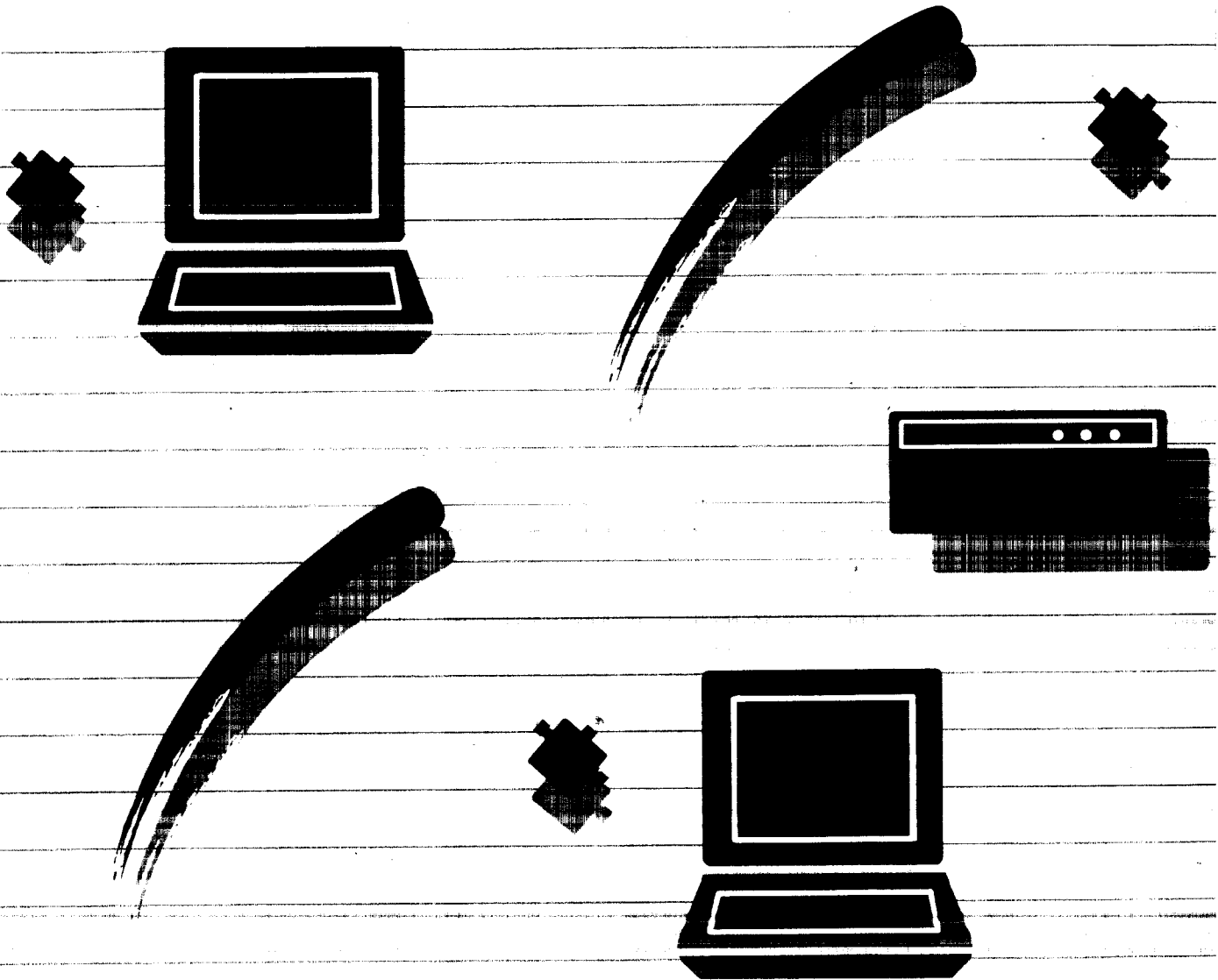


Constellation III™

Apple II Series



FCC Warning

This equipment has been tested with a Class A computing device and has been found to comply with Part 15 of FCC rules. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

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Constellation III for the Apple II

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Hello!

Welcome to Constellation III for the Apple II!

Constellation III is the newest refinement of Corvus's versatile Constellation management system for the Corvus Omninet local area network. Like its predecessor Constellation II, Constellation III for the Apple II lets you use any of the Apple II family of computers on an Omninet network with a variety of other types of computers. But now the Constellation system is faster, more powerful, and easier to use than ever.

The guides in this set explain how to install Constellation III for the Apple II on your network and how to use the system to manage the network from an Apple II. The guides are addressed both to people who are already using an Omninet network and are upgrading from an earlier version of Constellation software, and to people who are setting up an Omninet network for the first time. The guides cover every aspect of upgrading, installation, and network management, from setting up hard disk drives and Apple II computers for use on the network to troubleshooting problems.

The guides are written primarily for the *network manager*. This is the person--the teacher, presumably--who will be responsible for the principal tasks of maintaining the network, namely, creating and maintaining user accounts for students, allocating work space for these user accounts on the hard disk drives, and generally keeping track of things.

A special user account is created automatically for the network manager when Constellation III is installed on the network. This account is protected by a password and gives the manager access to programs that enable him or her to manage the network. Students, with ordinary user accounts, have access only to their own work spaces and the programs stored there.

Constellation III lets you install three Apple operating systems--ProDOS, DOS 3.3, and Apple Pascal--and set up user accounts in each. You can also manage network user accounts for CP/M, Apple Macintosh, and MS-DOS with Constellation III for the Apple II if these operating systems have already been put on the network with Constellation II.

To use these guides you need to have the network cabling already in place and at least one Corvus Omnidrive. In addition, to install Constellation III you need one Apple IIe or IIGS computer with two floppy drives and 128K of memory. Once Constellation III is installed, the network can be used by ordinary Apple II's and II+'s.

The Guides in This Set

This set contains four guides besides the one you're reading. The four are described below in the order in which you should refer to them.

■ Setup Guide

This is the guide that explains how to install Constellation III on your network. It describes both how to put Constellation III on a new network and how to upgrade to Constellation III from earlier Constellation software. It also tells how to physically set up an Omnidrive or Apple II computer that you want to add to the network.

Read this guide first, and refer to it again if ever you want to add another Omnidrive or Apple II.

■ Network Manager's Guide

This guide explains how to use the Constellation III Network Management Program, the main tool of the network manager for running the network. The guide describes how to log on to the network as the network manager, how to create areas of work space called *volumes* on an Omnidrive, how to set up user accounts for students, how to give these user accounts access to the volumes you've created for them, and so on. It's the network manager's handbook for overseeing daily operations on the network.

The network manager should turn next to this guide after setting up the network according to the instructions in the *Setup Guide*.

■ Tools for Network Users

The *Tools* guide describes how to use a variety of utility programs that do such things as let you see what files are on a diskette or in a particular volume on the Omnidrive; copy files from diskette to volume, from volume to diskette, and so forth; mount and unmount volumes (an operation that selects the volumes a user can work in); and choose among various options for printing.

These utility programs are installed as part of the procedure covered in the *Setup Guide*. There are three comparable sets of these programs, one for each of the operating systems fully supported by Constellation III: ProDOS, DOS 3.3, and Pascal. You use the set appropriate to the operating system you want to work with. The guide also contains a chapter on the Backup To Floppy Program, a program for making backup copies of volumes and saving the copies to diskette. The backup program may be used with all operating systems.

It's likely that you will want to let students use some of these utility programs, in which case the students may need to use the *Tools* guide. The *Tools* guide is the only guide in the set that students may have occasion to use.

■ Diagnostics Guide

If you have trouble with an Omnidrive, you may be able to track down the problem with the *Diagnostics Guide*. The guide contains information on interpreting the three drive indicator lights on the front panel of the drive, checking and updating firmware, checking for bad tracks on the drive, etc. It also explains how to park the drive heads to protect them when transporting the drive.

When you're done with the other guides, glance through this guide so that you know what's in it in the event that you need to refer to it later.

Observing Copyrights

A major benefit of linking computers on an Omninet network is that users of the various computers can then share resources over the network. Instead of everyone needing his own hard disk drive or printer, people on a network can share one. They can share software the same way. One copy of a program can be put in a public volume to which everyone has access, and everyone on the network can use that one copy.

In the case of sharing software, however, you have to be careful that you do not violate the licensing rules that govern use of the software. Commonly, these rules do not, for instance, permit copies of single-user software to be made for use by several people simultaneously. Although the 1976 U.S. Copyright Act and the 1980 Amendments to it are not entirely clear on how software may be used in education, software licenses applying to particular programs tend to be quite specific.

On the question of putting single-user software on a local area network, Corvus supports the position of the International Council of Computers in Education (ICCE). The ICCE has come out with a set of guidelines for educators ("Suggested Software Use Guidelines," August 1, 1986). These guidelines state, first, that "It is imperative that educators first read the software's copyright page containing licensing restrictions." The guidelines go on to say this:

It is suggested that before placing a software program on a local area network or disk-sharing system for use by multiple users at the same time, you obtain a written license agreement from the copyright holder giving you permission to do so. The fact that you are able to physically load the program on the network is . . . irrelevant. You should obtain a license permitting you to do so before you act.

A sample of the sort of license Corvus recommends that you obtain from a program's publisher is provided in the booklet *Copyright: Practical Guide to Licenses*, published by the International Communications Industries Association (ICIA). You may purchase this booklet by writing the ICIA at 3150 Spring Street, Fairfax, VA 22031-2399, or by calling 703/273-7200.

Let's Go

Turn now to the *Setup Guide* to install Constellation III for the Apple II on your network.

**Constellation III
for the Apple II**

Setup Guide

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About This Guide

This guide explains how to set up network drives and Apple II computers for the Constellation III network management system.

The guide contains two chapters and three appendixes. Chapter 1 covers setting up hardware to put an Omnidrive or Apple II on the network, and Chapter 2 covers installing the Constellation III software, creating user accounts for the network manager, and putting system volumes on the drive for operating systems ProDOS, DOS 3.3, and Pascal.

Appendix A supplements Chapter 2. It tells how to add to the network a drive that contains information you want to save, as opposed to a new drive containing none or a drive containing information you don't mind erasing.

Appendixes B and C contain information supplementary to Chapter 2 and a list of error messages, respectively.

You may not need to read every part of this guide. If you're only adding an Apple II to your network, you don't need to read in Chapter 1 about setting up the hardware for an Omnidrive. If you're not adding any devices at all to your network but are only upgrading earlier Constellation software, you may skip Chapter 1 entirely and begin with Chapter 2. And in Chapter 2, those who are upgrading are steered to different sections from those who are setting up a new network.

To set up your network and install Constellation III according to the instructions in this guide, you need at least one Omnidrive hard disk drive and an Apple IIe or IIGS computer with two floppy drives. You need an Apple IIe or IIGS only because the installation requires 128K of memory. Once Constellation III is installed, the network can be used by ordinary Apple II's and II+'s as well as by IIe's and IIGS's.

The guide assumes that the cabling and so forth for the network is already in place.

Chapter 1

Setting Up the Hardware

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Introduction

This chapter tells you how to set up a new Omnidrive or Apple II on the network and how to install a Print Spooler Card in an Apple II. The Print Spooler Card is an optional component that enables an Apple II to print directly to a network printer from inside an application.

Only hardware setup is covered in this chapter. Software is dealt with in Chapters 2 and 3. If you are merely upgrading an existing network to Constellation III from Constellation II and are not starting a new network or adding any new Omnidrives or Apple II's, you do not need to read this chapter. Go to Chapter 2.

If you do need to read sections of this chapter, read only the sections that apply to you:

- If you're setting up an Omnidrive either to be part of a new network or to add to a network that's already functioning, read the section "Setting Up an Omnidrive."
- If you're setting up an Apple II, read "Setting Up an Apple II."
- If you're installing a Print Spooler Card in an Apple II, read "Installing a Spooler Card."

Sometimes in this chapter you will see *OCS I* or *OCS II* in parentheses after mention of tap cables or drop cables. Tap cables or drop cables are used to attach an Omnidrive or computer to the network. The labels stand for *Omninet Cabling System I* and *II*, respectively. The type of cable you use depends on which Omninnet cabling system your network uses.

Use only the instructions in this guide to set up your hardware and install the software. Ignore any installation instructions packaged with the Omnidrive that are not specifically addressed to Apple II users.

Setting Up an Omnidrive

You need this hardware to set up an Omnidrive:

- Power cord
- Tap cable (OCS I) or drop cable (OCS II)

Be careful with the Omnidrive when you're unpacking it. Don't bang it or drop it. Set it up on its base on a flat surface and make sure the air vent on the back panel isn't blocked.

Set up the Omnidrive and connect it to the Apple IIe as follows:

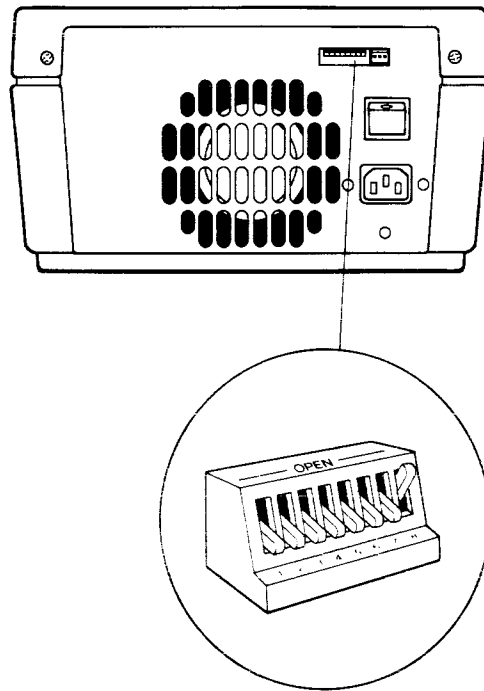
- 1. Unpack the Omnidrive.**

Save the packing materials so they can be reused when transporting the drive.

- 2. Put the Omnidrive on a flat surface.**

3. Set the Omnidrive switches.

Find the switches marked *ADDRESS* on the back of your Omnidrive.



Use a ballpoint pen to set the switches for one of the addresses listed in the table *Network Device Addresses* below. Set them for address 0 if this is the first or only Omnidrive on your network. One Omnidrive should always be set to address 0.

Whatever address you pick should be unique, assigned only to this Omnidrive. In other words, if you are adding the Omnidrive to a network that already has other devices with network addresses of their own, be careful not to give the Omnidrive an address already in use. No two devices on the network are permitted to have the same address.

Switch 7 is not used for setting the address. For all Omnidrives, make sure switch 7 is pushed on, i.e., toward the numbers.

Switch 8 is the bias switch. Only one Omnidrive on a network should have the bias switch on. If this is your first Omnidrive, set switch 8 toward the numbers. If you are adding an Omnidrive to a network that already has Omnidrives, push switch 8 away from the numbers.

Address	Switch Setting						Address	Switch Setting					
	1	2	3	4	5	6		1	2	3	4	5	6
0	■	■	■	■	■	■	32	■	■	■	■	■	□
1	□	■	■	■	■	■	33	□	■	■	■	■	□
2	■	□	■	■	■	■	34	■	□	■	■	■	□
3	□	□	■	■	■	■	35	□	□	■	■	■	□
4	■	■	□	■	■	■	36	■	■	□	■	■	□
5	□	■	□	■	■	■	37	□	■	□	■	■	□
6	■	□	□	■	■	■	38	■	□	□	■	■	□
7	□	□	□	■	■	■	39	□	□	□	■	■	□
8	■	■	■	□	■	■	40	■	■	■	□	■	□
9	□	■	■	□	■	■	41	□	■	■	□	■	□
10	■	□	■	□	■	■	42	■	□	■	□	■	□
11	□	□	■	□	■	■	43	□	□	■	□	■	□
12	■	■	□	□	■	■	44	■	■	□	□	■	□
13	□	■	□	□	■	■	45	□	■	□	□	■	□
14	■	□	□	□	■	■	46	■	□	□	□	■	□
15	□	□	□	□	■	■	47	□	□	□	□	■	□
16	■	■	■	□	■	■	48	■	■	■	■	□	□
17	□	■	■	■	□	■	49	□	■	■	■	□	□
18	■	□	■	■	□	■	50	■	□	■	■	□	□
19	□	□	■	■	□	■	51	□	□	■	■	□	□
20	■	■	□	■	□	■	52	■	■	□	■	□	□
21	□	■	□	■	□	■	53	□	■	□	■	□	□
22	■	□	□	■	□	■	54	■	□	□	■	□	□
23	□	□	□	■	□	■	55	□	□	□	■	□	□
24	■	■	■	□	□	■	56	■	■	■	□	□	□
25	□	■	■	□	□	■	57	□	■	■	□	□	□
26	■	□	■	□	□	■	58	■	□	■	□	□	□
27	□	□	■	□	□	■	59	□	□	■	□	□	□
28	■	■	□	□	□	■	60	■	■	□	□	□	□
29	□	■	□	□	□	■	61	□	■	□	□	□	□
30	■	□	□	□	□	■	62	■	□	□	□	□	□
31	□	□	□	□	□	■	63	□	□	□	□	□	□
Address	1	2	3	4	5	6	Address	1	2	3	4	5	6
	Switch Setting							Switch Setting					

■ ON
□ OFF

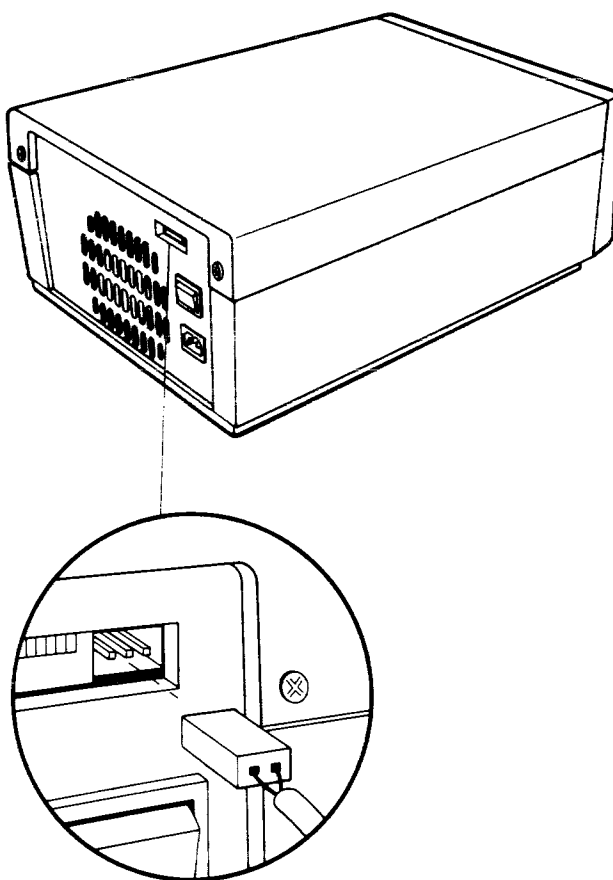
Addresses and Switch Settings

It's a good idea to write the Omnidrive's address on a piece of paper and to tape this paper to the outside of your drive. You will need the address when you initialize the drive (see Chapter 2, page 35).

For now, record it here: _____

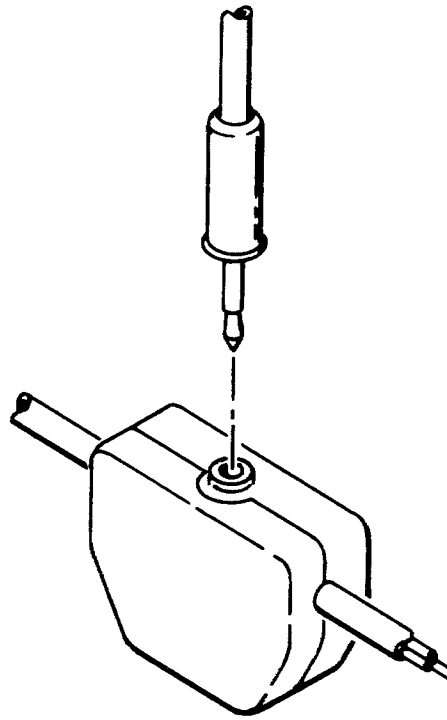
4. Attach the tap cable (OCS I) or drop cable (OCS II) to the Omnidrive.

Plug the three-slot connector at the end of the cable into the three-pronged connector marked *TAP* on the back of the Omnidrive.

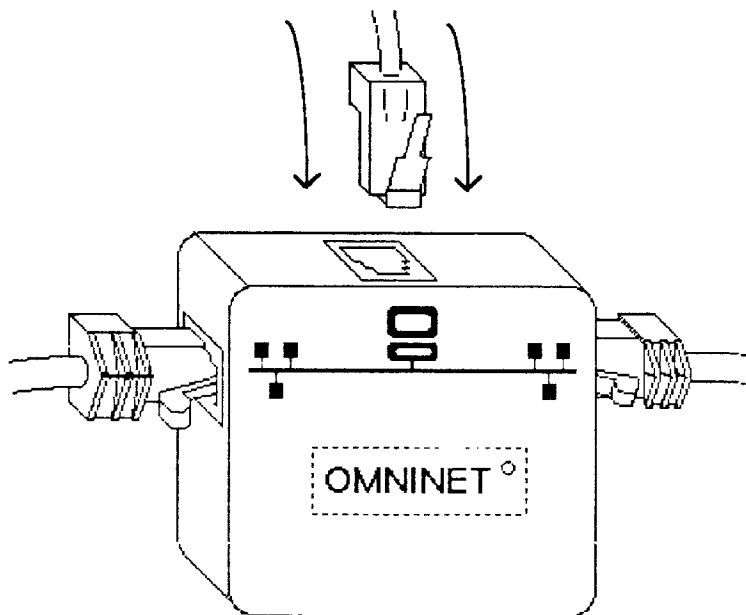


5. Connect the other end of the cable to the network.

OCS I: Plug the other end of the tap cable into a tap box.



OCS II: Plug the other end of the drop cable into a trunk adapter.



6. Plug the power cord into the Omnidrive and into a power outlet.

7. Turn on the Omnidrive.

The Omnidrive power switch is on the back panel above the power cord connector.

Once the drive is turned on, the three lights on the front panel light up. After about twenty seconds, only the READY light should remain on, indicating the drive is ready for use.

If after one minute the READY light is not the only light on, reset the Omnidrive by turning it off, then back on. If the READY light still does not come on correctly, recheck all connections. If the drive still does not respond correctly, call your Corvus dealer for help.

This completes the hardware setup for an Omnidrive. How to install software on the drive so that you can begin using the drive on the network is explained in Chapter 2.

Setting Up an Apple II

This section shows how to connect an Apple II to an Omnidrive with a Corvus network interface card and tap cable (OCS I) or drop cable (OCS II).

You need:

- An Omninet network interface card
- A tap cable (OCS I) or drop cable 64C(OCS II)

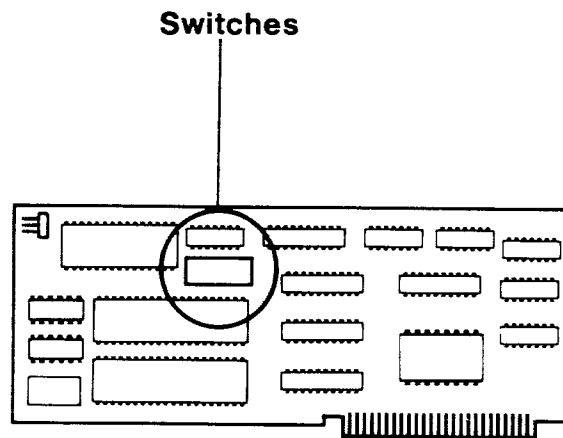
A Corvus Print Spooler Card, which simplifies printing to a network printer, is also useful, though not required.

1. Set up the Apple II.

Set up the computer according to the manufacturer's instructions. Set it up close to the Omnidrive so you can observe the indicator lights during software installation. After the computer is set up, make sure the power is turned off.

2. Set the interface card switches.

Find the switches on the interface card.

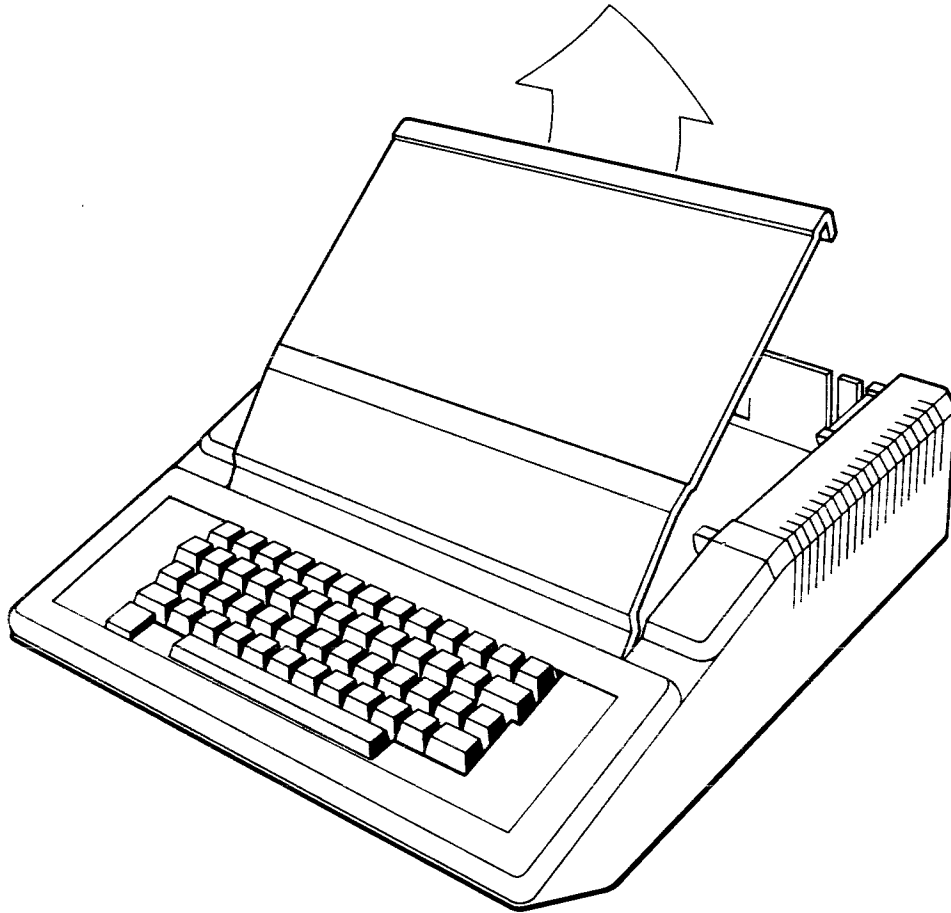


Set the switches to an address not already in use. Use the table on page 8.

Switches 7 and 8 have no effect. It doesn't matter whether these switches are set toward or away from the numbers.

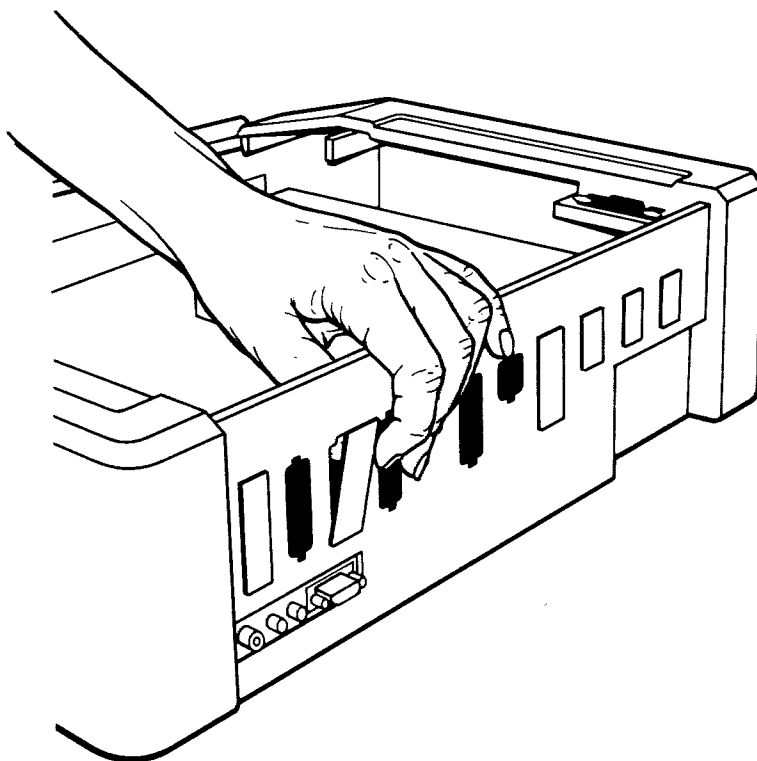
3. Remove the Apple II cover.

Pull up on both sides of the computer cover's back end to release the right and left clasps. Lift the cover and pull back and out.

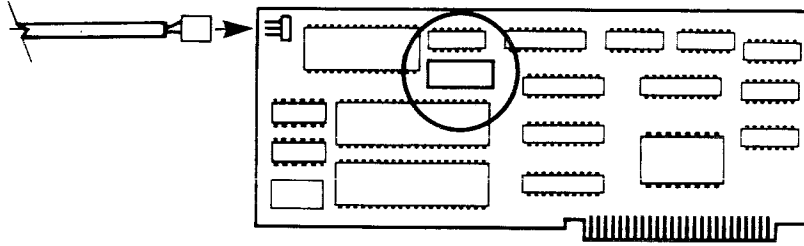


4. Remove an access plate.

An Apple IIe computer has seven access windows, covered by plates, next to the seven slots on the computer's main circuit board. Find the window closest to slot 7. From the inside of the computer, push the top edge of the access plate down and out. The plate should pop out easily. Keep the plate for later use. Now pass the three-slot connector end of the tap cable through the window.

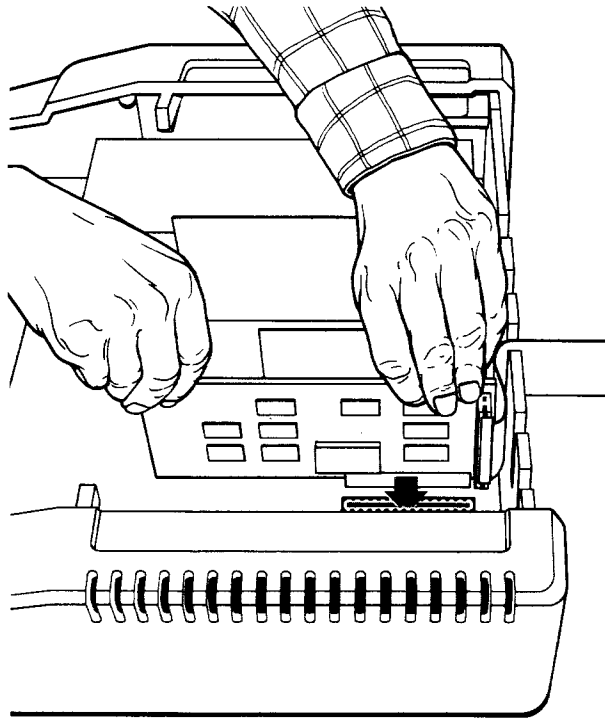


5. Plug the tap cable (OCS I) or drop cable (OCS II) into the interface card.



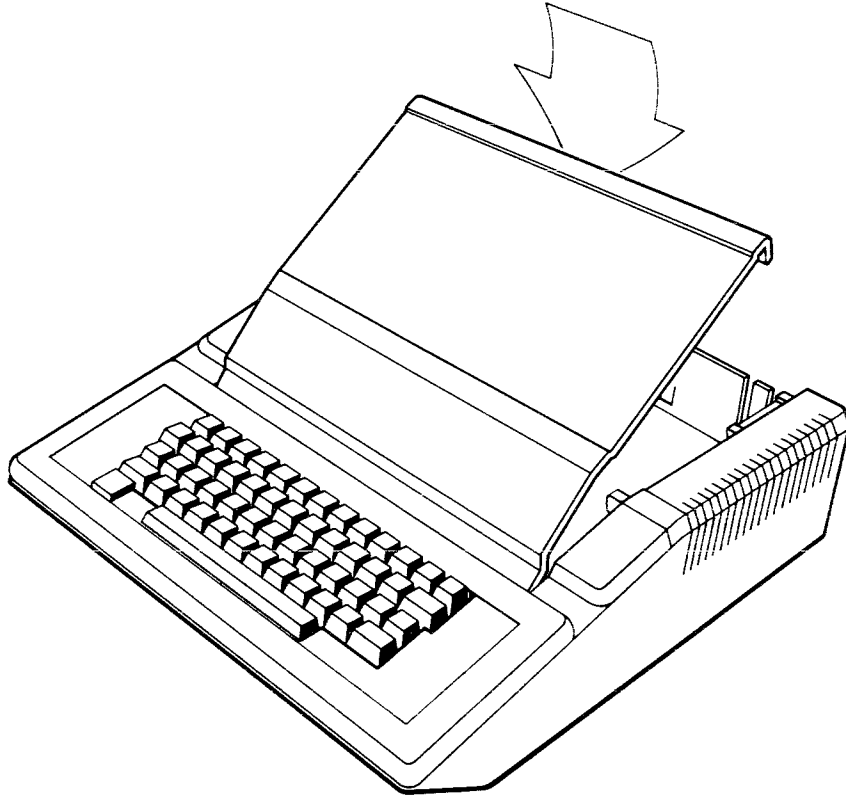
6. Plug the card into the computer.

Press the interface card firmly into slot 7 on the computer's circuit board.



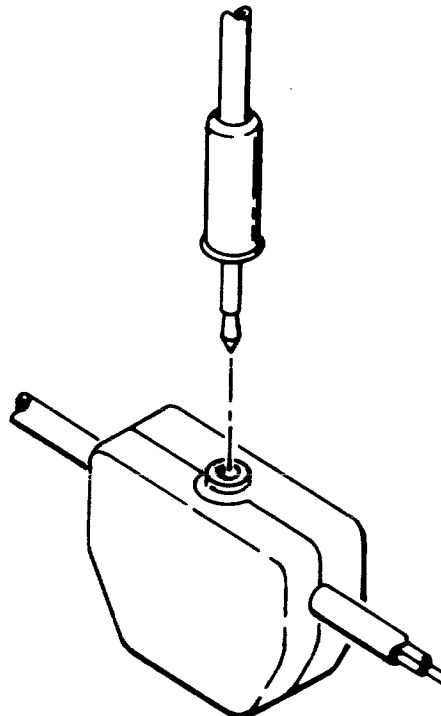
Install the floppy card in any slot according to the instructions that came with the computer.

7. Replace the Apple II cover.

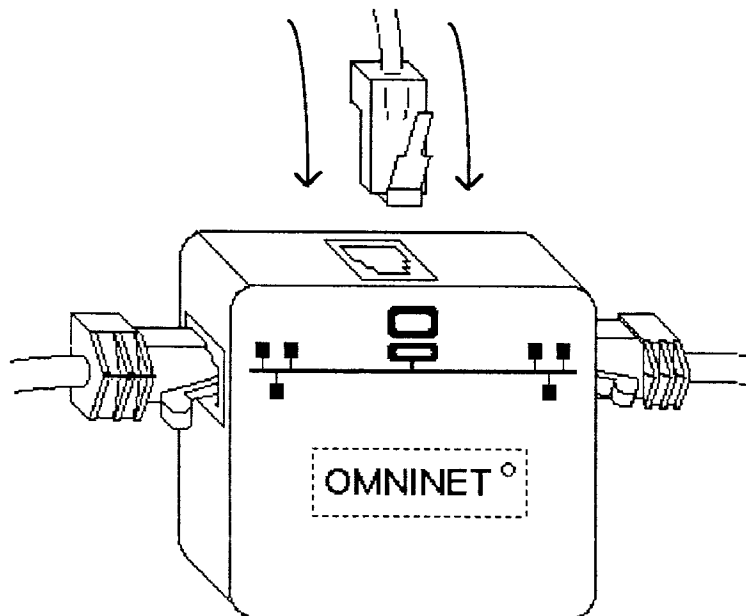


8. Connect the Apple II to the network.

OCS I: Plug the free end of the tap cable into a tap box.



OCS II: Plug the free end of the drop cable into a trunk adapter.



If your network already has other Apple II's and Constellation III software installed, you're done setting up the new Apple II on the network. Unless you need to read the instructions in the next section on installing the Corvus Print Spooler Card, you do not need to read any more in this guide.

If the Apple II you have just set up is the first Apple II on your network, then you still need to install Constellation III. Read the next section if you have a Print Spooler Card to install and then go on to Chapter 2.

Installing a Print Spooler Card

This section shows how to put a Print Spooler Card in an Apple II. If you don't have a Print Spooler Card to install, you don't need to read this section. Go to the next chapter.

1. Remove the Apple II cover.

Pull up on both sides of the computer cover's back end to release the right and left clasps. Lift the cover of the computer and pull back and out.

2. Press the spooler card into slot 1.

3. Replace the Apple II cover.

Chapter 2

Setting Up the Software

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Introduction

This chapter explains how to install Constellation III software on a network containing Apple II computers.

You need the Corvus floppy diskettes containing the Constellation III software, an Apple II computer, and at least one Omnidrive for the procedures covered in this chapter. Both the drive and the computer must be set up and attached to the network as described in Chapter 1.

It's recommended that no one use the network while you perform the operations described in this chapter.

The chapter has four main sections. The first, "Copying the Diskettes," explains how to make copies of the Corvus floppy diskettes so that you can store the originals for safekeeping.

The remaining sections describe the two stages of installing Constellation III software. The first stage is covered by the two sections "Updating Existing Drives" and "Setting Up a New Drive." You may not need to read both of these sections.

The last section of this chapter, "Adding Users, PIPES, and Utilities," covers the second stage of installing Constellation III software. In this stage, you can create a volume called PIPES for use in network printing; you can also add user accounts and utility programs for the Apple operating systems you plan to use.

Find the indented paragraph below that describes your situation and read just the sections it tells you to:

- **If you have a working Omninet network already** and want to upgrade to Constellation III software without adding any drives or computers, read "Updating Existing Drives" but not "Setting Up a New Drive." Then go on to "Adding Users, PIPES, and Utilities."

If you want to upgrade to Constellation III and add an Apple II, read "Updating Existing Drives" and "Adding Users, PIPES, and Utilities" but skip "Setting Up a New Drive." You may add subsequent Apple II's to the network just by setting them up as described in Chapter 1.

If you want to upgrade to Constellation III and add an Omnidrive that you've set up according to Chapter 1, first read "Updating Existing Drives" to upgrade, and then read "Setting Up a New Drive" for how to add the Omnidrive. *It's important that you read the sections in just this order.* Finally, read "Adding Users, PIPES, and Utilities."

- **If you're starting a brand new network**, read "Setting Up a New Drive" but not "Updating Existing Drives." You do not need to read "Updating Existing Drives" because you have no drives operating with older software that need to be updated. Finally, read "Adding Users, PIPES, and Utilities."
- **Once you have Constellation III on the network** you may add more Apple II's just by setting them up as described in Chapter 1. You do not need to read any of Chapter 2.

To add another Omnidrive to a network that already has Constellation III, read only "Setting Up a New Drive." You do not need to read the other sections of Chapter 2.

Before reading anything else, though, read the section below, "Copying the Diskettes."

Copying the Diskettes

This section explains how to use the diskette copy function found on the diagnostic floppy diskette to copy the various other Corvus diskettes. Use only the *copies* with the instructions in this guide. Store the originals where they'll be available if you ever need to make new copies.

The network interface card should be in slot 7, as described in Chapter 1. The floppy controller card may be in any slot. Turn on the Apple II.

1. Insert the diagnostic diskette.

Insert the diskette labeled A2C3.1 in the boot drive.

2. Hold down CTRL and press RESET to boot the computer.

The screen displays the BASIC prompt.

3. Type PR#(slot number of floppy card) and press RETURN .

For example, if your floppy card is in slot 6, type PR#6 and press RETURN .

The screen displays the Constellation III Maintenance Utilities menu:

```
Constellation III Maintenance Utilities
(c) Copyright 1984..1987 Corvus Systems, Inc.
```

```
-----
C - Copy Diskette
D - Mass Storage Diagnostic
M - Mirror Server Manager
X - Transfer Manager
-----
```

```
Please select an option:
```

Use the Copy Disk option to copy each of your diskettes.

If you are going on to the section "Setting Up a New Drive" when you are finished making copies, do not exit the maintenance utilities program. You will use the Mass Storage option to update firmware on the new drive.

Updating Existing Drives

This section describes how to put Constellation III software on Omnidrives that are already in place on a functioning Omninet network. To add a drive to the network, whether a new drive or one with information already on it, see "Setting Up a New Drive."

When you complete the steps in this section, you will be able to use Apple II's on the network whether or not the network supported them before.

