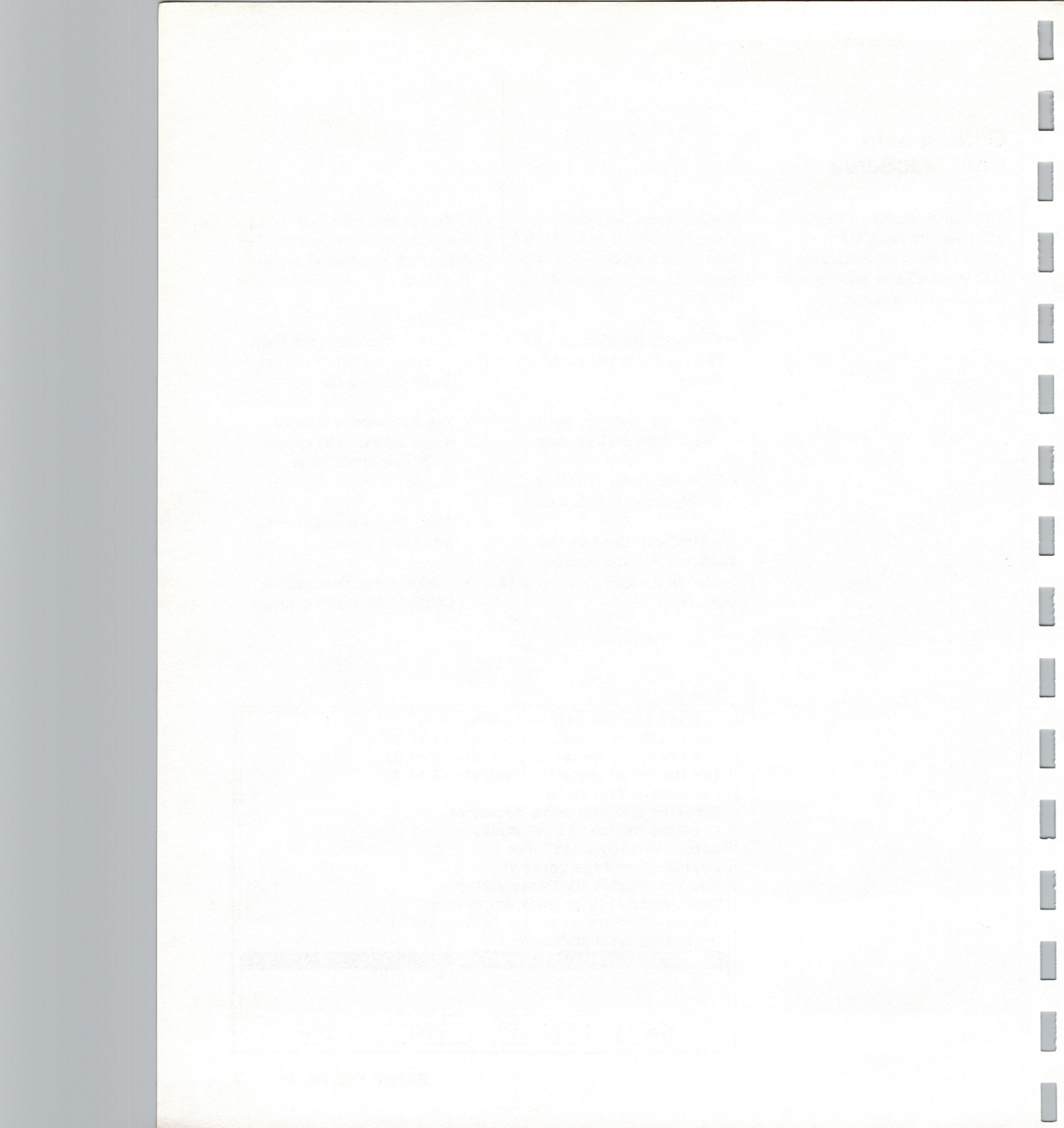
- Within the Installer, click the **Help** button to invoke the dialog.
- Within the Manager, select "Help" from the Misc menu.
- From the Finder, double-click the MacServe Help file icon.

The MacServe Manager and MacServe Help file must be located in the same folder to work together.

Once you select the Help dialog, it appears as shown below. The dialog lists a number of topics that it can offer more information about.

- Select a topic and click **Help** to review the information or double-click on the topic.
- Step backward or forward within the topics by clicking the **Previous** and **Next** buttons.
- Click **Topics** to return to the list of help topics.
- Click **Cancel** when you are finished with the Help dialog.





Chapter 1

Getting Started with MacServe

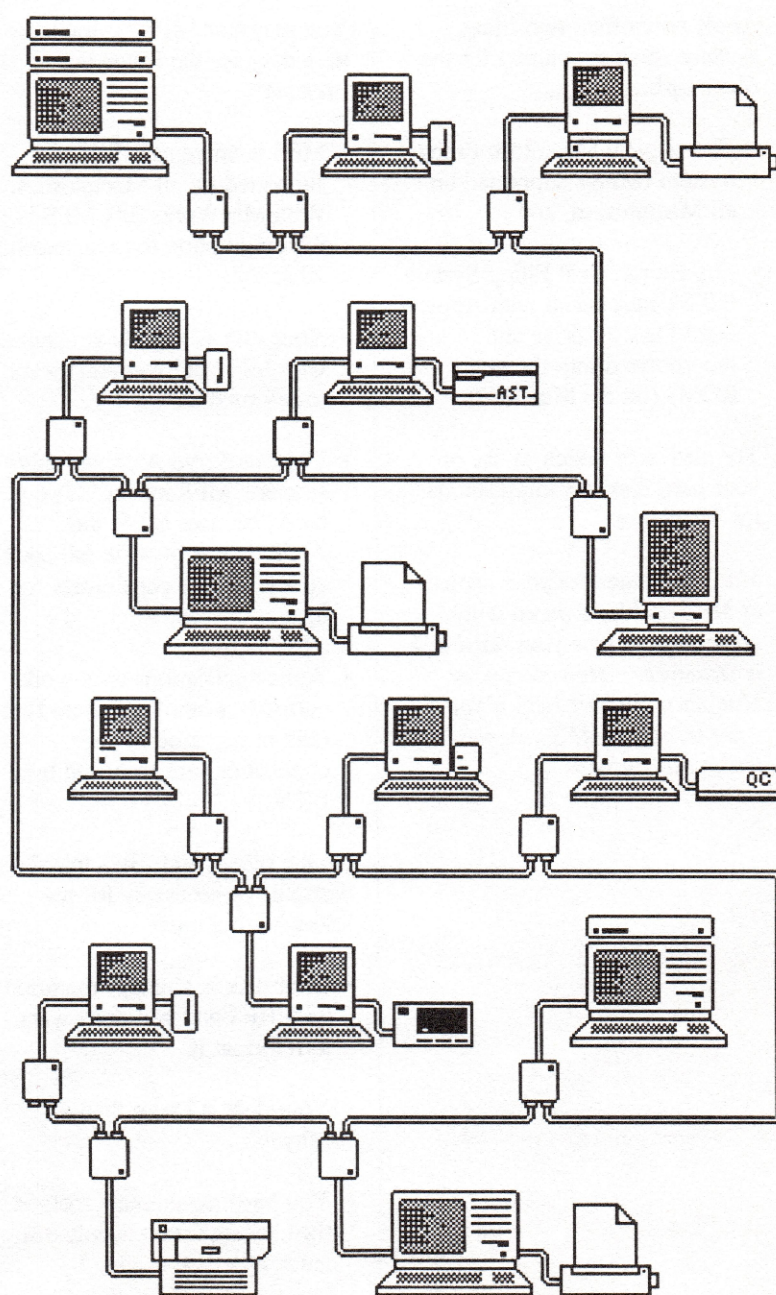
10 Preparing your equipment

- 10 Rebuilding your hard disk
- 11 About AppleTalk
- 11 Upgrading to MacServe

12 Installing MacServe

15 Testing your MacServe host

17 Checking your MacServe network



Preparing your equipment

Apple now offers two filing systems (disk structures) for the Macintosh:

- The original Macintosh Filing System (MFS), supported on all Macintoshes, and
- The Hierarchical Filing System (HFS), introduced with Apple's Hard Disk 20 drive and incorporated into the new 128K ROMs (on the Mac Plus).

The choice of which to use on your hard disk has implications for MacServe.

MacServe supports your choice of MFS and HFS on volumes, regardless of how your hard disk is structured. However, your Mac must support HFS if you want to access HFS volumes under MacServe.

You may find MFS desirable or necessary for the following reasons:

- MFS is universal. It is supported on all Macintoshes. With MacWorks 3.0, MFS is the only option for Macintosh XLs.
- Your disk is already structured with MFS and you don't want to reformat it.
- The MacServe Archiver only supports MFS media. If your hard disk uses MFS, the Archiver can provide full back-up and restore capabilities for it.
- Some applications only work correctly when the system files (and others used by the application) are managed by MFS.

On the other hand, HFS may be desirable or necessary for the following reasons:

- Your disk is already structured with HFS and you don't want to reformat it.
- Your disk is larger than 64 Mbytes.
- You have an alternate method for backing up the whole disk (such as a tape drive).

Rebuilding your hard disk

Most disk manufacturers provide their own disk management software. For optimal disk access, use their software to create a single partition the size of the whole disk and layer MacServe volumes on top of that partition. This reduces the space requirements in your Mac's system heap and keeps your desktop cleaner.

Use the procedure below to prepare a fresh hard disk, or to convert one from HFS to MFS. (See Chapter 2 for a complete discussion of this procedure.) If you do not want to modify the disk structure (it's not essential), proceed to the section on Installing MacServe.

The procedure used to install MacWorks XL is more effective for formatting Macintosh XLs. Follow the documentation you received with MacWorks XL.

- Copy all the files you want to save from your hard disk to some back-up media, such as diskettes.
- Use the drive manufacturer's support software to reformat the disk into a single partition the full size of the disk.
- Use "Erase Disk" in the MacServe Manager's Misc menu on your distribution diskette to place an efficient MFS structure (or HFS structure if your Mac supports this) on the hard disk (this has no effect on HyperDrives).
- Copy a System folder to the hard disk.
- Install your favorite fonts, desk accessories, and printer drivers (including LaserWriter).
- Install MacServe.
- Copy to the hard disk the applications you must always be able to access.
- Create your MacServe volumes.
- Restore your files to the MacServe volumes on the hard disk.

About AppleTalk

When you purchase AppleTalk connector kits you receive only the hardware necessary to build a network.

AppleTalk software is supplied with and installed by products that use it, such as the LaserWriter and MacServe. Unfortunately, there is no effective method to verify that an AppleTalk product installs the version needed by other AppleTalk products.

If you find that an AppleTalk product behaves erratically after you install another AppleTalk product, try reinstalling the first product.

AppleTalk requires exclusive use of your printer port. If you run MacServe as a Net server, you must attach your hard disk or printer to the modem port. Reconfigure applications that use the printer port (such as terminal emulators) so they use the modem port. See "Serial Ports", in Appendix A, for a more thorough discussion of this subject.

Upgrading to MacServe

If you have been using XL/Serve, you can easily upgrade to MacServe and enjoy its additional features. MacServe can use any XL/Serve volumes you have already built.

MacServe and XL/Serve can coexist on the same network. However, they cannot coexist on the same machine. When you upgrade a node to MacServe, you must upgrade every System file that node uses. You must also upgrade every node that can access these upgraded System files.

This conversion requirement also applies to upgrading earlier versions of MacServe.

Disable your XL/Serve or MacServe server and reboot before attempting to install or upgrade MacServe.

Installing MacServe

The MacServe Installer will not operate if Switcher is running. Disable it before proceeding.

If you want to install MacServe on user disks while your server is running, make sure that you have set your disk cache to allow a minimum of 256 Kbytes for applications. See Chapter 3 on Setting the Startup Features.

Once you are ready to install MacServe:

1. **Insert the MacServe disk in your Mac's diskette drive.**

The MacServe disk window appears on the Finder's desktop.