If you have more than one Omnidrive on the network, they will all be updated with the new software when you perform the steps in this section. You do not have to repeat the steps for each Omnidrive.

- 1. Insert the Corvus installation diskette.**

Put the /INSTALL.SYSGEN diskette in floppy drive 1.

2. Press **CTRL** - **RESET** to boot from the installation disk.

At the BASIC prompt, type PR#(slot number of floppy card) and press **RETURN**. For example, type PR#6 and press **RETURN**.

The following menu appears:

```
-----  
Constellation III Initialization  
-----  
1. Set Up A New Drive  
2. Upgrade Existing Drive(s)  
-----  
Use Arrow Keys or Numbers to Select Choice...  
Hit [Esc] key to exit.....
```

3. Type 2 or use arrow keys to choose to upgrade an existing drive.

The screen displays the prompt *Continue (Y/N)?*. Press Y.

4. Follow the screen's instructions to insert diskette C3DATA1 in slot 4, drive 2, and then press **SPACE**.

The screen tells what the program is doing and then after a short time directs you to insert another diskette and press **SPACE**. Follow the screen's instructions.

As a part of the update procedure, the program enlarges and relocates the CORVUS volume. This volume contains the various drive tables that keep track of volumes and so forth on the drive.

Shortly, if all goes well, the screen announces that installation of Constellation III is completed.

NOTE: If the program can't find room enough on the drive for the newly expanded CORVUS volume, an error message announces that the program is **UNABLE TO RELOCATE AND EXPAND CORVUS VOLUME**.

If this message appears, you need to make space for the larger CORVUS volume manually. You must create a space of 760 blocks at a block address less than 65535 by removing some other volume and relocating it on the Omnidrive.

To do this, log on to the Network Management Program and select the server whose CORVUS volume you're trying to relocate. Use the List Volumes function from the Network Management Program menu to list the volumes on that Omnidrive. Pick a volume to move to make room for the CORVUS volume. Choose any volume of 760 blocks or more at an address smaller than 65535.

When you've chosen one, note its exact size and use the Add Volumes function to create a new volume of that size but with a different name elsewhere on the Omnidrive. Now use the copy utility appropriate to the operating system of the volume you're moving and copy the contents of the original volume into the new volume you've just added.

Use the Remove Volumes function to delete the original volume. You may now change the name of the new volume to what the original volume was called.

Now return to the beginning of this section and start again with the steps for updating an existing drive.

5. Reset all Omnidrives.

Turn off all the Omnidrives on the network, wait approximately 10 seconds, then turn them on again.

Setting Up a New Drive

Putting a new drive on the network involves two operations: updating the firmware and initializing the drive.

If the drive you're adding contains information that you want saved, do not initialize the drive. Update the drive firmware as described in the section below and skip the section "Initializing the Drive." Instead of initializing the drive, follow the instructions in Appendix A for merging user tables.

UPDATING THE FIRMWARE

Before a computer can communicate with a new Omnidrive, a controller code file called firmware must be copied onto the drive. The firmware acts as an interpreter for commands addressed to the drive. Copying firmware onto a drive is called updating the firmware.

Firmware is put on new drives at the factory. Even so, to be sure you have the latest version, you should update the firmware before initializing the drive. This section explains how to do that.

The network interface card should be in slot 7, as described in Chapter 1. The floppy controller card may be in any slot. Turn on the Apple IIe.

1. Insert the diagnostic diskette.

Insert the diskette labeled A2C3.1 in the boot drive.

2. Press **CTRL** - **RESET** to boot the computer.

At the BASIC prompt, type PR#(slot number of floppy card) and press **RETURN**. For example, type PR#6 and press **RETURN**.

The screen displays the Constellation III Maintenance Utilities menu:

```
Constellation III Maintenance Utilities  
(c) Copyright 1984..1987 Corvus Systems, Inc.
```

```
C - Copy Diskette  
D - Mass Storage Diagnostic  
M - Mirror Server Manager  
X - Transfer Manager
```

Please select an option:

3. Insert the copy you've made of the A2C3.4 diskette in the second drive and type **D** to select the Mass Storage program.

The screen displays a list of slot numbers and asks you to select one, suggesting slot 7. This slot contains the computer's Omninet interface card. Press **RETURN** to accept the screen's suggestion of the slot with the Omninet interface card.

The screen displays a chart of active network nodes (i.e., devices) listing each by its network address, and asks you to select a server.

```
-----  
Select server number [0..63]: 0  
  
MDIAG [1.5d]: Corvus Mass Storage Diagnostic  
Select Drive                               Sit: 7  Srv: 0  
-----  
Slot 1: ....  
Slot 2: ....  
Slot 3: ....  
Slot 4: ....  
Slot 5: ....  
Slot 6: ....  
Slot 7: Corvus Omninet interface  
-----  
Select slot number [7]: 7  
-----  
Active network nodes: ("*" indicates this node)  
  
  0  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  24*  
    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
-----  
Select server number [0..63]: 0
```

4. Select the server number.

Enter the Omninet address of the Omnidrive whose firmware you want to update. This address was set in Chapter 1 of this guide. After entering the address, press **RETURN**.

The screen displays the Mass Storage menu:

```
MDIAG [1.5d]: Corvus Mass Storage Diagnostic
(c) Copyright 1986 Corvus Systems, Inc. OmniDrive          Slot: 7  Srv: 0
-----
D - Select Drive
V - Version Check
P - Park Heads for Shipment
X - Exercise Drive
C - Check for Bad Tracks
S - Show Results

F - Format Drive
U - Update Firmware
M - Modify Parameters

N - Set Diag Data File Name
A - Advanced Options

E - Exit
-----
Select diagnostic option:
```

5. Type U to select Update Firmware.

The screen displays a warning that the option selected may destroy data on the drive and asks you to confirm that you want to continue.

By itself, updating firmware will *not* destroy any data on an Omnidrive. However, changing drive tables will. The caution on screen relates to changing drive tables. This option is offered when you continue with updating firmware.

Make sure that the slot and server numbers are correct, then type Y.

At this point the screen asks if you want to change drive tables. The screen suggests N, for No. Press **RETURN** to accept this response.

6. Enter the firmware filename.

The screen asks you to enter the firmware filename. It proposes the file name ODRV.FIRMWARE. Press **RETURN** to accept this filename.

The screen displays a version message. Press **RETURN**.

The screen announces that the firmware is updated. It instructs you to reset the Omnidrive and press the **SPACE** when you've done so.

To reset the Omnidrive whose firmware you've just updated, turn it off, wait approximately 10 seconds, and then turn it on again.

When you've done this, press **SPACE**.

The screen returns you to the Mass Storage diagnostic program main menu.

7. Exit the Mass Storage program.

Type E to exit back to the Constellation III Maintenance Utilities menu.

INITIALIZING THE DRIVE

Initializing an Omnidrive creates a CORVUS volume on the drive. The drive cannot be used on the network until it has a CORVUS volume.

The CORVUS volume contains tables that keep track of the volumes stored on the drive and of the users having access to these volumes. Initializing a drive erases anything already in the tables and starts fresh with new tables. If the drive is not a new one, the result is that the whereabouts of all information on the drive is lost: in effect, the information is destroyed. If the drive you want to add has information you want to keep, do not initialize the drive. Instead, follow the instructions in Appendix A for merging user tables.

Because initializing in effect destroys information, it is *very important* that you enter the correct server and drive numbers when initializing a new drive on the network. If you select the wrong drive, you will in effect erase it.

1. Insert the Corvus installation diskette /INSTALL.SYSGEN in floppy drive 1. Put the C3DATA1 diskette in floppy drive 2.
2. Press **CTRL** - **RESET** to boot from the installation diskette.

At the BASIC prompt, type PR#(slot number of floppy card) and press **RETURN**. For example, type PR#6 and press **RETURN**.

The initialization menu displays:

Constellation III Initialization

1. Set Up A New Drive
2. Upgrade Existing Drive(s)

Use Arrow Keys or Numbers to Select Choice...
Hit [Esc] key to exit.....

3. Type 1 or use arrow keys to select Set Up A New Drive.

A warning appears that you are about to destroy all information on the drive, and the screen displays the prompt *Continue (Y/N)?*. Press Y.

The screen directs you to press the space bar to proceed. Press **SPACE**.

4. Select an Omnidrive.

The screen tells you to enter the server address.

The Omnidrive has a built-in diskette server. You assigned the network address of this server in Chapter 1 when you set the switches on the back of the Omnidrive. You were told to record the address on page 9 of the guide and on the Omnidrive. This is the address you need now.

Caution: Be sure you have the correct address. If you initialize the wrong drive, all information on that drive will be lost.

If you're in any doubt about the address, you may want to read it directly from the switch settings on the back panel of the Omnidrive. Use the table on page 8 to interpret the settings.

Type the address of the server and press **RETURN**.

The screen asks you to enter the drive number and proposes drive number 1. Press **RETURN** to accept this number.

5. Build the user table.

The screen asks if you want to build the user table on the Omnidrive from another server.

A drive's user table lists the network users that the drive recognizes. Unless a user's name and password are listed in its user table, a drive will not grant the user access to anything. All drives on the network must have identical user tables.

If there is another drive on the network, press Y and then **RETURN**. This instructs the program to duplicate the user table of the other drive on the drive you're initializing.

If there is no other drive on the network, press N and then **RETURN**.

6. Enter the Omnidrive name information.

The screen requests a new server name.

You need to assign a name to the Omnidrive's built-in diskette server. You may also give it a password, although this is optional. Similarly, the drive must have a name and can have an optional password. The names used in the examples in this guide are *SERVER1*, for both the server name and password, and *DRIVE1*, for both the drive name and password.

You may use these same names as long as they aren't already assigned to another server and drive, or you may create new ones. In either case, before going any further, write the server and drive names and passwords you will use below.

Server Name

Server Password

Drive Name

Drive Password

Type the server name (for instance, *SERVER1*) and press **RETURN**.

When the screen prompts for a server password, either enter a password (for instance, *SERVER1*) and press **RETURN**, or simply press **RETURN** without entering a password if you don't want a password.

The screen prompts for a drive name. Enter a drive name (for instance, *DRIVE1*) and press **RETURN**.

The screen prompts for a drive password. Either enter a password and press **RETURN** or just press **RETURN** without entering a password.

7. Enter CORVUS volume information.

The screen prompts for a starting block address for the CORVUS volume and suggests 9. Press **RETURN**.

The screen prompts for the CORVUS volume size in blocks and suggests 760. Press **RETURN**.

The screen generates rows of dots as it initializes the CORVUS volume. When it finishes this, follow the screen's instructions to insert diskette C3DATA2 and press **SPACE**.

The screen displays more dots, then asks for diskette C3DATA3. Insert diskette C3DATA3 and press **SPACE**.

More dots appear. The screen announces that the drive is initialized and instructs you to turn the drive off and then on again.

Turn off the Omnidrive, wait about 10 seconds, and then turn it on again. This resets the drive and registers the changes you have made. Press **SPACE** to continue.

Adding Users, PIPES, and Utilities

This section describes how to set up a PIPES volume or Transfer Area, create a user account for the network manager, and add user accounts and utility programs for Apple operating systems ProDOS, DOS 3.3, and Pascal.

The commands that do all this are in batch files. These are files that contain nothing but a batch of commands. All you have to do to execute the commands is to run the files. This section tells you how.

There are four batch files in all. One of them, ADDA2MGR, you are required to run. This file sets up the network manager user account and the ProDOS operating system. Corvus recommends that you also run ADDPIPES to set up a Transfer Area. The other files you may run or not, depending on whether you want to work in the operating systems they set up.

You should run the files in this order:

```
ADDA2MGR
ADDDOS33
ADDPAS
ADDPIPES
```

Running all four of these batch files sets up the following six user accounts:

```
A2MGR
A2MAINT
A2PRODOS
A2DOS33
A2PASCAL
A2BACKUP
```

The batch files also create certain system volumes. These volumes and their operating system type, size, owner, and contents are listed in Appendix B. There you will also find a table showing the password, volume access, mount unit, and operating system of each of the user accounts.

Here are general synopses of these accounts:

- A2MGR has read-write access to volume A2NET, which contains the Network Management Program. This program is for the system manager's use only. Its name and password should be kept confidential. How to use the program is discussed in the *Network Manager's Guide*.
- A2MAINT has read-only access to volume A2SYS, which contains the diagnostics program for network Omnidrives. How to use this program is covered in the *Network Diagnostics Guide*.
- A2PRODOS has read-only access to volume A2PRO, containing ProDOS utilities. How to use these utilities is explained in the guide *Tools for Network Users*.
- A2DOS33 has read-only access to volume A2DOS, containing DOS 3.3 utilities. How to use these utilities is explained in *Tools for Network Users*.
- A2PASCAL has read-only access to volume A2PAS, containing Pascal utilities. How to use these utilities is explained in *Tools for Network Users*.
- A2BACKUP has read-only access to volume A2BACK, which contains a program for backing up volumes to floppy. This program is described in *Tools for Network Users*.

Note that if any of these accounts or volumes already exists on your network, the originals will be replaced by the new. Do not save the contents of the older versions of these volumes. Use the utilities in the new volumes instead.

HOW TO RUN THE BATCH FILES

In order to have access to the network and an operating system to work in, you have to run the batch file that sets up the network manager user account and the ProDOS operating system. This file is ADDA2MGR. Running the other batch files is optional. If you plan to work only in the ProDOS operating system, ADDA2MGR is the only batch file you need to run. You do not need to run the batch files setting up user accounts and putting utilities on the drive for DOS 3.3 and Pascal unless you want to use those operating systems.

If you want all users to be able send files to one another and to share a printer on the network, you must also run the batch file ADDPIPES to create a Transfer Area. The Transfer Area is a volume called PIPES where files sent by users to each other or to a network printer go first in order to be forwarded to their proper destination. Without a Transfer Area, users cannot share a printer or send files to each other over the network.

All the batch files are run the same way. When you run the file, the file is executed on the server you have selected. You need to run the batch files only once no matter how many servers you have.

For one of the batch files, you need certain diskettes in addition to the Corvus diskettes: ADDPAS requires the Apple diskettes APPLE1: and APPLE2:.

To run batch files, proceed as follows:

1. Insert the diskette labeled /C3 and press **CTRL** - **RESET** to boot the Apple IIe.

The screen displays the Constellation III Network Management menu:

Network Management - Constellation III

NETWORK MANAGEMENT PROGRAM

MERGE SERVER TABLES

EXIT OR HIT [ESC] KEY

2. Use arrow keys to select the Network Management Program.

The Select Server screen appears, with *Server0* proposed.

3. Select the server.

If you have a special reason for wanting to run the batch file on a different server, move the cursor to the name of that server and press **RETURN**. Otherwise, just press **RETURN** to select *Server0*.

The file ADDPIPES should be run only on *Server0*.

4. Enter the drive password.

Enter the drive password, if any, and press **RETURN**. The password does not display as you enter it.

The main menu of the Network Management Program appears:

VOLUMES	ACCOUNTS	SPECIAL
List Add Change Remove _____		

Constellation III Network Management
Copyright (c) 1986 Corvus Systems, Inc.
Version 2.10

ESC to Quit ? for Help

5. Select Execute Batch Files from the Special Functions menu.

Use the left- or right-arrow key to move the highlight to the Special Functions menu, and use the up- or down-arrow key to place the highlight bar on Execute Batch Files. Press **RETURN** to select that option.

6. Run the batch file.

The screen prompts for the name of the batch file. Type the name and press **RETURN**.

For instance, type *ADDA2MGR*. Press **RETURN**.

The screen prompts you for a diskette. Insert the diskette as requested and press **SPACE**. The screen will prompt for additional diskettes when the program finishes with the first. Insert each diskette when requested and press **SPACE**.

When the batch file is finished executing, the screen prompts for another batch file. To run another batch file, enter its name and press **RETURN**.

To return instead to the Network Management Program menu--e.g., to select a different server--press **ESC**.

If any batch file does not execute properly and the screen displays an error message, record the message and the steps you took leading up to the error and contact your distributor for help.

When you are done running the batch files, you are finished installing the system.

Now you're ready to learn about creating ordinary volumes and user accounts so that you can actually begin using the network. Turn to the *Network Manager's Guide* in this set.

Appendixes

Contents

- Appendix A: Merging User Tables
- Appendix B: System Volumes and Accounts
- Appendix C: Error Messages

Appendix A: Merging User Tables

For a new drive to recognize names and passwords of network users, it must have the same user table as all other network drives. The tables are made the same by *merging* them, i.e., by copying into the new drive's user table the information from the table of a drive already on the network.

With a new drive, you can choose to merge user tables as part of the initialization. But sometime you may want to merge user tables on a drive that you do not want to initialize, e.g., a drive with data on it that you are transferring from a different network. Initializing the drive would erase all its information.

To merge user tables without initializing the drive, use the Merge Server Account Tables option of the Network Management menu.

1. **Insert diskette /C3 in floppy drive 1 and press - to boot the Apple IIe.**

The screen displays the Network Management menu:

Network Management - Constellation III

NETWORK MANAGEMENT PROGRAM

MERGE SERVER TABLES

EXIT OR HIT [ESC] KEY

2. Use arrow keys to select Merge Server Account Tables.

When the screen displays the prompt *Continue (Y/N)?*, press Y to continue.

3. Enter server and drive numbers.

The screen requests the server host number. Type the Omninet address of the server you're adding to the network and press .

The screen asks for the drive number and proposes number 1. Press to accept this.

The program merges the user tables. The screen announces when the operation is done.

Appendix B: System Volumes and Accounts

Volume	Format	Length	Owner	Type	Contents
A2BACK	UCSD	300	A2BACKUP	Public	Floppy Backup program
A2NET	UCSD	1124	A2MGR	Private	Network Management Program Sample Batch Files
A2SYS	UCSD	1200	A2MAINT	Private	Network Diagnostics and Maintenance Utilities
A2PRO	PRODOS	1124	A2PRODOS	Public	ProDOS file utilities
A2DOS	DOS3.3	1124	A2DOS33	Public	DOS 3.3 file utilities
A2PAS	UCSD	1124	A2PASCAL	Public	Pascal file utilities

User	Password	O.S.	Access	To Volumes	Mount Unit
A2BACKUP	none	PASCAL	RO	A2BACK	4
A2MGR	NOS	PRODOS	RW	A2NET	S7, D1
			RO	A2PRO	S7, D2
A2MAINT	NOS	PASCAL	RO	A2SYS	4
A2PRODOS	NOS	PRODOS	RO	A2PRO	S7, D1
A2DOS33	NOS	DOS3.3	RO	A2DOS	S7, D1
A2PASCAL	NOS	PASCAL	RO	A2PAS	4

Appendix C: Error Messages

This appendix contains a listing of the error messages that can be generated when you put Constellation III on a new drive or update a drive that contains earlier Constellation software.

Each error message is presented in **BOLDFACE** and then explained.

Errors When Updating a Drive

DISK I/O ERROR

A read or write operation failed on the disk or Omnidrive being updated by the program. This means that the drive possibly has bad tracks that should be spared. See the Diagnostics guide for how to check for and, if necessary, spare bad tracks. If a bad track appears in the middle of Constellation data tables in the CORVUS volume, however, you may be unable to recover information on the drive. In that event, you must back up what information you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive," as if the drive were a new one.

DRIVE/DISK UNAVAILABLE FOR ACCESS

Receiving this message probably means that semaphore CRVSEMA4 is set. Go to the Special Functions submenu of the Network Management Program menu and select the Unlock Semaphores function. Use the Clear A Flag option of Unlock Semaphores to clear semaphore CRVSEMA4.

DRIVE.VOLUME SEQUENCE ERROR

This is a serious error. The message means that the contents of the DRIVE.VOLUME table are corrupted and probably, though not necessarily, unusable. Back up the contents of the drive if you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive." You must initialize the drive as a new drive.

ERROR LOADING THE FILE C3INSTALL.CODE

An I/O or other floppy diskette error occurred while trying to load the program file data. Either the file is corrupted or there is a media error on the floppy. Make a new copy of the Corvus original of the diskette and try again.

ERROR LOADING THE FILE C3UTILITY.DATA

An I/O or other floppy diskette error occurred while trying to load the utility file data. Either the file is corrupted or there is a media error on the floppy. Make a new copy of the Corvus original of the diskette and try again.

NO DISK SERVERS FOUND ON THE NETWORK

There are no disk servers or Omnidrives on the network attached to the computer. More likely, the computer itself is not on the network. Check your network connections.

THE FILE C3.DATA WAS NOT FOUND

The data file C3.DATA was not on the diskette C3DATA in slot 4, drive 2.

THE FILE C3.XXXX WAS NOT FOUND

The data file C3.XXXX was not on the diskette C3DATA in slot 4, drive 2.

THE FILE C3INSTALL.CODE WAS NOT FOUND

The program file C3INSTALL.CODE must be on the same ProDOS volume as the installation program C3INSTALL.

THE FILE C3UTILITY.DATA WAS NOT FOUND

A utility program file called C3UTILITY.DATA must be on the same ProDOS volume as the installation program C3INSTALL.

THE OMNINET INTERFACE CARD IS MISSING

An Omninet interface card must be installed in the computer. Place an interface card in slot 6 or 7.

THE VOLUME 'NEWCORVUS' WAS NOT FOUND

This is a program error that occurs only if the DRIVE.VOLUME table on a given drive is corrupted. Back up the contents of the drive if you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive," as if the drive were a new one.

THE VOLUME XXXXX WAS NOT FOUND

This is a program error that occurs only if the DRIVE.VOLUME table on a given drive is corrupted. Back up the contents of the drive if you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive," as if the drive were a new one.

UNABLE TO RELOCATE AND EXPAND CORVUS VOLUME. nnnn BLOCKS NEEDED AT AN ADDRESS LESS THAN 65535. PLEASE REFER TO THE CONSTELLATION III SYSTEM SETUP GUIDE.

There is insufficient space on the given server/drive for the relocation/resizing of the CORVUS volume. A space of at least nnnn blocks must be made available. Other possibilities are that the maximum 511 volumes have already been allocated on the server/drive or that the CORVUS volume could not be relocated to a block address less than 65535.

UPDATE ERROR

This is a program error that occurs only if the DRIVE.VOLUME table on a given drive is corrupted. Back up the contents of the drive if you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive," as if the drive were a new one.

Errors When Setting Up a New Drive

ERROR LOADING THE FILE C3SYSGEN.CODE

An I/O or other floppy diskette error occurred while trying to load the program file data. Either the file is corrupted or there is a media error on the floppy. Make a new copy of the Corvus original of the diskette and try again.

ERROR LOADING THE FILE C3UTILITY.DATA

An I/O or other floppy diskette error occurred while trying to load the utility file data. Either the file is corrupted or there is a media error on the floppy. Make a new copy of the Corvus original of the diskette and try again.

INVALID BLOCK ADDRESS

The starting block address given for the CORVUS volume is invalid or out of range.

INVALID CORVUS VOLUME ADDRESS OR LENGTH

The block address or size given for the volume is invalid.

INVALID DRIVE

The drive number chosen is invalid or out of range.

INVALID ADDRESS

The disk server address number chosen is invalid or out of range.

INVALID NAME

The disk server or drive name given for an initialization is invalid. Server and drive names may be no more than 10 characters in length and can contain no spaces.

INVALID PASSWORD

The disk server or drive password given for an initialization is invalid. Server and drive passwords may be no more than 8 characters in length and can contain no spaces.

INVALID SIZE

The size given for a CORVUS volume is invalid or out of range. The volume's size must be 232-32767 blocks.

MERGE MUST BE ON DRIVE 1

The server/drive chosen for a merge must be drive 1.

NETWORK.USER TABLE SIZE MISMATCH

The size of the network user tables on drive 1 of all servers on the network must be of equal size for a merge.

NO DISK SERVERS FOUND ON THE NETWORK

There are no disk servers or Omnidrives on the network attached to the computer. Check to be sure the computer is connected to the network.

NO OTHER SERVERS ON-LINE TO MERGE

No other servers or Omnidrives were found on the network for the merge to take place.

OMNINET INTERFACE CARD IS MISSING

An Omninet interface card must be installed in the computer. Place an interface card in slot 6 or 7.

THE CORVUS VOLUME IS TOO SMALL FOR A MERGE

There is insufficient space on the CORVUS volume of the server/drive chosen for a merge. The program needs space available on the CORVUS volume that is at least the size of the NETWORK.USER table (usually 32 blocks). The combined number of users must not exceed the capacity of the user table, namely, 511 user entries.

THE CORVUS VOLUME SIZE IS TOO SMALL

The size chosen for the new CORVUS volume is too small to accommodate the necessary tables and files.

THE FILE C3.DATA WAS NOT FOUND

The data file C3.DATA was not on the diskette C3DATA in slot 4, drive 2.

THE FILE C3.XXXXX WAS NOT FOUND

The data file C3.XXXXX was not on the diskette C3DATA in slot 4, drive 2.

THE FILE C3SYSGEN.CODE WAS NOT FOUND

The program file C3SYSGEN.CODE must be on the same ProDOS volume as C3SYSGEN.

THE FILE C3UTILITY.DATA WAS NOT FOUND

A utility program file called C3UTILITY.DATA must be on the same ProDOS volume as the installation program. This file is used by both the installation and sysgen/merge programs.

THE SERVER/DRIVE IS NOT FORMATTED

The server/drive chosen for a merge is not formatted, i.e., initialized.

THE VOLUME 'C3DATA:' IS NOT IN S4,D2

The utility data volume C3DATA: is not in slot 4, drive 2.

THERE IS NO DISK DEVICE AT THAT ADDRESS

The disk server host number chosen is invalid or out of range.

UNEXPECTED I/O ERROR

A read or write operation failed on the disk or Omnidrive being updated by the program. This means that the drive possibly has bad tracks that should be spared. See the Diagnostics Guide for how to check for and, if necessary, spare bad tracks. If a bad track appears in the middle of Constellation data tables in the CORVUS volume, however, you may be unable to recover information on the drive. In that event, you must back up what information you can and reinitialize the drive according to the instructions in Chapter 2, "Setting Up a New Drive," as if the drive were a new one.

Another possible cause is an error on the floppy disk in slot 4, drive 2. Follow instructions in Chapter 2, "Copying the Disks," to make another copy of the original of the floppy you're using and try that one.

**Constellation III
for the Apple II**

Network Manager's Guide

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About This Guide

This guide is intended for the network manager, the person who will oversee daily operations on the Corvus Omninet network.

The guide explains the Constellation III Network Management Program. The Network Management Program is the network manager's main resource for keeping track of users, allocating storage space on the disk drives, coordinating communications between network stations, and generally maintaining the network.

Chapters 1, 2, and 3 of the guide are mainly intended for newcomers to the Constellation network management system. They introduce the reader to basic network concepts, provide a structure for planning how to use the network, and explain conventions used by the Network Management Program. People who already have experience with the Constellation system may find that they can skip the bulk of these three chapters and go straight to Chapter 4, which covers actually using the program.

A brief description of each chapter follows.

Chapter 1: Introduction

This chapter tells what's involved in managing a network, gives some particulars about hardware and software, and provides an introduction to some basic network concepts.

Chapter 2: Planning the Network

Anyone setting up a network for the first time should read this chapter, and even people who have set up a network before might find it helpful. The chapter is written around three planning worksheets that organize what you need to know to use Chapter 4.

Chapter 3: The Basics

This chapter is an introduction to the Network Management Program. It covers the basic how-to's of logging on, selecting from menus, moving around on the screen, entering text and responses, using the on-line help, and handling error messages and also describes some special features of the program.

Chapter 4: Using the Network Management Program

Chapter 4 gives step-by-step instructions for using the Network Management Program. This chapter is the heart of the guide.

Chapter 5: Printing and Transferring Files

Here you learn the difference between a network printer and a local printer and how to print files on either one. You also learn how to send a file to another network user.

Chapter 6: Using Batch Files

This chapter describes how to create a *batch file*. Batch files, which let you execute a number of commands at once, can make larger administrative tasks, such as setting up the network for a new incoming class, much less time-consuming.

Appendixes

There are three appendixes. One lists the commands you may use in batch files; one lists error messages; and one contains worksheets.

This guide assumes that the physical network--i.e., the network cabling, with computers and other network devices attached--is already in place and that the Constellation III software has been installed according to the instructions in the *Setup Guide*.

Chapter 1

Introduction

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Role of the Network Manager

In some ways managing a network is like being a homemaker. Just as the homemaker has to provide for the family's needs, the network manager has to supply the needs of his or her "family" of people using the network. In the one case, the issue is food and clothes. In the other, people using the network need volumes to work in, access to the printer, and so forth. In either case, if the housework is let slide, there will be clutter and things will be hard to find. And in both cases, people will always come to you if they need something.

It's the aim of this guide to tell you how to do both the routine tidying up and all the other things you need to be able to do so that your "family" can use the network successfully. Naturally, things will come easier if you have some experience with computers already; but previous experience isn't necessary. Every step of everything you have to do is fully explained in this guide.

Here's what this guide will teach you to do:

- plan how to organize the network
- create *volumes* on the OmniDrive to hold programs and data
- create *accounts* to give users access to the network
- give accounts access to volumes
- send files from your computer to a printer or to the computer of another user
- do routine tidying up to keep the network organized

The next section tells you some things you need to know about hardware and software for the network.

Required Hardware and Software

HARDWARE

To use the Network Management Program you need:

- an Apple IIe with at least 128 kilobytes of memory and an 80-column display
- a monochrome monitor

It's also helpful to have access to a printer from your network station. The printer must be connected to slot 1 of your Apple IIe computer, either directly or by means of a Corvus Print Spooler Card.

SOFTWARE

The Network Management Program

The Constellation III Network Management Program is primarily concerned with managing the use of the OmniDrive. With this software the network manager allocates space on the hard disk for programs and files, gives users access to the network by creating accounts for them, and gives the accounts access to the space on the hard disk. You'll also learn about other functions of the program that enable the network manager to select servers, view a network map, manage the Transfer Area, unlock semaphores, execute batch files, list device records, and change the preset options in the program.

Operating Systems Software

The Constellation III software fully supports three different operating systems. You can install and manage programs and files for

- DOS 3.3
- ProDOS
- Apple Pascal

In addition, though you cannot *install* Macintosh, MS-DOS, or CP/M accounts and volumes using the Constellation III Network Management Program, you can *manage* them if their operating system support software and utilities have been installed already on your network.

In fact, you can install CP/M operating system support on the network with the earlier Constellation II Network Management Program. However, if you want to do this, you must do it *before* installing the Constellation III Network Management Program.

When you format a volume on the hard disk for a particular operating system, that part of the OmniDrive becomes governed by the rules and conventions for that operating system. Each operating system has its own rules and conventions. For example, setting up directories, naming files, and designating "units" on which to "mount" Corvus volumes are done differently in different operating systems.

You need to know which operating system an application program runs under before you can install the program in a volume on an OmniDrive. If the operating system isn't noted on the program or in its documentation, call the publisher. If the operating system of the program is not the same operating system as the volume, you can't copy the program into it.

Each operating system has programs--called utilities--that are used to copy programs and name files. These are separate from the Network Management Program and are described in the *Tools for Network Users* guide that follows in this set.

All this will become clearer as you read on. Begin with the section below, which explains some important terms used in this guide.

Fundamental Concepts

This section introduces you to important concepts relating to working with computers on a network. The two that are most important are *volumes* and *user accounts*. All the others relate to one or the other of these.

Volumes

An OmniDrive hard disk drive is a storage device that can hold as much information as tens to hundreds of floppy disks, depending on what size OmniDrive you have. All that storage area has to be divided into manageable units so that users can organize their files. These units are called *volumes*.

You can create volumes equal in size to anything from about half a floppy to tens of floppies in size. You use them something like floppies. For instance, you might want to put all your files on one subject in one volume. Files relating to a different subject would go in a different volume.

Volume Size

You specify a volume's size when you create the volume. How large you want to make a volume depends on what you want to use it for. For instance, you would probably want a fairly large volume for a database or spreadsheet application, but you might want to create a smaller volume to hold a lot of small text files.

The Network Management Program measures a volume's size in *blocks* when you create a volume. A block contains 512 bytes--in other words, half a kilobyte (1,024 bytes).

One of the floppy disks you are using contains about 280 blocks. This will give you some idea how much storage space a block contains. In fact, volumes initialized for the DOS 3.3 operating system are created in increments of floppy diskette equivalents (280 blocks). You'll learn more about this in Chapter 4.

Volume Address

The volume address is the location of the volume on the hard disk. The network management program will automatically place the volume in the first available space that's large enough for it. Or you can specify a particular location when you create the volume. Sometimes this can help you recover information in a volume you inadvertently deleted. You'll read more about this in Chapter 4 too.

Volume Type

There are three types of volumes. A volume's type determines who can use the volume and what the user can do with it.

Public volumes are available on a read-only basis to anyone on the network; the *owner* of the volume (ownership is assigned when the volume is created) has read-write access to the volume. (Read-write and read-only access are explained below under "Types of Access.") Public volumes are usually used for application programs that a number of users share.

Private volumes are available only to the user who owns them. The owner can choose whether to have read-write or read-only access, although usually there is no reason not to have read-write access. Private volumes are used to store data files and a user's own work.

Uncontrolled volumes are volumes to which many people can be given read-write access. Care must be taken in giving users access to uncontrolled volumes because if several users write to the same volume at the same time, information in the volume could be destroyed. For this reason, uncontrolled volumes should be used only for software programs that have been written especially for multiple users. Such programs have their own controls to keep users from writing to them at the same time. *Put only multiuser software in uncontrolled volumes.*

Volume Operating System

Just as a floppy diskette must be initialized for a particular operating system before it can be used to store a program or data, a volume must be initialized for the appropriate operating system, too. When you create a volume, the Network Management Program automatically formats that portion of the hard disk with the operating system you specify.

Mounting

Before you can work with a volume, it needs to be *mounted*. Mounting a volume is analogous to inserting a diskette into a disk drive. You can't work with a volume that isn't mounted any more than you can work with a diskette that's just lying on your desk.

Volumes are mounted by assigning them mount locations. These mount locations correspond to the physical slots in the computer where cards from peripheral devices such as floppy drives and printers are attached.

If a volume is mounted in a slot already in use to connect a peripheral, the volume will take precedence over the peripheral and the peripheral won't work. So, for example, someone needing to use a certain volume mounted in slot 2 must have slot 2 vacant.

In DOS 3.3 and ProDOS, mount locations are designated by slot and drive numbers; in Pascal they are designated by unit numbers; and in CP/M they are designated by drive letters alone.

You can set things up for a volume to be mounted automatically when a user logs on by assigning the volume a mount location in the access table for that user. Users can also mount and unmount volumes using the Mount Manager Program described in the *Tools for Network Users* guide.

User Accounts

Each user of the network must have an account established for him before he can log on to the network. When the Constellation III software was installed, an account was established automatically for the network manager. However, as network manager, you will have to create accounts for all other users of the network. Account information includes the user's log-on name, password, and the operating system for the account. You can arrange for several people to share one account, and also for one person to have several accounts--one for each operating system, for instance.

Log-On Name

Each account is identified by a log-on name. A user must enter a log-on name in order to gain access to the network.

Passwords

The Constellation III software allows you to assign user passwords to provide security against unauthorized access to the network. Care should be taken to keep these passwords confidential.

The network manager's password is especially important because it controls access to the whole system. You might tell one other user the password in case it should be needed sometime when you're unavailable, but you should not let it become generally known. If you ever suspect that the password is no longer secret, be sure to change it. In fact, it's not a bad idea to change it routinely from time to time.

Types of Access

Read-only access means that information can be read or copied from the volume, but no information can be saved in it. In other words, you can see what's there, but you cannot add to, delete, or change it. This sort of access can be assigned to any type of volume.

Read-write access means that a user can change a volume's information or even erase it. With read-write access, you can both read from the volume and save your own information there. Users can have read-write access to any uncontrolled volume but only to private and public volumes that they themselves own.

Access Table

Every account has an access table associated with it. The access table lists the volumes available to users of the account and what kind of access they can have. An account can have access to up to six different volumes at one time. The access table for an account includes the names of the volumes available and the type of access and mount location for each.

Now that you know a little about volumes and user accounts, it's time to begin planning how you'll set them up. That's what Chapter 2 is designed to help you do. Go on now to Chapter 2.

Chapter 2

Planning the Network

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Using the Planning Worksheets

Your most important responsibilities as network manager are to create and maintain volumes, user accounts, and access records. You'll learn how to do these things in Chapter 4. This chapter helps you get ready by telling you how to use the three planning worksheets in Appendix C of this guide. When the worksheets are filled out, they'll not only contain all the information you need for Chapter 4, they'll also be a useful record of how you've organized the network.

The three worksheets are the programs worksheet, the volumes worksheet, and the accounts and access worksheet. They essentially divide the preparation for Chapter 4 into four steps:

- Deciding what programs you want to make available on the network and how you want to organize them into volumes
- Specifying the owner, type, and size of each volume
- Planning how many people are to use the network and how many user accounts to create
- Allocating volumes to users and assigning the volumes mount locations

We suggest that you don't write on the worksheets in this guide. Use them as masters and make copies to write on.

How Much Space Do You Have?

Before beginning to plan your volumes with the worksheets, you need to determine the storage capacity of your hard disk. You can't allocate more space to volumes than your hard disk has.

Hard disks come in different sizes. Look for yours on this chart for a rough estimate of its storage space expressed in both blocks (512 kilobytes) and floppy disk equivalents.

If you have more than one hard disk, total their capacities. You're unlikely to run out of space, but it's good to know how much you have.

Now write this figure down. When you finish with the volumes worksheet, you can compare this figure with the total space you need for the volumes you've planned to be sure you have enough.

Hard Disk		Floppy Disk Equivalents		
No. Megabytes	Approx. No. Blocks	Apple II 5.25" Single-Sided	Mac 3.5" Double-Sided	MS-DOS 5.25" Double-Sided
10	20,480	73	13	28
20	40,960	146	26	57
45	92,160	329	58	128
75	153,600	549	96	213
125	256,000	914	160	356

Worksheet 1: Programs

1. Group the programs by operating system.

A volume can contain programs of only one operating system. For example, a word processing program that runs under the ProDOS operating system can't be in the same volume with DOS 3.3 programs.

This means that you must use a different programs worksheet (or set of worksheets) for each different operating system you use. So, as a first step, sort your programs by operating system.

If you aren't sure of a program's operating system format, check the documentation for the program.

Now take the programs in one particular operating system to work with and set the rest aside for the time being. Do Step 2 just for the programs you've selected. You'll work with the other programs later.

2. Group the programs that you want in the same volume.

You will need to fill out a separate programs worksheet for each group of programs that you want to place together in the same volume.

As for how to go about grouping them, there are various ways. Here are some guidelines:

- List the programs that a group of users needs only read-only access to and put them all in one public volume. As long as no one needs read-write access to any of the programs, they can all go in one public volume. That way they're easy for users to share.

For instance, you might put in one public volume the Corvus File Spooler Program, which lets users who don't have a Print Spooler Card transfer files and print on a network printer; the Mount Manager Program; and any other programs everyone in a class may want to use.

- Put a copy of any program to which a user account needs read-write access in a private volume assigned to that account.

Some programs, such as games that keep track of record scores and certain word processing programs, create temporary work files. Users need read-write access to the volumes containing these programs to be able to write to these files.

Each user account that you want to let use such programs will need its own copy in its own private volume, unless the program is a multiuser program designed for use on a network.

- Put programs that need to be backed up separately in their own volumes, one to a volume.
- Put all multiuser programs in a single uncontrolled volume.

Multiuser programs can be put in a single uncontrolled volume to which everyone who needs to use the programs has read-write access. Be sure a program's documentation says that the program is multiuser, though.

3. Fill out the top of the programs worksheet.

After you've grouped the programs that you want in the same volume, you're ready to fill out a programs worksheet for each group. The first step is to fill out the top part of the worksheet with information about the sort of volume you need.

■ Volume name

These are the basic rules for naming volumes:

Rules for Naming Volumes

- Names may be a maximum of 10 characters
- Names must begin with a letter
- Names may not contain spaces between characters
- Names may contain any letters, any digits, and any of these additional characters: `_ - . # $ ' () ^`

Choose volume names that will help you keep things organized.

One approach is to name volumes with a prefix for the operating system, plus a number to identify particular volumes: DOS1, DOS2, DOS3, DOS4, for instance. This method doesn't indicate what a volume contains, though.

Another possibility is to label the volume with a prefix that defines the class period and follow with the subject: P1History, P2English, P3French, etc.

You might also reverse the order and give each name a prefix defining a subject followed by an abbreviation for the class period: HistP1, HistP2, HistP3, etc.

Or you could devote different volumes to different applications and name the volumes for the programs they contain: Wordproc, Sprdsheet, Accountng, BasicProg, etc.