2. **Open the MacServe Installer application by double-clicking the icon while holding down the Command and Option keys.**

Holding down the Command and Option keys instructs the Finder to change the current System to the one located on the MacServe disk. This allows the Installer to modify the System on your hard disk.

The Installer dialog appears, as shown below. It issues various messages as it prepares for installation. It also advises if installation cannot proceed for some reason.

The watch icon changes to a pointer when the Installer is ready for commands. The dialog describes the MacServe characteristics of the first disk it finds.

3. **Click the Help button if you would like on-line assistance from the Installer.**

If this is your first time installing MacServe, review the information in the Help dialog. It highlights the topics described in this manual and may incorporate errata.

The Help dialog appears and lists a number of topics it has more information. Select a topic and click **Help** to review the information or double-click on the topic. You may step backward or forward within the topics by clicking the **Previous** or **Next** buttons. Clicking **Topics** returns you to the list of help topics.

Click **Cancel** when you are ready to return to the Installer dialog.

MacServe™ Installer



Click on Install to add MacServe support to this disk.

Name:

Support this node as network:
☐ User only
☒ Server too

HD-20

4. Click the Drive button until the dialog describes the disk you wish to modify.

The name of the selected disk appears above the button.

The button dims if there are less than two disks on-line.

5. Click the Eject button to release the selected disk if you want to insert another.

The button dims if the selected disk can not be ejected.

If you insert a diskette, it becomes the selected disk and the dialog describes its characteristics.

6. Enter a unique name for the user.

User names are becoming a standard method of identifying users on AppleTalk. MacServe, the LaserWriter, and some mail products use this same name resource to identify users of their services.

The dialog shows any user name present in the selected System. If no name is present, the dialog shows a default name.

When you boot a MacServe node, MacServe registers the user name on your AppleTalk network. This name identifies users for network diagnostics, the creators of print jobs, and the users of servers. If MacServe finds the name is already in use, it uniquely alters the name by adding a numeric suffix.

You may subsequently change the user name with the MacServe Manager's View Users option (described in Chapter 2). You may also use Apple's new Chooser desk accessory (supplied with System version 3.0) to change names.

Enter the same name for all the Systems a user will use. Otherwise, the LaserWriter may identify users incorrectly.

7. Select the services the node will support by clicking Net user or Net server.

The MacServe Installer adds the appropriate resources for both servers (hosts) or users. Each MacServe disk can be used to create a single host and an unlimited number of users.

If the selected disk has sufficient space (approximately 80 Kbytes) for the MacServe user resources, the **Net user** option is enabled.

If the selected disk is a hard disk with sufficient space (approximately 120 Kbytes) for the MacServe host resources, the **Net server** option is enabled. (Net servers have all the Net user features.)

Both options are disabled if the disk is write-locked or there is not enough free disk space to add MacServe.

8. Click the Install button to add the selected MacServe resources, or click Update to update existing MacServe or XL/Serve resources.

The **Install** button is disabled if you cannot install MacServe on the selected disk. A message explains the problem.

The **Install** button changes to an **Update** button if the Installer detects the presence of any MacServe or XL/Serve resources.

Clicking this button begins the process of adding AppleTalk and the special MacServe resources to the selected System file. Various messages report the progress of the installation. *Appendix B explains any error messages you might encounter.*

If you have selected Net server, the Installer also copies the MacServe Manager to the selected disk.

When the installation completes, the dialog updates to reflect the new state of the disk.

9. Click the Remove button if you decide to remove MacServe (or XL/Serve) from the selected disk.

The Remove button is disabled if there are no MacServe resources on the selected disk.

The Installer removes the special resources used by MacServe. Then the dialog updates to reflect the new state of the disk.

If, through some error, more than one set of MacServe resources became installed in the selected System, the Remove button will still be enabled. Click it again to remove the additional set.

The MacServe Installer never removes AppleTalk. You must replace the System file or use another procedure to accomplish this.

10. Repeat from step 4 until MacServe is installed on all your System disks.

You may install MacServe on as many user disks as you like.

You may only install MacServe host resources (Net server) on a single hard disk (using a single MacServe disk). You must remove them before transferring MacServe from one hard disk to another.

There is no need to install MacServe on the special diskette your disk vendor may have supplied for booting your hard disk.

11. Click Quit when you are finished.

When you click Quit, the Installer returns to the Finder. If the MacServe disk was not your startup disk, the MacServe disk automatically ejects.

If you selected Net user, you may reinsert the MacServe disk to copy the Manager and MacServe Help file (used by the Manager) by dragging their icons to your disks. *The Manager was automatically copied to your disk if you selected Net server. If you recopy it, your server configuration information may be lost.*

Testing your MacServe host

Once you install MacServe on your Macintosh, you may want to quickly get your MacServe system running. These pages summarize the basic steps you should follow.

Afterwards, you will have a minimal configuration which supports volumes and a spooled ImageWriter attached to the modem port. Network access to MacServe is also enabled.

The system folder on your Mac's hard disk must contain the file "ImageWriter".

This procedure is not a substitute for reading the remainder of this manual. MacServe has many features beyond those covered here. See Chapter 3 for assistance when configuring MacServe for non-network use.

You may want to alter or rebuild your system, perhaps several times, as you become more comfortable with MacServe and your needs change.

1. Open the MacServe Manager application on your hard disk by double-clicking the icon.

The manager is the tool you use for configuring and maintaining your MacServe system. Its capabilities are described in detail in the next chapters.

2. Create volumes by choosing "Create" from the Volumes menu.

You may want to create just a few volumes for initial experimentation. Later, you can remove them if you want to modify the volume structure.

For each volume you want to create, enter a name and size for the volume. Then, click the Create button.

Click Quit when you are finished creating volumes. The dialog will disappear.

3. Select "Startup Options" from the Settings menu.

Click the Net server radio button.

This option instructs MacServe to install AppleTalk upon startup and to provide its full services, both locally and to your AppleTalk network.

Click the Set button to save these settings. The dialog will disappear.

4. Select "Network Access" from the Settings menu.

Enable network access to the disk and print servers by clicking their respective icons so that the slash disappears.

Enter the names for the disk and print servers. Choose names that are meaningful to you and unique among any other MacServe hosts on your network.