Decide on a name for the volume and write it in the appropriate space on the top part of the programs worksheet.

■ Operating system format

All the programs you want to go in this volume must use the same operating system. Write the name of that operating system in the blank provided.

■ Owner's log-on name

What account do you want the volume to belong to? All volumes except other users' private volumes, if any, should belong to the network manager.

Write down on the worksheet the name of the user account the volume will belong to. Your account as network manager is A2MGR.

As network manager, you already have a user account in each operating system that you have installed. The account was created automatically during installation of that operating system and is intended for your use. You don't have to create one.

These are the names of the accounts that are created automatically for the network manager when an operating system is installed. If the volume is to belong to you, enter on the worksheet the name of the account appropriate to the operating system you're presently working with:

Corvus Network Manager

Planning Worksheet 1

PROGRAMS

Vol. Name: DOSTUFF
 Format: DOS 3.3
 Owner: GRADE 8
 Type: PUBLIC
 Size: 30 FLOPPIES

Program Name	Special Requirements	Own Installer?	Size in Blocks or No. Floppies	Greeting Program Name	Directory (Pathname) or DOS Vol. No.
BANK ST. WRITER		N	1F	HELLO	1
BANK ST. SPELLER		N	1F	BSS	2
		N	1F	DEF	2

■ Volume type

The three types of volume are public, private, and uncontrolled. The chart below gives a summary of how they differ. See Chapter 1 for more information.

Volume Availability and Access

Volume Availability	# Accounts	Access by Owner Account	Access by All Other Accounts
Public	1 or More	Read-Write	Read-Only
Private	1 Only	Read-Write	No Access
Uncontrolled	1 or More	Read-Write	Read-Write

■ Volume size

Wait to fill this in until you've completed the rest of the programs worksheet. Then total the space requirements of the programs you've listed on the worksheet. For any operating system but DOS 3.3, add 5% extra to the total to make sure you've allowed enough, and write the total here. (To add a safety margin in DOS 3.3, you'd have to allow an entire floppy disk equivalent, so don't bother.)

Enter the volume size in blocks for ProDOS, Pascal, and CP/M volumes; enter it in floppy disk equivalents for DOS 3.3 volumes.

4. Fill out the bottom part of the programs worksheet.

Now you're ready to start listing the programs that will go in the volume. The entry for each program becomes a row on the bottom part of the worksheet. For each program you want to put in the volume, fill out the information below.

■ Program name

Write the name of the program in the space.

■ Special requirements

Does the program require a certain mount location in order to run or for users to print from it? Do you want to reserve the program for one user's exclusive use? Write any such notes here.

■ **Does the program have its own installer?**

How does the documentation for the program say to install it? If it has its own install utility, plan to use that and make a note to that effect here. If it does not, you can use a Corvus install utility for programs in ProDOS, DOS 3.3, or Pascal. The *Tools for Network Users* guide explains how to use these utilities.

■ **Space requirements**

The program's documentation will tell you how much space the program requires. Write that amount here, expressed in blocks if the program runs under any operating system but DOS 3.3. If it runs under DOS 3.3, write the space requirement in single-sided floppy diskette equivalents.

Volume Minimums and Maximums by Operating System

Operating System	Unit of Measure	Minimum Size of Volume	Maximum Size of Volume
DOS 3.3	Floppy disk	1 floppy disk or 284 blocks	117 floppy disks or 32,767 blocks
ProDOS	Blocks	284 blocks	32,767 blocks
CP/M	Blocks	284 blocks	16,388 blocks
Pascal	Blocks	284 Blocks	32,767 blocks

Hard Disk		Floppy Disk Equivalents		
No. Megabytes	Approx. No. Blocks	Apple II 5.25" Single-Sided	Mac 3.5" Double-Sided	MS-DOS 5.25" Double-Sided
10	20,480	73	13	28
20	40,960	146	26	57
45	92,160	329	58	128
75	153,600	549	96	213
125	256,000	914	160	356

Eventually you'll use the figures in this column to determine how large a volume you need to hold the programs listed on this worksheet.

Volumes for all operating systems except DOS 3.3 are measured in blocks. A block, you'll recall, is 512 bytes, or half a kilobyte (k).

Volumes for DOS 3.3. programs are measured in single-sided floppy diskette equivalents instead of blocks. A program using both sides of the floppy diskette will require a space equivalent to two diskettes. Any partially filled side of a diskette requires space equivalent to a full diskette.

■ **Greeting program name**

ProDOS, DOS 3.3, and Pascal each have different conventions for the greeting program. See the *Tools for Network Users* guide.

■ **ProDOS directory (pathname) or DOS 3.3 volume number**

Write here how you intend to store the programs listed on this worksheet.

For ProDOS programs, give the path to the subdirectory that will list the program.

For DOS 3.3 programs, assign consecutive volume numbers, beginning with 2. Assign volume number 2 to the first DOS 3.3 program, number 3 to the next, and so on. Volume number 1 should be reserved for the main menu program for the entire set of programs to be stored in the Constellation volume.

For Pascal volumes, leave this space blank.

When you've listed all the programs to go in the volume, total the Space Requirements column and follow the instructions above in Step 3, "Volume Size," for entering the volume size at the top of the programs worksheet.

That completes one programs worksheet. Do another for each group of programs you have from Step 2, above. Then fill out programs worksheets for any programs you have in other operating systems.

When all your programs are accounted for on programs worksheets, you're ready to move on to the volumes worksheet.

Corvus Network Manager Planning Worksheet 1

PROGRAMS Vol. Name: DOSTUFF
 Format: DOS 3.3
 Owner: GRADE 8
 Type: PUBLIC
 Size: 30 FLOPPIES

Program Name	Special Requirements	Own Installer?	Size in Blocks or No. Floppies	Greeting Program Name	Directory (Pathname) or DOS Vol. No.
<u>BANK ST. WRITER</u>		<u>N</u>	<u>1F</u>	<u>HELLO</u>	<u>1</u>
<u>BANK ST. SPELLER</u>		<u>N</u>	<u>1F</u>	<u>BSS</u>	<u>2</u>
<u>BANK ST. FILER</u>		<u>N</u>	<u>1F</u>	<u>BSF</u>	<u>3</u>
<u>BANK ST. MAILER</u>		<u>N</u>	<u>1F</u>	<u>BSM</u>	<u>4</u>
<u>SUPERBASE</u>		<u>Y</u>	<u>2F</u>	<u>HELLO</u>	<u>5+6</u>
<u>MULTIPLAN</u>		<u>N</u>	<u>1F</u>	<u>MP</u>	<u>7</u>
<u>BACK TO BASICS</u>					
<u>PAYROLL</u>		<u>N</u>	<u>1F</u>	<u>PAY</u>	<u>8</u>
<u>A/R</u>		<u>N</u>	<u>1F</u>	<u>AR</u>	<u>9</u>
<u>A/P</u>		<u>N</u>	<u>1F</u>	<u>AP</u>	<u>10</u>
<u>G/L</u>		<u>N</u>	<u>1F</u>	<u>GL</u>	<u>11</u>
<u>PFS WRITE</u>		<u>N</u>	<u>1F</u>	<u>HELLO</u>	<u>12</u>
<u>PFS REPORT</u>		<u>N</u>	<u>1F</u>	<u>HELLO</u>	<u>13</u>
<u>PFS FILE</u>		<u>N</u>	<u>1F</u>	<u>HELLO</u>	<u>14</u>
			<u>14 FLOPPIES</u>		

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Worksheet 2: Volumes

After you've filled out your programs worksheets, filling out the volumes worksheet is easy.

Recall that each programs worksheet lists the contents of one volume. For the volumes worksheet, you basically just copy the top part of each programs worksheet to a row on the volumes worksheet. Add any other volumes you want and when you're done you have a list of all the volumes on the network.

Here's how to fill out a volumes worksheet:

- 1. Copy the top part of each programs worksheet into a row on the volumes worksheet.**

The top part of the programs worksheet lists information about the volume to contain the programs on the sheet. There you'll find the volume name, operating system format, owner's log-on name, volume type, and volume size. Copy this information into a row on the volumes worksheet.

- 2. Add any other volumes you want.**

Not all the volumes you create need to contain programs. You may want to create private volumes for some users to save their files in or public volumes to contain data.

For any such additional volumes you want to create, fill in a row on the volumes worksheet.

Now it's a good idea to total the volume size column and to compare this figure with the total storage capacity of your hard disks. You were advised to make a note of this figure at the beginning of this chapter. You can't create volumes whose combined size exceeds the space you have available.

- 3. Fill out the contents summary for each volume.**

This is a place for you to give a general description of what is in a volume. For instance, you might summarize the contents of one volume by jotting *MATH* in this space.

You should also note here whether the volume has any special requirements. It does if any of its programs do. For example, if some program in the volume requires a special mount location, then that is also a special requirement of the volume because the program will have the mount location it needs only if its volume does.

Now you're done, and you have a record of every volume on the network and its vital characteristics. You will work from this record in Chapter 4 to create volumes matching the specifications you've written down.

Go on now to the final worksheet, for accounts and access.

VOLUMES

Volume Name	Format	Owner	Volume Type	Volume Size	Contents Summary	Special Requirements
DOSTUFF	DOS3.3	GRADE 8	PUBLIC	30 FLOPPIES		
MORGAN	DOS3.3	MR. MORGAN	PRIVATE	15 FLOPPIES		
KLIEN	DOS3.3	MS. KLIEN	PRIVATE	15 FLOPPIES		
C1 DATA	DOS3.3	CLASS 1	PUBLIC	10 FLOPPIES		
C2 DATA	DOS3.3	CLASS 2	PUBLIC	10 FLOPPIES		

Worksheet 3: Accounts and Access

PEOPLE AND USERS

To give someone access to volumes on the network, you must give that person a user account. The Constellation III Network Management Program doesn't keep track of *people* on the network, only of *accounts*. For example, if users Pat and Chris share a user account named TEAM1, the Network Management Program won't know anything about Pat and Chris but only about the volumes and access for TEAM1.

To give a person or group a user account, you must assign them an account name to use when logging on and specify the operating system for their account. User accounts are like volumes in that they belong to a particular operating system. A user account can have access only to volumes formatted for that operating system.

This is important, because it means that if a user needs access to volumes belonging to two different operating systems, that user needs two different user accounts, one for each system. For example, someone who is (a) taking a computer programming course in Pascal and (b) also using programs that have been written in the DOS 3.3 operating system will need two separate accounts--an account for Pascal volumes and an account for DOS 3.3 volumes. Make out separate accounts and access worksheets for each operating system you use.

Sometimes you may want only one person to have access to a certain volume. In that case the volume has to be made a private volume belonging to that person's user account. If no one else is to have access to the volume, the user account cannot be shared with another person.

If you have a number of users whose accounts will be essentially the same, create their accounts at the same time. The responses you make when you create one account become the responses the program suggests when you create the next account. You can just change these selectively--assigning a new account name, for instance--instead of typing everything all over again.

SHARING ACCOUNTS

If you have a group of people who will be using the same programs and each person can save his work on his own floppy disk, these people can all share one account. If they all save their work on floppies, they do not each need their own private volume. They can share the volume containing the program they all use because they only need to read what's in that volume; they don't need to write to or change the volume in any way.

If, instead of using floppies, users are to save their work in a volume on the hard disk, they each need a private volume for their work and cannot share an account.

If you do choose to assign more than one person to an account,

- be sure that everyone sharing the account has available the slots on which that account's volumes are to be mounted; and
- to protect their contents, assign read-only access to all the volumes owned by the account.

These cautions will become clearer to you as you read on.

Now you're ready to begin filling out the accounts and access worksheet. The worksheet is divided into two parts, the accounts part and the access part. We begin with accounts.

FILLING OUT THE ACCOUNTS PORTION

To fill out the accounts portion of the accounts and access worksheet, write down the following information for each account you want to create. Remember, you need a separate worksheet for the list of accounts in each operating system you use.

1. Operating system

Write on the worksheet what operating system all the accounts listed on that sheet are to use.

2. Name of individual or group

This item is for your own information. It is not the log-on name of the account but only an identification of the *people* to use a particular account.

If the account is to belong to one person, write that person's name. If it is to belong to a group, identify the group somehow, e.g., by time period (9:00--10:00), class (World History), teacher (Ed Smith's students), or common activity (creative writing).

3. Private account or shared

Note here whether the account belongs to just one person or to more than one. This is to help you remember not to assign private volumes to an account that's shared by several persons.

4. Account name

Give a name to the account. This is the name that the owner of the account will use to log on.

These are the rules for assigning log-on names to user accounts:

Rules for Naming Accounts

- Names may be a maximum of 10 characters
- Names must begin with a letter
- Names may not contain spaces between characters
- Names may contain any letters, any digits, and any of these additional characters: `_ - . # $ ' () ^`

It's a good idea to assign account names that are not person-specific so that you can reuse the same accounts from year to year for different individuals and groups. You can just change the password each year to maintain security.

5. Password

Passwords are usually assigned for individual accounts but not for accounts that are shared.

These are the rules for creating passwords:

Rules for Creating Account Passwords

- Passwords may be a maximum of 8 characters
- All other rules for naming accounts apply

Operating System:				Mount Locations									
Name of Individual or Group	Private Account or Shared?	Account Name	Password	Volume	Access	Volume	Access	Volume	Access	Volume	Access	Volume	Access
CLASS 1	S	CLS1											
MR. MORGAN	PA	PS140	140										
CLASS 2	S	CLS 2											
MS. KLIEN	PA	SPORT	MAY										
CLASS 1													
MARK N.	PA	CIMN	SOCCER										
JOE B.	PA	C1JB	CLICK										
SUE S.	PA	C1SS	MEAT										
MARCIA B.	PA	C1MB	WRONG										
KEVIN R.	PA	C1KR	TREE										
FRANK L.	PA	C1FL	CRAZY										
CLASS 2													
TONY L.	PA	C2TL	BORED										
TOM G.	PA	C2TG	MUND										
HENRY R.	PA	C2HR	LOOSE										
WESS Y.	PA	C2WY	MILE										
MARY L.	PA	C2ML	MOTOR										
KAREN W.	PA	C2KW	FISH										

FILLING OUT THE ACCESS PORTION

For every account you create, there will be at least one volume on the Omnidrive that you want the account to be able to use. The access portion of the worksheet is where you allocate these volumes to the accounts you are listing and specify mount locations.

Be sure when you assign mount locations to a user's volumes that the user's workstation has those mount locations free, i.e., not occupied by a peripheral. If you do assign a volume to a mount location that is used for a peripheral on someone's computer, the volume will take the slot away from the peripheral and the peripheral won't work. See "Mounting" in "Fundamental Concepts," Chapter 1, for more on this.

So, for instance, do not mount volumes on slot 1, which is used for a printer, or in slot 3 or the auxiliary slot, which is linked to slot 3. Slot 3 is commonly used for an 80-column card, which configures the monitor display in 80 columns (i.e., makes it 80 characters across) and adds memory.

The tables below show how mount locations are identified in each operating system and tell what slot assignments are conventionally reserved for various peripherals.

Mount Location Equivalents

The Apple II		Mount Locations			
Physical Slot	Physical Drive	DOS 3.3	ProDOS	Pascal	CP/M
7	1	Slot 7, Drive 1	Slot 7, Drive 1	—	—
7	2	Slot 7, Drive 2	Slot 7, Drive 2	—	—
6	1	Slot 6, Drive 1	Slot 6, Drive 1	4	A (Floppy)
6	2	Slot 6, Drive 2	Slot 6, Drive 2	5	B (Floppy)
5	1	Slot 5, Drive 1	Slot 5, Drive 1	9	C
5	2	Slot 5, Drive 2	Slot 5, Drive 2	10	D
4	1	Slot 4, Drive 1	Slot 4, Drive 1	11	E
4	2	Slot 4, Drive 2	Slot 4, Drive 2	12	F

Suggested Apple II Slot Assignments

Apple Physical Slot	Suggested Use
1	Printer Card
2	Modem Card
3	Memory Slot—Leave Open
4	Leave Open for Mounted Constellation Volumes
5	Leave Open for Mounted Constellation Volumes
6	Floppy Drive
7	Omninet Network Card & Mounted Constellation Volumes

Perform the following three steps for each account:

1. On the DOS 3.3 and ProDOS worksheets, write in the mount locations you'll be using for that account. On Pascal and CP/M worksheets, write in the unit letters and unit numbers.
2. For each account, write under the mount locations the names of the volumes that you want the account to be able to use.
3. Next to each volume name write the type of access the account should have to the volume--read-only or read-write.

When you're done entering the information for one account, enter the information for the next.

Operating System:				Mount Locations											
				S7 D1		S7 D2		S5 D1							
Name of Individual or Group	Private Account or Shared?	Account Name	Password	Volume	Access	Volume	Access	Volume	Access	Volume	Access	Volume	Access	Volume	Access
CLASS 1	S	CLS 1		DOSTUFF	RO										
MR MORGAN	PA	PS140	140	DOSTUFF	RW	MORGAN	RW								
CLASS 2	S	CLS 2		DOSTUFF	RO										
MS KLIEN	PA	SPORT	MAY	DOSTUFF	RO	KLIEN	RW								
CLASS 1															
MARK N.	PA	C1MN	SOCCER			C1MN	RW								
JOE B.	PA	C1JB	CLICK			C1JB	RW								
SUE S.	PA	C1SS	MEAT			C1SS	RW								
MARCUS B.	PA	C1MB	WRONG			C1MB	RW								
KEVIN R.	PA	C1KR	TREE			C1KR	RW								
FRANK L.	PA	C1FL	CRAZY			C1FL	RW								
CLASS 2															
TONY L.	PA	C2TL	BORED			C2TL	RW								
TOM G.	PA	C2TG	MIND			C2TG	RW								
HENRY R.	PA	C2HR	LOOSE			C2HR	RW								
WESSY PA		C2WY	MILE			C2WY	RW								
MARYL PA		C2ML	MOTORS			C2ML	RW								
KAREN W.	PA	C2KW	FISH			C2KW	RW								

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This completes instructions for filling out the worksheets. Now you should have at your fingertips all the information you need to use the Network Management Program to create the volumes and user accounts you've been planning.

But that's the business of Chapter 4. For now, let's go to Chapter 3. There you'll learn how to log on, how to make responses to prompts from the screen, and other basics of working with the Network Management Program.

Chapter 3

The Basics

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Introduction

The Constellation III Network Management Program is designed to help you manage space on the Omnidrive. You use the program to create volumes for programs and storage on the hard disk, to create user accounts, and to give the accounts access to volumes by means of the account access table.

The Network Management Program also provides a view of the network map and ways to manage the PIPES volume, unlock semaphores, execute batch files, and change certain preset options.

You'll learn more about these things in the next chapter. The purpose of this chapter is to prepare you by briefly explaining the items on the main Network Management Program menu and by telling you the ground rules for using the menu and moving around in the program.

Logging On

To use the Constellation III Network Management Program, you must first log on. You can do this either from the hard disk or from a floppy. Both ways are described below. Ordinarily you would log on from the hard disk.

FROM THE HARD DISK

1. Turn on your network station.

A screen appears asking for your account name.

2. Type **A2MGR** and press **RETURN**.

A prompt asks for your password.

3. Type NOS and press **RETURN**. (Or, if you have changed the network manager's password, type the new password.)

The Constellation III Network Management menu appears.

```
-----  
Constellation III Network Management  
-----  
1. Network Management Program  
2. ProDOS Utilities  
3.  
4.  
5.  
  
Select [Esc] to exit.....  
-----  
Use Arrow Keys or Numbers to Select Choice...  
or Select '+' key to add your own choices
```

Options 3, 4, and 5 on the menu are blank. You will learn how to create your own menu options for these entries later on in this chapter in the section "Customizing the Menu."

4. Press 1 or use the arrow keys to select the Network Management Program.

A screen appears asking you to select the current server.

5. If you have just one server on your network, press **RETURN**.

OR

Use the arrow keys to move the highlight bar to the server containing the volumes that you want to work with and then press **RETURN**.

6. Enter the drive password.

The main menu of the Network Management Program appears.

VOLUMES	ACCOUNTS	SPECIAL
List Add Change Remove		

Constellation III Network Management
Copyright (c) 1986 Corvus Systems, Inc.
Version 2.10

ESC to Quit ? for Help

FROM A FLOPPY DISKETTE

1. Determine the slot number where your floppy card is installed.

Remember this number for use in Step 2.

2. Turn on the computer, insert the diskette labeled /C3 in drive 1, type PR#(slot number of floppy), and press **RETURN**.

For example, if your floppy card is installed in slot 6, type PR#6 and press **RETURN**.

The screen displays a menu.

3. Select the Network Management Program.

The highlight bar should already be positioned on this option when the menu appears. If it is not, move the bar there with the arrow keys. Press **RETURN**.

4. If you have just one server on your network, press **RETURN**.

OR

Use the arrow keys to move the highlight bar to the server containing the volumes that you want to work with and then press **RETURN**.

5. Enter the drive password.

The main menu of the Network Management Program appears.

The Network Management Program Menu

Here is a summary of the functions on the main Network Management Program menu and a few words about each.

The summary is divided into three sections, one for each pull-down submenu on the main screen.

VOLUMES MENU

- List** This function lists existing volumes and the amount of space that remains on the hard disk. You can use this function to list volume records to the screen, print them on a printer (slot 1), or save them in a ProDOS text file.
- Add** You use this function to create or *add* a new volume.
- Change** This function lets you change the name or availability of a volume.
- Remove** You use this function to remove or delete a volume you no longer want.

WARNING: Under no circumstance should you change or remove the volumes CORVUS, A2SYS, or A2BOOT. These volumes must remain on the system in order for the system to function.

ACCOUNTS MENU

- List** This function lets you see the list of user accounts on the screen, print them on a printer (connected in slot 1), or save them as a ProDOS text file.
- Add** You use this function when you want to add a new user account.
- Change Password** Use this function when you want to change somebody's password.
- Remove** This is the function you use to remove or delete a user account.
- Manage Access Table** You use this function to give a user account access to volumes, to specify the kind of access the account is to have, and to specify mount locations. Volumes can also be unmounted and deleted with this function.
- Print Access Table** You can use this function to display the access table for an account so you can see what volumes a user has access to, etc. You can choose to have the program print the table if you have a printer connected to slot 1 of your computer. Or you can save the table display in a ProDOS text file.

SPECIAL FUNCTIONS MENU

- Select Server** If yours is a multiple-server network--i.e., a network with more than one Omnidrive--you can use this function to change the Current Server and Drive settings.

Suppose you were trying to find a certain volume. You might need to use Select Server if you had already used the List function from the Volumes menu to list all the volumes on one drive and still hadn't found the volume you were looking for. Select Server lets you select a different drive so that you can look for your volume there.

**View Network
Map**

Use this function to see a list of every station or device (printers and drives, for instance) on the network and the network address of each. This function is useful for determining which network addresses are free and which are in use.

**Manage
Transfer
Area**

Choose this function to manage space in the Transfer Area, also called the PIPES volume. The Transfer Area is where files go first when you send them to a network printer or another user.

**Clear
Semaphores**

Semaphores are set to prevent files from being used by more than one person at a time. When set, a semaphore locks out other users. Semaphores can become stuck in the set position when there is a power or system failure. The Clear Semaphores function can be used to clear them.

**Execute Batch
Files**

Choose this function to execute a batch file that has been stored as a ProDOS file.

**Change
Options**

Use this function to change the options for inserting a line feed after a carriage return when printing, for choosing to format volumes automatically when they're created, and for enabling the debug mode.

Selecting from Menus

The Constellation III Network Management Program is a menu-driven program using a pull-down menu design. You do not need to remember a long list of commands. Instead, you just choose from the list of menu items presented by using the arrow keys and `RETURN`. When you want to choose a function from a menu, use the arrow keys to move the highlight bar to the function of your choice and then press `RETURN` to accept that choice.

You can also make a selection by pressing the first letter of the item you want. When you select an item this way, the program proceeds without waiting for you to press `RETURN`.

After you have made your choice, the appropriate dialog screen is presented.

Customizing the Menu

Options 3, 4, and 5 on the main Constellation III Network Management menu are blank when you purchase Constellation III. These spaces have been purposely left blank to let you add as many as three options of your own to the menu.

```
-----  
Constellation III Network Management  
-----  
1. Network Management Program  
2. ProDOS Utilities  
3.  
4.  
5.  
  
Select [Esc] to exit.....  
-----  
Use Arrow Keys or Numbers to Select Choice.  
or Select '+' key to add your own choices
```

Customizing the menu this way makes it more convenient to run programs you use frequently. For instance, if you make option 3 on the menu read *Word Processor*, say, and assign your word processing program to that option, from then on all you have to do to run your word processor is to select option 3. Your word processing program will start up automatically, without your having to enter any prefixes, subdirectories, or pathnames.

To assign an option of your own to the menu:

1. Log on as the network manager.

Log on to the system from the hard disk as described at the beginning of this chapter in the section "Logging On": i.e., turn on the computer, type A2MGR and press `RETURN`, and enter the password and press `RETURN`. The Constellation III Network Management menu appears.

2. Press + to choose to make an assignment to one of the unassigned menu options.

If you press 3, 4, or 5 while the menu listing for that option is still blank, you receive a message that a syntax error has occurred. Press any key to return to the menu. You need to press + to display the first of the prompts that guide you through making assignments to the free menu options.

After you press + the screen asks what number you want to add, i.e., which of the options 3, 4, or 5 you want to assign a program to.

3. Press 3, 4, or 5 and then press `RETURN`.

Press the number of the option you want to assign, or press `ESC` to return to the menu.

After you press a number, the screen asks for the name you would like for your option.

4. Enter a name for the option and press `RETURN`.

Type the name you want the option to be listed by in the menu. For instance, you might choose to have a listing for your word processing program read *Word Processor*.

5. Enter the prefix name and press **RETURN**.

Constellation III needs directions on how to find the program you are assigning. This is the same information you would ordinarily type to run the program yourself.

The prefix you need to enter is the name of the Constellation volume where the program is stored. If the program is in a subdirectory, you need to type / and enter the name of the subdirectory, too.

For example, if your word processor program is in subdirectory APWORKS in volume WORDPROC, type

WORDPROC/APWORKS

If there is no subdirectory, just type the volume name.

When you've entered the prefix and any subdirectory names, press **RETURN**.

6. Enter the pathname of your program and press **RETURN**.

The program's pathname is the name of the executable file that starts the program. What it is depends on the program. It might be *EDITOR*, *HELLO*, *STARTUP*, or something else. It's whatever you ordinarily type to run the program. Enter this name and press **RETURN**.

The screen asks whether you wish to add another option to the menu.

7. Add another option or return to the menu.

If you want to assign another option to the menu, press Y. The screen displayed at the end of Step 2 returns, asking what number you want to add. Pick up these instructions at Step 3 to add the option.

If you don't want to assign another option, press **RETURN**. This takes you back to the Constellation III Network Management menu, where you'll see displayed the name of the new option you have added.

Making Responses on Dialog Screens

A dialog screen is like a printed form with blanks in it where you are to supply information. A highlighted bar picks out the blanks one at a time for you to fill in.

When you create volumes or new user accounts, or do anything else in the Network Management Program that requires you to enter information, you enter it by making responses on a dialog screen.

You make responses the same way whether you are creating a volume, changing an account password, or whatever.

ANSWERING QUESTIONS

Usually you will be asked to make one of these responses:

1. **Type your response to fill in the blank line.**

Type your response on the blank line and press `RETURN`.

Don't put extra spaces in front of your response. Type all words, symbols, spaces, and punctuation carefully and be careful not to add or leave out punctuation marks at the end.

When you are asked to press `RETURN` or any other key, just press that key.

To accept a response provided by the program, press `RETURN`.

2. Select a response from the list that is presented.

To make a selection use the arrow keys to move the highlight bar to your choice and press **RETURN**. In a list, the item on which the highlight bar is resting is the selected item. To accept that item, press **RETURN**.

If you choose *not* to accept a response in the list provided by the program, move the highlight bar to Other, then press **RETURN**, type your response, and press **RETURN** again.

MOVING FROM ONE HEADING TO ANOTHER

As you enter your answer to a question that appears at the bottom of the screen, your response will be placed under the appropriate heading at the top of the screen. The highlight bar will move to the next heading and a new question will appear at the bottom of the screen.

You can use **TAB** or **RETURN** to move the highlight bar to the next input field. As the highlight bar moves across the headings, the questions at the bottom of the screen change to correspond with the new heading chosen.

After making your response, press **TAB** or **RETURN** to move to the next field. To go backward to the previous field, hold down **OPEN-APPLE** and press **TAB**.

CHECKING YOUR RESPONSES

It is much easier to change responses while you are still on the dialog screen before you press **RETURN** at the OK prompt than it is to change them later. After answering all the questions required to complete a record, you'll see a prompt asking that you confirm your responses by pressing **RETURN**. Check your responses at this time. If you need to make a change, use the combination **OPEN-APPLE** and **TAB** keys to move the highlight bar back to the heading for the response you want to change.

ABANDONING A DIALOG SCREEN

If, for any reason, you want to abandon the screen without making any entries, press **[ESC]**. Continue pressing **[ESC]** until you are back where you want to be. If you are several levels in, you will have to press **[ESC]** several times.

GETTING OUT ONCE YOU'RE DONE

When you have answered all the questions, the highlight bar moves to the OK box and a prompt asks you to press **[RETURN]** to confirm your responses. After you confirm that your answers are okay, the program will execute the function.

If your responses are not accepted by the program--for instance, if you have created a volume with a name that is already assigned to another volume--the program displays a message and presents a new screen on which to make corrections.

If your responses are accepted, it will offer another screen like the initial one for you to fill in. The answers you gave on the previous screen will appear as suggestions which you can accept or edit.

If you do not wish to proceed, press **[ESC]** to return to the menu.

CORRECTING AN ERROR

After you have entered all the information a dialog screen requires and have confirmed that it is correct, the only way you can change it is through the Change menu. See the sections "Changing Volumes" and "Changing Accounts" in Chapter 4 for more information.

Using the List Feature

Anytime you are prompted to supply the name of a volume or user account--for instance, when you're creating a new volume or account and need to specify a name--you can have the program present a list of existing volumes or accounts by pressing **SPACE**. If the list is too long to fit on one screen, press **SPACE** to continue the list. At the end of the list, press **SPACE** to return to the dialog screen.

If you want to return to the dialog screen without going through the entire list, press **ESC**.

Volume records appear in the order in which they are located on the Omnidrive. Accounts appear in alphabetical order. You can select a volume or account from the list by typing just its number: you don't need to type the entire name. (This method, of course, doesn't work when you are adding a new volume or account, because the new name does not appear yet on the list.)

You'll find the List feature useful in these circumstances:

- When you are asked to type a name for a new volume or account and you need to be reminded of a group prefix.
- When you are asked to type a name for a new volume or account and you want to be sure that the name you have chosen is unique.
- When you are specifying the account name for an access table you want to edit and you are unsure of the exact spelling of the account name or of the operating system for the account.
- When you are adding volumes to an account access table and you are unsure of the exact spelling of a volume name or you are unsure of the volume type.

Using the Online Help

Help is always available online. Just press the ?/ key when you need more information about making menu choices or making responses on dialog screens.

```
_____ Add a Volume Record _____ Server: SERVER0
                                           Drive: DRIVE1

Vol Name   Format   Owner   Type   Size   Location
-----
VOLUME    PRODOS   A2MGR   PUBLIC 1124
_____ Help Window _____

One block holds 512 bytes of information. When calculating
the size of volumes include 4 blocks of system overhead for
each volume. The minimum size of a volume is 284 blocks;
the maximum size is 32,767 blocks.

Press SpaceBar to Continue

-----
ESC to Quit                                     ? for Help
```

Moving Around in the Program

The following chart summarizes the functions of important keys when you're using the Network Management Program.

Press:	In order to:
<code>RETURN</code>	Accept the entered response or the highlighted selection
<code>ESC</code>	Go back to the previous screen
<code>?</code>	Get information from Help
<code>SPACE</code>	Get a list; advance to the next page of the list or of Help
<code>SHIFT</code>	Move forward to the next field in a record
<code>CTRL</code> <code>TAB</code>	Move back to the previous field in a record
<code>DELETE</code>	Delete a single character
<code>DELETE</code>	Clear the existing response
<code>→</code>	Move the highlight bar to the right or down
<code>←</code>	Move the highlight bar to the left or up
<code>↑</code>	Move the highlight bar up
<code>↓</code>	Move the highlight bar down

Error Messages

When you give the Network Management Program information that it cannot handle for any reason, the program will automatically give you a message telling you that it has a problem dealing with your response. A list of these messages, called error messages, along with an explanation of what you can do to correct or avoid the problem, appears in Appendix B, "Error Messages", at the end of this guide.

For example, suppose that while creating an account, you specify a certain operating system and then receive this error message: Invalid OS format. If you look up the error message in the appendix, you will be told that the program cannot find a record for that operating system and that it may not be installed. Thus, to correct the error, you must either specify an operating system type that has been installed or install the operating system you specified.

If for any reason you are unable to resolve the problem, call your dealer for help.

Printing from the Network Management Program

From time to time, you may want to print lists of accounts and volume records for quick reference and for backup. There are two ways you can print:

1. You can print directly to the network or local printer connected to slot 1 of your network station.
2. If you don't have a printer connected to slot 1 of your station, you can first save the list as a ProDOS text file and then print it on a network printer using the File Spooler Program.

PRINTING DIRECTLY

In order to print directly from the Network Management Program, your computer must either be attached to a local printer--i.e., have a printer connected in slot 1--or else have a Corvus Print Spooler Card installed. The Print Spooler Card enables you to print from any application on a network printer as if it were a local printer.

SAVING AS A PRODOS TEXT FILE

Use this method if you don't have a printer card in slot 1 of your computer or a Print Spooler Card installed. First, save the list you want to print in a ProDOS text file. The program automatically provides a filename when you want to save a list. You can then use the File Spooler Program to send the file to a network printer. The details are explained in the section "To Save a List as a ProDOS Text File" in Chapter 4.

Chapter 4

Using the Network Management Program

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Introduction

After planning how to set up the network with volumes and user accounts, your next job is to add the volumes and user accounts themselves.

Adding volumes and accounts is easy once you have filled out the planning worksheets. When you make an addition, the program will prompt you each step of the way with a series of questions. You'll find the answers to those questions on your worksheets. Even if you're not setting up a new network, but especially if you are, we strongly recommend that you fill out the planning worksheets before proceeding with adding volumes or accounts. If you haven't already created the worksheets, see Chapter 2 for instructions.

Each account record has an access table associated with it. This table lists the volumes to which that user account has access. When you add an account, the program automatically sets up a blank access table for the account. You give accounts access to volumes by filling out this access table.

We suggest that you follow this sequence in adding volumes and accounts for a given operating system:

1. Create *all* the volumes you want
2. Create *one* user account
3. Complete the access table for that account before creating another account

Do all the volumes and accounts for one operating system before turning to another.

In the sections that follow, you'll learn first how to create volumes, then how to create user accounts, and then how to give the users access to the volumes. But first you have to log on to the Network Management Program.

Logging On to the Network Management Program

When all network drives are on, turn on your computer. Then follow these steps:

1. At the log-on prompt, type A2MGR and press **RETURN**.
2. At the password prompt, type NOS (or whatever the new password is if you have changed it) and press **RETURN**.
3. Press 1 or use the arrow keys to select the Network Management Program from the menu on screen, and press **RETURN**.
4. On the Select Server screen, indicate the server that you want to work with and press **RETURN**.

The Network Management Program menu appears.

VOLUMES	ACCOUNTS	SPECIAL
List		
Add		
Change		
Remove		

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Version 2.10

ESC to Quit ? for Help

Adding Volumes

Having completed the planning worksheets, you're now ready to use them to help you add (i.e., create) volumes. To add a volume, you need to provide information about the kind of volume you want. This is done using the Add function in the Volumes menu.

Even with the best planning, after working with the network for a while you might find that you wished you had more volumes for a particular operating system. One of the virtues of the Corvus system is that you can add new volumes for a particular operating system at any time.

Dividing Space on the Hard Disk

Corvus Volume	DOS 3.3	ProDOS	CP/M	DOS 3.3	Pascal	DOS 3.3	ProDOS	
------------------	---------	--------	------	---------	--------	---------	--------	--

You can continue adding volumes for any operating system in the space available.

1. On the Network Management Program menu screen, select the Add function from the Volumes menu.

A Volume Record dialog screen appears. The highlight bar is on Volume Name, and the prompt at the bottom of the screen asks you to supply the volume name.

```
_____ Add a Volume Record _____ Server: SERVER0
                                           Drive:  DRIVE1

Vol Name   Format   Owner   Type   Size   Location
-----

Enter the name of this volume: _____

                                           [ OK ]

-----
ESC to Quit, Spacebar for List                               ? for Help
```

2. Answer the questions that appear at the bottom of the screen.

Volume Name: These are the rules for assigning names to volumes:

Rules for Naming Volumes

- Names may be a maximum of 10 characters
- Names must begin with a letter
- Names may not contain spaces between characters
- Names may contain any letters, any digits, and any of these additional characters: `_ - . # $ ' () ^`

Type a volume name and press `RETURN`.

If you want to see a list of existing volume names to make sure you are not using a name you have used already or to check to see what conventions you have established, press the space bar.

Operating System: Move the highlight to the operating system format you want for the volume and press **[RETURN]**.

Note: When you add a volume, the Network Management Program automatically formats the volume for the operating system you specify. If for any reason you do not want the volume formatted at the time you create it, you have to turn off the Automatic Format option using the Change Options function in the Special Functions menu *before* adding the volume. See "Changing Options" in the "Using the Special Functions" section of this chapter.

Owner: Enter the name of the account that will own the volume. You can display a list of existing accounts by pressing **[SPACE]**.

Type: Specify whether you want the volume to be public, private, or uncontrolled.

Size: Accept the suggested size by pressing **[RETURN]**, or type over the size given with the size you want.

For help estimating how big a volume you need, see the sections "Worksheet 1: Programs" and "Worksheet 2: Volumes" in Chapter 2.

Location: The options offered are AUTO and OTHER. AUTO, the default, will be highlighted. To place the volume in the next available space on the OmniDrive, press **[RETURN]**. If you want to place a volume at a particular address, select OTHER, then type a number for a different starting location, making sure that there is enough free space in that location for the new volume.

Refer to the section "Listing Volumes and Accounts" in this chapter for instructions on how to find out where there is space on the OmniDrive.

3. **Confirm that your responses are correct by pressing `RETURN` when the highlight bar is on the OK box.**

OR

If you want to clear what you've just done to start again or change a response, press `TAB`.

OR

If you want to cancel what you've done and return to the menu, press `ESC`.

After you confirm that your responses are correct, the program adds the new volume to the OmniDrive. If the Automatic Format option has been set to On, the volume is formatted automatically for the operating system you specified.

If the program accepts your responses, the screen shows the volume you entered, the highlight bar is on the name of the volume, and the corresponding prompt is at the bottom of the screen. If the program has a problem with any of your responses, you'll receive an error message.

4. **To continue adding volumes, repeat Steps 2 and 3.**

Your responses for the previous volume are the default responses for the new volume. If you have already created a volume in this session, the name that you gave to the previous volume will appear as the suggested name. Type a new name instead.

Adding Accounts

After you've created all the volumes you want using your volumes worksheets, you're ready to create user accounts. To add a user account, you will use the Add function in the Accounts menu to enter information about the sort of account you want. If you filled out accounts worksheets, all the information you need is there.

To add a new account

1. On the Network Management Program menu screen, select the Add function from the Accounts menu.

An Account Record dialog screen appears. The highlight bar is on Account Name, and the prompt at the bottom of the screen asks you to supply the account name.

```
_____ Add an Account _____ Server: SERVER0
                                          Drive:  DRIVE1

Account Name  Password  O.S.      Home Volume
-----

```

Enter the log-on name for this account: _____

[OK]

ESC to Quit, Spacebar for List ? for Help

2. Answer the questions that appear at the bottom of the screen.

Name: Press **SPACE** to display a list of the names of current accounts to select from, or type the log-on name for the account.

These are the rules for assigning log-on names to user accounts:

Rules for Naming Accounts:

- Names may be a maximum of 10 characters
- Names must begin with a letter
- Names may not contain spaces between characters
- Names may contain any letters, any digits, and any of these additional characters: `_ - . # $ ' () ^`

Password: Type the password for the account. Except that passwords may be a maximum of eight characters, the same rules apply for creating passwords as for assigning names to accounts.

Operating System: Move the highlight bar to the operating system of your choice and press **RETURN**.

Only volumes of this operating system can be used by this account.

Home Volume: Specify the name of the volume that you want the user to boot into automatically when he logs on. You may either type the name or press **SPACE** to display a list of the names of available volumes and select one. Press **RETURN**.

3. When the highlight bar is on the OK box, confirm your responses and press **RETURN.**

OR

If you want to clear what you've done to start again or change a response, press **TAB.**

OR

If you want to cancel what you've done and return to the menu, press **ESC**.

If the program accepts your responses after you confirm them, the screen shows the account you entered, the highlight bar is on the name of the account you last entered, and the corresponding prompt is at the bottom of the screen. If the program has a problem with any of your responses, you'll receive a message asking you to correct the error.

4. To continue adding accounts, repeat Steps 2 and 3.

Your responses for the previous account become the responses the program suggests for the new one. To create another user account similar to the first, you may only need to change the account name. Each separate account needs a name of its own.

Managing Access to Volumes

At this point you have created volumes on the OmniDrive and you've also created some user accounts. Now you need to grant the accounts access to some volumes. To do this you use the Manage Access function in the Accounts menu.

To enter the Manage Access function:

- 1. On the Network Management Program menu, select the Manage Access function from the Accounts menu.**

A prompt appears asking you to type the name of the account. The program suggests the name of the last account that you created during this session.

2. Press **RETURN** to accept the suggested name, or type the name of another account and press **RETURN**.

If you are unsure of the account name, you can press **SPACE** to see a list of existing accounts. See "Using the List Feature" in Chapter 3.

The access table appears with a prompt asking you to choose a function.

```
----- Manage Access ----- Server: SERVER0
                                Drive: DRIVE1
Account:  A2MGR
O.S.:    PRODOS

      Vol Name   Access   Mount
-----
1.   A2PRO      Read-Write S6 D1
2.   A2BOOT     Read-Only  -*
3.   A2NET      Read-Write S7 D1
4.   APLWORKS  Read-Write S7 D2
5.
6.

What would you like to do? Grant access
                          Change access
                          Remove access

                                [ OK ]

-----
ESC to Quit, Spacebar for List                                ? for Help
```

Each row on the access table is numbered to make it easy to identify an entry in order to change or remove it. After entering a volume on the access table you can change the access, change the mount location, or remove access to the volume altogether using one of the three Manage Access functions.

Refer to the access portion of the accounts worksheet for help in filling out the access tables. How to use this worksheet is covered in the section "Worksheet 3: Accounts and Access" in Chapter 2.

We'll begin with Grant Access, the function you use to grant an account access to some volumes.

TO GRANT ACCESS TO A VOLUME

The volume you designated as a user's home volume is added to the access table for that user automatically. To add any additional volumes, follow these steps:

1. Choose Grant from the list of functions on the access table and press **RETURN**.

```

_____ Manage Access _____ Server: SERVER0
                                Drive:  DRIVE1

Account:  A2MGR
O.S.:    PRODOS

      Vol Name      Access      Mount
      -----      -
1.    A2PRO         Read-Write  S6 D1
2.    A2BOOT        Read-Only   -*
3.    A2NET         Read-Write  S7 D1
4.    APLWORKS     Read-Write  S7 D2
5.
6.

Grant access to which volume? _____

                                [ OK ]

-----
ESC to Quit, Spacebar for List                                ? for Help
```

2. Answer the questions that appear at the bottom of the screen:

Volume Name: Type the name of the volume you want to add and press **RETURN**.

Access: Select the type of access you want the account to have to the volume. See the entry "Types of Access" in the section "Fundamental Concepts" in Chapter 1.

Mount: Enter the mount location you want for the volume. Refer to your planning worksheets.

DOS 3.3 and ProDOS: When the highlight is on Slot, type the number for the slot you want and press **RETURN**. Valid slot numbers are 1 - 7. Next the highlight moves to Drive. Valid drives are 1 and 2. Press a number for the drive and then press **RETURN**. See the item "Mounting" in the section "Fundamental Concepts" in Chapter 1. Also see the section "Worksheet 3: Accounts and Access" in Chapter 2.

Pascal: Type a unit number. Valid unit numbers are 4, 5, 9, 10, 11, 12.

CPM: Type a unit letter. Valid unit letters are A - P.

Mount Location Equivalents

The Apple II		Mount Locations			
Physical Slot	Physical Drive	DOS 3.3	ProDOS	Pascal	CP/M
7	1	Slot 7, Drive 1	Slot 7, Drive 1	—	—
7	2	Slot 7, Drive 2	Slot 7, Drive 2	—	—
6	1	Slot 6, Drive 1	Slot 6, Drive 1	4	A (Floppy)
6	2	Slot 6, Drive 2	Slot 6, Drive 2	5	B (Floppy)
5	1	Slot 5, Drive 1	Slot 5, Drive 1	9	C
5	2	Slot 5, Drive 2	Slot 5, Drive 2	10	D
4	1	Slot 4, Drive 1	Slot 4, Drive 1	11	E
4	2	Slot 4, Drive 2	Slot 4, Drive 2	12	F

When all questions have been answered, a prompt requests that you press **RETURN** to confirm your responses.

3. To grant access to the volume, press **RETURN**.

OR

Press **ESC** to return to the Select A Function screen without granting volume access in the selected access table.

TO CHANGE ACCESS TO A VOLUME

1. Choose Change from the list of functions under the access table and press **RETURN**.

2. Type the number for the entry that you want to change.

The highlight bar will move to Access.

```
----- Manage Access ----- Server: SERVERO
                                Drive: DRIVE1
Account:  A2MGR
O.S.:    PRODOS

      Vol Name   Access      Mount
-----
1.  A2PRO       Read-Write  S6 D1
2.  A2BOOT      Read-Only   -*
3.  A2NET       Read-Write  S7 D1
4.  APLWORKS   Read-Write  S7 D2
5.
6.

Select the type of access to this volume:  Read-Only
                                           Read-Write

                                           [ OK ]

-----
ESC to Quit                               ? for help
```

3. Answer the questions that appear at the bottom of the screen.

Access: Choose the type of access you want the account to have to the volume. If the access is okay as is, press **RETURN** or **TAB** to advance to the Mount heading.

Mount: Enter the mount location for the volume if you want it mounted.

OR

If the mount location is okay as is, press **RETURN**.

A prompt appears requesting that you press **RETURN** to confirm your responses.

4. Press **RETURN to confirm that all entries are correct.**

OR

Press **ESC** to return to the Select A Function screen without making any of the changes you've specified.

TO REMOVE ACCESS TO A VOLUME

1. Choose Remove from the list of functions under the access table and press **RETURN.**

2. Type the number for the volume that you want to remove.

A prompt appears asking you to confirm that you really want to remove the volume whose number you specified.

3. Press **RETURN** to confirm the removal.

OR

Press **ESC** to return to the Select Function screen without making a change to the access table.

Listing Volumes and Accounts

You can use the List function in the Volumes and Accounts submenus of the Network Management Program menu to see a list of volumes or user accounts. You can display the list on the screen, save it as a ProDOS file, or print it on a printer.

Listing volumes is useful for getting the answers to these questions:

- How much space is available on the hard disk for more volumes?
- What volumes are on the hard disk?
- How have I been naming volumes?
- What is the operating system for a certain volume?
- Which accounts own which volumes?
- What is a volume's availability?
- What is a particular volume's starting location?
- Where is there some free space on the hard disk?

Listing accounts can help you with these questions:

- How have I been naming accounts?
- What is the prefix for a certain class?
- What's the password for an account?
- What's the operating system for an account?

Whether you use the List function from the Volumes menu or from the Accounts menu depends on whether you want to list volumes or accounts. Both functions work the same, though, and are described together below.

TO DISPLAY A LIST ON THE SCREEN

1. From the main menu of the Network Management Program, select List from the Volumes or Accounts menu.

The Select Output dialog screen appears. The prompt asks you to select how you want the list output. List to screen is highlighted.

2. Press **RETURN** to see the list on the screen. The list appears on the screen, 16 records per "page."

```
----- List Volumes ----- Server: SERVER0
                                Drive: DRIVE1
```

Vol Name	Format	Owner	Type	Size	Address
BLKS.0..7	RESERVED		UNCONTR	8	0
BLKS.8..8	RESERVED		UNCONTR	1	8
CORVUS	UCSD		UNCONTR	760	9
A2PRO	PRODOS	A2PRODOS	PUBLIC	1124	769
A2BOOT	UCSD		UNCONTR	300	1893
A2NET	UCSD	A2MGR	PRIVATE	1124	2193
A2SYS	UCSD	A2MAINT	PRIVATE	1200	3317
A2BACK	UCSD	A2BACKUP	PUBLIC	300	4517
A2DOS	DOS3.3	A2DOS33	PUBLIC	1124	4817
APLWORKS	PRODOS	A2PRODOS	UNCONTR	1124	5941
<unused>				2248	7065
PIPES	UCSD	A2MGR	UNCONTR	1024	9313
TEST	UCSD		PRIVATE	1024	10337
<unused>				1124	11361
VOLUME1	UCSD	A2MGR	PUBLIC	1124	12485
VOLUME2	UCSD	A2MGR	PUBLIC	1124	13609

Press Spacebar to continue.

ESC to Quit

? for Help

3. Press **SPACE** to page through the list.

OR

Press **ESC** to return to the Network Management Program menu.

TO SAVE A LIST AS A PRODOS TEXT FILE

If you save a list as a ProDOS text file, you can then print it on a network printer by using the File Spooler Program. This lets you print the list if you don't have a printer connected to slot 1 of your own station, as required by the method of printing described in the next section.

See "Spooling" in Chapter 5 for more information. How to use the File Spooler Program is explained in the guide *Tools for Network Users*.

To save a list as a ProDOS text file,

- At the Select Output dialog screen, move the highlight bar to Save As A ProDOS Text File and press `RETURN`.

The program provides a filename for you to use when you save a list. You don't have to name the file yourself.

- For saving a list of *volumes* on the network as a ProDOS text file, the filename the program provides is NETVOL.
- For saving a list of user *accounts*, the filename is NETACCT.
- For saving a list of volumes to which a particular user has *access*, the filename is (USR).ACC, with the user's name taking the place of (USR).

Each time you save a list to one of these ProDOS files, the new list writes over any existing list in the file.

TO PRINT A LIST

Use this method to print if you have a printer connected to slot 1 of your station. Otherwise, save your text as a ProDOS file and print using the File Spooler Program, as outlined in the section above.

1. At the **Select Output** dialog screen, move the highlight bar to **Print** and press **RETURN**.

A prompt appears asking you to confirm that your printer card is in slot 1 and the printer is ready.

2. Make sure the printer is turned on and that the paper is feeding properly. Press **RETURN** to print.

The list is printed and the program presents the Network Management Program menu.

OR

If you don't want to print, press **ESC** to return to the main menu.

TO QUIT THE LIST FUNCTION

Press **ESC** to return to the Network Management Program menu.

Using the Print Access Table

The Print Access Table function in the Accounts menu works just like the List function in the Volumes and Accounts menus. It shows the access table for the account you specify on the screen, prints the access table on a printer connected to slot 1 of your computer, or saves the access table in a ProDOS file for printing using the File Spooler Program. Refer to the instructions for using the List function to use Print Access Table.

Changing Volumes

You can change three aspects of a volume, using the Change function from the Volumes menu:

- its name
- its owner
- its availability type

You can't use the Change function to change a volume's operating system format, size, or location. If you want these aspects of a volume to be different, you have to delete the volume itself (first copying out the information you want to save, of course) and create a new volume that's different in the ways you want.

1. **From the Network Management Program main menu, select Change from the Volumes Menu.**

A prompt appears asking you to supply the name of the volume that you want to change.

2. Type the name of the volume you want to change and press **RETURN**.

OR

Press **SPACE** to see a list of volumes and choose from the list. See "Using the List Feature" in Chapter 3.

When the volume record appears, the highlight is on Owner.

```
_____ Change a Volume Record _____ Server: SERVER0
                                          Drive: DRIVE1

Vol Name   Format   Owner   Type   Size   Location
-----
VOLUME1   UCSD    A2MGR   PUBLIC 1124   12485
```

Enter the name of the new owner of this volume: A2MGR_____

[OK]

ESC to Quit, Spacebar for List

? for Help

3. By pressing **TAB** or **RETURN**, move the highlight bar to the heading you want to change and press **RETURN**.

4. Make the change and press **RETURN**.

5. When you are through making changes, advance the highlight bar to the OK box. To confirm that the new information you have entered for the volume is correct, press **RETURN**.

OR

To go back to correct an entry, use **TAB**.

Changing Accounts

The password is the only aspect of an account you can change. You use the Change Password function from the Accounts menu to do it.

If you want to alter an account's name or operating system, you have to use the Add function in the Accounts menu to create a new account with the name and operating system you want. You may then remove the old account if you wish.

To change an account password

1. From the Network Management Program main menu, select Change Password from the Accounts Menu.

A prompt appears asking you to supply the name of the account you want to change.

2. Type the name of the account you want to change and press **RETURN**.

OR

Press **SPACE** to see a list of accounts, choose from the list, and press **RETURN**.

When the account record appears, the highlight is on Password; that is the only entry you can change.

_____ Change an Account Password _____ Server: SERVER0
Drive: DRIVE1

Account Name	Password	O.S.	Home Volume
-----	-----	-----	-----
A2PASCAL	NOS	A2PASCAL	

Enter the new password for this account: NOS_____

[OK]

ESC to Quit

? for Help

3. Type the new password on top of the existing password. The existing password is erased when you type the first letter of the new name.

The highlight bar advances to the OK box and a prompt appears asking you to confirm your changes.

4. To confirm that the new password you have entered for the account is correct, press **RETURN**.

OR

To go back to correct the password, use **TAB**.

Removing Volumes and Accounts

From time to time, you will want to clear the OmniDrive of outdated volumes and unused accounts. Unused volumes can take up space on the hard disk that you might want to use for other volumes. Similarly, unused accounts just clutter things up.

To remove a volume, you use the Remove function from the Volume menu.

To remove an account, you use Remove from the Accounts menu.

The procedures are identical and are described together below.

When you remove a volume, its name is removed from the directory of volumes on a drive and also from account access tables of all accounts that had access to the volume. This is done automatically; you do not have to update these tables yourself.

Warning 1: After you remove a volume, everything stored in the volume is lost to you. Be careful to verify that you've chosen the correct volume name before confirming that you want to remove that volume.

Under no circumstance should you remove system volumes CORVUS, A2SYS, or A2BOOT.

When you remove an account, the access table for that account is removed automatically; you do not have to manually remove that user's access to volumes. Any volumes belonging to the account still exist, however, and you will have to use the Remove function in the Volumes menu to remove them.

Remember that when you remove an account, the users of that account will no longer have access to the network through it.

Instead of removing them, you might consider dealing with obsolete accounts by just changing the passwords and giving these accounts to incoming users instead of creating brand new accounts.

To remove a volume or account

1. **From the Network Management Program main menu, select Remove from the Volumes or Accounts menu.**

A prompt appears asking you to supply the name of the volume (or account) that you want to remove.

2. **Type the name of the volume or account you want to remove.**

OR

Press the space bar to see a list, type the number of the item you want to remove, and press `RETURN`. This displays the name of that volume or account.

A prompt appears asking you to make sure you want to remove the item.

3. **To confirm that you do, press `RETURN`.**

OR

Press `ESC` to return to the dialog screen without changing anything.

If You Accidentally Remove a Volume or Account

If you remove a volume by mistake, sometimes you can retrieve it by recreating a new volume of the same name and size, etc., at its same address on the OmniDrive. For this procedure to work, however, you must prevent the new volume from being automatically formatted once created. The formatting would erase the contents you want to recover.

To prevent the new volume from being automatically formatted, go to the Change Options function of the Special Functions menu and change the option Format Volumes Automatically from *YES* to *NO* before you recreate the volume. (Remember to change this back to *YES* after you recreate the volume.) Then recreate the volume, making sure that you specify the same operating system format, size, *and location* as the volume you removed. If you keep current printed lists of volumes and accounts, you'll be able to refer to them when reconstructing information to restore volumes and accounts that you remove by mistake. Because you recreated the volume but did not format it, the data in the volume should still be intact.

If you remove an account by accident, you will have to recreate the account and reconstruct the account access table for it.

Using the Special Functions

SELECTING THE SERVER

When you first run the Network Management Program, you are asked to select a server and drive. You can work with volumes on only one server or drive at a time. For example, if you use the List function in the Volumes menu, the only volumes you'll see will be those on the currently selected server/drive. If you have more than one server on your network, you need to use Select Server to make a different server current in order to see its volumes.

To use the Select Server function

1. **Select the Select Server function from the Special Functions menu on the Network Management Program menu.**

A dialog screen appears with a prompt asking you to select a server from the list of servers shown.

```
_____ Select Server _____ Server: SERVER0  
Drive: DRIVE1
```

```
Select the current server: SERVER0  
                          SERVER01  
                          OTHER
```

```
-----  
ESC to Quit
```

```
? for Help
```

2. **Move the highlight bar to the server you want to make the current server and press `RETURN`.**

OR

If the server you want to make current doesn't appear on the list but you know that it's on the network, select **OTHER**. Then type the server name and press `RETURN`. If you don't know the server name but you do know its network address, type the address instead, then press `RETURN`.

If you have more than one drive on your network, a prompt will appear asking you to select a drive.

3. Move the highlight bar to the drive you want and press **RETURN**.

A prompt appears asking you to enter the drive password.

4. Enter the drive password and press **RETURN**.

The password doesn't display on the screen as you type it. This helps keep it confidential.

The program returns to the menu screen.

VIEWING THE NETWORK MAP

You'll find this function useful when you want to see which addresses on the network are occupied by servers, network stations, and other devices. The network map will tell you at a glance which address are taken and which are not. You need this information when adding a device to the network since you will have to specify an Omninet address for the device you are adding. The map is a chart, with the numbers 0 to 63 representing possible Omninet addresses.

To view the network map

1. **Select View The Network Map from the Special Functions menu on the Network Management Program menu screen.**

A network map appears. You can page through it by pressing **SPACE**. At the end a prompt asks where you want the program to output the map.

```
----- Network Map ----- Server: SERVERO
                                Drive: DRIVE1
Node   Name      Type           Node   Name      Type
-----
  0    SERVERO  OMNi-DRIVE    16
  1
  2
  3
  4
  5
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24    A2MGR     APPLE2
 25
 26
 27
 28
 29
 30
 31

Press Spacebar to continue.
-----
ESC to Quit                               ? for Help
```

2. **Move the highlight bar to your choice and press **RETURN**.**

If you choose List To Printer, a dialog screen appears asking you to make sure your printer is ready. The printer card or Corvus Printer Spooler Card must be in slot 1 of your computer.

If you choose Save To A ProDOS File, the screen proposes a ProDOS filename. See the section "Saving to a ProDOS Text File" in Chapter 3 of this guide.

3. After viewing, printing, or saving the map as a file, select **Quit** to return to the main menu.

MANAGING THE TRANSFER AREA

The Transfer Area is like a post office. Files sent to a printer or another network user go first to a sort of pigeonhole called a *pipe* in the Transfer Area and then are retrieved from there and sent on to their destination.

There can be up to 32 files in the Transfer Area. These files are contained in a volume called the PIPES volume. Even if you have a network with more than one OmniDrive, you should have only one PIPES volume. If the server you selected when you entered the Network Management Program doesn't have the PIPES volume on it, you will have to use the Select Server function in the Special Functions menu to find the server that does before you can proceed with using the Manage Transfer Area function. If you don't know which server has the PIPES volume, you can find out by listing the volumes for each server. Usually the PIPES volume is on the server having address 0.

Sometimes files get "stuck" open in the Transfer Area and need to be closed manually, and sometimes useless files that were never retrieved accumulate and need to be removed.

In either case, it is your job as network manager to keep the Transfer Area uncluttered and in good working order. Periodically you should clear the area of files that are stuck or otherwise unwanted.

When a file in the Transfer Area is open, its contents are either being *spooled* (a file is being written there) or *despooled* (a file is being read from there to the printer or a network user). As a file is spooled to the Transfer Area, the file's size (in blocks) grows; as it is despooled, its number of blocks decreases to zero.

A file is stuck if it's open but is neither growing nor shrinking in size.

You monitor files in the Transfer Area with the Manage Transfer Area function. When you select this function, you are presented with a menu of options.

Entering the Manage Transfer Area Function

- Select Manage Transfer Area from the Special Functions menu of the Network Management Program menu.

A File Status table appears and a menu. Here's how to use the functions on the menu, in the order of their appearance:

```
----- Manage Transfer Area ----- Server: SERVER0
Drive: DRIVE1
File#  Destination  Size  Status
--  -
1     PRINTER1      1     Closed
2     PRINTER1     21     Closed
3     PRINTER1      4     Closed
4     PRINTER1      4     Closed

Select a function:  List active files
                   Close a file
                   Remove a file
                   Re-initialize Transfer Area
                   Quit

-----
ESC to Quit                                             ? for Help
```

List Active Files

This function lists any files in the Transfer Area. The files listed in this chart are called *active files* in the sense that they are in use. They are identified by file number, destination, size (in blocks), and status.

The status of a file in the Transfer Area can be either of two conditions:

- closed
- open

A file is *closed* when the entire file has reached the Transfer Area--i.e., it's not still in the process of arriving--and it hasn't been opened again yet to be sent to its destination.

A file is *open* when it's either still arriving in the Transfer Area or is on its way out, to a printer or a network user, for instance.

Sometimes a file gets stuck open. For instance, if a file you sent to the printer never got there, and other files sent after yours have already been printed, list active files to see if you can find your file. You may have to close the file yourself.

Because the files are in a constant state of flux, spooling and despooling even as you review their status, you need to use List Active Files several times in a row, waiting a few seconds each time, to determine whether the size of a given file is changing. This is the only way to tell if a file is stuck.

To see what files are active and what is the status of each:

- Move the highlight bar to List Active Files and press `RETURN`.

The status of all files that were active when you pressed `RETURN` appears in the File Status table. To update the display, press `SPACE`, then select List Active Files and press `RETURN`.

Close A File

Sometimes a file reaches the Transfer Area but for whatever reason remains stuck open as if it were still arriving. The file won't go on to the printer or anywhere else until the file is closed. Or sometimes after a file is sent on, the file won't close and disappear from the list of active files even though it's empty.

In either of these cases, you have to close the file yourself using the Close A File option.

1. **Move the highlight bar to the Close A File function in the list and press `RETURN`.**

A prompt appears asking you type the number of the file you want to close.

2. **Type a number.**

The program closes the file. The file with that number remains on the File Status list and the status is closed. The original prompt asking you to choose an action appears.

3. **Move the highlight bar to Quit and press `RETURN` to return to the menu screen.**

Remove A File

Files should not be left to sit forever taking up space in the Transfer Area.

Suppose you send a file to the printer, it never gets there, you send it again, and this time it prints. Then you list active files and find that the first file is stuck. Or suppose you send a file to another user on the network and he decides he doesn't need it after all and never gets around to despooling it. These are cases of useless files taking up space in the Transfer Area. The files should be removed. Once a file is removed it disappears from the Files Status table.

1. **Move the highlight bar to Remove A File and press `RETURN`.**

A prompt appears asking you to type the number of the file you want to remove.

2. Type a number.

The program removes the file. The file with that number disappears from the File Status table and the original prompt asking you to choose an action appears.

3. Move the highlight bar to Quit and press `RETURN` to return to the menu screen.

Reinitialize Transfer Area

If a number of files need closing or removing, you might find it easier to use this option than to close or remove them one at a time. Reinitializing the Transfer Area removes *all* the active files and wipes the table clean.

1. Move the highlight bar to Reinitialize Transfer Area and press `RETURN`.

A prompt appears asking you to confirm that you want to reinitialize the PIPES volume.

2. Press Y.

The program reinitializes the Transfer Area and all active files are removed.

3. Move the highlight bar to Quit and press `RETURN` to return to the menu screen.

UNLOCKING SEMAPHORES

Semaphores are locks, or flags, that a program sets to protect a file from being changed by different users at the same time, which could result in inconsistent data and destroy the file. When a user with read-write access calls up a file protected by semaphores, a flag is set to lock out anybody else. Until the semaphore is unlocked, other users can have only read-only access to the file.

Various parts of the Network Management Program are protected with semaphores--for instance, the volume and access tables. Multiuser programs can set semaphores, and programmers working on the network might set their own.

Semaphores can become set inappropriately, locking out everyone even though nobody is using the protected file or program anymore. For instance, a power failure while you are using the program could set the semaphore in the locked position so that even you are locked out when you log on again and try to pick up working where you left off.

To unlock semaphores manually, you can use the Unlock Semaphores function in the Special Functions menu.

- **Select Unlock Semaphores from the Special Functions menu of the Network Management Program.**

A dialog screen appears.

```
----- Semaphore Flags ----- Server: SERVER0
                                   Drive:  DRIVE1

Flag  Name      Flag  Name      Flag  Name      Flag  Name
---  -
 1    -----
 2
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Select a function:      Clear a flag
                        Clear all flags
                        Quit

-----
ESC to Quit                                     ? for Help
```

To Clear a Flag

1. On the dialog screen, move the highlight bar to Clear A Flag and press **RETURN**.

A prompt appears asking you to type the number of the flag you want to clear.

2. Type a number.

The program clears the semaphore. The original prompt asking you to choose an action appears.

3. Move the highlight bar to Quit and press **RETURN** to return to the main menu.

To Clear All Flags

1. **On the dialog screen, move the highlight bar to Clear All Flags and press `RETURN`.**

A prompt appears asking you to confirm that you want to clear all flags.

2. **Type Y to clear all flags.**

The program clears all semaphore flags. The original prompt asking you to choose an action appears.

3. **Move the highlight bar to Quit and press `RETURN` to return to the main menu.**

EXECUTING BATCH FILES

The Network Management Program allows you to execute *batch* or *command* files. These files consist of a batch of commands, all of which are executed when the file is run, or executed. How to create batch files is covered in Chapter 6.

A batch file must be a ProDOS text file to run. It must also be in the same volume as the Network Management Program.

1. **Select Execute Batch Files from the Special Functions menu of the Network Management Program main menu.**

A dialog screen appears with a prompt asking you to supply the filename for the batch file you want executed.

```
_____ Execute Batch Files _____ Server: SERVER0  
Drive: DRIVE1
```

```
Execute which Batch File? _____
```

```
-----  
ESC to Quit ? for Help
```

2. Type the filename and press **RETURN**.

The program executes the specified batch file.

Batch commands may be run individually as well as in a file. Instead of a filename, type an exclamation mark (!) followed by the command, e.g., !ADD USER A2PAS,A2PASCAL,SERVER0.

CHANGING OPTIONS

There are three options that you can control using the Change Options function in the Special Functions menu. Once you alter the setting of an option, the new setting remains in effect until you use the function again to alter it or until you quit the program.

To change one of the options listed below,

- **Select Change Options from the Special Functions menu of the Network Management Program menu.**

```
----- Options -----  
  
Select a function:  Insert LF after CR when printing?  YES  
                   Format volumes automatically?      YES  
                   Debug mode                        OFF  
                   Quit  
  
-----  
ESC to Quit                                             ? for Help
```

Each option has two settings, On or Off. Move the highlight to the option you want to reset and press **RETURN** to turn the option On or Off.

- **Insert Line Feed after Carriage Return when Printing? (YES/NO)**

Choose *Yes* if, for instance, your printer is printing all lines of a file on top of each other or if you want a single-spaced file to print double-spaced.

■ **Format Volumes Automatically (YES/NO)**

Yes causes new volumes you create to be formatted automatically for the specified operating system. Choose *No* if you want to create another same-named volume in the exact place of a volume you deleted by mistake, to try to recover the lost volume. Formatting the new volume would erase the information you want to reclaim. Change the setting to *Yes* again when you're done.

■ **Debug Mode (ON/OFF)**

When on, this option displays at the bottom of the screen the actual instructions that the program is sending to the drive. This option is intended for programmers' use only.

This completes instructions for using the options on the Network Management Program menu. Now go on to Chapter 5 for a discussion of the options for printing.

Chapter 5

Printing and Transferring Files

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Introduction

This chapter tells you how to do two things:

- print files on a network printer (including how to use a local printer as a network printer)
- transfer files from one network station to another

Both these activities use the Transfer Area. They also use some combination of the Print Spooler Card Settings Program, the File Spooler Program, and the File Despooler Program. Each of these programs is discussed more fully in the *Tools for Network Users* guide. You may read up on them there as you need to.

The Transfer Area

Sending files over the network to a printer or another user is a two-step process. In the first step, files are sent to something called the Transfer Area. In the second step, the files are retrieved from the Transfer Area and sent on to their destination.

The Transfer Area is a volume called the PIPES volume on a hard disk drive. You create this volume during the initial setup of the OmniDrive, as explained in the *Setup Guide*. Even if you have more than one OmniDrive, you should have only one PIPES volume, generally located on SERVER0. It will show up in the list of volumes on that drive, if that's where it is.

As we said in Chapter 4, you might think of the Transfer Area as a sort of post office. A file being sent to a printer or to another network user goes first to the Transfer Area, where it's put into a *pipe*--like a box at the post office. This part of the operation is called *spooling*.

Next the file is *despooled* from the pipe to its destination by a despooler program, run by either a network printer server or by another network station, if that's where the file is headed.

In other words, spooling a file is like mailing it, and despooling a file is like collecting your mail from your post office box.

Spooling

There are two ways to spool files. They can be spooled automatically, using a Print Spooler Card and the Print Spooler Card Settings Program, if you want to send them to a network printer; or you can use the File Spooler Program to spool files manually, either to a network printer or to a person on the network.

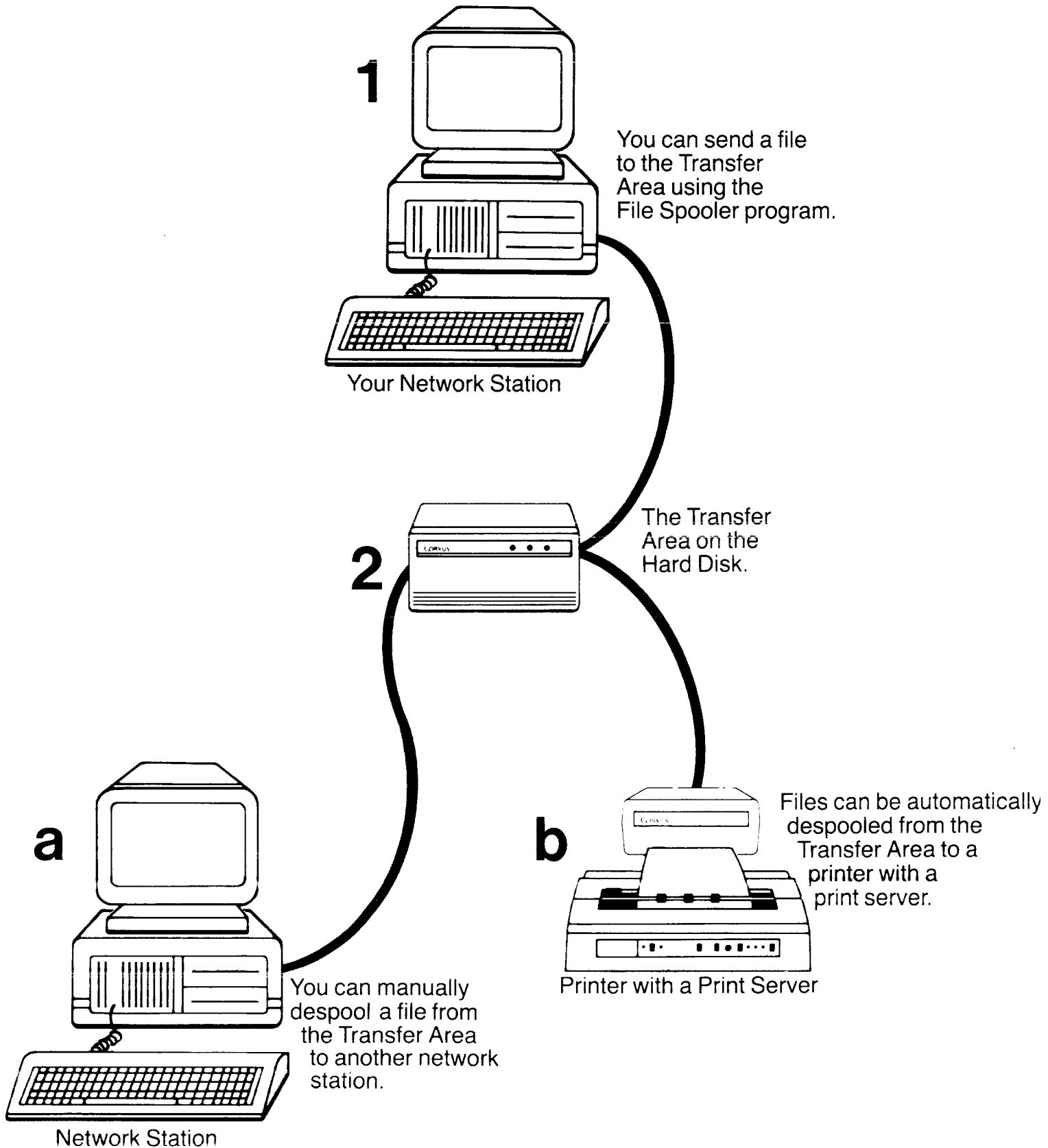
SPOOLING USING A PRINT SPOOLER CARD

When printing on a network printer from a computer that has a Corvus Print Spooler Card in slot 1, spooling can be done automatically. The Print Spooler Card lets users print from inside their current program. They don't have to exit the program to spool a file to the Transfer Area on the way to being printed.

SPOOLING USING THE FILE SPOOLER PROGRAM

When sending a file to another person on the network or when printing on a network printer from a computer that doesn't have a Corvus Print Spooler Card installed in slot 1, users must send their files to the Transfer Area manually. They do this by using the File Spooler Program. How to use this program is explained in the *Tools for Network Users* guide.

Spooling and Despooling



Printing

In order for all users to print over the network to a certain printer, the printer must be set up as a *network* printer.

The other way of setting up a printer is as a *local* printer. Only the person to whose computer the local printer is attached can use a local printer.

The differences between these two ways of setting up a printer are described below.

PRINTING ON A NETWORK PRINTER

A network printer is attached to the network by the Corvus Printer Server, a device that automatically despools to the printer any files sent to a pipe in the Transfer Area with the name used by that particular printer. The printer server continually despools files in these pipes from the Transfer Area in the order they arrived: first in, first out.

Network printers can be used by anyone on the network.

PRINTING ON A LOCAL PRINTER

You can also set up a printer without connecting it to a printer server by connecting it instead directly to slot 1 of a particular computer.

A printer set up this way is called a local printer, in the sense that it's local to that particular computer. The printer has no network address of its own and isn't available to other network users. Their files have no way of reaching it because it's not tied in to the Transfer Area by a printer server. Only files from its own computer can reach a local printer. They go to the printer directly, without first going to the Transfer Area.

USING A LOCAL PRINTER AS A NETWORK PRINTER

There is a way to turn a local printer into a network printer everyone can use. Just run the File Despooler Program, described in the *Tools for Network Users* guide, from the computer to which the printer is attached. This in effect turns that computer into a printer server that can despool files from the Transfer Area. The only drawback is that while the computer is being used for despooling it can't be used for anything else. But you can always regain full use of the computer by quitting the File Despooler Program.

Here's how to use the File Despooler Program to put a local printer on the network. Work from the computer where the printer is attached and follow these steps:

- 1. Make sure the local printer is turned on and connected to the network station.**
- 2. Run the File Despooler Program from the network station.**

Select Output To Printer.

Enter the name of the local printer as the pipe name and tell all users who will be spooling files to this printer to use this name as the Pipe Name.

Select Start Despooling from the File Despooler settings screen.

Now anyone on the network can spool files to the printer.

Transferring Files Between Users

Sometimes it's convenient to be able to transfer files to another user. People on the network can do this, with text files, by using the File Spooler Program and the File Despooler Program to send files to and retrieve them from the Transfer Area.

SENDING FILES

Using the File Spooler Program to transfer a file to another user is just like using it to send a file to be printed. The only difference is that this time you must use a pipe name other than the pipe name of a printer. Instead you might use the first name of the person to receive the file.

RETRIEVING FILES

Retrieving files with the Files Despooler Program is just like using the program to manually despool files to a local printer. Here the only difference is that the person using the file will usually choose to despool the file to the computer screen or to a filename of his choice, rather than to a local printer, and that to retrieve the file he will specify the pipe name for it that the sender used.

- **Run the File Despooler Program from the network station.**

Select the form of output you want.

Enter the pipe name the sender used as the pipe name.

Select Start Despooling from the File Despooler setting screen.

Chapter 6

Using Batch Files

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Introduction

If you want to change only one or two user or volume attributes--for instance, one user name, password, or type of access--it's simple to make the changes one at a time using the menus in the Network Management Program.

Sometimes, though, you may want to make a large number of changes at once. For instance, at the beginning of a school semester a teacher may want to delete the volumes and user names of the entire previous class and then to create new volumes and user names for all the students coming in. Instead of making each change individually by working from the menus in the Network Management Program, you can use batch files to put through the changes all at once from your word processor program. Using batch files in this situation can save considerable time.

The commands you can use in batch files are listed in Appendix A. These commands are specially designed for use in batch files and have a special format.

Creating a Batch File

To create batch files, you need a word processor program such as AppleWorks or FrEdWriter that creates ProDOS ASCII text files. In the word processor, you type the commands you want to run, and then you save the file as a ProDOS ASCII text file in the volume where the Constellation III Network Management Program is (CSMENU). Saving the file in this same volume enables the Network Management Program to find the file when you want to run it. To run the file and execute all its commands, you use the Execute Batch File option in the Network Management Program.

RULES AND ADVICE

An example of how to create a batch file follows, but first, here are some rules and advice to keep in mind when working with batch files:

- A list of the commands you can run in a batch file may be found in Appendix A. These commands have a particular syntax that must be followed exactly when you type them.
- The first commands you enter (after ETOGGLE: see below) should ordinarily be the SELECT commands. These commands select what server and drive are to be operated on by the commands that follow--what are to be the *current* server and drive, in other words.

You can also select the server and drive you want from the Network Management Program menu before running the batch file. This capability lets you create batch files that are generic, in the sense that they don't themselves specify a server and drive. But be careful: if a batch file *does* specify a server and drive, that specification will be used instead of what you select from the Network Management Program menu. You could think you were running the batch file on one drive and in fact run it on another, destroying information you didn't want to lose.

- Volumes you create with batch files, using the ADD VOLUME command, are not automatically formatted for a particular operating system as volumes are that you create from the Network Management Program menu. Any time you create a volume with the ADD VOLUME command, you must also use the FORMAT command to prepare the volume for a particular operating system.
- Use the ETOGGLE command. The *E* stands for *Error*. If you don't use this command, the program aborts and exits to the command line prompt if it encounters an error in running the batch file. With ETOGGLE on, the program records an error message where it encounters an error, but it runs the other commands in the file. Put the command on the first line of the batch file.

- When adding volumes and users and giving users access to volumes all in one batch file, follow this progression: First use ADD VOLUME to add *all* the volumes you want. Then use ADD USER to add *one* user; follow with ADD ACCESS to give that user access to volumes before using ADD USER again.

The program automatically uses the last-entered user account when you run the ADD ACCESS command. If you use ADD ACCESS right after using ADD USER, this last-mentioned user will be the one you want. If you add *all* user accounts before using ADD ACCESS, you'll have to separately specify the intended user for each ADD ACCESS command.

- When adding access to volumes with a batch file, you must also add access to volume A2BOOT for each user you create with the batch file. All users require access to this volume in order to boot. This access is not granted automatically when you use batch files, as it is when you give a new user access manually from the Network Management Program menu.

The syntax to add read-only access to A2BOOT for the currently selected user is:

```
ADD ACCESS A2BOOT, RO, *
```

- Be sure to use a *backslash* (\), not a regular slash (/), to separate the user name and password in the ADD USER command.
- If you type QUIT as the last line of your batch file, then the Network Management Program quits after the batch file is run. You are returned to the ProDOS operating system prompt.
- If you put STOP as the last line, the program returns you to the Network Management Program menu when the batch file is done running.

USING THE COPY FUNCTION

One labor-saving aspect of using batch files is that you create them in your word processor and can use your word processor's Copy function to save yourself a lot of typing.

In the word processor, first add all the volumes you want, following the syntax for the `ADD VOLUME` command.

Then type the `ADD USER` command to add one user, and type the `ADD ACCESS` command to give the user access to volumes.

To add a second user, use the word processor's Copy function to duplicate the first set of `ADD USER` and `ADD ACCESS` commands. Simply edit this duplicate to add the second user and his access. Continue this way to add all users and grant them access.