Click the Set button to save these settings. The dialog will disappear.

5. Select "Quit" from the Misc menu to return to the Finder.

6. Attach an ImageWriter to your modem port. Attach an AppleTalk connector to your printer port. Restart your Mac.

The MacServe features you just selected load MacServe into memory (as well as the AppleTalk system software) and locate the volumes you created. You may change these features later with the manager.

At this point, MacServe is operational as a disk server and print spooler.

MacServe uses the printer port for AppleTalk and its print spooler, when acting as a network server. Therefore, you must attach your printer to the modem port. Chapter 3 describes how to configure MacServe for stand-alone use (when you won't be on a network).

Applications that directly access the printer port, such as terminal emulators, can cause serious system errors by disrupting AppleTalk. To avoid this, reconfigure these applications according to the vendor's documentation while MacServe is not loaded.

7. Enable the print spooler.

To do this, select the MacServe desk accessory from the Apple menu. Click the **Printers** button until the name you gave your spooler appears above the button. Then click the **Quit** button.

This procedure installs the ImageWriter driver in your system file (if not already installed) and selects the print spooler. Chapters 2 and 3 describe printer naming and selection. Appendix A discusses printer drivers.

After selecting a print spooler, you may print documents. They will spool to the disk and allow you to continue working while they print. *Unless you use one of the procedures described in the next chapter, you may experience some delay before documents begin to print. This is normal.*

8. Open the MacServe volumes.

To do this, select the MacServe desk accessory from the Apple menu. One at a time, select the volumes listed and click the **Private** button. Click the **Quit** button when you finish.

The first time you open each volume, the Finder adds a desktop file. Using the **Private** button ensures you have write access to the volume, needed by the Finder for this operation.

Once you quit from the desk accessory, the volumes you opened appear on your desktop as icons. You may use them as if they were diskettes. Copy some applications and documents of your choice to the volumes and verify they work correctly.

9. Release the volumes.

To do this, select the MacServe desk accessory from the Apple menu. One at a time, select the volumes you opened and click the **Release** button or double-click their names. Click the **Quit** button when you finish.

You may also release the volumes, under the Finder, by dragging their icons to the Trash.

Notice that the volume icons disappear from the Finder desktop.

This little exercise shows you how easy it is to use the basic capabilities of MacServe.

Checking your MacServe network

You may want to perform a quick check of your MacServe network before proceeding to the remainder of this manual. This will confirm that:

- MacServe is correctly installed on the disk at each node.
- Your AppleTalk network is wired correctly.
- Your server is operating correctly.

If you encounter difficulties during this exercise, consult the troubleshooting guide in Appendix C.

1. Connect each of your Macs to an AppleTalk network.

The AppleTalk connectors attach to the printer port of your Macs. Follow the directions you received with your connectors.

Appendix A shows how to build adapter cables if you have difficulty locating the correct connectors. These are not a substitute for using AppleTalk cables and connectors.

2. Boot each Mac using a disk that you installed MacServe on.

The installation procedure was previously described in this chapter.

As the Macs start up, a message appears in the Welcome to Macintosh screen saying that MacServe is loading. There is a short delay (less than a minute) while the user's name registers on the network.

3. Verify that each node can find all your MacServe hosts.

Select the MacServe desk accessory from the Apple menu on each Mac.

Once the desk accessory opens, it displays messages that it is looking for servers and printers. Shortly thereafter, the names of a MacServe disk server and print spooler appear. The scrolling volumes name box fills with the names of the available volumes for the designated server.

If you have more than one MacServe host on your network, click the **Volumes** and **Printers** buttons to confirm that each can be found.

Detailed use of the desk accessory is described in Chapter 2.

Click the **Quit** button to release the desk accessory.

4. Verify that each host can find all your network users.

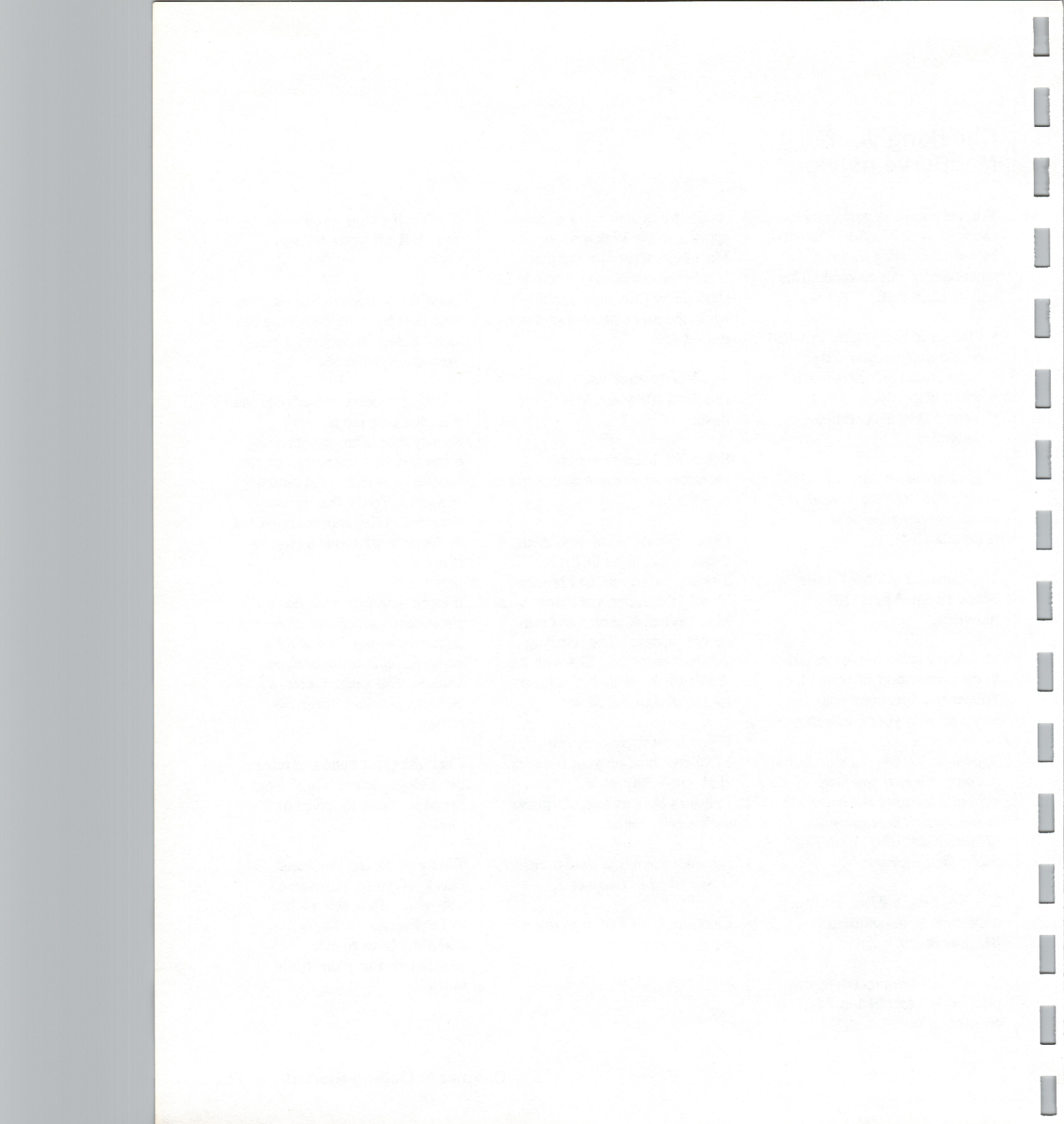
Open the MacServe Manager on your host by double-clicking the icon. Select "MacServe Users" from the View menu.