SAVING BATCH FILES

To run, a batch file must be saved as a ProDOS text file in the same volume in which you have the Network Management Program. (The Network Management Program appears in the volume directory as `C3MENU`, incidentally, in case you have to look for it.) The filename you use for the batch file can have a maximum of fifteen characters.

If you save the batch file you have just created in the word processor as a text file *only*, however, you may not easily be able to recall it into the word processor another time for editing. AppleWorks, for instance, doesn't allow straight text files to be called into the word processor directly.

If you're using AppleWorks or FrEdWriter or another program like them in this respect, it's a good idea to save the batch file twice, once as a ProDOS text file and once as a word processor file. (AppleWorks, for instance, identifies ProDOS text files with the suffix `TXT` and AppleWorks word processor files with the suffix `AWP` in the directory.)

If you save the file twice this way, you can easily recall the word processor version into the word processor, revise it, and then save it twice again.

A SAMPLE BATCH FILE

Below is a sample batch file illustrating some of the most useful commands. You can use it as a model.

If you have more than one Omnidrive, you will also need to use the SELECT commands at the top of the file to specify server and drive.

The batch file creates 10 private ProDOS volumes and 10 ProDOS users. It gives each user read-only access to a previously created ProDOS volume, A2PRO, on slot 7, drive 1, and read-write access to one of the private ProDOS volumes on slot 7, drive 2.

```
ADD VOLUME VOL01,PRODOS,2048,,RW,USER01,PR
ADD VOLUME VOL02,PRODOS,2048,,RW,USER02,PR
ADD VOLUME VOL03,PRODOS,2048,,RW,USER03,PR
ADD VOLUME VOL04,PRODOS,2048,,RW,USER04,PR
ADD VOLUME VOL05,PRODOS,2048,,RW,USER05,PR
ADD VOLUME VOL06,PRODOS,2048,,RW,USER06,PR
ADD VOLUME VOL07,PRODOS,2048,,RW,USER07,PR
ADD VOLUME VOL08,PRODOS,2048,,RW,USER08,PR
ADD VOLUME VOL09,PRODOS,2048,,RW,USER09,PR
ADD VOLUME VOL10,PRODOS,2048,,RW,USER10,PR
FORMAT VOLUME VOL01
FORMAT VOLUME VOL02
FORMAT VOLUME VOL03
FORMAT VOLUME VOL04
FORMAT VOLUME VOL05
FORMAT VOLUME VOL06
FORMAT VOLUME VOL07
FORMAT VOLUME VOL08
FORMAT VOLUME VOL09
FORMAT VOLUME VOL10
ADD USER USER01,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL01,RW,S7D2
ADD USER USER02,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL02,RW,S7D2
ADD USER USER03,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL03,RW,S7D2
ADD USER USER04,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL04,RW,S7D2
ADD USER USER05,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL05,RW,S7D2
ADD USER USER06,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL06,RW,S7D2
ADD USER USER07,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL07,RW,S7D2
ADD USER USER08,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL08,RW,S7D2
ADD USER USER09,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL09,RW,S7D2
ADD USER USER10,PRODOS,,
ADD ACCESS A2BOOT,RO,*
ADD ACCESS A2PRO,RO,S7D1
ADD ACCESS VOL10,RW,S7D2
```


EXECUTING THE FILE

To execute, or run, a batch file, follow these steps:

1. Type **A2MGR** to log on as the network manager.
2. Enter the password for the network manager account and press **RETURN**.

The password for the network manager account is *NOS*, unless you've changed it.

The Constellation III Network Management menu appears.

```
-----  
Constellation III Network Management  
-----  
1. Network Management Program  
2. ProDOS Utilities  
3.  
4.  
5.  
  
Select [Esc] to exit.....  
-----  
Use Arrow Keys or Numbers to Select Choice..  
or Select '+' key to add your own choices
```

3. Select **1. Network Management Program** from the menu.

The screen asks you to identify the current server and drive.

4. **Select the server/drive where you want to add, change, or remove volumes.**

Move the highlight bar to the server you want to make the current server and press **RETURN**.

If the server you want to make current doesn't appear on the list but you know that it's on the network, select OTHER. Then type the server name and press **RETURN**. If you don't know the server name but you do know its network address, type the address instead, then press **RETURN**.

A prompt appears asking you to select a drive. Move the highlight bar to the drive you want and press **RETURN**. A prompt asks you to enter the drive password.

5. **Enter the drive password and press **RETURN**.**

6. **Select Execute Batch File from the Special Functions menu.**

The screen asks for the name of the batch file you want.

7. **Type the name of the batch file and press **RETURN**.**

The program runs the batch file and executes the commands it contains. If you type QUIT on the last line of the batch file, the Network Management Program quits after the batch file is run. You are returned to the ProDOS operating system prompt.

If you type STOP as the last line, the program returns you to the Network Management Program menu when the batch file is done running.

Appendixes

Contents

Appendix A: Batch File Commands

Appendix B: Error Messages

Appendix C: Planning Worksheets

Appendix A: Batch File Commands

This appendix explains the various commands that can be used in a batch file. To create a batch file, type the commands in a word processor such as AppleWorks or FrEdWriter that lets you save work as a ProDOS text file.

Once the batch file has been created, process the file by selecting Execute Batch Files from Special Functions on the Network Management Program menu. For an example of how to make and process a batch file, see Chapter 6.

In the following explanations, the command keywords appear in **BOLD LETTERS**. Required parameters appear in normal type and optional parameters appear in *italics*. Below, for example, is the **ADD USER** command.

ADD USER UserName*Password*, *OSType*, *HomeServer*,*SINGLE*

When entering these commands, make sure that you press **RETURN** after each command line entry. Also make sure that you follow the syntax closely. If you do not enter a value for an optional parameter, you must still enter the comma.

In the CORVUS volume on each drive, there is a file called C3.Data that contains a list of the established values for the following parameters: BootType, DeviceType, OSType, VolumeType, Access, and Availability. Any value entered for one of these parameters must match one of the entries in the C3.Data file. A table at the end of this appendix lists the values for each parameter.

If you have more than one OmniDrive, you must use the **SELECT** commands at the top of the file to specify which server and drive subsequent commands are to act on.

The commands on the following pages are explained in alphabetical order. A synopsis appears at the end of the section.

The values for the parameters Access and Availability, wherever these parameters occur in the commands, are as follows:

Access: RO, RW, NA

Availability: PU, PR, UN

The values for Access stand for Read-Only, Read-Write, and No Access, respectively.

The values for Availability stand for Public, Private, and Uncontrolled, respectively.

ADD ACCESS

Description	This command grants access privileges to the specified volume for the current user and the current server and drive. The current user is set with the SELECT USER command. The current server and drive are set with the SELECT DRIVE and SELECT DISK commands.
Syntax	ADD ACCESS VolumeName, <i>Access</i> , <i>Unit</i>
Parameters	<p>VolumeName is the volume name.</p> <p><i>Access</i> is the type of access the current user will be granted to the volume. The access may be either read-write or read-only. If this parameter is omitted the default access type is read-only.</p> <p><i>Unit</i> is the mount unit designator for the operating system. The value for this parameter is dictated by the mount type associated with the operating system. Unit can be a number (1-99), a letter (A-P), or a slot/drive. It can also be a dash (-) to indicate the volume is unmounted or an asterisk to signal that the volume is the user's boot volume. If this parameter is omitted, the default is unmounted.</p>
Example	<pre>ADD ACCESS IBMVOL,RW,E ADD ACCESS DOSVOL,RO,S6D2</pre>

ADD BOOT-CODE

Syntax

ADD BOOT-CODE BootFile,BootType,*SINGLE*

Parameters

BootFile is the filename of the Constellation boot file to be installed.

BootType is the machine type description that corresponds to the boot program.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example

```
ADD BOOT-CODE BOOT.APPLE2,APPLE2
ADD BOOT-CODE BOOT.IBMPC,IBM-PC,SINGLE
```

ADD BOOT-TYPE

- Description** This command adds a new boot type record to the C3.Data file in the CORVUS volume.
- Syntax** **ADD BOOT-TYPE** BootName,BootNumber
- Parameters** BootName is a new computer name of up to 15 characters.
- BootNumber is a base zero index to the block offset word element in the System.Boot table in the CORVUS volume.
- Example** **ADD BOOT-TYPE APPLE2,0**
ADD BOOT-TYPE IBM,9

ADD DEVICE

- Description** This command adds a DEVICE record to the NETWORK.USER table. All network drives are updated as for the ADD USER command.
- Syntax** **ADD DEVICE** DeviceName*Password*,OSType, HomeServer, DeviceType, Host#, *SINGLE*
- Parameters**
- DeviceName is the name of the network device to be added. The name can be a maximum of 10 characters, and there can be no other device with the same name.
- Password* can be supplied but is not particularly useful for device records.
- OSType is the boot operating system for the device.
- HomeServer is the name of the device's home disk server.
- DeviceType is the device's type description. When adding a computer to perform a device boot the device type must be Workstation.
- Host# is the Omninet address of the device.
- The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example

```
ADD DEVICE APPLE#22,A2PASCAL,SERVER3,USERWORKSTATION,22
ADD DEVICE PRINTSRVR,CP/M-80,SERVER0,PRINT-SERVER,18
```

ADD DEVICE-TYPE

Description	This command adds a new device type record to the C3.Data file in the CORVUS volume.
Syntax	ADD DEVICE-TYPE DeviceName,DeviceType
Parameters	DeviceName is a new device name description of up to 15 characters. DeviceType is the device type number that identifies the device's class.
Example	ADD DEVICE-TYPE PRINT-SERVER,2

ADD OS-TYPE

Description This command adds a new operating system type to the C3.Data file in the CORVUS volume.

Syntax **ADD OS-TYPE** OSType,VolumeType,TypeOS,
LETTER|NUMBER|SLOT

Parameters OSType is the name of the new operating system. The name can be up to 15 characters.

VolumeType is the default volume type for the operating system.

TypeOS is the operating system number. This number is placed in the Network.User table to identify a user's operating system.

LETTER|NUMBER|SLOT is the volume mount designator used by the operating system. Most popular operating systems use either letters or numbers. Apple II computers use slots. For this parameter, enter one of the following values: letter, number, or slot.

Example **ADD OS-TYPE** MSDOS,MSDOS,4,Number

ADD USER

Syntax

ADD USER *UserName**Password*,*OSType*,*HomeServer*,
SINGLE

Parameters

*UserName**Password* is the new user's name and password. The name can be a maximum of 10 characters; the password can be a maximum of eight characters.

OSType is the user's boot operating system.

HomeServer is the name of the user's home disk server. A home disk server is used at boot time to locate operating system information stored in a boot volume. If this parameter is omitted, the current server is used as the home disk server.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example

```
ADD USER A2PAS\GWATSA,A2PASCAL,SERVER0
```

ADD VOLUME

- Description** This command creates the volume on the server and drive that was determined with the SELECT DRIVE and SELECT DISK commands.
- The ADD VOLUME command does not format the volume for use with its designated operating system. To format volumes, use the FORMAT VOLUME command.
- Syntax** **ADD VOLUME** *VolumeName,VolumeType,Length,Address,Access,Owner,Availability*
- Parameters** *VolumeName* is the volume name. The name can be up to 10 characters.
- VolumeType* is the volume type description for the new volume--i.e., its operating system.
- Length* is the size of the volume in 512-byte blocks. When creating Macintosh volumes you must indicate the size of the volume in blocks. You cannot specify volume size by typing a size such as extra-large.
- Address* is the starting block address of the volume. This is checked along with the length to make sure volumes do not overlap. If this parameter is omitted, the volume will be assigned the lowest address of available disk space.

Owner is the owner of the volume. The owner must be set to an existing user's name.

Values for the parameter *Availability* are PU, PR, and UN, for Public, Private, and Uncontrolled, respectively.

Example

```
ADD VOLUME TEST,UCSD,1024,1000,RW,GREG,PR
```


ADD VOLUME-TYPE

Description	This command adds a new volume type record to the C3.Data file in the CORVUS volume.
Syntax	ADD VOLUME-TYPE VolumeType,TypeVol,VolOffset
Parameters	VolumeType is a new volume type--i.e., operating system--description (up to 10 characters). TypeVol is the volume type number. VolOffset is the block offset from the physical beginning of the volume's starting block address.
Example	ADD VOLUME-TYPE UCSD,1,0

BATCH

Description	This command lets you automatically execute a batch file upon completion of a previous batch file.
Syntax	BATCH <i>BatchName</i>
Parameters	BATCH must appear as the last command in a batch file. <i>BatchName</i> is the name of a batch file to be used as input. If omitted, Constellation III uses a default batch filename of C3INPUT.
Example	<pre>ETOGGLE DELETE USER JOE,PRODOS,, (More Batch commands) COPY VOL1, TESTDATA, VOL2</pre>

CHANGE ACCESS

Syntax **CHANGE ACCESS** *VolumeName,Access,Unit*

Parameters *VolumeName* is the name of the volume for which access rights will be modified.

Access is the user's new access rights to the volume.

Unit is mount unit designator for the new operating system.

Example **CHANGE ACCESS** VOL2, ,6

Comment When using this command you must first specify a user with the **SELECT USER** command.

CHANGE DEVICE

Syntax **CHANGE DEVICE** DeviceName*Password*,*OSType*,
HomeServer,*DeviceType*,*Host #*,*SINGLE*

Parameters DeviceName is the name of the current device.

OSType is the device's new boot operating system.

HomeServer is the device's new home disk sever.

DeviceType is a new type description for the current device.

Host# is the device's new Omninet address.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example **CHANGE DEVICE** APPLE22, ,SERVER3, ,23

CHANGE USER

Description	This command allows modifications to be made to a network user's record. Only those parameters that are supplied cause changes to the record.
Syntax	CHANGE USER <i>UserName</i> \ <i>Password</i> , <i>OSType</i> , <i>HomeServer</i> , <i>SINGLE</i>
Parameters	<p><i>UserName</i>\<i>Password</i> is the name of the user whose attributes will be changed. The user's password can be changed, but the user's name cannot be altered.</p> <p><i>OSType</i> is the user's new boot operating system.</p> <p><i>HomeServer</i> is user's new home disk server.</p> <p>The optional keyword <i>SINGLE</i> indicates that changes will be made only to the current server and drive.</p>
Example	CHANGE USER MARY, ,SERVER3

CHANGE VOLUME

Description	This command allows changes to volume attributes. The changes do not affect the volume's contents.
Syntax	CHANGE VOLUME <i>VolumeName</i> , <i>NewName</i> , <i>VolumeType</i> , <i>Access</i> , <i>Owner</i> , <i>Availability</i>
Parameters	<p><i>VolumeName</i> is the name of the volume to be modified.</p> <p><i>NewName</i> is the new name for the volume.</p> <p><i>VolumeType</i> is the new volume type--i.e., operating system--for the volume.</p> <p><i>Access</i> is the new global access for the volume.</p> <p><i>Owner</i> is the new owner for the volume.</p> <p>Values for the parameter <i>Availability</i> are PU, PR, and UN, for Public, Private, and Uncontrolled, respectively.</p>
Example	CHANGE VOLUME VOLA,VOLB,CPM,RW, ,

CONSOLE

Description

This command causes subsequent display output to appear on the console device only. This command is normally used in conjunction with the PRINTER command.

Syntax

CONSOLE

COPY

Description

The COPY command is used to transfer files from an external volume to a volume on a Corvus drive. It works *only* with Pascal volumes.

Syntax

COPY SourceVol,FileName,DestinationVol

Parameters

SourceVol is the external volume name where the file is stored. External volumes may or may not be floppy diskettes, depending on which computer Constellation III is hosted by.

FileName is the name of the file to be copied.

DestinationVol is the name of a formatted volume on a Corvus drive.

Example

COPY VOL1, File1, VOL2

DELETE ACCESS

Description	This command removes the current user's access to a specified volume.
Syntax	DELETE ACCESS VolumeName
Parameter	VolumeName is the name of the volume that will be removed from the current user's list of accessible volumes.
Example	DELETE ACCESS VOL1
Comment	When using this command you must first specify a user with the SELECT USER command.

DELETE BOOT-CODE

Syntax **DELETE BOOT-CODE** BootType,*SINGLE*

Parameters BootType is the Constellation boot file to be deleted.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example **DELETE BOOT-CODE IBM**

DELETE DEVICE

Syntax **DELETE DEVICE DeviceName,*SINGLE***

Parameters DeviceName is the name of the device to be deleted.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example **DELETE DEVICE PRINT-SERVER**

DELETE USER

Syntax

DELETE USER UserName,*SINGLE*

Parameters

UserName is the name of the user to be deleted.

The optional keyword *SINGLE* indicates that changes will be made only to the current server and drive.

Example

DELETE USER BILL

DELETE VOLUME

Syntax **DELETE VOLUME** VolumeName

Parameter VolumeName is the name of the volume to be deleted.

Example **DELETE VOLUME NOTES**

ETOGGLE

Syntax

ETOGGLE

Normally if a command input from a batch file causes a logical error, Constellation III halts. The ETOGGLE command causes the program to display an error message and to complete batch processing. The command is a toggle: the first time it is entered, it turns the function on; to turn the function back off, enter the ETOGGLE command again. It is automatically turned off at the end of each batch file.

FORMAT VOLUME

Description This command is used to format a volume. The type of format is dictated by the volume's type attribute--i.e., its intended operating system. Depending on the volume type, a variable number of optional format parameters may be specified to override defaults.

Syntax **FORMAT VOLUME** VolumeName,*ParmA*,*ParmB* . . . ,
NOZERO

Parameters VolumeName is the name of the volume to be formatted.

ParmA, *ParmB* . . . are the optional parameters that may be specified to override the default values.

For UCSD volumes one parameter may be specified. This parameter determines the number of files in the directory as well as the directory size. The range for the parameter is from 1 to 77. If omitted, the default is 77.

For MS-DOS volumes, three parameters may be specified--1) Cluster Size, 2) Reserved Sectors, and 3) Number Of Directory Entries. All three parameters are optional and independent of each other. If you do not enter new values for any of the parameters the default values will be implemented. The default values are as follows:

- 1) Cluster size varies with volume size
- 2) Reserved Sectors: 1
- 3) Directory Entries: 256

Volume Size = N (Blocks)	Default Cluster Size
N ≤ 2,000	4
2,000 < N ≤ 16,000	8
16,000 < N ≤ 32,000	16
N > 32,000	32

For CP/M volumes four parameters may be specified--
Block Allocation Size, Number Of Directory Entries,
Sectors Per Track, and Number Of Reserved Sectors.
The default values for omitted parameters are:

Sectors Per Track: 64

Reserved Sectors: 0

Block Allocation Size: 2k

Directory Entries: (block allocation size *
1024)/32

Volume Size = N (Blocks)	Block Allocation Size
N < 2,000	2k
2,000 < N <= 8,000	4k
N => 8,000	8k

Directory entries = (Block Allocation Size * 1024)/32

NOZERO signifies that the volume directory should not be formatted, i.e., only the information for the Corvus volume header is written.

For DOS 3.3 volumes, only the NOZERO keyword may be included. The usable number of 280-block DOS 3.3 volumes is calculated as

(Absolute vol. size - 4) / 280 (rounded toward zero)

Example

FORMAT VOLUME FINANCES , , ,16

LIST

Description	Constellation III can display useful lists of network components with the LIST command, given below. There are five LIST commands. They may be used independently of one another.
Syntax	LIST NETWORK LIST USER LIST DEVICE LIST VOLUME LIST ACCESS
Comment	LIST ACCESS requires that you first use the SELECT USER command.

PIPE

Description There are four pipe commands. The commands can list active pipes, close a pipe, purge a pipe, and initialize the pipes area.

Syntax **PIPE** function,*ParmA*

Pipe Parameter Table:

Function	Parm A
List	
Close	Pipe#
Purge	Pipe#
Initialize	VolumeName

Examples PIPE LIST
PIPE CLOSE,PIPE3
PIPE PURGE,PIPE5
PIPE INITIALIZE,PIPES

PRINTER

Description This command causes subsequent console output to be echoed to a printer, if any. The use of the printer is machine-specific. See **CONSOLE** command.

Syntax **PRINTER**

QUIT

Description

This command causes an orderly shutdown of the Constellation III program. Any opened files are closed and control is returned to the operating system command line.

Syntax

QUIT

SELECT

Syntax **SELECT** keyword= Name\Password

Select Parameter Table:

Keyword	Name	Password
Disk	ServerName	ServerPassword
Drive	DriveName	DrivePassword
User	UserName	

Examples

```
SELECT DISK= SERVER1\MK
SELECT DRIVE= DRIVE1\PUB
SELECT USER= TOM
SELECT DISK= SERVER1\MK DRIVE= DRIVE1\PUB
        USER= TOM
```

Comments

The **SELECT DISK** and **SELECT DRIVE** commands are used to set the current server and drive. These commands should be used at the beginning of your batch file. Note that when a password is given for a server or a drive, Constellation 3 will remember the passwords. Thus the user may switch between various servers and drives without reentering passwords.

All three selection keywords and their parameters may be given on the same command line.

SEMAPHORE

Description There are four semaphore commands. The commands can list active semaphores, lock a semaphore, unlock a semaphore, and initialize the semaphore table.

Syntax SEMAPHORE function,*ParmA*

Semaphore Parameter Table:

Function	ParmA
List	
Locked	SemaphoreName
Unlock	Index#
Initialize	

Examples SEMAPHORE LIST
SEMAPHORE LOCK,MBLOCK
SEMAPHORE UNLOCK,2
SEMAPHORE INITIALIZE

STOP

Description

This command signals the end of a batch file and returns to the Network Management Program menu.

Syntax

STOP

Parameter Value Table

The table below shows the parameters and the list of valid values for each parameter. This table is stored in the C3.Data file in the CORVUS volume.

BootType	DeviceType	OSType	VolumeType
Apple2	Apple2	A2CP/M	A2SOS
Apple3	Apple3	A2DOS3.3	AFS
Atari-800	Atari800	A2Pascal	Atari
Companion	Bank	A2Runtime	CCOS
Concept	Boot-Device	A3SOS	Cndimage
Concept2	Comm-Server	Atari	CPM
DEC-Rainbow	Commodore-Pet	C2IV.0	DOS3.3
IBM	Companion	CCOS	Image
LSI-11	Concept-Plus	CP/M	Invimage
Macintosh	Corvus-Concept	CP/M-68	Mac
Nec-PC8000	DEC-Rainbow	CP/M-86	MSDOS
PET	IBM/PC/XT	Mac	New80
Printer-Server	LSI-11	MSDOS	NewDos
Sony-SMC-7086	Mirror-Server	NCIIV.0	PET
TI-Pro	NEC-PC8000	New80	ProDos
TRS-80-Mod1	Omni-Drive	NewDos	Reserved
TRS-80-Mod3	Print-Server	Pet	RSX11
Xerox820	TI-Professional	ProDos	RT11
Z-100	TRS-80-Mod1	RSX11	UCSD
Zenith-H89	TRS-80-Mod2	SoftechIV0	UNIX
	Workstation	UCSDII	
	Xerox	Unix3	
	Z-100	Unix5	
	Zenith-H89		

Synopsis

ADD ACCESS VolumeName,*Access,Unit*
ADD BOOT-CODE BootFile,BootType,*SINGLE*
ADD BOOT-TYPE BootName,BootNumber
ADD DEVICE DeviceName*Password,OSType,HomeServer,DeviceType,Host#,SINGLE*
ADD DEVICE-TYPE DeviceName,DeviceType
ADD OS-TYPE OSType,VolumeType,TypeOS,*LETTER|NUMBER|SLOT*
ADD USER UserName*Password,OSType,HomeServer,SINGLE*
ADD VOLUME VolumeName,VolumeType,Length,*Address,Access,Owner,Availability*
ADD VOLUME-TYPE VolumeType,TypeVol,VolOffset
BATCH BatchName
CHANGE ACCESS VolumeName,*Access,Unit*
CHANGE DEVICE DeviceName*Password,OSType,HomeServer,DeviceType,Host #,SINGLE*
CHANGE USER UserName*Password,OSType,HomeServer,SINGLE*
CHANGE VOLUME VolumeName,*NewName,VolumeType,Access,Owner,Availability*
CONSOLE
COPY SourceVol,FileName,DestinationVol
DELETE ACCESS VolumeName
DELETE BOOT-CODE BootType,*SINGLE*
DELETE DEVICE DeviceName,*SINGLE*
DELETE USER UserName,*SINGLE*
DELETE VOLUME VolumeName
ETOGGLE
FORMAT VOLUME VolumeName,*ParmA,ParmB . . . ,NOZERO*
LIST NETWORK
LIST USER
LIST DEVICE
LIST VOLUME
LIST ACCESS
PIPE function,*ParmA*
PRINTER
QUIT
SELECT keyword= Name*Password*
SEMAPHORE function,*ParmA*
STOP

Appendix B: Error Messages

In this appendix you will find a listing of the error messages the Network Management Program can generate, together with instructions to follow should you receive one of them, or possible causes.

Each error message is presented in **boldface**, followed by guidance on how to proceed. The messages are listed in alphabetical order.

A semaphore has been set that prevents access to the selected drive.

Make sure no one else is using the Network Management Program. Use the Clear Semaphores function in the Network Management Program to unlock the semaphore.

Access not allowed for this account.

You do not have access to the volume, and only the network manager can give it to you. See the network manager.

Account already exists.

OR

Account does not exist.

Try again, making sure you type the name of the account exactly as it appears on the account record. Be careful that you do not include extra spaces or characters.

Blank input not allowed.

You must enter something or press **ESC** to exit.

Can't find that account's home server.

Make sure all servers are properly connected and are turned on and ready.

Can't find that drive.

Make sure all drives are properly connected and are turned on and ready.

Can't find that server.

Make sure all servers are properly connected and turned on.

Can't format volumes for that operating system.

Format the volume from a computer that supports that operating system.

Can't put a volume at that address.

Use the List function from the Volumes menu to check the available space on the drive. Make sure that you specify an address that defines an area on the drive large enough to hold the volume.

Can't put that volume at that address.

Use the List function from the Volumes menu to check the available space on the drive. Make sure that you specify an address that defines an area on the drive large enough to hold the volume.

CIII has not been installed on that drive.

Install CIII on the drive. Use the Constellation III INITI diskette and choose Upgrade Existing Drive from the main menu. See instructions in the *Setup Guide*.

Disk semaphore error.

One or more areas of the drive may be damaged; call your dealer.

Error in retrieving account information.

Call your dealer.

Error in semaphore area.

Exit the Managing Semaphores function and try again.

File number is not active.

Enter a number for an existing file.

File number is out of range.

Enter a number that is in range.

Home volume has wrong OS type.

Enter the name of a home volume that has the same operating system as the account.

Home volume may not be private.

Choose a public volume to be the home volume, or change the access type on the volume record from private to public.

Home volume under different DOS.

Enter the name of a home volume that has the same operating system as the account.

Input must be numeric.

Type the appropriate number.

Invalid DOS type.

The program cannot find a record for that operating system. The operating system may not be installed or may be installed under another name.

Invalid OS format.

The program cannot find a record for that operating system. The operating system may not be installed or may be installed under another name.

Invalid O/S mount type.

OR

Mount unit already in use.

Enter a mount unit that is not in use.

No active files.

The PIPES volume has been found and it is empty.

No printer is connected.

Make sure the printer is connected, turned on, and in slot 1 of your network station.

PIPES volume not found.

There is no PIPES volume on the network. Make sure all servers are connected and turned on. If all servers are on, you must create a volume for the Transfer Area and name it PIPES. The PIPES volume should reside on server 0. See instructions in the *Setup Guide* for creating a PIPES volume.

ProDOS batch file not found.

Make sure you enter the filename exactly.

Reserved volume, change not allowed.

The volumes A2BOOT and CORVUS can neither be changed nor removed.

Reserved volume, remove not allowed.

The volumes A2BOOT and CORVUS can neither be changed nor removed.

Server name or address not found.

Make sure the server name and address are correct. Make sure the server is on the network and is turned on.

Semaphore number not active.

Enter a number for an active semaphore.

Semaphore number out of range.

Enter a new number that is in range.

Semaphore table is full.

There are too many users using multiuser programs.

The access table for the account is full.

Remove volumes from the access table as required in order to add new ones.

The volume size is too big for the operating system.

The volume size is too small for the operating system.

Enter a new volume size.

	minimum	maximum
DOS	284 blocks (1 floppy disk)	32,767 blocks (117 floppy disks)
ProDOS	284 blocks	32,767 blocks
CP/M	284 blocks	15,625 blocks
UCSD	284 blocks	15,625 blocks

There has been a CIII installation error on the selected drive.

Reinstall Constellation III on the drive. Use the C3 INITI diskette and choose Upgrade Existing Drive from the main menu. See instructions in the *Setup Guide*.

There has been a CIII installation error on the selected drive or there is a bad area on the selected drive.

Reinstall Constellation III on the drive. Use the C3 INITI diskette and choose Upgrade Existing Drive from the main menu. If reinstallation doesn't work, refer to the *Diagnostics Guide*.

There is no room for additional accounts and/or devices.

Delete accounts and/or devices as required in order to add new ones.

There is no room on the network for additional access.

Remove access to some volume from some account on the drive, to make room.

There is no room on the network for additional volume records.

Remove volumes as required in order to add new ones.

There's not enough space on the drive for that volume.

Check the available space on the drive and enter a smaller size.

Transfer area is not initialized.

Reinitialize the Transfer Area using the Manage Pipes Volume function in the Other Functions menu.

Volume already exists.

OR

Volume does not exist.

Make sure you type the name of the volume exactly as it appears on the volume record. Be careful that you do not include extra spaces or characters.

Appendix C: Planning Worksheets

This appendix consists of three planning worksheets, numbered C-1 through C-3, that you can duplicate as needed for your own network planning.

- C-1 Worksheet 1, Programs
- C-2 Worksheet 2, Volumes
- C-3 Worksheet 3, Accounts and Access

Planning Worksheet 3

ess	Volume	Access	Volume	Access	Volume	Access	Volume	Access

Novus Network Manager

COUNTS & ACCESS

Operating System:				Mount Locations				
Name of Individual Group	Private Account or Shared?	Account Name	Password	Volume	Access	Volume	Access	Volume

**Constellation iii
for the Apple II**

Tools for Network Users

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Chapter 1

Introduction

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About This Guide

This guide explains how to use the Constellation III utility programs. These programs are tools to help you manage your application programs and files in DOS 3.3, ProDOS, and Pascal. The programs differ somewhat from operating system to operating system but cover essentially the same ground.

The guide contains a separate chapter describing the utility programs for each of the three operating systems--DOS 3.3, ProDOS, and Pascal--that Constellation III fully supports. The guide has been written with the network manager principally in mind, but the utility programs, or tools, may be used by anyone on the network, at the network manager's discretion.

About the Tools

The Constellation III utilities fall into three main categories:

- volume and file utilities
- a mounting utility
- printing utilities

The volume and file utilities are designed to make it easier to perform many of the functions of the standard operating system utilities.

The mounting utility, the Mount Manager Program, is available in DOS 3.3, ProDOS, and Pascal versions. It enables users to change the arrangement of volumes that the network manager has specified are available to them.

The printing utilities include the File Spooler and File Despooler Programs, which make it possible for users to send files to the Transfer Area on the hard disk, to be printed on a network printer or shared with other users on the network. Users whose network stations don't have a Corvus Print Spooler Card can still print on a network printer by using the File Spooler Program. The File Despooler Program is used to fetch files from the Transfer Area.

Another printing utility, the Spooler Card Setup Program, is just for users whose workstations do have Corvus Print Spooler Cards. It allows them to set up their stations for printing on a network printer.

Installation

The Constellation III utilities are supplied on diskettes when you purchase the Constellation III Network System. They are installed on the hard disk during the installation of Constellation III, which is covered in the *Setup Guide*. Refer to that guide for questions about installation.

During installation, certain accounts are created that permit you access to the programs immediately. The names of these accounts and other information you need to use them is given in the table below. You may also want to copy some of the utilities into other volumes for some or all of your users.

To gain access to the volume containing the utilities for a particular operating system, use the appropriate log-on name, password, and so forth, given below.

Operating System	Log-On Name	Password	Volume	Mount
DOS 3.3	A2DOS33	NOS	A2DOS	S7,D1
ProDOS	A2PRODOS	NOS	A2PRO	S7,D1
Pascal	A2PASCAL	NOS	A2PAS	Unit#4
Backup to Floppy	A2BACKUP	(none)	A2BACK	Unit#

Giving Users Access to Utility Programs

There are two ways you can give an account access to the utility programs:

1. Give the user's account read-only access to the volume named in the chart above
2. Copy the individual utility programs that the user will need into volumes to which the user's account has access.

One reason to copy individual utility programs into different volumes is for convenience. For example, you might want to put the Spooler Card Setup Program or the File Spooler Program in the volume that contains the word processing program.

When you copy utility programs into different volumes, you will probably run them from BASIC. Or you could run them from programmed volume menus that you have prepared. The sections that follow give instructions on running the utilities either from BASIC or from the main utilities menu that appears when you log on using one of the accounts listed on the preceding page.

Some Basic Terms

The following terms are used in describing the utility programs for network users and in giving instructions in how to use them.

Backup A spare copy of the contents of a volume, stored on a floppy diskette: used to restore information in the event of a hard disk failure or accident.

Block A unit of measure of storage space on a hard disk or floppy. One block equals 512 bytes.

Boot	To start a computer by loading a program into memory from an external storage device. Often accomplished by first loading a small program whose purpose is to read the larger program into memory. The program is said to "pull itself up by its own bootstraps."
Catalog or Directory	A list of the files stored on a particular diskette or in a volume. The catalog includes the file type, the length of the program or file, and the name of the file.
Console	The computer screen of a network station.
Constellation volume	A segment of space on the Omidrive formatted for DOS 3.3, ProDOS, Pascal, or CP/M and intended to hold volumes belonging to the respective operating system. A Constellation volume of the right size can hold as many as 117 DOS 3.3 volumes, for instance.
Despool	To despool a file is to retrieve it from the Transfer Area to save, print, or display on the computer screen.
Destination volume	The volume or floppy disk onto which you want to copy files.
DOS 3.3 volume	A floppy diskette or space within a Constellation volume equal to 284 blocks (which is equivalent to space on a 5-1/4" floppy diskette).
File	Any named, ordered collection of data. Apple computer files are normally stored on disks.
File type	The various operating systems have files of various types. For instance, there are two types of text files--Apple files and ASCII files--and three types of Apple program files--Applesoft BASIC, Integer BASIC, and Binary.

Greeting program	Commonly called a "HELLO" program in DOS 3.3 and a "STARTUP" program in ProDOS, this is the program that first runs when you boot into a volume. It is responsible for running larger programs so that they will automatically boot without keyboard commands.
Home volume	The Constellation volume into which a user is placed when he logs onto the network. The home volume for DOS 3.3 and ProDOS accounts is the volume mounted on the lowest-numbered drive on the highest-numbered slot. For Pascal accounts the home volume is the volume mounted in unit 4. For CP/M accounts the home volume is the volume mounted in unit C.
Local printer	A printer that is connected directly to the printer card or port of a computer.
Mount	To mount a volume is to assign it a location--in ProDOS, slot and drive numbers, for instance--that makes the volume accessible. Mounting a volume is analogous to inserting a floppy diskette in a diskette drive: all the information on the diskette exists before you insert the diskette, but you can't get at it.
Network printer	A printer that anyone on the network can send files to via the Transfer Area.
Operating system	The program that provides the environment in which other programs run on the computer. Application programs are always written for a specific operating system and won't work under the wrong one. This is why programs for different operating systems must be segregated in different Constellation volumes formatted for the operating system required.

**Slot and
drive numbers**

The slot and drive numbers describe the operating system reference or mount location of a volume. A physical slot number refers to an actual expansion slot in the computer. Each slot has two drive numbers associated with it, drive 1 and drive 2. In Constellation III, we use logical slot and drive numbers to refer the operating system to a volume on the hard disk. The software creates the logical slot and drive numbers to mimic physical slot and drive numbers so the operating system can find the volume.

Source volume

The volume or floppy disk that contains files you want to copy to a destination volume or disk.

Spool

To spool a file is to send it to the Transfer Area on the Omnidrive for subsequent despooling to a printer or to a network user's computer.

**Volume
initialization**

The process of preparing and formatting a volume for a particular operating system so it can receive information.

Chapter 2

Constellation III Utilities for DOS 3.3

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Introduction

There are nine Constellation III utility programs for the DOS 3.3 operating system. These programs are briefly described below.

■ **Catalog Command**

This program shows you the directories of all DOS 3.3 volumes within each mounted Constellation volume. This is the fastest way to see what files are in which volumes. This program also shows the amount of space available in each DOS 3.3 volume.

■ **DOS Volume Copy Program**

This program copies floppy diskettes that are not copy-protected into volumes on the hard disk. It also copies volumes to floppy diskettes. The program is fast--one diskette takes only 30 seconds--and it's semi-automated: subsequent volumes can be copied with just two keystrokes.

■ **Hard Disk Filer Program**

This program, a modified version of the Apple FID (File Developer) program, allows you to catalog, copy, delete, lock, and unlock files. The program lets you move several files at the same time from volume to volume on the hard disk, from diskettes to the hard disk, or from the hard disk to diskettes.

■ **File Finder Program**

If you know the name of a file but can't remember what volume it's in, this program will find the file for you. It will give you the slot, drive, and volume location of all files with a particular name.

■ Volume Initializer Program

Several contiguous DOS 3.3 volumes or a series of floppy diskettes can be initialized at the same time using this program. It's particularly useful for formatting floppies, but also for initializing any volume that you did not initialize when you created it.

■ Mount Manager Program

The Mount Manager Program is for users who need access to more than the six Constellation volumes that can be mounted at any one time. Because a Constellation volume on the hard disk can contain up to 117 individual DOS 3.3 volumes, not many ordinary users will need to use this program. But it is useful for the network manager, who can use the program to mount different sets of six volumes and generally mount and unmount volumes as need arises.

■ File Spooler Program

This program makes it possible for users whose network stations do not have a Corvus Print Spooler Card to print using a network printer. It also makes it possible for users on the network to send files to each other. The File Spooler Program sends files to the Transfer Area on the hard disk. From the Transfer Area, files can be printed on a network printer, or other users can retrieve them using the File Despooler Program.

■ File Despooler Program

This program allows users to retrieve files from the Transfer Area. It also enables an Apple to act as a printer server. Files can be despoiled from the Transfer Area to the screen, a files or a local printer.

■ Spooler Card Setup Program

This program is used to set up the Corvus Print Spooler Card for printing on a network printer. With a Print Spooler Card installed, it is possible to print directly from application programs without first having to spool files to the Transfer Area with the File Spooler Program.

Putting Software on the OmniDrive

After you have created volumes, user accounts, and access tables, you'll want to copy your application programs into the volumes you've created.

To copy a program, you need to know several things about it and about the volume where you want to put it. The information you need is outlined by the questions below. You can use the Catalog command described in the section that follows to find the answers to some of the questions. For answers to the others, check the program's documentation or, if necessary, ask the program's publisher.

When you know the answers to the questions, you are ready to copy programs onto the hard disk using the Volume Copy Program of the DOS 3.3 Utilities. Make sure to log on using an account that has access both to the appropriate utilities volume and to the Constellation volumes into which you want the programs copied.

QUESTIONS ABOUT THE DISKETTE YOU WANT TO COPY

1. Is the program compatible with the DOS 3.3 operating system?

Only programs that run in DOS 3.3 can be copied into DOS 3.3 volumes using these utilities. If you can catalog the diskette using the DOS 3.3 Catalog command, it is compatible with the DOS 3.3 operating system.

2. Is the program copy-protected?

Check the packaging and documentation that came with the program or try to copy the program. Programs that are copy-protected cannot be copied onto the hard disk using the DOS Volume Copy Program.

3. What is the name of the application's greeting program?

The greeting program is the file that runs first to load the program into memory. To identify the application's greeting program, use the Catalog command to catalog the diskette. When you catalog the diskette, you will often find that the first file on the diskette is the greeting program. It is usually named HELLO.

QUESTIONS ABOUT THE VOLUME INTO WHICH YOU WANT TO COPY

Use the Catalog command to catalog the Constellation volumes on the OmniDrive for the answers to the following questions.

1. What is the name of the Constellation volume into which you want to copy the program?

The name of the Constellation volume is determined by the network manager when creating the Constellation volume.

2. What is the mount location for that Constellation volume?

The mount location is designated by a slot number and drive number in the access table for the account that will be using the utilities to copy the programs. Record the slot and drive numbers of the Constellation volumes into which you want to copy programs.

3. What DOS 3.3 volumes within the Constellation volume are free?

The hard disk catalog will show the number of sectors available in each DOS 3.3 volume. An empty DOS 3.3 volume has 739 free sectors.