A dialog appears and advises that it is checking the network. Shortly thereafter, the scrolling name box lists the names of each MacServe user located on the network. Verify that all the expected nodes appear connected to the network (your own name is not shown).

If more than one node has the same name, MacServe alters the duplicate names by adding a numeric suffix to make them unique. The next chapter explains how to change the names.

Click the **Quit** button to release the dialog. Select "Quit" from the Misc menu to return to the Finder.

This completes the basic check of your MacServe network. Proceed to the next chapter to begin learning how to use MacServe for your daily work.



Chapter 2

Using MacServe

- 20 MacServe's startup methods
- 20 About volumes
- 21 About print spooling

22 Desk accessory basics

27 Watching your network in action

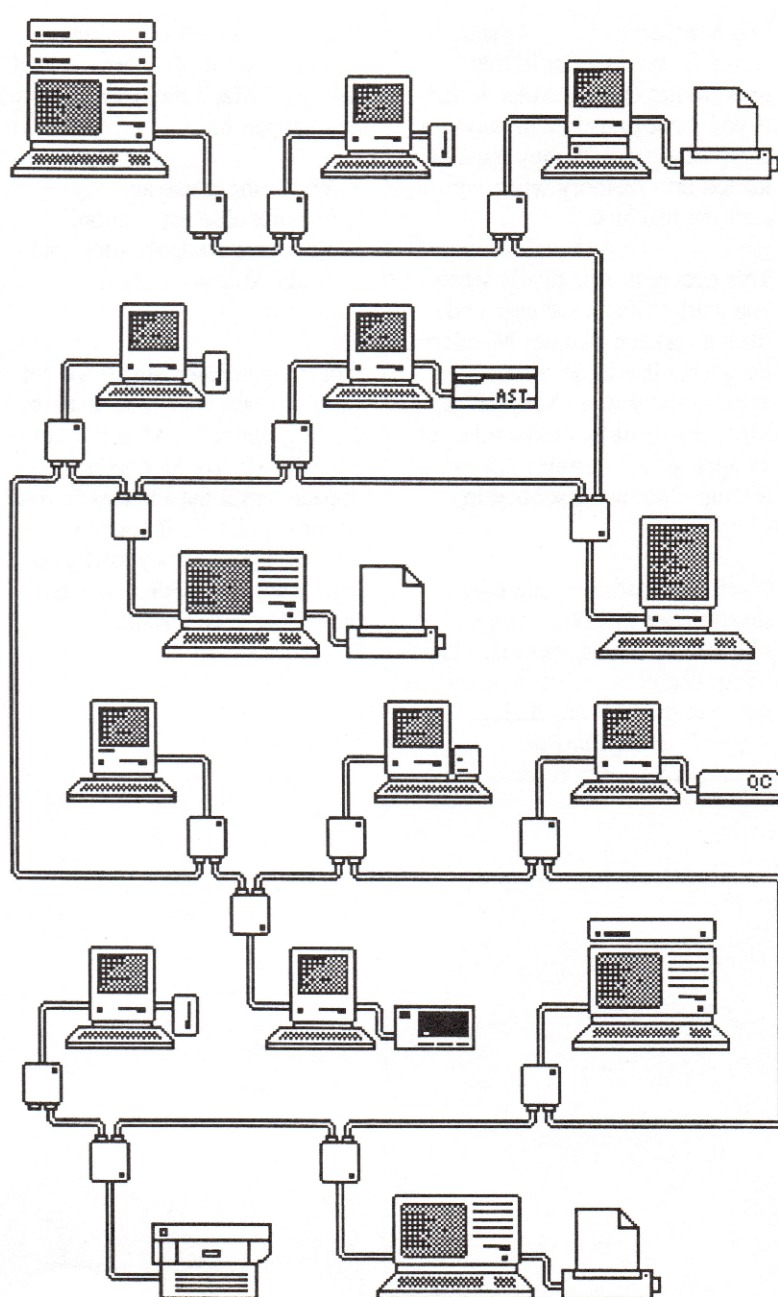
30 Altering print spooler jobs

32 Erasing volumes

33 Rebuilding your hard disk

35 Backing-up and restoring volumes

- 35 Archiver features
- 36 Back-up strategy
- 37 Back-up and restore procedures



MacServe's startup methods

The MacServe disk and print server functions exist in the background of your Macintosh. If you want to use them during a computing session, they must be loaded into memory when you start the machine.

This occurs automatically when you start a MacServe user node from a diskette that has MacServe installed. It also occurs automatically when you start a MacServe host and have selected an appropriate startup mode with Startup Options, described in Chapter 3.

MacServe loads into memory shortly after the "Welcome to Macintosh" dialog appears. Any errors that occur while loading are reported through this dialog.

Appendix B explains the messages you may receive.

There may be occasions when you don't want MacServe loaded into your Mac's memory. This can happen if:

- You want to use an incompatible application.
- You have an application that needs ALL your Mac's memory.

You may instruct MacServe not to load when your Mac starts by holding down the M and S keys once the Happy Mac icon appears, until the Finder (or your startup application) appears. Alternately, you may start your Mac using a disk that does not have MacServe installed.

About volumes

Disk volumes provide a convenient way to structure and control access to applications and documents. Since MacServe's volumes are managed by the Macintosh file system, they are transparent to most applications. They behave just like diskettes - without the bother.

Opening a volume from the MacServe desk accessory is equivalent to inserting a diskette. Their equivalent to ejecting a diskette is releasing them, which you can do through the desk accessory or the Finder.

When volumes are shared between users, access is restricted to read only. This is like setting the write-protect tab on a diskette. Read only access is necessary to prevent the information being shared from being inadvertently changed.

Volumes can also be assigned a password by the MacServe host administrator. Without supplying the correct password, you cannot access the volume. *Passwords are not case sensitive - "A" is the same as "a".*

About print spooling

In addition to providing hard disk management, MacServe increases the performance and convenience of your Macintosh (and AppleTalk network) by spooling a printer, such as an ImageWriter.

To most applications, it is transparent when you chose a print spooler. When you print, your print job is captured as it is sent by your application to the printer port. MacServe sends it to the spooler, where it is temporarily stored on the host's hard disk and then printed in the background.

Since the print stream is (typically) created more quickly than it can be printed, spooling allows you to resume work on your application more quickly. *Some applications print so slowly that they do not benefit from spooling.*

A print job begins when your application begins printing. The job ends when:

- You exit the application.
- You open the desk accessory.
- Your application stops printing for 40 seconds and you have selected **Close Job** from the desk accessory.
- The spooler aborts the job, having run out of storage space.

If at least one of these conditions has not been met and you print a second time from the same application, the two documents will be combined into a single print job.

MacServe's print spooler also allows you to start another print job while prior jobs are still printing or waiting to be printed. Up to 32 print jobs may be in process, as long as disk space is available. Jobs print in the order received, unless you elect to defer them.

When you attach your MacServe host to an AppleTalk network, you may offer print spooling to all the Macs on the network. Each workstation can direct its printer output to your Mac's printer, instead of requiring a local printer. Each workstation receives the same performance advantages of being able to quickly resume work while its document is being printed.

If you are the local user of a MacServe host and your spooler is not shared on a network, your print jobs become eligible to print as they are created. If you are a remote spooler user, or a local user sharing a spooler, your print jobs become eligible to print once they are completed.

You can reduce transmission time and storage requirements by using lower quality print modes, such as "draft" or "normal" instead of "high quality".

The administrator of a MacServe spooler may elect to have each print job preceded by a banner page that shows the document name, the user name of the creator, and other identifying information.

For a small work group, spooling provides efficient use of a common printer. Although MacServe does not spool to the LaserWriter, its spooling of printers such as the ImageWriter can reduce the load on your Laser.

Print spooling is not possible on user nodes until you invoke the MacServe desk accessory and select a print spooler. On hosts, if the spooler is paused, direct printing is selected at startup, if unpaused, the local spooler is selected.

Desk accessory basics

For your daily work, you access the facilities of MacServe through the MacServe desk accessory (in the Apple menu). If you do not use the Finder, but instead use a substitute shell that does not support the menu bar, you may still use the MacServe desk accessory within any application that supports the Apple menu (including the MacServe Manager).

Through the desk accessory, you may:

- Open volumes on the MacServe hosts in your local network;
- Release volumes, so other network users can access them;
- Select printers, including those spooled through MacServe hosts; and
- Set options for the print jobs you submit to a MacServe spooler.

To open the desk accessory:

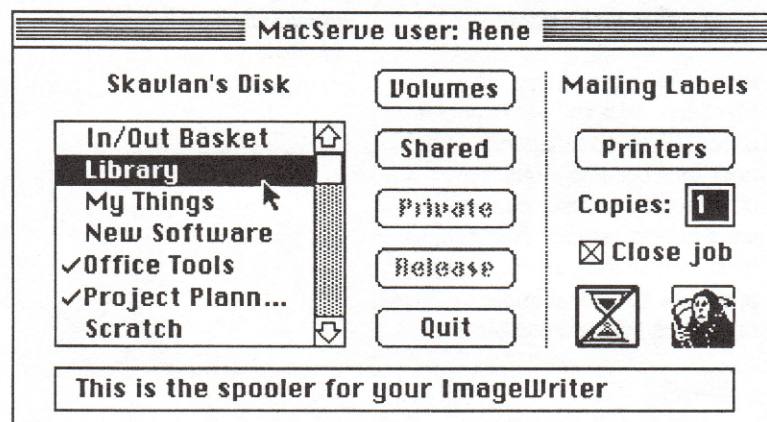
- Choose "MacServe™" from the Apple Menu.

The MacServe desk accessory dialog appears on your desktop. The dialog title shows your user name as known to the network, unless you are using MacServe stand-alone.

The desk accessory beeps and/or flashes the menu bar and does not open if there is not enough memory or a copy is already open under Switcher.

If there was a printer error on the last print spooler job you submitted, an error message appears when you open the desk accessory. The message includes a code that defines the nature of the error. These codes are listed in Appendix B.

If you open the desk accessory on a MacServe host that has users, you are advised of that fact.



If this is the first time you are using MacServe during a computing session, MacServe locates the servers on your local network. The names of the first disk and print servers it finds appear in the server name fields. If you are using MacServe on a host, the names of your servers are listed first.

A warning message advises if no server or spooler is available.

When you reselect the desk accessory during a computing session, the names of the disk and print servers you last selected appear in the server name fields, unless they cannot be located, in which case a warning appears.

The desk accessory remains on your desktop until you click its **Quit** button.