Make a record of DOS 3.3 volumes you want to use in a particular Constellation volume by writing their numbers next to the slot and drive number for the Constellation volume on the appropriate volumes worksheet. How to use the worksheets is discussed in the *Network Manager's Guide*.

The Catalog Command

Use the Catalog command to learn the contents of diskettes or volumes on the OmniDrive.

TO CATALOG A DISKETTE

1. Place the diskette in drive 1 of your computer.
2. At the BASIC prompt, type

Catalog, S4,D1

and press **RETURN**.

This instruction assumes that the diskette drive containing the diskette is drive 1 in slot 4. If it's not, substitute the actual slot and drive numbers when typing the command.

If a valid catalog appears, chances are good that you will be successful in copying the diskette onto the hard disk. Make a note of the diskette's volume number, greeting program name, and file type on your worksheet.

If no catalog appears, the diskette is probably copy-protected. You will need a special copy program to copy the diskette to your OmniDrive.

If you receive an I/O ERROR message, check to make sure there is a diskette in the disk drive and that the drive door is closed properly. Repeat Step 3 a couple of times. If you continue to get the I/O ERROR message, chances are that the program is in a different operating system, the program is copy-protected, or the diskette isn't formatted.

The BASIC prompt appears at the end of the catalog. If you have a Print Spooler Card in your computer or a local printer connected, you might find it useful to print out the catalog.

If you have other diskettes to copy, catalog the rest by repeating Steps 1 and 2.

TO CATALOG THE HARD DISK

1. Select the Hard Disk Catalog command from the Constellation III DOS 3.3 Utilities menu, or run from BASIC by typing RUN HD CAT and pressing **RETURN**.

Constellation III DOS 3.3 Utilities

- > 1 Hard Disk Catalog
- 2 Volume Copier
- 3 Hard Disk Filer
- 4 File Finder
- 5 Volume Initializer
- 6 Mount Manager
- 7 File Spooler
- 8 File Despooler
- 9 Spooler Card Setup
- 0 Quit

Type Number or Use Arrows and Return
to Select Option

A list of all the Constellation volumes that are mounted is presented. For each Constellation volume you see the first seven characters of the volume's name, the mount location indicated by slot and drive numbers, and the number of DOS 3.3 volumes the Constellation volume contains.

HARD DISK CATALOG
VERSION 1.00
COPYRIGHT (C) 1985 CNS, INC.

Super Volume -----	# of Vols -----	S	D	Server -----
--> A2DOS	4	7	1	14
VOLUME1	4	6	1	14
VOLUME2	4	6	2	14
VOLUME3	2	5	1	14

QUIT

USE ARROWS AND RETURN TO SELECT

2. Use the arrow keys to move the pointer to the Constellation volume you want to catalog and press **RETURN**.

A message appears asking if you want to print out the volume catalog(s) you select for viewing. If you have a Corvus Print Spooler Card in your computer or a local printer connected, you may want to print the catalog.

3. Type Y if you wish to print the volume catalogs. Press **RETURN** when the highlight is on N if you do not wish to print the volume catalogs.

A prompt appears asking you to supply the beginning DOS 3.3 volume number and the ending DOS 3.3 volume number of the volume(s) you wish to view.

4. Type the beginning DOS volume number and press **RETURN**; then type the ending DOS volume number and press **RETURN**.

The catalog of the beginning DOS volume appears.

5. To continue displaying catalogs, press **RETURN**.

When you have viewed all the selected catalogs, press **ESC** to return to the Catalog command menu or to BASIC. To return to the Constellation III DOS Utilities menu or to BASIC from the Catalog command menu, use the arrow keys to move the pointer to Quit and press **RETURN**.

The Volume Copy Program

Use this program to copy floppy diskettes that are not copy-protected onto the hard disk. The program also copies DOS 3.3 volumes from the OmniDrive onto a floppy diskette.

TO COPY DISKETTES OR VOLUMES

1. Select the Volume Copier Program from the DOS 3.3 Utilities Menu, or run from BASIC by typing **BRUN COPY VOLUME** and pressing **RETURN**.

You will see a dialog screen that asks you to supply the slot, drive, and volume numbers for the diskette or volume you want to copy from. This is called the source diskette or volume.

2. If you're copying a diskette, insert the diskette into drive 1 of your computer.

3. Enter the slot, drive, and volume number for the source diskette or volume, pressing **RETURN** after each number.

If you make a mistake, press **ESC**. You are prompted to enter slot, drive, and volume number again, or slot and drive only, if the source is a diskette.

If you enter a number that is not used to identify slot and drive locations (e.g., a slot number greater than 7 or a drive number greater than 2), a message appears that the number is "invalid." Type the correct number and press **RETURN**.

If you supply numbers within the allowable range but for which there are no drives hooked up, you will see an error message. Enter the new slot and drive locations and press **RETURN**.

4. Enter the slot, drive, and volume number for the destination volume, as prompted. Press **RETURN** after each number.

The destination volume will usually be a DOS 3.3 volume on the hard disk. It can also be another diskette.

A message appears asking if it is OK to begin copying.

5. Type **N** if you need to correct a number for a slot or drive location. You are asked if you want to quit. Type **N** to begin entering source parameters again or type **Y** to quit.

OR

If the information is OK, type **Y** to begin copying.

The program will notify you of the status of the copying procedure. When the copying is complete, the dialog screen is restored and you are given the opportunity to copy again.

TO QUIT THE VOLUME COPY PROGRAM

Press **ESC** to return to the Constellation III DOS 3.3 Utilities menu or to BASIC.

The Hard Disk Filer Program

PROGRAM OVERVIEW

This program, a modified version of the Apple II File Developer (FID) program, allows you to catalog, copy, delete, lock, and unlock files. You can move several files at the same time from volume to volume on the hard disk, from diskettes to the hard disk, or from the hard disk to diskettes. Also, files are packed more tightly with this program than with the Apple FID program, so disk space is used more efficiently.

Using a Pattern to Select Files

When selecting a number of files to be copied, unlocked, locked, deleted, or verified, you may find it convenient to use a pattern. A pattern is a filename with one or more equal signs (=) in it. The equal sign is a special wildcard character that will match any number of characters in the catalog as long as the rest of the filename matches. For example, the pattern "AB=" will match the files "AB", "ABCDE", and "ABRAHAM". The pattern "=H=" will match the files "H", "OHIO", or any other filename containing the letter H. The pattern "=" will match anything and can be used when you want to copy, delete, lock, or unlock every file on the diskette or in the volume.

In addition, patterns can specify what file types to match. If you want a pattern to match only certain file types, finish the pattern by typing a comma, followed by a file type used in the catalog.

After selecting more than one file to be copied, unlocked, locked, deleted, or verified, you may request prompting. Prompting will allow you the opportunity to apply the command to files within a volume on an individual, case-by-case basis.

For instance, when copying several files, if you request prompting, the name of the first file to be copied will appear along with a flashing cursor. If you wish to copy this file, type Y and press `RETURN`. If you do not wish to copy this particular file, type N to deselect it and the program will skip it and move ahead to the next file. If you do not request prompting, the program simply performs the operation on all the files identified within the volume without waiting for individual confirmation.

TO RUN THE HARD DISK FILER PROGRAM

- Select the Hard Disk Filer Program from the DOS 3.3 Utilities Menu, or run from BASIC by typing `BRUN FID3` and pressing `RETURN`.

The Apple II FID menu appears.

```
*****
*                APPLE ][ FILE DEVELOPER                *
*                                                        *
*                FID VERSION M                          *
*                                                        *
*  COPYRIGHT 1979 APPLE COMPUTER INC.                   *
*****
```

CHOOSE ONE OF THE FOLLOWING OPTIONS

```
<1>  COPY FILES
<2>  CATALOG
<3>  SPACE ON DISK
<4>  UNLOCK FILES
<5>  LOCK FILES
<6>  DELETE FILES
<7>  RESET SLOT & DRIVE
<8>  VERIFY FILES
<9>  QUIT
```

WHICH WOULD YOU LIKE?

TO COPY FILES

1. From the Apple II FID menu, type 1 and press **RETURN**.

A prompt appears asking you to supply the slot, drive, and volume numbers for the source file. These are the slot, drive, and volume numbers for the volume containing the file that you want to copy.

2. Enter the source slot, drive, and volume numbers and press **RETURN**.

If the file is on a floppy diskette, you don't need to enter its volume number. Just enter the slot and drive numbers for the floppy and press **RETURN**.

A prompt appears asking for the destination slot, drive, and volume numbers. These are the slot, drive, and volume numbers for the volume into which you want to copy the source file.

3. Enter the destination slot, drive, and volume numbers and press **RETURN**.

Again, if the destination of the file is a floppy diskette, you don't need to enter a volume number. Just enter the slot and drive numbers for the floppy and press **RETURN**.

A prompt appears asking you to supply the filename for the file you want to copy.

4. Enter the filename and press **RETURN**.

OR

Enter a pattern using the = key in combination with other characters, or press only the = key to copy all the files on the diskette.

A prompt appears asking if you want prompting. Type Y for yes or N for no.

A prompt appears asking you to insert the appropriate diskettes.

5. Insert the appropriate diskettes and press **[SPACE]**.

OR

Press **[ESC]** to cancel copying.

- If the destination volume already contains a file with the name you used, you will get a message saying that the file already exists. If this happens, there are three things you can do:
 - 1) Enter a new filename for the copy.
 - 2) Press **[RETURN]** to replace the existing file of that name.
 - 3) Press **[CTRL]** -C and **[RETURN]** to cancel copying.
- If the existing file in the destination volume is locked, a prompt will appear saying that the file is locked. If you get this message, type Y to replace the locked file; type N to go back to the previous step.
- If you supply a filename for which a file cannot be found in the source volume you specified, the message NO FILES SELECTED will appear and you may press **[SPACE]** to continue.
- If the file was found, the message DONE appears and requests you to press **[SPACE]** to continue.

Note: If you are copying files from one diskette to another on a single drive system and you specify the same slot and drive numbers for the source and the destination diskettes, the program will tell you when to put the source diskette in the drive and when to put the destination diskette in the drive.

The volume number for a diskette is usually 0 or 254 unless noted otherwise on the catalog for the diskette.

TO CATALOG A DISKETTE

1. **From the Apple II FID menu, type 2 and press `RETURN`.**

If you have not set the default slot and drive numbers, a prompt appears asking you to supply them.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. **Enter the slot, drive, and volume numbers and press `RETURN`.**

A catalog appears of the diskette in the last slot, drive, and volume specified.

TO CHECK SPACE ON A DISKETTE

1. **From the Apple II FID menu, type 3 and press `RETURN`.**

If you have not set the default slot and drive numbers, a prompt appears asking you to supply them.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. **Enter the slot, drive, and volume numbers and press `RETURN`.**

The screen displays information for the diskette in the default slot and drive, showing how many sectors are used and how many sectors are still free.

TO UNLOCK FILES

1. **From the Apple II FID menu, type 4 and press `RETURN`.**

If you have not set the default slot and drive numbers, a prompt appears asking you to supply them.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. **Enter the slot, drive, and volume numbers and press `RETURN`.**

A prompt appears asking you to supply the filename.

3. **Enter the filename or a pattern and press `RETURN`.**

OR

Enter a pattern using the = key in combination with other characters, or press only the = key to unlock all the files on the diskette.

If the filename you entered is invalid, the prompt to enter the filename continues to appear until a valid filename is entered.

A prompt appears asking you to insert the diskette containing the file.

4. Insert the diskette and press **[SPACE]** to proceed with unlocking the file.

When you catalog the diskette, you will see that the unlocked file does not have an asterisk before the filename.

If the file is not on the diskette, you will get the message NO FILES SELECTED and you may press **[SPACE]** to return to the Apple II FID menu.

OR

Press **[ESC]** to cancel.

OR

Press **[CTRL] - [RESET]** to return to the Constellation III DOS 3.3 Utilities Menu if you are running the program from BASIC, to return to BASIC.

TO LOCK FILES

1. From the Apple II FID menu, type 5 and press **[RETURN]**.

If you have not set the default slot and drive numbers, a prompt appears asking you to supply slot, drive, and volume numbers.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. Enter the slot, drive, and volume numbers and press **[RETURN]**.

A prompt appears asking you to supply the filename.

3. Enter the filename or a pattern and press **RETURN**.

OR

Enter a pattern using the = key in combination with other characters, or press only the = key to lock all the files on the diskette.

If the filename you entered is invalid, the prompt to enter the filename continues to appear until a valid filename is entered.

A prompt appears asking you to insert the diskette containing the file.

4. Insert the diskette and press **SPACE** to proceed with locking the file.

When you catalog the diskette, you will see that the locked file has an asterisk before the filename.

If the file is not on the diskette, you will get the message NO FILES SELECTED and you may press **SPACE** to return to the Apple II FID menu.

OR

Press **ESC** to cancel.

OR

Press **SPACE** - **RESET** to return to the Constellation III DOS 3.3 Utilities Menu if you are running the program from BASIC, to return to BASIC.

TO DELETE FILES

1. From the Apple II FID menu, type 6 and press **RETURN**.

If you have not set the default slot and drive numbers, a prompt appears asking you to supply slot, drive, and volume numbers.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. Enter the slot, drive, and volume numbers and press **RETURN**.

A prompt appears asking you to supply the filename of the file you want to delete.

3. Enter the filename and press **RETURN**.

OR

Enter a pattern using the = key in combination with other characters, or press only the = key to delete all the files on the diskette.

- If the filename you entered is invalid, the prompt to enter the filename continues to appear until a valid filename is entered.
- If the file is not on the diskette, you will get the message NO FILES SELECTED. Press **SPACE** to return to the menu.
- If the file is locked you will get the message FILE LOCKED. Press **SPACE** to return to the menu.

TO RESET THE DEFAULT SLOT AND DRIVE

- From the Apple II FID menu, type 7 and press `RETURN`.

This cancels the current default slot and drive numbers. The next time you give a command that requires slot and drive numbers, you will be prompted for them.

TO VERIFY FILES

1. From the Apple II FID menu, type 8 and press `RETURN`.

If you have not set the default slot and drive numbers, a prompt appears asking you to supply slot, drive, and volume numbers.

The last slot, drive, and volume specified becomes the default. Once these numbers have been entered, all commands in the Apple II FID menu will automatically refer to them unless you reset the defaults using the Reset Slot and Drive function in the Apple II FID menu.

2. Enter the slot, drive, and volume numbers and press `RETURN`.

A prompt appears asking you to supply the filename of the file you want to verify.

3. Enter the filename or a pattern and press `RETURN`.

OR

Enter a pattern using the =, or press the = key to verify all the files on the diskette.

- If the file is valid, you will see the message **DONE**.
- If a file cannot be read, the program considers it invalid and presents the message: **I/O ERROR**. Press the **SPACE** to return to the menu.

TO QUIT THE HARD DISK FILER PROGRAM

From the Apple II FID program menu, type 9 and press **RETURN** to return to the Constellation III DOS 3.3 Utilities menu or to BASIC, if you are running the program from BASIC. Alternatively, you may at any time press **CTRL** - **RESET**, which does the same thing.

The File Finder Program

The File Finder Program is useful when you know the name of a file but don't know its location on the hard disk. The program is simple to use: you type a filename, and the program searches all mounted volumes to find the file. It then displays the slot, drive, and volume numbers for all files with that name.

To find a file

1. **Select the File Finder Program from the Constellation III DOS 3.3 Utilities Menu, or run from BASIC by typing RUN FILE FINDER and pressing **RETURN**.**

A screen appears with a prompt asking you to enter a filename.

```
FILE FINDER  
VERSION 1.0  
COPYRIGHT (C) 1984 CORVUS SYSTEMS, INC.
```

```
FIND THE VOLUME FOR A GIVEN FILE  
FILE NAME?
```

2. Type the filename and press **RETURN**.

Make sure that you type all characters and spaces exactly.

3. If the file is found, a message appears telling the first slot, drive, and volume number it has found for the file.

If a file with the name you entered cannot be found, the screen displays the message ALL VOLUMES SEARCHED.

In either case, a prompt appears asking if you want to continue.

4. **Continue typing Y at the prompt if you want to find other files of the same name.**

When all files of the given name have been found, a message appears telling you that all volumes have been searched.

5. **Type Y to find another file.**

OR

Type N if you want to return to the Constellation III DOS 3.3 Utilities Menu or, if you are running the program from BASIC, to BASIC.

The Volume Initializer Program

The Volume Initializer Program can be used to:

- erase the entire contents of a DOS 3.3 volume
- format volumes or floppy diskettes.

Only rarely will you need to use this program to format volumes, since you will ordinarily choose to format or initialize volumes automatically when you create them.

You must be careful not to run this program on the wrong volume by mistake. Initialization erases all information on a volume or diskette, and once it's gone, you cannot recover it. For this reason, the Volume Initializer Program repeatedly asks that you confirm your responses before proceeding. When the program prompts you to confirm your response, check before proceeding.

TO INITIALIZE DOS 3.3 VOLUMES OR DISKETTES

1. **Select the Volume Initializer Program from the Constellation III DOS 3.3 Utilities Menu, or run from BASIC by typing RUN INIT VOL and pressing `RETURN`.**

The program issues a warning that it initializes volumes and asks if you want to continue.

```
VOLUME INITIALIZER
VERSION 1.00
COPYRIGHT (C) 1985 CNS, INC.
```

WARNING

```
THIS PROGRAM INITIALIZES DOS 3.3 VOLUMES
DO YOU WISH TO CONTINUE? N
```

2. **Type Y to continue or type N to return to the Constellation III DOS 3.3 Utilities Menu.**
3. **Enter the slot, drive, and first volume and last volume numbers, as prompted, for the volume you want to initialize. After entering each number, press `RETURN`.**

If you are initializing a diskette, insert the diskette and enter the slot and drive numbers, as prompted. You are not prompted for first and last volume numbers with a diskette.

VOLUME INITIALIZER
VERSION 1.00
COPYRIGHT (C) 1985 CNS, INC.

INITIALIZE VOLUME(S) IN SLOT: 6
DRIVE: 1
BEGINNING WITH VOLUME: 1
ENDING WITH VOLUME: 4

OK TO INITIALIZE?

A prompt appears asking if initialization should begin.

If the slot, drive, and volume numbers are not correct, type N. The program will present the slot, drive, and volume prompts again.

OR

Type Y to confirm the slot, drive, and volume numbers and to begin initialization.

If there are files already in the volume you want to initialize, a message appears telling you that the files will be destroyed. If you wish to continue with initialization anyway, type Y, or type N to return to the Constellation III DOS 3.3 Utilities Menu or to BASIC.

TO QUIT THE VOLUME INITIALIZER PROGRAM

- Press **CTRL** - **RESET** or **ESC** to return to the Constellation III DOS 3.3 Utilities Menu.

The Mount Manager Program

PROGRAM OVERVIEW

DOS 3.3 users will usually find that access to six Constellation volumes is more than enough to cover all their needs. Because of the large capacity of Constellation volumes, the Mount Manager Program should rarely have to be used by ordinary network users. On the other hand, the Mount Manager Program is an essential tool for the network manager. You can use the Mount Manager Program to give yourself access to multiple sets of six Constellation volumes so you can copy programs, organize the volumes, and mount volumes for any account.

The Mount Manager Program is used to:

- mount Constellation volumes
- unmount Constellation volumes
- change the slot and drive number of a Constellation volume
- change a user's read-write access to a Constellation volume
- change the mount status of Constellation volumes stored on different disk drives.

HELPFUL HINTS

Here are some rules and advice you should keep in mind when using the Mount Manager Program.

- We recommend that the mount location for the Constellation volume containing the Mount Manager Program be S7,D1,V1. The instructions that follow use that location. If you have assigned a different mount location to the Constellation volume containing the program, substitute that location for the one supplied in the instructions.
- Changing the read-write status of a Constellation volume automatically changes the status of all DOS 3.3 volumes within it. For example, if you assign an account read-write access to a Constellation volume, then users of that account will have read-write access to every DOS 3.3 volume contained within that Constellation volume.
- You cannot change the mount status for individual DOS 3.3 volumes within a Constellation volume.
- Do not mount a Constellation volume on the same slot and drive as a diskette drive or another peripheral. If you do, the slot and drive designations for Constellation volumes will take precedence over any peripheral you have installed in the same slot. The diskette drive or peripheral will be unusable until you assign the Constellation volume to a different slot and drive number.

TO RUN THE MOUNT MANAGER PROGRAM

- Select the Mount Manager Program from the DOS 3.3 Utilities Menu, or run from BASIC by typing BRUN MOUNT MANAGER,S7,D1,V1 and pressing **RETURN**.

You see the main menu of the Mount Manager Program.

DOS 3.3: Mount Manager [1.8]

(C) 1984 Corvus Systems, Inc.

- M A I N M E N U -

Please Select:

L - List Mounted Volume Status

M - Mount a Volume

U - Unmount a Volume

S - Select Network Disk Server

I - Search Drive Image [No]

Q - Quit

Current Server Name : SERVER0

Server Number : 0

At the bottom of the screen, directly under the main menu options, the screen displays the current server name and number. (This is relevant information to users of networks with multiple servers.)

TO SEE A LIST OF MOUNTED CONSTELLATION VOLUMES

1. From the Mount Manager menu, type L to see a list of mounted Constellation volumes.

A screen appears showing the following information for each mounted volume:

- a letter used to identify the Constellation volume
- the Constellation volume name
- the length of the Constellation volume in blocks
- the number of DOS 3.3 volumes it contains
- the slot, drive, and current volume
- the server number
- whether or not the user has read-write access to the Constellation volume.

DOS 3.3: Mount Manager [1.8]

(C) 1984 Corvus Systems, Inc.

Volumes Currently Mounted

Name	Length	VOLS	S D V	Loc.	R/W
A A2DOS	1124	4	7,1,1	0	Y
B VOLUME1	1124	4	6,1,1	0	Y
C VOLUME2	1124	4	6,2,1	0	
D VOLUME3	564	2	5,1,1	0	Y
E *****					
F *****					

4 Volumes Mounted

Press any key to continue

2. To return to the Mount Manager Program menu, press SPACE.

TO UNMOUNT A CONSTELLATION VOLUME

A maximum of six Constellation volumes can be mounted for an account at any one time. Sometimes you have to unmount a volume in order to free a slot and drive location for another volume you want mounted.

1. From the Mount Manager menu, type U to unmount a Constellation volume.

A screen similar to the List Volumes screen shows information about each volume.

To return to the Mount Manager menu without unmounting any Constellation volumes, press **ESC**.

2. Type the letter next to the Constellation volume that you want to unmount.

WARNING: Do not unmount the account home volume or the volume containing the Mount Manager Program.

The Constellation volume is unmounted and the Mount Manager menu is displayed.

3. To verify that the correct Constellation volume is unmounted, type L to see a list of Constellation volumes currently mounted.
4. To return to the Mount Manager menu, press **SPACE**.

TO MOUNT A CONSTELLATION VOLUME

The Mount function of the Mount Manager Program is used to:

- mount Constellation volumes that are not currently mounted
- remount Constellation volumes to change their slot and drive numbers
- change read-write access to a Constellation volume.

When using the Mount function, a list is presented that includes all unmounted volumes eligible for mounting in the current account. When establishing the access table for the account, the network manager determines which volumes an account will have eligible for mounting.

1. From the Mount Manager menu, type M.

The screen displays volumes that the network manager has made eligible for mounting in the account access table. Next to each volume is a letter that the Mount Manager Program uses to identify the volume. A volume in this list cannot be used by the account until it has been mounted and assigned slot and drive numbers.

DOS 3.3: Mount Manager [1.8]

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A-VOLUME4 B-VOLUME5
Mount Which Volume ?

If the volume you want to mount isn't on this list, the network manager must first make the volume eligible for mounting on the access table for the account. Press **[ESC]** to return to the main menu of the Mount Manager Program and then type Q to exit the program.

If no volumes are available for mounting, a message appears saying so, Press **[SPACE]** to continue.

2. Type the letter for the volume you want to mount.

A dialog screen is presented asking you to supply a slot number from 1 to 7.

3. Type the number of the slot location you want for the volume.

Remember, if you assign a slot and drive location that is already taken by another volume, the volume you mount last is the only one the account will be able to access. Also, if you assign a slot and drive number that has been assigned to a diskette drive, the diskette drive will no longer be usable.

A warning message will appear if you enter a slot number that has already been assigned to a diskette drive. If this happens, press **[CTRL] - [RESET]** to return to the Dos 3.3 Utilities main menu, unmount the volume, and mount it again using a different slot number.

A dialog screen is presented asking you to supply a drive number: 1 or 2.

4. Type the number of the drive location you want for the volume.

A dialog screen is presented asking you if you want the account to have read-only access to the volume.

Read-only access prevents the user from changing information stored in the volume.

5. If you want the account to have read-only access to the volume, type Y.

OR

If you want the account to have read and write access to the volume, type N.

Read-write access allows the user to review, use, and make changes to information in the volume. Only a single user should have read-write access to a volume at one time.

6. To verify that the correct volume is mounted, type L to see a list of volumes currently mounted.

7. To return to the Mount Manager menu, press `SPACE`.

MOUNTING CONSTELLATION VOLUMES ON MULTIPLE SERVERS

Servers enable network devices other than computers to communicate with each other. Each of these devices--printers, The Bank, an OmniDrive--has its own server. Sometimes the server is built into the device, as with OmniDrives and The Bank. In any case, each server has a unique name and number used to identify it. The current server name and number are displayed at the bottom of the menu screen of the Mount Manager Program.

To mount or unmount Constellation volumes that are stored on a hard disk associated with a server other than the current server, you must first select the server you want in order to make it the current server. For example, if the current server is SERVER0 and you would like to mount a volume on SERVER1, you must first change the current server to SERVER1.

To Select a Network Disk Server

1. From the Mount Manager menu, type S.

The screen displays the names of all available servers on the network and asks you which server to select.

```
DOS 3.3: Mount Manager [1.8]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
A-SERVERO
```

```
Select Which Server ?
```

2. Type the letter displayed before the server name of the server that you want to make the current server.

The current server changes to the server you specified. You can now mount and unmount volumes from this server. The Mount Manager menu is displayed.

Mounting Volumes from Images

The Select Drive Image function of the Mount Manager Program menu allows you to access Constellation III volumes contained within an image on a Bank Tape and is one of the programs that make it possible to restore damaged volumes using the image.

An image contains all the data on a mass storage system transferred onto a Bank Tape. An image may contain many volumes. Once you have access to an image, you can mount any of its Constellation III volumes to which you have access. A Constellation III volume mounted from an image can be used as if it were located on a disk drive.

The Select Drive Image function does not itself mount any volumes, it only selects them. To mount the volumes selected, use the Mount a Volume function of the Mount Manager.

Before using this option, make sure The Bank contains the tape you want and is on line and accessible on your network. Also make sure that your account has access to the volumes that are contained in the image.

To mount a volume from an image

- 1. Use the Select Server function of the Mount Manager Program to change the current server to the server name for The Bank.**

2. **From the Mount Manager Program menu, press I to select the Select Drive Image function.**

A message appears showing all the images contained on the Bank Tape.

```
DOS 3.3: Mount Manager [1.8]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
A-APPLEDE B-WORK1
```

```
Select Image for Mount Searches
```

3. **Select an image by pressing the letter displayed before the image name.**

The Mount Manager Program menu appears with *YES* next to the Select Drive Image function.

4. **Mount the volumes you want using the Mount a Volume function of the Mount Manager Program.**

The File Spooler Program

PROGRAM OVERVIEW

The File Spooler Program is used to:

- print on a network printer when the network station doesn't have a Print Spooler Card in slot 1
- send files to another user via the Transfer Area.

From the Transfer Area, files can be automatically despoiled to a printer, or another user can retrieve them using the File Despooler Program. To understand how the File Spooler Program works, you need to know about the Transfer Area and pipes.

The Transfer Area is actually a volume called PIPES on the hard disk. Each time you send a file to this volume, either by printing directly or by spooling, a pipe is created to hold the file. Many pipes can exist within the Transfer Area at one time. A pipe exists, i.e.; is active, only as long as a file resides in it. Once the file is despoiled, the pipe disappears.

When a file is sent to the Transfer Area, it is assigned a job number by which it can be identified.

Each active pipe has a name. The name of the pipe determines where the file goes when it leaves the Transfer Area. All files in pipes with the pipe name assigned to a certain printer go that printer; the sender must give files bound for another network user a pipe name that is not already assigned to a printer. The intended receiver of the file uses that pipe name to despool the file.

There are two main steps in printing with the File Spooler Program:

1. Save your work as a DOS 3.3 text file located in the current DOS 3.3 volume.
2. Run the File Spooler Program to send the file to the Transfer Area.

Refer to the documentation that came with your word processing program or text editing program for information on how to save your work in a DOS 3.3 ASCII text file.

TO RUN THE FILE SPOOLER PROGRAM

- Select the File Spooler Program from the Constellation III DOS 3.3 Utilities Menu or run from BASIC by typing BRUN SPOOL,S7,D1,V1 and pressing **RETURN**.

The File Spooler settings screen appears.

```
DOS 3.3: Spool [2.7]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
      - M A I N   M E N U -
```

```
Please Select:
```

```
S - Start Spooling  
N - New Page String .PG  
P - Pipe Name          PRINTER  
H - Text High Bit     [Off]  
M - Message
```

```
-----  
Route to Station #24
```

```
-----  
C - Current Pipe Status  
A - Alternate Slot    SERVER0  
L - List Catalog  
D - DOS Commands     S7, D1, V001  
Q - QUIT  
?
```

TO CHANGE THE NEW-PAGE STRING

The new-page string must match the symbol or characters used by your application or text editing program to indicate a new page. The default is shown next to this option on the menu screen: the default is .PG. This symbol, placed in the first column of your work with no characters following it, is never printed. Look in the documentation for your application to find which characters indicate a new page.

1. From the File Spooler settings screen, type N to change the new-page string.

A prompt appears asking for the new-page string.

2. Enter the new-page string and press **RETURN**.

Be sure the new-page string exactly matches the symbol or characters used by your application.

The File Spooler settings screen appears with your change in position.

TO SPECIFY THE PIPE NAME

Choose this option to specify the destination of your file after it leaves the Transfer Area. The default name, shown next to this option, is PRINTER. To print a file on another network printer, enter the name of that printer.

To send a file to another user, create a unique pipe name of up to eight letters, enter that name, and be sure to tell the user receiving the file the correct pipe name. For example, if you are sending a file to Harry Smith, you might name the pipe HARRY.S. If you supply a pipe name not used for a printer, your file remains in the Transfer Area until it is retrieved by the File Despooler Program.

1. **From the File Spooler settings screen, type P to enter a pipe name.**

A prompt appears asking for the pipe name.

2. **Enter the pipe name and press `RETURN`.**

Be sure the pipe name exactly matches the printer name assigned to it by the network manager.

The File Spooler settings screen appears with your change in position.

TO SPECIFY HIGH BIT ON OR OFF

The typical setting for this option is Off. Some printers allow you to print special fonts only when this setting is On. If your text prints in a strange way or if your printer allows you to print special fonts, try turning this setting to On.

- **From the File Spooler Program settings screen, type H to change the setting from Off to On or from On to Off.**

TO SPECIFY A MESSAGE

You can include an identifying line on the first page of your printed file. The default message, "Route to Station XX," automatically gives the address of your network station.

1. **From the File Spooler settings screen, type M to specify a message.**

A prompt appears asking for the message.

2. Enter the message and press **RETURN**.

The message can be up to 80 characters long.

The main menu appears with your change in position.

TO START SPOOLING

1. Confirm that the settings shown on the settings screen are correct.

Check the pipe name on the File Spooler Program settings screen. If you are spooling to a printer, make sure you have the correct printer name. How to change the various settings is discussed in the preceding sections.

2. From the File Spooler settings screen, type **S** to start spooling.

A prompt appears asking the name of the file that will be spooled.

3. Enter the name of the file and press **RETURN**.

Be sure to enter the name precisely: punctuation and spaces must be exact. If the file you are spooling is in another volume, you may need to specify the slot, drive, and volume number of the volume; for example: JOB,S6,D2,V200 for a file named JOB located on slot 6, drive 2, in volume number 200.

The screen displays the spooling information along with a prompt requesting the name of another file to spool. Spooling information includes the pipe name, the job number, and the number of blocks spooled. This information is important because it allows you to check on the status of the spooling of your file using the current pipe status option.

4. Enter the name of another file you want to spool and press **RETURN**.

OR

Press **ESC** to return to the File Spooler settings screen.

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance which pipes are waiting in the Transfer Area with the name shown on the menu screen. The jobs are identified by pipe numbers and the printers are identified by pipe names.

- From the File Spooler program menu, type **C** to check the current pipe status.

The screen displays the status of the pipe named on the menu screen. Status information includes a list of jobs by pipe number, whether the pipe is open or closed, and whether or not each pipe contains data. A pipe that is open may be in the process of being spooled, or it could be stuck in the open position. Refer to Chapter 4 of the *Network Manager's Guide* for instructions on removing files.

SPOOLING ON MULTIPLE SERVER NETWORKS

You can spool a file to a Transfer Area that is on a server other than the default server by using the Alternate Slot option on the File Spooler settings screen. When you select a different server using this option, you are changing the current server. All files will be spooled to this server until you select a different server or run the File Spooler Program again.

To change the current server

1. From the File Spooler settings screen, type A to select the Alternate Slot option.

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

2. Type the letter that appears next to the server you want to select.

The current server is changed to the server you specified, and the File Spooler settings screen appears with the new server name displayed near the top of the menu.

TO SEE THE CURRENT CATALOG

1. From the File Spooler settings screen, press L to see the current catalog.
2. Press **SPACE** to continue viewing the catalog and to return to the File Spooler settings screen.

TO EXECUTE DOS COMMANDS

1. From the File Spooler settings screen, press D to enter DOS3.3.
2. Press Q to return to the File Spooler settings screen.

TO QUIT THE FILE SPOOLER PROGRAM

- **From the File Spooler settings screen screen, press Q to return to the Constellation III DOS 3.3 Utilities Menu or, if you are running the program from BASIC, to return to BASIC.**

The File Despooler Program

PROGRAM OVERVIEW

The File Despooler Program allows users to:

- retrieve files from the Transfer Area
- make a network station function as a printer server so a local printer can be shared as a network printer.

When another user spools a file to you, the pipe containing the file remains in the Transfer Area until you retrieve it. Once the file is despoiled, the pipe and its contents disappear from the Transfer Area.

A pipe can be despoiled to a file, the computer screen, or a local printer that is directly connected to a network station.

TO RUN THE FILE DESPOOLER PROGRAM

- Select the File Despooler Program from the DOS 3.3 Utilities main menu or run from BASIC by typing BRUN DESPOOL,S7,D1,V1 and pressing **RETURN**.

The File Despooler settings screen appears.

```
DOS 3.3: DeSpool [2.7]

(C) 1984 Corvus Systems, Inc.

      - M A I N   M E N U -

Please Select:

S - Start DeSpooling
O - Output Device   CONSOLE
E - Expand Tabs     08
P - Pipe Name       PRINTER
F - Line Feeds      [Off]
H - Header Page     [Yes]

C - Current Pipe Status
A - Alternate Slot  SERVER0
L - List Catalog
D - DOS Commands   S7, D1, V001
Q - QUIT
?
```

TO SELECT THE OUTPUT DEVICE

Use this option to specify the destination of the despoiled file. The File Despooler Program can output to Console (the computer screen), File (a file), or Printer (a local printer, one that is attached to a computer).

1. From the File Despooler settings screen, type **O** to select the Output Device option.

A prompt appears requesting you to select the output device.

2. Type the letter that represents the output device you want.

The File Despooler Program menu is displayed, and the output device you chose is shown.

If you want to output to a file in a volume that is not the current volume, you will need to indicate the mount location for that volume following the name of the file. For example, type `EXAMPLE,S4,D2,V5` to put a file named `EXAMPLE` in volume 5 of the Constellation volume mounted on slot 4, drive 2.

CHANGING THE PRINTING OPTIONS

If you are despooling a file to a local printer, you should check the default settings for the three printing options.

- The default setting for Expand Tabs is 08, meaning that for each tab in the file being spooled the File Despooler Program will insert 8 character spaces.
- The default for Line Feeds is Off, meaning that the File Despooler Program will not insert a line feed after each carriage return.
- The default for Header Page is YES, meaning that the first page that prints will be a header page containing the name of the file and the destination network station.

To Specify Tab Settings

- 1. From the File Despooler settings screen, type E to select the Expand Tabs option.**

A prompt appears requesting you to indicate the amount of space for each tab.

2. Enter the number of spaces you want for each tab and press **RETURN**.

The File Despooler settings screen is displayed showing the tab spaces you entered.

To Set Line Feeds

If you are despooling a file to a printer directly connected to your computer, you can set this option to add a line feed after each carriage return in the file. Set line feeds to On if lines of text are printing on top of one another. Refer to the user's manual for your printer to see if you must insert line feeds.

- From the File Despooler Program menu, type F to change the Line Feeds option from On to Off, or from Off to On.

The File Despooler Program menu continues to be displayed with the line feeds option changed.

- From the File Despooler program menu, type H to change the Header Page option from YES to NO, or from NO to YES.

TO SPECIFY THE PIPE NAME

Use this option to specify the pipe name you want to despool.

1. From the File Despooler settings screen, type P to select the pipe name option.

A prompt appears requesting you to enter the pipe name.

2. **Type the pipe name used for the files you want to despool.**

The File Despooler settings screen is displayed showing the pipe name you typed.

TO START DESPOOLING

After you have confirmed that the settings shown on the menu screen are correct, choose this option to retrieve a file from the Transfer Area. How to change the various settings is discussed in the preceding sections.

1. **When all settings on the File Despooler settings screen are okay, type S to start despooling.**

If you have chosen to output to a file, a prompt appears requesting the name of the file.

2. **Enter the name of the file and press `RETURN`.**

Be sure to enter the name precisely: punctuation and spaces must be exact. If the destination file is in a DOS 3.3 volume other than the current one, enter the slot, drive, and volume numbers for the DOS 3.3 volume after the filename. If you do not enter a volume name, the file will be despoiled to the current volume.

If you are despooling a program, not a text file, the screen displays a prompt requesting you to select the file type.

3. **Select the file type, if requested.**

If you don't know the file type, you will have to ask the person who spooled the file.

The screen displays a message indicating the pipe name that is being despoiled.

If there is more than one pipe with the same name, the File Despooler Program repeats the prompts for each pipe remaining to be despoiled. If the pipes are being despoiled to files, a prompt requests the name of the next destination file. The despool message continues to display until you return to the File Despooler settings screen.

4. To return to the File Despooler settings screen, press **ESC**.

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance which pipes are waiting for which printers.

1. From the File Despooler settings screen, type **C** to select the current pipe status option.

The program lists by number all the pipes in the Transfer Area with the same pipe name that you specified. The current pipe status screen shows the open or closed status of each pipe and whether or not the pipe contains data.

DOS 3.3: DeSpool [2.7]

(C) 1984 Corvus Systems, Inc.

Pipe Name is: PRINTER1

# 1	Closed	Contains Data
# 2	Closed	Contains Data
# 3	Closed	Contains Data

Press any key to continue ?

Pipes are open during spooling and despooling; otherwise they are closed. Only pipes that contain data and are closed (indicating that spooling is complete) can be despoiled.

2. To continue, press **SPACE**.

The File Despooler menu is displayed.

DESPOOLING ON MULTIPLE SERVER NETWORKS

You can despool a file from a Transfer Area that is on a server other than the default server by using the Alternate Slot option on the File Despooler settings screen. The default server is the server with a Transfer Area and the lowest network address. The server that is set to address 0 and that contains a pipes area will always be the default server. When you select a different server using this option, you are actually changing the current server. Files will be despoiled only from this server until you select a different server or run the File Despooler Program again.

To change the current server

- 1. From the File Despooler settings screen, type A to select the Alternate Slot option.**

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

- 2. Type the letter that appears next to the server you want to select.**

The current server is changed to the server you specified, and the File Despooler settings screen appears with the new server name displayed near the top of the menu.

TO SEE THE CURRENT CATALOG

- 1. From the File Despooler settings screen, press L to see the current catalog.**

The volume name, filename, file type, file length, and the date each file was last modified are shown.

2. Press the **SPACE** to view more of the catalog or to return to the File Despooler settings screen when the entire catalog has been displayed.

TO EXECUTE DOS COMMANDS

1. From the File Despooler settings screen, press **D** to enter **DOS3.3**.
2. Press **Q** to return to the File Despooler settings screen.

TO MAKE A NETWORK STATION INTO A PRINTER SERVER

1. Change the default options on the File Despooler settings screen.

Read the sections on selecting output device, changing the printer options, and specifying the pipe name, above. Output device should be *Printer*. You may have to experiment with the printer options to get the results you want. The pipe name is whatever pipe name you want people to use for files they send to your printer.

2. Choose **Start Despooling** on the File Despooler Program settings screen.

If a file hasn't yet been spooled to this destination, the File Despooler Program will wait for it. The File Despooler Program will continue despooling files until you quit the File Despooler Program or turn off the network station.

TO QUIT THE FILE DESPOOLER PROGRAM

- From the File Despooler settings screen, press **Q** to return to the Constellation III DOS 3.3 Utilities Menu or, if you are running the program from **BASIC**, to return to **BASIC**.

The Spooler Card Setup Program

PRINTING WITH THE SPOOLER CARD

There are two ways to print on a shared printer when using Corvus Omninet. One way is to save your information in a file and spool it to the Transfer Area (the PIPES volume) with the File Spooler Program. An easier way is to equip your Apple IIe network stations with Corvus Print Spooler Cards, which enable network stations to print directly from DOS 3.3 and ProDOS applications. Printing on a network printer with a Print Spooler Card is as easy as using a local printer. The Print Spooler Card functions like a standard serial printer interface card and does the work of spooling your information to the Transfer Area.

What You'll Need

To print directly from an application on a network printer, you need a Corvus Print Spooler Card and the Print Spooler Card software, consisting of the SPOOLCARD program and the file NETPROBJ.

Settings for the Print Spooler Card are established in the SPOOLCARD program. When the computer is turned on, the Print Spooler Card will automatically boot and be configured with the default settings. The SPOOLCARD program must be run to change these default settings.

Before entering an application from which you might want to print, you should confirm or change the Print Spooler Card settings with this program. This section describes how and when to change the settings and gives some hints for troubleshooting should a problem arise during printing.

Coordinating Printing

When you're printing on a network printer, settings that control page length, margins, spacing, etc., can be adjusted in as many as four different places. Many printers have dip switches that can be set to determine these variables. The printer server, the Print Spooler Card, and the application you are working with will all have settings too. If you specify settings on the printer or printer server, everyone who prints with that printer will have to use those settings. If you specify settings in several places, you risk causing conflicts.

It is best to make all settings only in the application program itself. If you want extra line spacing, don't specify extra line spacing when setting the printer switches; specify extra line spacing within the application program.

Each program has its own set of printing parameters and ways of selecting them. Many application programs allow you to specify the type of printer and interface card you have. Check the manual that came with the program you are using for more details regarding setting printing parameters in the application you are using. The Corvus Print Spooler Card functions just like an Apple Super Serial Card and uses the same settings.

PROGRAM OVERVIEW

When you want to confirm or change the settings for the Print Spooler Card, you need to run the SPOOLCARD program. SPOOLCARD will present a screen listing the settings you can adjust. Next to each setting is a suggested response that represents the most common setting. You can accept the suggestions or change them. Changing a setting determines the configuration of the Print Spooler Card until you change it again or turn off your computer.

You can reboot the computer by pressing **CTRL** - **OPEN-APPLE** - **RESET** without changing the configuration of the Print Spooler Card. Likewise, you can change applications, operating systems, and volumes without affecting the configuration.

When the computer is turned off and turned on again, the Print Spooler Card is configured to the default settings. You may change the settings from within the SPOOLCARD program, but any changes you make will not be permanently incorporated. Each time you restart the computer, the SPOOLCARD program will revert to default settings.

TO RUN THE SPOOLCARD PROGRAM

1. Select the program from the DOS 3.3 Utilities menu, or run from BASIC by typing **RUN SPOOLCARD** and pressing **RETURN**.

The Spooler Card Settings screen appears. If you do not have a Corvus Print Spooler Card in slot 1, a message appears: NO PRINTER CARD IN SLOT 1.

Select Network Printer

Use Arrows and Return to Select Option:

```
->First String:          @END
      Second String:      /OC
      Printer Name:       PRINTER
      Server:             0
      Echo To Screen?     NO
      Insert LF After CR? YES
      Omninet Card Slot:  7
      Quit Program
```

2. **Review the settings.** If the suggested settings are okay, use the arrow keys to move the pointer to **Quit Program** and press **RETURN**.

The Print Spooler Card is configured with the settings indicated on the screen and the BASIC prompt appears.

If the suggested settings are not what you want, change them.

CHANGING THE SPOOLER CARD SETTINGS

There are seven settings for the Print Spooler Card.

If you want to accept all the settings just as they are on the Spooler Card Settings screen, select **Quit** at the bottom of the screen.

You can use the arrow keys to move the pointer to the setting you want and press **RETURN**. A prompt appears describing how to change the setting.

If you decide you don't want to change the setting after selecting it, just press **RETURN** before typing anything and the screen will display the suggested settings unchanged.

About Termination Strings

Each time information is sent to a pipe in the Transfer Area, there needs to be a signal to the computer that indicates the end of the print job so the computer will close the pipe. Some application programs close the pipe automatically. If the application you are using doesn't close pipes automatically, you can cause the pipes to close by including termination strings in your print job.

A termination string can be any of the following:

- characters that you include at the end of your print job
- characters or instructions that the application program sends to the printer
- characters that you include at the end of your print job that are also printed by the printer.

Usually, termination strings have two parts. The first string acts as a signal telling the computer when to start looking for the end of the print job. This string doesn't get sent to the printer and doesn't print. The second string indicates the end of the job.

If there is no second string, the first string indicates the end of the print job. Some word processors require you to type the first string at the end of your document. The application program will automatically supply the second string. Be sure to type the termination string exactly the same in both places--at the end of your document and on the Spooler Card Settings dialog screen. Capitalization, spaces, and punctuation must be identical.

Termination strings are determined by the application program. Look in the table below for the termination strings to use for a particular application. Look in the appendix for procedures to follow when including termination strings in some of the most common application programs. For instance, when printing from Terrapin Logo you will need to type in several lines of instruction.

Termination Strings in Applications

Most Word Processors

First String: @END
Second String: /OC
Within the application: Type @END at the end of the document.

Most Spreadsheets

First String: @END
Second String: /OC
Within the application: Enter @END as a label in a cell in the row below your last row of data.
Be sure to include the row that contains @END when you specify which cells of the spreadsheet are to print.

BASIC

First String: PR#0
Second String: <NO STRING>
Within Basic: If you want to print a catalog or listing, type PR#1 to direct output to the printer card.
Type PR#0 to stop the output.

Terrapin Logo

First String: PR#0
Second String: <NO STRING>
Within Logo: Create a procedure called ENDPRINT by typing:
TO ENDPRINT
PRINT "PR#0
OUTDEV 0

If none of the termination strings presented in the table works for your application, you can create suitable termination strings yourself.

Tips for Creating Termination Strings

- Create a first string that you type at the end of your document to indicate the end of the print job.
- Make sure that what you create as a first string is unique. If the same combination of characters appears elsewhere in the document, the pipe will close prematurely and your job will not finish printing.
- Make sure that you type the first string exactly the same in both places--in the application and on the Spooler Card Settings screen.
- If you know the last thing that the program will send to the printer, use that as the second string. For example, most word processors will send a form feed at the end of a page. The hexadecimal code for a form feed is /0C.
- If while you are experimenting with different termination strings your print job doesn't print, rerun SPOOLCARD. A useful additional function of running the SPOOLCARD program is that it causes the pipe to close automatically without any action on your part. Once the pipe is closed, the job will print.

To Specify the First and Second Termination Strings

1. Use the arrow keys to move the pointer to First String or Second String and press **RETURN**.

A dialog screen will appear.

2. Type the string.

Both the first string and the second string together must not exceed 9 characters in length. You will not be allowed to type more than 9 characters.

Special characters, such as escape, carriage return, line feed, and form feed, can be represented by their hexadecimal codes following a slash. For example, to enter a form feed, type /0C.

If you want to include a slash in your termination string, use two slashes to represent a single slash. The screen will show both slashes, but the computer will interpret them as a single slash.

As you type, the characters appear near the bottom of the dialog screen. Make sure that what you type here exactly matches the termination string for your application.

You can edit what you type by using the left arrow key to erase the previous character. However, if you type a slash, you won't be able to backspace until you type a hex value or another slash.

If you want nothing for the string, press the `SPACE` for <NO STRING>.

3. To accept the change, press `RETURN`.

The Spooler Card Settings screen will appear with the new string you typed.

To Change the Printer Name

The printer name is established by the network manager in the print service configuration program or in the File Despooler Program if a workstation is being used as a printer server. We have recommended that the printer be named PRINTER and have provided PRINTER as the default setting. If you have more than one printer on your network, however, each will have a different name and you must specify the name of the printer you want to use.

1. Use the arrow keys to move the pointer to Printer Name.

A prompt will appear.

2. Type the name of the printer you want to use.

The printer name can be a maximum of 8 characters.

Be sure to type the name exactly, with no extra spaces or punctuation.

To edit what you type, use the left arrow key to erase the previous character.

3. To accept the change, press **RETURN**.

The Spooler Card Settings screen will appear with your change in position.

To Change the Server Number

The file you want to print will be sent to the Transfer Area of the hard disk, the PIPES volume, on its way to the printer. You need to specify the location of the disk server that contains the PIPES volume. This location is defined by its Omninet network address (a number from 0 to 63). Usually the network manager puts the PIPES volume on SERVER0.

1. Use the arrow keys to move the pointer to Server and press **RETURN**.

A prompt will appear.

2. Type the number of the Omninet node address.

The number is usually 0. It can be a number from 0 to 63.

You can edit the number you type using the left arrow key.

3. To accept the change, press **RETURN**.

The Spooler Card Settings screen will appear with your change in position.

To Echo to Screen

Sometimes you will want to see your information on the screen as it is being spooled. Typing Y in answer to the question "Echo to screen?" will cause the information to appear on the screen. Typing N will suppress it.

■ Move the pointer to Echo to Screen? and press **RETURN**.

The Spooler Card Settings screen reappears with the preset option changed.

You can press **RETURN** again to change it back.

To Insert Line Feeds after Carriage Returns

This item on the Spooler Card Settings screen reads, "Insert LF after CR?" The LF stands for line feed and the CR stands for carriage return. This is one of the settings that must be coordinated with settings on the printer and printer server you are using. Trial and error is one way to find out if you have chosen the right setting.

If you select NO and find that your text is overprinting onto itself when you print, then change the setting to YES. If the setting is at YES and you are getting unwanted double line spacing when you print, then change the setting to NO to eliminate the extra line space.

- Use the arrow keys to move the pointer to option Insert LF After CR? and press **RETURN**.

The Spooler Card Settings screen reappears with the preset option changed.

You can press **RETURN** again to change it back.

To Change the Omninet Card Slot

You shouldn't have to change this setting since we recommend that all Omninet cards be placed in slot 7. However, if change is required, perform the following steps:

1. Use the arrow keys to move the pointer to Omninet Card Slot and press **RETURN**.

A dialog screen will appear.

2. Enter the Omninet card slot by typing a number from 4 to 7.

You can edit the number you type using the left arrow key.

3. To confirm the change, press **RETURN**.

The Spooler Card Settings screen will appear with your change in position unless there is no card in the selected slot. However, the Omninet card slot number won't change if a card doesn't exist in the selected slot.

Chapter 3

Constellation III Utilities for ProDOS

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Introduction

Constellation III utilities for the ProDOS operating system include five different programs. The thirteen functions of the Copy II Plus program are listed first, followed by descriptions of the other four programs.

This chapter presumes a working familiarity with the ProDOS operating system. If you need more information about the basics of ProDOS than this chapter provides, refer to the ProDOS User's Manual provided by Apple.

■ Volume and File Utilities (Copy II Plus)

The thirteen functions described below are options of the Copy II Plus program. They appear on the Volume and File Utilities menu and provide the basic functions of the Apple ProDOS Utilities.

These functions have been modified to make them faster and easier to use. For instance, now you are spared one of the major nuisances of ProDOS: the functions present directories without your having to type pathnames.

Some of the functions included in the Copy II Plus program work only for DOS 3.3 and will not work for ProDOS volumes.

Copy

Use this function to copy files, volumes, and DOS. When copying diskettes to a Constellation volume, use the Copy Files option of this function. Use the Copy Disk option to copy one diskette to another, or one Constellation III volume to another. This function can also be used to convert files between DOS and ProDOS formats.

Catalog Disk

Using this function you can see the directories of all ProDOS volumes and diskettes. This is the fastest way to see what files are in which volumes. This function gives you the option of showing a normal catalog, or a catalog with file lengths, deleted files, or hidden characters displayed.

Delete

This function is the equivalent of the standard ProDOS DELETE command, except that it allows a number of files to be deleted at once. The Delete function includes three options: Delete Files, Delete Disk (i.e., diskette or volume), Delete DOS. Deleting the disk and deleting DOS both have the effect of unformatting the diskette or volume.

Lock/Unlock Files

Use this function to lock and unlock files. Any number of files can be locked or unlocked at once.

Rename

This function allows you to rename files, diskettes/volumes, and directories.

Alphabetize Catalog

Use this function to have the files in a catalog presented in alphabetical order.

Format Disk

This function allows you to format diskettes and ProDOS volumes so files can be stored on them.

Verify

This function is used to verify that a diskette is readable. The program checks if sectors on diskettes are bad, checks that files are intact, and checks the drive speed of external diskette drives. Use it if you're having trouble using a diskette.

View Files

Use this function to look at the data in a file. You may choose to see the data either in ASCII characters or in hexadecimal numbers.

Disk Map

The disk map is a graphic display of which sectors on a diskette/volume are used for which files and which sectors are free for use.

Change Boot Program

This function is used only on DOS 3.3 diskettes. It allows you to change the boot program to boot a different BASIC program, or BRUN a binary file, or EXEC a text file on boot-up.

Undelete Files

This function allows you to recover files that you previously deleted using the Constellation III ProDOS Volume and File Utilities. The function can recover only files that you have not written over since deleting them.

Create Subdirectory

Use this function to create a new subdirectory in a ProDOS file.

■ The Set Printer Slot

If you have a local printer or a Corvus Print Spooler Card in slot 1 of your computer, you can use this function to turn on a printing option that lets you print screens from the Volume and File Utilities.

■ The Mount Manager Program

The Mount Manager Program can be used by accounts that need to have access to more than the six Constellation volumes that can be mounted at any one time. It is also used to move Constellation volumes from one mount location to another.

■ The File Spooler Program

This program makes it possible for users whose network stations do not have a Corvus Print Spooler Card to print on a network printer. It also makes it possible for users on the network to send files to each other. The File Spooler Program sends files to the Transfer Area on the hard disk. From the Transfer Area, files can be printed on a network printer, or other users can retrieve them using the File Despooler Program.

■ The File Despooler Program

This program enables users to retrieve files from the Transfer Area. It also enables an Apple to act as a printer server. Files can be despoiled from the Transfer Area to the screen, a file, or a local printer.

■ The Spooler Card Setup Program

This program is used to set up the Corvus Print Spooler Card for printing on a network printer. With a Print Spooler Card installed, it is possible to print from application programs without having to spool files to the Transfer Area manually with the File Spooler Program.

Putting Software on the OmniDrive

After you have created volumes, accounts, and access tables, you'll want to copy your application programs into the volumes you've created.

To copy a program, you need to know several things about it and about the volume where you want to put it. The information you need is outlined by the questions below.

You can use the ProDOS Catalog command, described in the section "To Catalog a Diskette," below, or the Catalog Disk function of the Volume and File Utilities Program to find the answers to some of the questions. For answers to the others, check the program's documentation or, if necessary, ask the program's publisher.

When you know the answers to the questions, you are ready to copy programs onto the hard disk using the Copy function of the Volume and File Utilities Program. Make sure to log on using an account with access both to the appropriate utilities volume and to the Constellation volumes into which you want the programs copied.

QUESTIONS ABOUT THE DISKETTES YOU WANT TO COPY

1. Is the program compatible with the ProDOS operating system?

Only programs that run in ProDOS can be copied into ProDOS volumes. If you can catalog a diskette using the Catalog Disk function of the Volume and File Utilities, it is compatible with the ProDOS operating system.

2. Is the program copy-protected?

Check the packaging and documentation that came with the program or try to copy the program. Programs that are copy-protected cannot be copied onto the hard disk using the Copy function of the Volume and File Utilities Program.

3. What is the volume name of the diskette?

The volume name appears at the top of the screen when you catalog the diskette. Volume names are generally preceded by a slash.

4. What is the name of the program's greeting program?

The greeting program is the file that runs first to load the program into memory. It is often the first file on the diskette and is usually named STARTUP.

TO CATALOG A DISKETTE

To catalog a diskette, insert the diskette in a drive and type

CAT, S(slot number),D(drive number).

The slot and drive numbers required are those of the drive you're using.

For example, suppose the diskette drive containing the diskette is drive 1 in slot 4.

- At the BASIC prompt, type

CAT, S4,D1

and press **RETURN**.

If a valid catalog appears, chances are good that you will be successful in copying the diskette onto the hard disk.

If no catalog appears, the diskette is probably copy-protected. You will need a special copy program to copy this diskette to your OmniDrive.

If you receive an I/O ERROR message, check to make sure there is a diskette in the disk drive and that the drive door is closed properly. Try the CAT command several times. If you continue to get the I/O ERROR message, chances are that the program is in a different operating system, the program is copy-protected, or the diskette isn't formatted.

The BASIC prompt appears at the end of the catalog. If you have the Print Spooler Card in your computer or a local printer connected to it, you might find it useful to print out the catalog.

If you are going to copy several diskettes at the same time, catalog all of them before copying.

QUESTIONS ABOUT THE VOLUME INTO WHICH YOU WANT TO COPY

1. **What is the name of the Constellation volume into which you want to copy the program?**

The name of the volume is determined by the network manager when creating the volume record.

2. What is the mount location for the volume?

The mount location is designated by a slot number and drive number in the access table for the account that will be using the utilities to copy the programs.

3. How many blocks in the volume are free?

Be sure there are enough to contain the program.

4. Into what directory or directories will the program be placed?

We recommend that you create a directory for each application or similar set of programs or files. When you fill out the planning worksheets, organize your programs into the appropriate directories.

The Volume and File Utilities

A few functions of the Volume and File Utilities menu work only when you are working with DOS 3.3 diskettes. A note flags these functions. They cannot be used with Constellation DOS 3.3 volumes.

HOW TO RUN THE VOLUME AND FILE UTILITIES

The Volume and File Utilities Programs are provided in the volume /A2PRO. This volume is automatically mounted in S7, D1 for the account A2PRODOS. The account A2MGR has the volume /A2PRO mounted on slot 7, drive 2. We recommend that the mount location for the volume containing the ProDOS utilities be S7,D1 for other accounts. The instructions that follow use that location. If you have assigned a different mount location to the volume containing a particular program, substitute that location for the one supplied in the instructions.

1. Press 1 on the Constellation III ProDOS Utilities Menu, or use the arrow keys to move the pointer to Volume and File Utilities and press **RETURN**.

OR

From BASIC, type

-/A2PRO/UTIL

and press **RETURN** for the file labeled UTIL in the volume A2PRO.

If your computer doesn't have a clock that is compatible with Thunderclock, the program prompts you to enter today's date.

2. Enter the date by typing the day, month, and year and pressing **RETURN**.

Type the day as a two-digit number, the month as a three-letter abbreviation, and the year as the last 2 digits of the year in the format shown on the screen.

OR

Press **ESC** to have no date recorded.

The program records the date you enter and displays it with other information about the file in the catalog so you always know which copy of a file is the latest version. If you press **ESC** the program will show <NO DATE> as the date.

If you do not have an Apple II computer with an 80-column card, the main menu appears.

If you do have an Apple II computer with an 80-column card installed in the auxiliary slot, a prompt appears asking if you want 80-column catalog displays.

Type N for 40-column catalog display; type Y or press **ESC** or **RETURN** for an 80-column catalog display and the Volume and File Utilities menu appears.

COPY][PLUS 6.1
(C) 1982-6 CENTRAL POINT SOFTWARE, INC.

ENTER DATE OR PRESS **ESC** TO SKIP

07-MAY-87

DO YOU WANT 80-COLUMN CATALOG
DISPLAYS (Y/N) ?

To Select an Option

Use the arrow keys to move the highlight bar to your choice and press **RETURN**.

To Abort an Operation Without Making a Change

Press **ESC**.

To Make a Correction While Typing

Use the left arrow key.

To Select Disks/Volumes

When the program needs to know which diskette drive or volume you want to work with, you will see a prompt asking you to SELECT DEVICE.

SELECT DEVICE :

```
SLOT 6  DRIVE 1
SLOT 5  DRIVE 1
SLOT 5  DRIVE 2
SLOT 3  DRIVE 2: /RAM DISCONNECTED
SLOT 7  DRIVE 1
SLOT 7  DRIVE 2
SLOT 4  DRIVE 1
SLOT 4  DRIVE 2
```

PRESS [?] TO DISPLAY VOLUME NAMES

1. Use the arrow keys to move the pointer to the drive of your choice and press **RETURN**.

The internal drive of an Apple IIc is slot 6, drive 1; an external drive is slot 6, drive 2. In an Apple IIGS, a unidisk 3.5 is slot 5, drive 1.

2. To see the volume name associated with each device and mount location, press the ?/ key.

SELECT DEVICE :

SLOT 6 DRIVE 2: /VOLUME1
SLOT 5 DRIVE 1: /VOLUME2
SLOT 5 DRIVE 2: /VOLUME3
SLOT 3 DRIVE 2: /RAM DISCONNECTED
SLOT 7 DRIVE 1: /A2PRO
SLOT 7 DRIVE 2:
SLOT 4 DRIVE 1:
SLOT 4 DRIVE 2:

PRESS [?] TO DISPLAY VOLUME NAMES

Note: The /RAM DISCONNECTED message refers to the special RAMdisk that ProDOS installs in any Apple II with 128K of memory when you boot a ProDOS disk. /RAM is a special area of memory ProDOS sets aside to act like a small, very fast disk drive. If /RAM doesn't contain any files when you boot the program, the program disconnects it so that it can use the extra memory itself. You can reconnect /RAM with the FORMAT function.

To Select a Subdirectory

CATALOG DISK
/VOLUME 1 /SUB2 /SUB3

SLOT 6 DRIVE

```
VOLUME 1----->SUB 1----->SUB 1A
                |
                !->SUB 2----->SUB 3----->SUB
```

USE ARROWS ,A,Z AND [RETURN] TO SELECT

- Use the arrow keys to move the pointer to the subdirectory of your choice on the subdirectory tree display and press **[RETURN]**.

You will see a list of files in the selected subdirectory.

CATALOG DISK
/VOLUME1/SUB1

SLOT 6 DRIVE 2

NAME	TYPE	BLKS	MODIFIED
*SUB1A	DIR	1	<NO DATE>
*BASIC.SYSTEM	SYS	21	18-JUN-84
UTIL	SYS	54	06-FEB-86
NETPRINT	BAS	15	06-MAY-86
NETPROBJ	BIN	6	24-JUN-86
DESPOOL	BIN	22	23-JUN-86
SPOOL	BIN	20	23-JUN-86
MOUNT.MANAGER	BIN	25	23-JUN-86
SPOOLCARD	BAS	16	20-APR-87
STARTUP	BAS	4	20-APR-87

BLOCKS FREE:925 USED:195 TOTAL:1120

PRESS [RETURN]

You can move up, down, right, or left, following the branches between directories. If you have an Apple II or Apple II Plus, press A to move up and Z to move down. If the diagram is too large to fit on the screen, it will scroll automatically as you move around on the tree.

The program contains a few empty subdirectories so you can see an example of the tree display when you catalog it.

SELECTING AND DESELECTING FILES

To Select a File

If you are working with a ProDOS volume or diskette that contains subdirectories, you select files in just one subdirectory at a time using the arrow keys.

- Use the arrow keys to move the highlight bar to the file you want to work with and press **RETURN**.

The program marks the file with a number, a check, or an asterisk, depending on the function being performed. Continue doing this until all files you want are marked. Then type the appropriate letter key to perform the desired operation on the marked files.

To Deselect a File

- Use the arrow keys to move the highlight bar to the file you want to deselect and press **D**.

OR

Move the highlight bar to the selected file and press **RETURN**.
The **RETURN** acts as a toggle, selecting and deselecting in turn.

SELECTING MULTIPLE FILES

If you are working with a ProDOS volume or diskette that contains subdirectories, then instead of selecting files from each subdirectory, you can select files from all subdirectories at once by typing a pattern. A pattern is a filename with one or more equal signs (=) in it. The equal sign is a special wildcard character that will match any number of characters in the catalog, as long as the rest of the filename matches. For example, the pattern **AB=** will match the files **AB**, **ABCDE**, and **ABRAHAM**. The pattern **=N=** will match the files **N**, **OHNO**, or any filename containing the letter **N**. The pattern **"=**" will match anything, and can be used when you want to copy, delete, lock, unlock, or verify every file on the disk.

In addition, patterns can specify what file types to match. If you want a pattern to match only certain file types, finish the pattern by typing a comma, followed by the file types used in the catalog. ProDOS file types are expressed as three-letter abbreviations. For example, the pattern "=XYZ,BIN,TXT" will match any file whose name ends in "XYZ" and is a Binary or Text file. The pattern "=,BAS" will match any Applesoft BASIC file.

BAS	Applesoft BASIC
INT	Integer
BIN	Binary
TXT	Text

To Select Multiple Files by Typing a Pattern

1. Press E to enter a single filename or a pattern.
2. Enter the pattern and press **RETURN**.

After you enter the pattern and press **RETURN**, the program will scan through the display, marking all matching files. The highlight bar will then jump to the last file matched. If no files match, the highlight bar will return to the file that was highlighted before you pressed E.

A prompt appears asking if you want to be prompted for each selection.

3. If you want to perform the operation on all the files selected, type N in response to the prompt. If you would like to confirm each file individually, type Y in response to the prompt.

Prompting allows you the opportunity to apply the command to files within a volume on an individual, case-by-case basis.

For instance, when copying several files, if you request prompting, the name of the first source file to be copied will appear along with a flashing cursor. If you wish to copy this file, type Y and press **RETURN**. If you do not wish to copy this particular file, type N to deselect it and the program will skip it and move ahead to the next file. If you do not request prompting, the program simply copies all the files identified within the volume without waiting for individual confirmation.

To Enter and Exit Subdirectories

To enter a subdirectory, use the arrow keys to move the highlight bar to the subdirectory of your choice and press the > key. To exit a subdirectory, press the < key (you don't have to hold down the **SHIFT** key).

CATALOGING A VOLUME OR DISKETTE

The Catalog function of the Volume and File Utilities allows you to display three varieties of catalogs.

- The **NORMAL CATALOG** is similar to the standard ProDOS **CAT** command. The volume name, filename, file type, file length, and the date the file was last modified are shown.

```
CATALOG DISK                               SLOT 7  DRIVE 1
/A2PRO
```

NAME	TYPE	BLKS	MODIFIED
*BASIC.SYSTEM	SYS	21	18-JUN-84
UTIL	SYS	54	06-FEB-86
NETPRINT	BAS	15	06-MAY-86
NETPROBJ	BIN	6	24-JUN-86
DESPOOL	BIN	22	23-JUN-86
SPOOL	BIN	20	23-JUN-86
MOUNT.MANAGER	BIN	25	23-JUN-86
SPOOLCARD	BAS	16	20-APR-87
STARTUP	BAS	4	20-APR-87

```
BLOCKS FREE:930   USED:190   TOTAL:1120
```

```
PRESS [RETURN]
```

- The **CATALOG WITH FILE LENGTHS** shows all the same information as the **NORMAL CATALOG**. It is similar to the ProDOS 80-column catalog command and includes the date a file was created, the length of the file in bytes, and any subtype when appropriate. For **BASIC** files it shows the actual length of the program in bytes. For binary files, it shows both the starting memory address of the file and its length.

- The CATALOG WITH DELETED FILES includes the files on the disk that have been marked as deleted but have not yet been overwritten by a new file entry. Any deleted files are marked with the letter D to the left of the entry. In some cases, deleted files can safely be recovered and made active again using the Undelete Files function of the Volume and File Utilities.

Since ProDOS does not normally allow hidden control characters in filenames, the fourth option shown on the screen prints a normal catalog.

After selecting a catalog, you can use the Alphabetize Catalog function to alphabetize the file entries stored on the disk so that when you do a catalog in the future, the files will appear in alphabetical order.

WARNING: Do not save an alphabetized catalog of the *root directory of your home volume*. This directory contains certain system files, and the order in which the system files appear in a ProDOS volume is important. If you alphabetize the directory containing these files, you may change their order and make it impossible for yourself to boot. Once you save an alphabetized catalog, you cannot reconstruct the previous order of files.

Save only alphabetized catalogs of subdirectories or diskettes that contain no volumes with the suffix *.SYSTEM*.

To Catalog a Volume or Diskette

1. From the Volume and File Utilities main menu, move the highlight bar to Catalog Disk and press **RETURN**.

Four options appear at the right of the screen.

```

                COPY ][ PLUS 6.1
(C) 1982-6 CENTRAL POINT SOFTWARE, INC.
-----

COPY
CATALOG DISK
DELETE
LOCK/UNLOCK FILES
RENAME
ALPHABETIZE CATALOG
FORMAT DISK
VERIFY
VIEW FILES
DISK MAP
CHANGE BOOT PROGRAM
UNDELETE FILES
CREATE SUBDIRECTORY
SET PRINTER SLOT
QUIT

                SELECT OPTION:
                NORMAL
                W/ FILE LENGTHS
                W/ DELETED FILES
                W/ HIDDEN CHARS

                PRINTER
                OFF

<NO DATE>
```

2. Move the highlight bar to your choice and press **RETURN**.

You can choose normal, with file lengths, with deleted files, or with hidden characters.

A prompt appears asking you to select the device (slot and drive) that you want.

3. Move the highlight bar to the slot and drive you want. If you are cataloging a diskette, insert the diskette you want to catalog in that drive and then press **RETURN**.

You can press ? to see volume names next to each slot and drive. A slash / appears in front of each ProDOS volume name.

If there are no subdirectories, the catalog appears.

If the volume contains any subdirectories, the subdirectory tree display appears.

4. Use the arrow keys to move the highlight bar to the subdirectory you want to catalog and press **RETURN**.

The catalog appears.

If the printer is selected with the Printer Slot function and turned on, you'll be asked whether or not you want a printout of the catalog. Type Y for yes; type N for no.

The catalog pauses after every 20 files. You can continue by pressing any key except **ESC**. (**ESC** will stop the catalog and return you to the main menu.) If the catalog is being sent to the printer, it will not pause.

To Alphabetize a Catalog

1. From the Volume and File Utilities main menu, move the highlight bar to Alphabetize Catalog and press **RETURN**.

A prompt appears asking you to select the slot and drive that you want.

2. Move the highlight bar to the slot and drive you want, insert the diskette you want to catalog in that drive, and press **RETURN**.

You can press ? to see volume names next to each slot and drive. A slash / appears in front of each ProDOS volume name.

If there are no subdirectories, the program reads the current catalog, alphabetizes it in the computer's memory, and shows you what the alphabetized catalog will look like.

If the volume contains any subdirectories, the subdirectory tree display appears.

4. Use the arrow keys to move the highlight bar to the subdirectory you want to catalog and press **RETURN**.

The program reads the current catalog, alphabetizes it in the computer's memory, and shows you what the alphabetized catalog for the subdirectory will look like.

5. Type G if you want the alphabetized catalog saved on disk.

WARNING: Do not save an alphabetized catalog of the root directory of your home volume.

If you do not want to save the alphabetized catalog on disk, press **ESC** to return to the Volume and File Utilities main menu without changing the disk.

COPYING FILES AND DISKETTES

The program lists four copy options:

Bit Copy
Copy Files
Copy Disk
Copy DOS

One of these, Bit Copy, is not supported in the Corvus version of the program and does not work. Another, Copy DOS, you can use only with DOS 3.3 diskettes. The two useful options, Copy Files and Copy Disk, are described below.

Copy Files

1. From the Volume and File Utilities main menu, move the highlight bar to Copy and press **RETURN**.

Four options appear on the right of the screen.

2. Move the highlight bar to Files and press **RETURN**.

A prompt appears asking you to select the source drive.

3. Move the highlight bar to the source drive and press **RETURN**. If you are copying from a diskette, place the Source diskette in the drive before pressing **RETURN**.

If the source diskette or volume contains subdirectories, then the subdirectory tree display appears for you to select the subdirectory that contains the files you want to copy.

4. Select entire subdirectories or individual files you want to copy.

To copy a number of files automatically, type E. A prompt appears asking you to enter a filename. Enter a filename or a pattern and press **RETURN**.

A number appears as you mark a file indicating the order in which the files will be copied.

5. Type G to begin copying.

If you are copying from one diskette to another on a single drive system, a prompt appears asking you to insert the proper disk.

As the files are being copied, they are shown in the file display with the highlight bar on the file currently being copied. At the bottom of the screen, the name of the file being copied appears after the word **TARGET**. The program will automatically alter DOS filenames to fit the ProDOS conventions if you are copying a DOS file into a ProDOS volume.

If you try to copy a file into a directory already containing a file with the same filename, a prompt appears asking you what you want to do about it. Your choices are to copy anyway, rename the file, not copy the file, or exit the copy function.

Copy Disk

Use this option to make a duplicate of one diskette onto another. Do not use this function to copy diskettes to Constellation volumes; use Copy Files instead.

1. From the Volume and File Utilities main menu, move the highlight bar to Copy and press **RETURN**.

Four options appear on the right of the screen. Use the Copy Files option when copying programs onto the OmniDrive: do not use the Copy Disk option for this purpose.

2. Move the highlight bar to Disk and press **RETURN**.

A prompt appears asking you to select the source drive.

3. Move the highlight bar to the source drive, place the source diskette in the drive, and press **RETURN**.

A prompt appears asking you to select the target drive.

4. Move the highlight bar to the target drive, place the target diskette in the drive and press **RETURN**.

If you are copying with a single drive system, the program prompts you to insert each diskette.

There are 35 tracks on a 5-1/4 inch disk, numbered in hexadecimal from \$00 to \$22. As the Copy Disk option makes the copy, it first reads a number of tracks from the source disk into memory; then it writes those tracks to the target disk. It repeats this process until all the tracks are copied. As it reads or writes each track, the program displays the track number at the bottom of the screen.

A Note About Read and Write Errors

The program checks for errors as it copies. If an error occurs, a message will be displayed showing what kind of error it is (read error or write error) and on what track it occurred. The program will continue copying the rest of the disk. A read error means that one or more sectors on the source disk are unreadable. The disk medium itself may be damaged. If a write error occurs, then the medium on the target disk is most likely damaged. Double-check everything, then try again.

Even if the program reads a bad sector on the source disk, it will still write a good sector to the target disk. That is, some of the data in that source disk sector may be inaccurate, but an I/O error will usually not occur when that sector on the target disk is read.

If a disk is getting old and begins to create I/O errors, the data should be copied to a new disk using the Copy Disk option.

DELETING FILES AND ERASING DISKETTES

The Delete Files option of the Delete function marks files for overwriting. At any time before a file is overwritten with new information, it can be recovered using the Undelete Files option.

The Delete Disk option of the Delete function unformats or erases a volume on the OmniDrive or a diskette. This option is unrecoverable. Once you use the Delete Disk option all the information in the volume or on the diskette is destroyed forever. Once you have used this function on a volume or diskette, you will need to format the volume or diskette again before you can reuse it.

To Delete Files

1. From the Volume and File Utilities main menu, move the highlight bar to Delete and press **RETURN**.

Three options appear on the right of the screen.

```
                COPY ][ PLUS 6.1
(C) 1982-6 CENTRAL POINT SOFTWARE, INC.
-----

COPY
CATALOG DISK
DELETE
LOCK/UNLOCK FILES
RENAME
ALPHABETIZE CATALOG
FORMAT DISK
VERIFY
VIEW FILES
DISK MAP
CHANGE BOOT PROGRAM
UNDELETE FILES
CREATE SUBDIRECTORY
SET PRINTER SLOT
QUIT

SELECT OPTION:
FILES
DISK
DOS

<NO DATE>

PRINTER
OFF
```

2. Move the highlight bar to Files and press **RETURN**.

A prompt appears asking you to select the drive that contains the files you want to delete.

3. Move the highlight bar to the appropriate drive and press **RETURN**. If deleting files from a diskette, make sure the diskette is in the drive before you press **RETURN**.

If the diskette or volume contains subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the files you want to delete.

4. Select entire subdirectories or individual files you want to delete.

To delete a number of files automatically, type E. A prompt appears asking you to enter a filename. Enter a filename or a pattern and press **RETURN**.

For more information on selecting subdirectories from the subdirectory tree display and entering a pattern, see the Volume and File Utilities Overview section in this chapter.

An arrow appears as you mark a file, indicating that the file is eligible for deletion.

To deselect a file, move the highlight bar to the selected file and press **RETURN**. **RETURN** acts as a toggle, selecting and deselecting in turn.

5. Type G to begin deletion.

As the files are being deleted, they are shown in the file display with the highlight bar on the file currently being deleted.

To Erase a Volume or Diskette

- 1. From the Volume and File Utilities main menu, move the highlight bar to Delete and press **RETURN**.**

Three options appear on the right of the screen.

- 2. Move the highlight bar to Disk and press **RETURN**.**

A prompt appears asking you to select the drive that contains the disk you want to delete.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

A prompt appears asking you to confirm that you want to delete the contents of the disk.

4. Type Y to proceed with deletion.

OR

Type N to return to the Volume and File Utilities main menu without deleting anything.

TO LOCK/UNLOCK FILES

1. From the Volume and File Utilities main menu, move the highlight bar to Lock/Unlock Files and press **RETURN**.

A prompt appears asking you to select the drive that contains the files you want to lock or unlock.

2. Move the highlight bar to the appropriate drive and press **RETURN**.

If you are locking or unlocking files on a diskette, make sure the diskette is in the drive before you press **RETURN**.

If the diskette or volume contains subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the files you want to lock or unlock.

3. Use the highlight bar to select entire subdirectories or individual files you want to lock or unlock.

An asterisk appears to the left of the file type on files that are locked. **RETURN** acts as a toggle, locking and unlocking files in turn.

To delete a number of files automatically, type E. A prompt appears asking you to enter a filename. Enter a filename or a pattern and press **RETURN**.

For more information on selecting subdirectories from the subdirectory tree display and entering a pattern, see the Volume and File Utilities Overview section in this chapter.

A prompt appears asking you to select Lock or Unlock.

5. Type L to place an asterisk next to (lock) all the files that match the filename or pattern.

OR

Type U to remove the asterisk next to (unlock) all the files that match the filename or pattern.

6. Type G to lock or unlock the specified files.

The catalog is written back to the disk, with the proper files locked and unlocked.

OR

Press **ESC** to exit without making any changes.

RENAMING FILES, VOLUMES, AND DIRECTORIES

This function can be used to rename volumes on the OmniDrive, but the Network Management Program will not be aware of the change. You do not want a volume to have two different names, depending what function you use to list it, so be sure to use the Change option in the Volumes submenu of the Network Management Program menu to rename any volumes you have renamed here with this function of the Volume and File Utilities. See Chapter 4 of the *Network Manager's Guide* for how to rename a volume in the Network Management Program.

Files, volumes, and directories can only be renamed one at a time.

To Rename Files or Subdirectories

1. From the Volume and File Utilities main menu, move the highlight bar to Rename Files and press **RETURN**.

A prompt appears asking you to select the drive that contains the file or directory you want to rename.

2. Move the highlight bar to the appropriate drive and press **RETURN**.

If you are renaming files or directories on a diskette, make sure the diskette is in the drive before you press **RETURN**.

If the volume or diskette has subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the file you want to rename.

3. Select the subdirectory and press **RETURN**.

A list of the files contained in the selected subdirectory appears.

4. Use the highlight bar to select the file or subdirectory you want to rename and press **RETURN**.

A prompt appears asking for the new filename.

5. Enter the filename and press **RETURN**.

ProDOS filenames must begin with a letter and can contain only letters, numbers, and periods. If you enter a filename that does not comply with the rules for ProDOS filenames, the warning beep will sound and the program will wait for you to enter a valid filename.

An arrow appears to the left of the file to remind you that the file has been renamed.

6. Repeat Steps 4 and 5 until all the filenames you wish to alter have been changed.

7. Type G to write the filename change(s) to the disk.

The new filename or directory name is written to the disk and the program returns to the Volume and File Utilities main menu.

To Rename a Volume

1. From the Volume and File Utilities main menu, move the highlight bar to Rename and press **RETURN**.

Two options appear on the right of the screen.

2. Move the highlight bar to Volume and press **RETURN**.

A prompt appears asking you to select the drive that contains the volume you want to rename.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

A prompt appears asking you for the new volume name.