To return to your application:

- Click the **Quit** button.

This saves the selected disk server and printer names.

Quitting selects the printer whose name appears above the **Printers** button. If necessary, MacServe installs the correct driver in your system file to match the selected printer. Appendix A discusses printer drivers.

A message advises if MacServe fails to record the change of printer drivers. This can happen if you run out of system memory, perhaps from having too many volumes open. Once this occurs, further attempts to change the printer driver are blocked until you reboot.

Once you select a printer, it remains selected until:

- You select a different printer (perhaps by using one of Apple's Choosers),
- You have chosen a spooler and it becomes unavailable,
- You transfer to a new System disk that does not have the needed print driver, or
- You restart your Mac.

After recording your printer selection, the desk accessory goes away from your desktop.

To select a disk server:

- Click the **Volumes** button.

Each time you click the **Volumes** button, MacServe selects the next disk server it has identified (just like the **Drive** button in the standard **Open** menu) and shows the server's name above the volume list.

It then lists the names of that server's available volumes in the volume list. If there are more volumes than can fit in the window, use the scroll bar to scan the list. A checkmark appears next to the name of any volume you have open.

When you next click the button after sequencing through the list, MacServe updates the list. A message advises that it is seeking additional servers. The list may not be in the same order after updating.

To open a volume:

- Select the volume name and open it by clicking the **Shared** or **Private** buttons.

The **Shared** and **Private** buttons indicate the methods you may use to open the volume. The **Shared** button opens the volume "locked" against modification so it can be available to several users at the same time. The **Private** button opens the volume "unlocked" for write access (granting you exclusive access), if no other user has the volume open and it is not **Locked** by the administrator of the host.

The buttons disable if a method is inappropriate for any reason.

If the volume is structured with the Hierarchical File System (HFS) and your Mac does not support HFS, a message advises the volume is not available.

If the volume is password protected by the host administrator, a message asks you to supply the password. Type the correct sequence of characters and then press the Return key. Just press the Return key if you choose not to proceed. A message advises the volume is not available if you do not supply the correct password.

Passwords are not case sensitive - "A" is the same as "a".

You may also open a volume by double-clicking its name. The volume opens in preferred order of **Private**, then **Shared**. If the volume is not available, a message advises you of that fact and double-clicking has no effect.

If MacServe is able to open the volume as you have requested, the volume list updates and a check mark appears next to the name showing that it is open. You may then access the volume like any diskette, once you exit the desk accessory.

You may have as many as six volumes open at the same time on multiple servers.

If you use the Finder while a volume is open, a special icon appears on the desktop to represent the volume.

To release a volume:

- Select the volume, by name, and click the **Release** button.
- Or, double-click the volume name.
- Or, drag the volume icon to the trash when the Finder is running.

You must currently have the volume open, as indicated by a check mark next to its name. The **Release** button disables if you do not have the volume open.

You cannot release a volume on which you have files open. A message advises you that the volume is in use. *A volume that does not appear to have open files may have the current or discarded Clipboard files.*

Any volumes you have open are automatically released when you select "Shut Down" from the Finder's Special menu.

If you are using MacServe on an AppleTalk network, it is courteous to release volumes when you no longer need access to them. Do this before you turn off or restart your machine; otherwise the server may not release them for some time. MacServe delays automatic release of volumes to accomodate disruptions of the network (up to 15 minutes long).

To select a printer:

- Click the **Printers button**.

Each time you click the **Printers** button, MacServe shows the name of the next printer it has identified.

If your system disk is write-locked, any printers that match your installed driver appear. Otherwise, all printers for which you have a driver appear.

MacServe describes the selected printer as follows (where "printer type" is the printer driver name):

- The spooler for your (printer type), if it the spooled printer at your host.
- A remotely spooled (printer type), for remote MacServe spoolers.
- An AppleTalk (printer type), for LaserWriters and and other shared printers.
- A local printer for your modem port, with the printer type in (parentheses).
- A local printer for your printer port, with the printer type in [brackets].

Local printers use your modem port when you are connected to a network. Local printers may also be available through your printer port if you are using MacServe stand-alone. On a host, you will see local printers for the MacServe spooler port only when your spooler is paused or disabled.

When you next click the button after sequencing through the list, MacServe updates the list. A message advises that it is seeking additional servers. The list may not be in the same order after updating.

To select automatic print job timeout:

Macintosh applications do not advise the print spooler when they have finished creating a print document. In addition to the automatic job closure that occurs when you exit an application, you may close a job by opening the MacServe desk accessory. You can also have MacServe close your print jobs. To do this:

- Click the **Close Job check box**.

When the box is checked, MacServe automatically closes print jobs 40 seconds after your application stops printing. This accomodates the slow printing cycles that some applications go through, especially when the application and the document are not located on a local hard disk.

Some applications print so slowly that you will want to disable this feature. Automatic job closure is disabled when the box is unchecked. *However, the spooler aborts any unclosed jobs after 15 minutes of idle time. Close the job through one of the methods described above to prevent this from happening.*

Close Job is enabled, by default. If you change it, your selection is remembered until you restart your Mac.

To defer your next print spooler job:

Normally, the MacServe spooler prints jobs in the order they are received. If the documents are short, waiting your turn is not an inconvenience, since you can continue working.

If your job will take some time to print, or you are not concerned about how soon it prints, you may elect to defer the job. The host administrator of the spooler decides when to print these "low priority" jobs.

To defer the next print job:

- Click the Defer icon until it has no slash through it.



Deferred



Priority

The icon is dim if the selected printer is not a MacServe spooler.

You may adjust this option any time before you print. Defer resets to its normal (high priority) state after each job.

After printing, use "Print Jobs" from the View menu of the MacServe Manager if you want to change this option for the job.

For multiple copies of your next job:

The standard application print dialog lets you create a number of document copies as it generates a print job. However, the MacServe print spooler sees each job as one document and normally prints a single copy.

If you want multiple copies of a document, it is more efficient for the spooler to make them as it prints than to have the application generate them. This creates and sends the job to the spooler more quickly. It also reduces the buffer storage needed.

To print multiple copies of your next print spooler job:

- Enter the number in the Copies field.
- Enter one (1) in your application's print dialog.

You may adjust the Copies any time before you print. Copies resets to one (1) after each job.

After printing, use "Print Jobs" from the View menu of the MacServe Manager if you want to change the number of copies for the job.

To delete your last print job:

If you decide, after sending a print job to a MacServe spooler, that you do not want the job to print:

- Click the Delete Last icon.



Delete
Icon

If the last job you submitted during this computing session has not been printed, a message advises you that the job is deleted. Otherwise, you are advised that no job could be deleted.

The icon is dim if there is nothing to delete. You cannot UNDO deleting a job.

You may also use "Print Jobs" from the View menu of the MacServe Manager if you want to delete the job.

Watching your network in action

MacServe includes a wide range of functions that help you determine how your network is operating. Some of these are described in this chapter. Others are specific to the needs of a host administrator and are covered in Chapter 3. The following list summarizes the available information.

The MacServe desk accessory shows:

- All the available disk servers, and the available volumes at each server. Checkmarks identify those volumes you have open.
- All the available printers and spoolers for which you have an appropriate printer driver.
- If the host for which you are the local user has other users.
- Any print spooler errors your last job encountered.
- The user name you are known by on the network.

The Manager's View MacServe Users dialog shows:

- The names of all the other users on your network. If you are the local user of a host, checkmarks identify those using your host.
- Your user name from the current System file (which may be different from your known name).

The Manager's View AppleTalk Devices dialog shows:

- The names of all the named devices on the network, including foreign devices and other users.

The Manager's View Print Jobs dialog shows:

- The state of all your print jobs, if the selected spooler is remote.
- The state of all the print jobs at your spooler, if you are the local user of a host and have selected its spooler.

The Manager's Volumes dialogs show:

- All the volumes located on your host, with their features. Checkmarks identify those volumes in use.

To see all your AppleTalk devices:

1. Select "AppleTalk Devices" from the Manager's View menu.

The View AppleTalk Devices dialog appears, as shown below.

A message advises if AppleTalk is not available. Otherwise, the Manager initiates a lookup on your AppleTalk network for all the named devices.

Shortly thereafter, a message advises how many devices were located. The scrolling box lists their names and types, in alphabetical order. Devices resident at your own node are not shown.

If no devices are found, a message advises to check your AppleTalk cabling.

Some of the common types you will see include:

- ImageWriter, an ImageWriter II with an AppleTalk interface or a MacServe print spooler;
- LaserWriter, an Apple LaserWriter printer;
- MacUser, a MacServe user name;
- xIDisk, a MacServe disk server (for historical reasons); and
- Other printer driver names, which may be MacServe print spoolers.

If you have other third party AppleTalk devices, their names may also appear in the list.

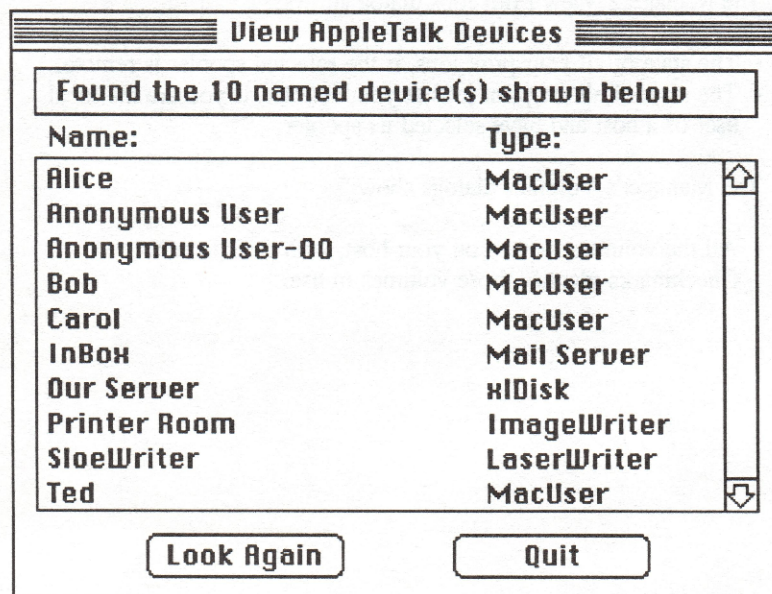
Appendix C offers some troubleshooting guidelines when you are not able to locate all the devices you expect to see.

2. Click Look Again to initiate another snapshot lookup.

The Look Again button is disabled if AppleTalk is not present in memory.

The list of devices may change if devices have joined or left the network.

3. Click Quit when you are finished looking at the AppleTalk devices.



To see all the MacServe users:

- 1. Select "MacServe Users" from the Manager's View menu.

The View MacServe Users dialog appears, as shown below. The dialog shows the user name from your current System file. This may be different from the name by which you are known to the network. The MacServe desk accessory shows your known name.

Your known user name can differ if it was altered for uniqueness, MacServe was installed in this System with a different name, or you changed the name with the Manager or a chooser.

A message advises if AppleTalk is not available. Otherwise, the Manager initiates a lookup for MacServe users.

Shortly thereafter, a message advises how many users where located. The scrolling box lists their names, in alphabetical order. *Your own name is not included in the list.* If you are the local user of a MacServe host, checkmarks appear next to the names of those using your host.

Appendix C offers some troubleshooting guidelines when you are not able to locate all the users you expect to see.

- 2. Click Find Users to initiate another snapshot lookup.

The Find Users button is disabled if AppleTalk is not present in memory.

Otherwise, the Manager initiates another lookup for MacServe users. The list of users may change if users have joined or left the network.

- 3. Select your user name and enter a new one to change it.

Your user name can be any character sequence up to 30 characters long.

- 4. Click Change to record your new name and exit.

The Change button is disabled unless you change your user name.

Your new name will be used by MacServe the next time you start your Mac if the current System file is the one that is active during your Mac's startup sequence (its disk icon appears in the upper right corner of your screen when Finder starts).

If you current System file is not the one you used to start your Mac, this new name may only be used by the LaserWriter.

MacServe updates your System file and the dialog disappears.

- 5. Click Quit when you are finished looking at the AppleTalk devices.