4. Enter the new volume name and press **RETURN**.

ProDOS volume names must be no more than 15 characters long, begin with a letter, and contain only letters, numbers, and periods. If you enter a volume name that does not comply with the rules for ProDOS volume names, the warning beep will sound and the program will wait for you to enter a valid volume name.

5. Type **G** to write the volume change to the diskette.

The new volume name is written to the diskette and the program returns to the Volume and File Utilities main menu.

FORMATTING A VOLUME OR DISKETTE

The Format Disk function lays down sector boundaries and writes volume and directory headers and boot blocks to prepare a volume or diskette for storing files there.

A blank disk must be formatted before it can be used. Ordinarily, Constellation III volumes are formatted automatically when they are created; you don't have to use this function on a volume unless you know it is not formatted.

You can use the Format Disk function to make a bootable disk by first formatting a diskette and then using the Copy function to copy to the diskette the file PRODOS and whatever .SYSTEM file you want the disk to start up.

In the prompts, *disk* is used to refer to either a volume or a diskette.

1. From the Volume and File Utilities main menu, move the highlight bar to Format Disk and press **RETURN**.

Two options appear on the right of the screen.

2. Move the highlight bar to **PRODOS** and press **RETURN**.

A prompt appears asking you to select the drive that contains the volume or diskette you want to format.

3. Move the highlight bar to the appropriate drive. If you're formatting a diskette, place the diskette in the drive. Press **RETURN**.

A prompt appears asking you to confirm that you want to format that volume or disk.

4. Type **Y** to proceed with formatting.

If the volume or diskette to be formatted does not already contain data, a prompt will appear asking for a new volume name.

Enter a new volume name and press **RETURN** to proceed with formatting.

If the volume or diskette does already contain data, a prompt will appear asking you to reconfirm your decision to destroy this data.

Type **Y** and a prompt will appear asking for a new volume name.

Enter a new volume name and press **RETURN** to proceed with formatting.

OR

Type **N** to return to the Volume and File Utilities main menu.

VERIFYING DISKETTES, FILES, AND DRIVE SPEED

If a diskette you are using has bad data, has bad sectors, or is physically damaged, you will receive an I/O error message when you try to use it. Bad data means the catalog or file information is wrong. A bad sector is one that can't be read. Bad sectors can be caused by power fluctuations, or by opening the drive door or pressing **RESET** while the drive was writing to the diskette. A diskette can also be damaged by improper handling, fingerprints, heat, etc..

If you are getting an I/O error when you use a diskette, it is a good idea to verify the diskette to discover where the error is. If the Verify Disk function displays errors, then you have either bad sectors or a damaged diskette. You should use the Copy function to save as much of the information as you can, then try to reformat the diskette. If the formatting fails, then the diskette is most likely permanently damaged and should be thrown away.

1. From the Volume and File Utilities main menu, move the highlight bar to Verify and press **RETURN**.

Three options appear on the right of the screen.

```
                COPY ][ PLUS 6.1
(C) 1982-6 CENTRAL POINT SOFTWARE, INC.
-----
```

```
COPY
CATALOG DISK
DELETE                SELECT OPTION:
LOCK/UNLOCK FILES
RENAME                DISK
ALPHABETIZE CATALOG  FILES
FORMAT DISK          DRIVE SPEED
VERIFY
VIEW FILES
DISK MAP
CHANGE BOOT PROGRAM
UNDELETE FILES
CREATE SUBDIRECTORY
SET PRINTER SLOT
QUIT
```

<NO DATE>

PRINTER
OFF

2. Move the highlight bar to Disk and press **RETURN**.

A prompt appears asking you to select the drive that contains the diskette you want to verify.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

The program quickly reads each of the 35 tracks on the diskette in turn. As it reads them, the current track number is displayed near the bottom of the screen.

If bad sectors are found on any track, their track and sector numbers are displayed in hexadecimal in the middle of the screen.

When verification is complete, the program displays the total number of errors.

To exit out of the verify function, press **[ESC]** to return to the Volume and File Utilities main menu.

To Verify Files

1. From the Volume and File Utilities main menu, move the highlight bar to Verify and press **[RETURN]**.

Three options appear on the right of the screen.

2. Move the highlight bar to Files and press **[RETURN]**.

A prompt appears asking you to select the drive that contains the files you want to verify.

2. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **[RETURN]**.

The selected drive will whir. If it contains a ProDOS disk with subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the file you want to verify.

3. Select the subdirectory and press **[RETURN]**.

For more information on selecting subdirectories from the subdirectory tree display, see the Volume and File Utilities Overview section in this chapter.

A list of the files contained in the selected subdirectory appears.

4. Use the highlight bar to select the files you want to verify and press **RETURN**.

OR

Type **E** to enter a filename or pattern.

5. Enter the filename or pattern and press **RETURN**.

An arrow appears to the left of the selected files.

6. Type **G** to verify the files.

The file display will show each file in inverse as it is verified. If an error occurs, the track and sector numbers for the error appears.

To continue verification of a file after an error has been identified, press **RETURN**.

OR

To return to the Volume and File Utilities main menu, press **ESC**.

To Verify Drive Speed

This option should be used only by technically sophisticated users.

VIEWING FILES

The View Files function allows you to look quickly and easily at the data in any file. This is useful for double-checking exactly what is in a file before copying it, deleting it, etc.

View Files allows you to view files as hexadecimal numbers (values) or as text. When viewing files as hexadecimal numbers, equivalent ASCII characters appear to the right of the numbers. Control characters are replaced with periods.

When files are viewed as ASCII text, the characters are printed out in standard 40-character lines. Control characters are not printed, except for carriage returns.

To View Files as Hexadecimal Numbers (Values)

1. From the Volume and File Utilities main menu, move the highlight bar to View Files and press **RETURN**.

Two options appear on the right of the screen.

```

                                COPY ][ PLUS 6.1
                                (C) 1982-6 CENTRAL POINT SOFTWARE, INC.
                                -----

COPY
CATALOG DISK
DELETE                               SELECT OPTION:
LOCK/UNLOCK FILES                    VALUES
RENAME                               TEXT
ALPHABETIZE CATALOG
FORMAT DISK
VERIFY
VIEW FILES
DISK MAP
CHANGE BOOT PROGRAM
UNDELETE FILES
CREATE SUBDIRECTORY
SET PRINTER SLOT
QUIT

                                PRINTER
                                OFF

<NO DATE>
```

2. Move the highlight bar to Values and press **RETURN**.

A prompt appears asking you to select the drive that contains the files you want to view.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

The selected drive will whir. If it contains a ProDOS disk with subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the file you want to view.

4. Select the subdirectory and press **RETURN**.

For more information on selecting subdirectories from the subdirectory tree display, see the Volume and File Utilities Overview section in this chapter.

A list of the files contained in the selected subdirectory appears.

5. Use the highlight bar to select the file you want to view.

6. Type G to view the file.

If the printer has been selected using the Printer Slot function from the Volume and File Utilities main menu, a prompt appears asking whether or not you want a printout of the file. Type Y for yes; type N for no.

7. To advance to the next page, press **RETURN**.

The file is displayed a page at a time.

OR

Press **ESC** to return to the Volume and File Utilities main menu.

To View Files as Text

1. From the Volume and File Utilities main menu, move the highlight bar to View Files and press **RETURN**.

Two options appear on the right of the screen.

2. Move the highlight bar to Text and press **RETURN**.

A prompt appears asking you to select the drive that contains the files you want to view.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

The selected drive will whir. If it contains a ProDOS disk with subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the file you want to view.

4. Select the subdirectory and press **RETURN**.

For more information on selecting subdirectories from the subdirectory tree display, see the Volume and File Utilities Overview section in this chapter.

A list of the files contained in the selected subdirectory appears.

5. Use the highlight bar to select the file you want to view.

6. Type G to to view the file.

If the printer has been selected using the Printer Slot function from the Volume and File Utilities main menu, a prompt appears asking whether or not you want a printout of the file. Type Y for yes; type N for no.

7. To advance to the next page, press `RETURN`.

The file is displayed a page at a time.

OR

Press `ESC` to return to the Volume and File Utilities main menu.

THE DISK MAP

The Disk Map function presents a display showing which sectors on a diskette are used by what files and which sectors are free for use.

The disk map is displayed as a grid showing all the sectors on the disk, with the track numbers (\$0 to \$22) across the top row and the sector numbers (\$4 to \$F) along the left edge. The sector numbers on the left are slightly out of order to reflect the way ProDOS groups pairs of sectors together.

Every sector marked as in use on the disk is shown as an asterisk in a white box. Unused sectors are marked with a dot. If the disk is mostly full, large areas of the grid will be filled in with inverse asterisks. You can see whether or not any given sector is in use by following the track number down and the sector number across and noting whether or not an inverse space is there.

If you are mapping a diskette with subdirectories, any subdirectory you view will appear as letter D's rather than asterisks.

If you have selected a printer slot on the main menu, you can print the Disk Map.

1. From the Volume and File Utilities main menu, move the highlight bar to Disk Map and press **RETURN**.

A prompt appears asking you to select the drive that contains the diskette you want to map.

3. Move the highlight bar to the appropriate drive, place the diskette in the drive, and press **RETURN**.

The disk map for the entire disk appears.

```

DISK MAP                               SLOT 4  DRIVE 1
/C3

TRACK          1                2
0123456789ABCDEF0123456789ABCDEF012

SO ***** . ***** . . . . . ***** . .
EE ***** . ***** . . . . . ***** . .
CD ***** . ***** . . . . . ***** . .
TC ***** . ***** . . . . . ***** . .
OB ***** . ***** . . . . . ***** . .
RA ***** . ***** . . . . . ***** . .
9 ***** . ***** . . . . . ***** * .
8 ***** . ***** . . . . . ***** * .
7 ***** . ***** . . . . . ***** . .
6 ***** . ***** . . . . . ***** . .
5 ***** . ***** . . . . . ***** . .
4 ***** . ***** . . . . . ***** . .
3 ***** . ***** . . . . . ***** . .
2 ***** . ***** . . . . . ***** . .
1 ***** . ***** . . . . . ***** . .
F ***** . ***** . . . . . ***** . .

[RETURN]-CONTINUE, [ESC]-EXIT

```

If you have selected a printer slot from the main menu, a prompt appears asking if you want to print the map. Type Y for yes; type N for no.

4. To see a map for the first file on the disk, press **RETURN**.

The map for the first file displays. The filename is shown at the top of the screen. The map shows only the sectors used by the file.

```
DISK MAP                               SLOT 4  DRIVE 1
/C3/PRODOS
```

```
          TRACK          1          2
          0123456789ABCDEF0123456789ABCDEF012

SO .****.....
EE .****.....
CD .****.....
TC .****.....
OB .****.....
RA .****.....
 9 .****.....
 8 .****.....
 7 .****.....
 6 .****.....
 5 .***.....
 4 .**.....
 3 .*.....
 2 .*.....
 1 .****.....
 F .****.....
```

USE ARROW KEYS TO MAP OTHER FILES

To see a map of the next file, press the right-arrow key.

To see a map of the previous file, press the left-arrow key.

To print individual file maps, bring the map you want onto the screen and type P.

5. To map files within subdirectories, use the **<** and **>** keys instead of the arrow keys.

To see a map of the next subdirectory file, press the **>** key.

To see a map of the previous subdirectory file, press the **<** key.

Press **ESC** to return to the Volume and File Utilities main menu.

CHANGING THE BOOT PROGRAM

This function of the program is used only on DOS 3.3 diskettes. It allows you to change the boot program to boot a different BASIC program, or BRUN a binary file, or EXEC a text file on boot-up.

UNDELETING FILES

When a file is deleted using the Delete function of the Volume and File Utilities, the program marks the file internally as deleted, but it also keeps all of the file information intact. If you accidentally delete a file but no other information has been written over it yet, the file can be recovered using the Undelete Files function.

1. **From the Volume and File Utilities main menu, move the highlight bar to Undelete Files and press `RETURN`.**

A prompt appears asking you to select the drive that contains the file you want to undelete.

2. **Be sure the diskette containing the file to be undeleted is in the drive, then move the highlight bar to the appropriate drive and press `RETURN`.**

If the volume or diskette contains subdirectories, then the subdirectory tree display appears for you to select which subdirectory contains the file you want to undelete.

3. **Select the subdirectory and press `RETURN`.**

For more information on selecting subdirectories from the subdirectory tree display, see the Volume and File Utilities Overview section in this chapter.

A list of the deleted files contained in the selected subdirectory appears. If there are no deleted files, the message NO FILES appears.

4. **Place the highlight bar on the file to be undeleted and press `RETURN`. Repeat this action for each file you wish to undelete.**

An arrow appears to the left of the selected files.

5. **Type G to undelete the selected files.**

The program displays the filename at the bottom of the screen as the program attempts to undelete them.

If a deleted file has already been partly or completely overwritten with other data, the file cannot be undeleted. The program marks the file LOST FILES.

6. **To return to the Volume and File Utilities main menu, press `RETURN`.**

After the undelete is completed, use the Catalog function to look at the undeleted files on the disk. If there was a problem in undeleting a file, the undeleted file will be marked with a question mark. Test the suspect file. If you find that the file is good, use the Lock/Unlock function to remove the question mark.

CREATING SUBDIRECTORIES

1. **From the Volume and File Utilities main menu, move the highlight bar to Create Subdirectory and press `RETURN`.**

A prompt appears asking you to select the appropriate drive.

2. **Move the highlight bar to the appropriate drive, place the diskette in the drive, and press `RETURN`.**

The selected drive will whir. If it contains a ProDOS disk with subdirectories, then the subdirectory tree display appears for you to select the subdirectory to which you want to append a new subdirectory. If there are no subdirectories, go to Step 4.

3. Select the subdirectory and press `RETURN`.

Use the arrow keys to position the highlight bar on the subdirectory to which you want to append a new subdirectory and press `RETURN`.

A prompt appears asking you to supply the name for the new subdirectory you want to create.

4. Enter the name of the new subdirectory and press `RETURN`.

The subdirectory name must begin with a letter and contain only letters, numbers, and periods. If you enter a subdirectory name that does not comply with the rules for ProDOS subdirectory names, the warning beep will sound and the program will wait for you to enter a valid subdirectory name.

The program adds this new subdirectory to your diskette.

5. To return to the Volume and File Utilities main menu, press `ESC`.

SETTING THE PRINTER SLOT

If you have a local printer or a network station that is equipped with the Corvus Print Spooler Card in slot 1 of the computer, you can print the screen displays from Catalog, View Files, and Disk Map. If you want to have the printing option available to you as you use the Volume and File Utilities, you must first set the printer slot using the Set Printer Slot function.

1. From the Volume and File Utilities main menu, move the highlight bar to Set Printer Slot and press **RETURN**.

The word OFF that appears under the word PRINTER in the lower right corner of the screen will change to Slot 0.

2. Type 1 and press **RETURN**.

Slot 1 indicates that you have a printer interface card in slot 1. Slot 0 indicates that you want the printing option turned off.

The Volume and File Utilities main menu appears with the printer set to ON.

TO QUIT THE VOLUME AND FILE UTILITIES

- To return to BASIC, move the highlight bar on the Volume and File Utilities menu to Quit and press **RETURN**.

The Mount Manager Program

PROGRAM OVERVIEW

ProDOS users will usually find that access to six Constellation volumes is enough. Because of the large capacity of Constellation volumes, the Mount Manager Program should rarely have to be used by ordinary network users. On the other hand, the Mount Manager Program can be very useful for the network manager in managing the network. You can use the Mount Manager Program to give yourself read-write access to multiple sets of six Constellation volumes to let you copy programs, organize the volumes, and mount volumes for any account.

The Mount Manager Program is used to:

- mount volumes
- unmount volumes
- change the slot and drive number of a volume
- change the user's read-write access to the volume
- change the mount status of volumes stored on different disk drives.

The Mount Manager Program is provided in the volume /A2PRO and is automatically mounted in S7, D1 for the account A2PRODOS. The account A2MGR has the volume /A2PRO mounted on slot 7, drive 2. We recommend that the mount location for the volume containing the Mount Manager Program be S7, D1 for other accounts. The instructions that follow use that location. If you have assigned a different mount location to the volume containing the program, substitute that location for the one supplied in the instructions.

Do not mount a volume on the same slot and drive as a diskette drive or another peripheral. If you do, the slot and drive designations for volumes will take precedence over any peripheral you have installed in the same slot. The diskette drive or peripheral will be unusable until you assign the volume to a different slot and drive number.

TO RUN THE MOUNT MANAGER PROGRAM

1. Log on to the network using the log-on name of the account for which you want to mount or unmount volumes.
2. On the Constellation III ProDOS Utilities main menu, press 2 to select Mount Manager.

OR

From BASIC type `-/A2PRO/MOUNT.MANAGER` and press `RETURN`.

If the Mount Manager Program is not in A2PRO, substitute for *A2PRO* the appropriate volume name.

You see the main menu of the Mount Manager Program.

```
ProDOS: Mount Manager [1.7]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
- M A I N M E N U -
```

```
Please Select:
```

```
L - List Mounted Volume Status
```

```
M - Mount a Volume
```

```
U - Unmount a Volume
```

```
S - Select Network Disk Server
```

```
I - Search Drive Image [No ]
```

```
Q - Quit
```

```
Current Server Name : SERVER0
```

```
Server Number : 0
```

At the bottom of the screen, directly under the main menu options, the screen displays the current server name and number. (This is relevant information to users of networks with multiple servers.)

TO SEE A LIST OF MOUNTED CORVUS VOLUMES

- From the Mount Manager menu, type L to see a list of mounted volumes.

A screen appears showing the following information for each mounted volume:

- a letter used to identify the volume
- the volume name
- the length of the volume in blocks
- the slot and drive numbers
- the server number
- whether or not the user has read-write access to the volume.

ProDOS: Mount Manager [1.7]

(C) 1984 Corvus Systems, Inc.

Volumes Currently Mounted

	Name	Length	SLOT	DRIVE	Loc.	R/W
A	A2PRO	1124	7	1	0	Y
B	VOLUME1	1124	6	2	0	Y
C	VOLUME2	1124	5	1	0	Y
D	VOLUME3	1124	5	2	0	Y
E	*****					
F	*****					
G	*****					
H	*****					

4 Volumes Mounted

Press any key to continue

TO UNMOUNT A CONSTELLATION VOLUME

A maximum of six volumes can be mounted for an account at any one time. Sometimes you have to unmount a volume in order to free a slot and drive location for another volume you want to mount.

1. From the Mount Manager menu, type U to unmount a volume.

A list of mounted volumes appears.

To return to the Mount Manager menu without unmounting any volumes, press **[ESC]**.

2. Type the letter next to the volume that you want to unmount.

WARNING: Do not unmount the account's home volume for the account or the volume containing the Mount Manager Program.

The volume is unmounted and the Mount Manager menu is displayed.

3. To verify that the correct volume is unmounted, type L to see a list of volumes currently mounted.
4. Press **[SPACE]** to return to the Mount Manager menu.

TO MOUNT A VOLUME

The Mount function of the Mount Manager Program is used to:

- mount volumes that are not currently mounted
- remount volumes to change their slot and drive numbers
- change read-write access to a volume.

The function displays a list of all unmounted volumes that the current account has eligible for mounting. When establishing the access table for the account, the network manager determines which volumes an account will have eligible for mounting.

- 1. From the Mount Manager menu, type M.**

The screen displays volumes that the network manager has made eligible for mounting in the account access table. Next to each volume is a letter that the Mount Manager Program uses to identify the volume. A volume in this list cannot be used by the account until it has been mounted and assigned slot and drive numbers.

If the volume you want to mount isn't on this list, the network manager must first make the volume eligible for mounting on the access table for the account. Press **[ESC]** to return to the main menu of the Mount Manager Program and then type Q to exit the program.

- 2. Type the letter for the volume you want to mount.**

A dialog screen is presented asking you to supply a slot number from 1 to 7.

- 3. Type the number of the slot location you want for the volume.**

Remember, if you assign a slot and drive location that is already taken by another volume, the volume you mount last is the only one the account will be able to access. Also, if you assign a slot and drive number that has been assigned to a diskette drive, the diskette drive will no longer be usable.

A warning message will appear if you enter a slot number that has already been assigned to a diskette drive. If this happens, press **[ESC]** to return to the Mount Manager menu to mount the volume again using a different slot number.

A dialog screen is presented asking you to supply a drive number: 1 or 2.

4. Type the number of the drive location you want for the volume.

A dialog screen is presented asking you if you want the account to have read-only access to the volume. Refer to the section entitled "Fundamental Concepts" in the *Network Manager's Guide* for more information regarding volume access.

5. If you want the account to have read-only access to the volume, type Y.

Read-only access prevents the user from changing information stored in the volume.

OR

If you want the account to have read-write access to the volume, type N.

Read-write access allows the user to review, use, and make changes to information in the volume. Only a single user should have read-write access to a volume at one time. If a Constellation volume is a public volume, only the owner account of that volume will be permitted to have read-write access to it. The Mount Manager Program prevents all other accounts from having read-write access to public volumes.

6. To verify that the correct volume is unmounted, type L to see a list of volumes currently mounted.

7. To return to the Mount Manager menu, press `SPACE`.

MOUNTING CONSTELLATION VOLUMES ON MULTIPLE SERVERS

Servers enable network devices other than computers to communicate with each other. Each of these devices--printers, The Bank, an OmniDrive--has its own server. Sometimes the server is built into the device, as with OmniDrives and The Bank. In any case, each server has a unique name and number that identify it. The current server name and number are displayed at the bottom of the menu screen of the Mount Manager Program.

To mount or unmount volumes that are stored on a hard disk associated with a server other than the current server, you must first select the server you want in order to make it the current server. For example, if the current server is SERVER0 and you would like to mount a volume on SERVER1, you must first change the current server to SERVER1.

To Select a Network Disk Server

- 1. From the Mount Manager menu, type S.**

The screen displays the names of all available servers on the network and asks you which server to select.

- 2. Type the letter displayed before the server name of the server that you want to make the current server.**

The current server changes to the server you specified. You can now mount and unmount volumes from this server. The Mount Manager menu is displayed.

Mounting Volumes from Images

The Select Drive Image function of the Mount Manager Program menu allows you to access Constellation III volumes contained within an image on a Bank Tape and is one of the programs that make it possible to restore damaged volumes using the image.

An image contains all the data on a mass storage system transferred onto a Bank Tape. An image may contain many volumes. Once you have access to an image, you can mount any of its Constellation III volumes to which you have access. A Constellation III volume mounted from an image can be used as if it were located on a disk drive.

The Select Drive Image function does not itself mount any volumes, it only selects them. To mount the volumes selected, use the Mount a Volume function of the Mount Manager.

Before using this option, make sure The Bank contains the correct tape and is on-line and accessible on your network. Also make sure that your account has access to the volumes that are contained in the image.

To mount a volume from an image

- 1. Use the Select Server function of the Mount Manager Program to change the current server to the server name for The Bank.**
- 2. From the Mount Manager Program menu, press I to select the Select Drive Image function.**

A message appears showing all the images contained on the Bank Tape.

- 3. Select an image by pressing the letter displayed before the image name.**

The Mount Manager Program menu appears with *YES* next to the Select Drive Image function.

- 4. Mount the volumes you want using the Mount a Volume function of the Mount Manager Program.**

TO QUIT THE MOUNT MANAGER PROGRAM

- From the Mount Manager Program menu, press Q to return to ProDOS.

The File Spooler Program

PROGRAM OVERVIEW

The File Spooler Program is used to:

- print on a network printer when the network station doesn't have a Print Spooler Card in slot 1
- send files to another user via the Transfer Area.

From the Transfer Area, files can be automatically despoiled to a printer, or another user can retrieve them using the File Despooler Program. To understand how the File Spooler Program works, you need to know about the Transfer Area and pipes. These are described in Chapter 5 of the *Network Manager's Guide*. A brief description follows.

The Transfer Area is actually a volume on the hard disk, called the PIPES volume. Each time you send a file to this volume, either by printing directly or by spooling, a pipe is created to hold the file. Many pipes can exist within the Transfer Area at one time. A pipe exists, i.e., is active, only as long as a file resides in it. Once the file is despoiled, the pipe disappears.

When a file is sent to the Transfer Area, it is assigned a job number by which it can be identified.

Each active pipe has a name. The name of the pipe determines where the file goes when it leaves the Transfer Area. All files in pipes with the pipe name assigned to a certain printer go that printer; the sender must give files bound for another network user a pipe name that is not already assigned to a printer. The intended receiver of the file uses that pipe name to despool the file.

There are two main steps in printing with the File Spooler Program:

1. Save your work in a text file located in the current ProDOS volume.
2. Run the File Spooler Program to send the file to the Transfer Area.

Refer to the documentation that came with your word processing program or text editing program for information regarding how to save your work in a ProDOS ASCII text file.

TO RUN THE FILE SPOOLER PROGRAM

■ Select the File Spooler Program from the ProDOS Utilities menu, or, to run from BASIC, type

`/A2PRO/SPOOL` and press `RETURN`.

The File Spooler settings screen appears.

```
ProDOS: Spool [1.6]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
- M A I N M E N U -
```

```
Please Select:
```

```
S - Start Spooling
```

```
N - New Page String .PG
```

```
P - Pipe Name          PRINTER
```

```
M - Message
```

```
-----  
Route to Station #24
```

```
-----  
C - Current Pipe Status
```

```
A - Alternate Slot  SERVERO
```

```
Q - QUIT
```

TO CHANGE THE NEW-PAGE STRING

The new-page string must match the symbol or characters used by your application or text editing program to indicate a new page. The default is shown next to this option on the menu screen: the default is .PG. This string, placed in the first column of your work with no characters following it, is never printed. Look in the documentation for your application to find which characters indicate a new page.

1. **From the File Spooler settings screen, type N to change the new-page string.**

A prompt appears asking for the new-page string.

2. **Enter the new-page string and press `RETURN`.**

Be sure the new-page string exactly matches the symbol or characters used by your application.

The File Spooler settings screen appears with your change in position.

TO SPECIFY THE PIPE NAME

Choose this option to specify the destination of your file after it leaves the Transfer Area. The default name, shown next to this option, is PRINTER. To print a file on another network printer, enter the name of that printer. Check with your network manager for the names of printers on your network.

To send a file to another user, create a pipe name not already assigned to a printer, enter the name, and be sure to tell the user receiving the file what name you have used. For example, if you are sending a file to Harry Smith, you might name the pipe HARRY. As long you don't use a pipe name already assigned to a printer, your file remains in the Transfer Area until the person to receive it despools it with the File Despooler Program.

To send a file to another user, create a pipe name not already assigned to a printer, enter the name, and be sure to tell the user receiving the file what name you have used. For example, if you are sending a file to Harry Smith, you might name the pipe HARRY. As long you don't use a pipe name already assigned to a printer, your file remains in the Transfer Area until the person to receive it despools it with the File Despooler Program.

Pipe names may be a maximum of eight letters.

1. **From the File Spooler settings screen, type P to enter a pipe name.**

A prompt appears asking for the pipe name.

2. **Enter the pipe name and press `RETURN`.**

The File Spooler settings screen appears with your change in position.

TO SPECIFY A MESSAGE

You can include an identifying line on the first page of your printed file. The default message, "Route to Station XX," automatically gives the address of your network station.

1. **From the File Spooler settings screen, type M to specify a message.**

A prompt appears asking for the message.

2. **Enter the message and press `RETURN`.**

The message can be up to 80 characters long.

TO START SPOOLING

1. **Run the File Spooler Program.**

The File Spooler Program settings screen appears.

2. Confirm that the settings shown are correct.

Check the pipe name on the File Spooler Program settings screen. If you are spooling to a printer, make sure you have the correct printer name. How to change the various settings is discussed in the preceding sections.

3. From the File Spooler settings screen, type S to start spooling.

A prompt appears asking the name of the file that will be spooled.

4. Enter the name of the file and press `RETURN`.

Be sure to enter the name precisely: punctuation and spaces must be exact. To spool a file not on the current volume, type the full pathname (for example, /VOL2/DEBIT1.TXT) and press `RETURN`.

The screen displays the spooling information along with a prompt requesting the name of another file to spool. Spooling information includes the pipe name, the pipe number, and the number of blocks spooled. This information is important because it allows you to check on the status of the spooling of your file using the current pipe status option.

Enter the name of another file you want to spool and press `RETURN`.

OR

Press `ESC` to return to the File Spooler settings screen.

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance which pipes are waiting in the Transfer Area with the name shown on the menu screen.

1. **From the File Spooler program menu, type C to check the current pipe status.**

The screen displays the status of the pipe named on the menu screen. Status information includes a list of jobs by pipe number, whether the pipe is open or closed, and whether or not each pipe contains data. A pipe that is open may be in the process of being spooled, or it could be stuck in the open position. Refer to Chapter 4 in the *Network Manager's Guide* for instructions on clearing pipes.

2. **To return to the File Spooler Program, press any key.**

SPOOLING ON MULTIPLE SERVER NETWORKS

You can spool a file to a Transfer Area that is on a server other than the default server by using the Alternate Slot option on the File Spooler settings screen. When you select a different server using this option, you are changing the current server. All files will be spooled to this server until you select a different server or run the File Spooler Program again.

To change the current server

1. **From the File Spooler settings screen, type A to select the Alternate Slot option.**

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

2. Type the letter that appears next to the server you want to select.

The current server is changed to the server you specified, and the File Spooler settings screen appears with the new server name displayed near the top of the menu.

TO QUIT THE FILE SPOOLER PROGRAM

■ **From the File Spooler Program menu, press Q to return to BASIC.**

The File Despooler Program

PROGRAM OVERVIEW

The File Despooler Program enables users to:

- retrieve files from the Transfer Area
- make a network station function as a printer server so a local printer can be shared as a network printer.

When another user spools a file to you, the pipe containing the file remains in the Transfer Area until you retrieve it. Once the file is despoiled, the pipe and its contents disappear from the Transfer Area.

A pipe can be despoiled to a file, the computer screen, or a local printer that is directly connected to a network station.

TO RUN THE FILE DESPOOLER PROGRAM

- Select the File Despooler Program from the ProDOS Utilities main menu or, to run from BASIC, type

-/A2PRO/DESPOOL

and press **RETURN**.

The File Despooler settings screen appears.

ProDOS DeSpool [1.7]

(C) 1984 Corvus Systems, Inc.

- M A I N M E N U -

Please Select:

S - Start DeSpooling
O - Output Device CONSOLE
E - Expand Tabs 08
P - Pipe Name PRINTER
F - Line Feeds [Off]
H - Header Page [Yes]

C - Current Pipe Status
A - Alternate Slot SERVER0
Q - QUIT

TO SELECT THE OUTPUT DEVICE

Use this option to specify the destination of the despoiled file. The File Despooler Program can output to Console (the computer screen), File (a file), or Printer (a local printer, one that is attached to a computer).

1. From the File Despooler settings screen, type **O** to select the Output Device option.

A prompt appears requesting you to select the output device.

2. **Type the letter that represents the output device you want.**

The File Despooler program menu is displayed, and the output device you chose is shown.

CHANGING THE PRINTING OPTIONS

If you are despooling a file to a local printer, you should check the default settings for the three printing options.

1. The default setting for **Expand Tabs** is **08**, meaning that for each tab in the file being spooled, the File Despooler Program will insert 8 character spaces.
2. The default for **Line Feeds** is **Off**, meaning that the File Despooler Program will not insert a line feed after each carriage return.
3. The default for **Header Page** is **YES**, meaning that the first page that prints will be a header page containing the name of the file and the destination network station.

To Specify Tab Settings

1. **From the File Despooler settings screen, type E to select the Expand Tabs option.**

A prompt appears requesting you to indicate the amount of space for each tab.

2. Enter the number of spaces you want for each tab and press **RETURN**.

The File Despooler settings screen is displayed with the tab spaces you entered shown.

To Set Line Feeds

If you are despooling a file to a printer directly connected to your computer, you can set this option to add a line feed after each carriage return in the file. Set line feeds to On if when you print lines of text are printing on top of one another. Refer to the user's manual for your printer to see if you must insert line feeds.

- From the File Despooler program menu, type **F** to change the Line Feeds option from On to Off, or from Off to On.

The File Despooler program menu continues to be displayed, with the line feeds option changed.

TO SPECIFY THE PIPE NAME

Use this option to specify the pipe name to which the file you want was spooled.

1. From the File Despooler settings screen, type **P** to select the pipe name option.

A prompt appears requesting you to enter the pipe name.

2. Type the pipe name used for the files you want to despool.

The File Despooler settings screen is displayed with the pipe name you typed shown.

TO START DESPOOLING

After you have confirmed that the settings shown on the menu screen are correct, choose this option to retrieve a file from the Transfer Area. How to change the various settings is discussed in the preceding sections.

1. **When all settings are okay, type S from the File Despooler settings screen to start despooling.**

If you have chosen to output to a file, a prompt appears requesting the name of the file.

2. **Enter the name of the file and press `RETURN`.**

Be sure to enter the name precisely: punctuation and spaces must be exact. If the destination file is in a ProDOS volume other than the current one, enter the full pathname for the file following the filename.

If you are despooling a program, not a text file, the screen displays a prompt requesting you to select the file type.

3. **Select the file type, if requested.**

If you don't know the file type, you will have to ask the person who spooled the file.

The screen displays a message indicating the pipe name that is being despoiled.

If there is more than one pipe with the same name, the File Despooler Program repeats the prompts for despooling the remaining pipes. If the pipes are being despoiled to a file, a prompt appears requesting the name of the next destination file. The despool message continues to display until you return to the File Despooler settings screen.

4. **To return to the File Despooler settings screen, press `ESC`.**

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance which pipes are waiting for which printers.

1. From the File Despooler settings screen, type C to select the Current Pipe Status option.

The program lists by number all the pipes in the Transfer Area with the same pipe name that you specified. The Current Pipe Status screen shows the open or closed status of each pipe and whether or not the pipe contains data.

```
ProDOS DeSpool [1.7]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
Pipe Name is: PRINTER1
```

# 1	Closed	Contains Data
# 2	Closed	Contains Data
# 3	Closed	Contains Data
# 4	Closed	Contains Data
# 5	Closed	Contains Data
# 6	Closed	Contains Data

```
Press any key to continue
```

Pipes are open during spooling and despooling; otherwise they are closed. Only pipes that contain data and are closed (indicating that spooling is complete) can be despoiled.

2. To continue, press **SPACE**.

The File Despooler program menu is displayed.

DESPOOLING ON MULTIPLE SERVER NETWORKS

You can despool a file from a Transfer Area that is on a server other than the default server by using the Alternate Slot option on the File Despooler settings screen. The default server is the server with a Transfer Area and the lowest network address. The server that is set to address 0 and that contains a pipes area will always be the default server. When you select a different server using this option, you are actually changing the current server. Files will be despoiled only from this server until you select a different server or run the File Despooler Program again.

To change the current server

1. From the File Despooler settings screen, type **A** to select the Alternate Slot option.

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

2. Type the letter that appears next to the server you want to select.

The current server is changed to the server you specified, and the File Despooler settings screen appears with the new server name displayed near the top of the menu.

TO MAKE A NETWORK STATION INTO A PRINTER SERVER

- 1. Change the default options on the File Despooler settings screen.**

Read the sections on selecting output device, changing the printer options, and specifying the pipe name, above. Output device should be *Printer*. You may have to experiment with the printer options to get the results you want. The pipe name is whatever pipe name you want people to use for files they send to your printer.

- 2. Choose Start Despooling on the File Despooler Program settings screen.**

If a file hasn't yet been spooled to this destination, the File Despooler Program will wait for it. The File Despooler Program will continue despooling files until you quit the File Despooler Program or turn off the network station.

TO QUIT THE FILE DESPOOLER PROGRAM

- **From the File Despooler Program menu, press Q to return to BASIC.**

The Spooler Card Setup Program

PRINTING WITH THE SPOOLER CARD

There are two ways to print on a shared printer when using Corvus Omninet. One way is to save your information in a file and spool it to the Transfer Area (the PIPES volume) with the File Spooler Program. An easier way is to equip your Apple IIe network stations with Corvus Print Spooler Cards, which enable network stations to print directly from DOS 3.3 and ProDOS applications. Printing on a network printer with a Print Spooler Card is as easy as using a local printer. The Print Spooler Card functions like a standard serial printer interface card and does the work of spooling your information to the Transfer Area.

What You'll Need

To print directly from an application on a network printer, you need a Corvus Print Spooler Card and the Print Spooler Card software, consisting of the SPOOLCARD program and the file NETPROBJ.

Settings for the Print Spooler Card are established in the SPOOLCARD program. When the computer is turned on, the Print Spooler Card will automatically boot and be configured with the default settings. The SPOOLCARD program must be run to change these default settings.

Before entering an application from which you might want to print, you should confirm or change the Print Spooler Card settings with this program. This section describes how and when to change the settings and gives some hints for troubleshooting should a problem arise during printing.

Coordinating Printing

When you're printing on a network printer, settings that control page length, margins, spacing, etc., can be adjusted in as many as four different places. Many printers have dip switches that can be set to determine these variables. The printer server, the Print Spooler Card, and the application you are working with will all have settings too. If you specify settings on the printer or printer server, everyone who prints with that printer will have to use those settings. If you specify settings in several places, you risk causing conflicts.

It is best to make all settings only in the application program itself. If you want extra line spacing, don't specify extra line spacing when setting the printer switches; specify extra line spacing within the application program.

Each program has its own set of printing parameters and ways of selecting them. Many application programs allow you to specify the type of printer and interface card you have. Check the manual that came with the program you are using for more details regarding setting printing parameters in the application you are using. The Corvus Print Spooler Card functions just like an Apple Super Serial Card and uses the same settings.

PROGRAM OVERVIEW

When you want to confirm or change the settings for the Print Spooler Card, you need to run the SPOOLCARD program. SPOOLCARD presents a screen listing the settings you can adjust. Next to each setting is a suggested response that represents the most common setting. You can accept the suggestions or change them. Changing a setting determines the configuration of the Print Spooler Card until you change it again or turn off your computer.

You can reboot the computer by pressing **CTRL** - **OPEN-APPLE** - **RESET** without changing the configuration of the Print Spooler Card. Likewise, you can change applications, operating systems, and volumes without affecting the configuration.

When the computer is turned off and turned on again, the Print Spooler Card will be configured with the default settings. You may change the settings from within the SPOOLCARD program, but your changes will not be permanently incorporated. Each time you restart the computer, the Print Spooler Card will revert to the default settings.

TO RUN THE SPOOLCARD PROGRAM

1. Select the Spooler Card Setup program from the ProDOS Utilities menu, or, to run from BASIC, type

/A2PRO/SPOOLCARD

and press **RETURN**.

The Spooler Card Settings screen appears.

2. Review the settings. If the suggested settings are okay, use the arrow keys to move the pointer to Quit Program and press **RETURN**.

The Print Spooler Card is configured with the settings indicated on the screen and the BASIC prompt appears.

CHANGING THE SPOOLER CARD SETTINGS

There are seven settings for the Print Spooler Card.

If you want to accept all the settings just as they are on the Spooler Card Settings screen, select Quit at the bottom of the screen.

You can use the arrow keys to move the pointer to the setting you want and press **RETURN**. A prompt appears describing how to change the setting.

If you decide you don't want to change the setting after selecting it, just press **RETURN** before typing anything and the screen will display the suggested settings unchanged.

About Termination Strings

Each time information is sent to a pipe in the Transfer Area, there needs to be a signal to the computer that indicates the end of the print job so the computer will close the pipe. Some application programs close the pipe automatically. If the application you are using doesn't close the pipe automatically, you can cause the pipes to close by including termination strings in your print job.

A termination string can be any of the following:

- characters that you include at the end of your print job
- characters or instructions that the application program sends to the printer
- characters that you include at the end of your print job that are also printed by the printer.

Usually, termination strings have two parts. The first string acts as a signal telling the computer when to start looking for the end of the print job. This string doesn't get sent to the printer and doesn't print. The second string indicates the end of the job.

If there is no second string, the first string indicates the end of the print job. Some word processors require you to type the first string at the end of your document. The application program will automatically supply the second string. Be sure to type the termination string exactly the same in both places--at the end of your document and on the Spooler Card Settings dialog screen. Capitalization, spaces, and punctuation must be identical.

Termination strings are determined by the application program. Look in the table below for the termination strings to use for a particular application. Look in the appendix for procedures to follow when including termination strings in some of the most common application programs. For instance, when printing from Terrapin Logo you will need to type in several lines of instruction.

If none of the termination strings presented in the table works for your application, you can create suitable termination strings yourself.

Termination Strings in Applications

Most Word Processors

First String: @ END
Second String: /OC
Within the application: Type @ END at the end of the document.

Most Spreadsheets

First String: @ END
Second String: /OC
Within the application: Enter @ END as a label in a cell in the row below your last row of data.
Be sure to include the row that contains @ END when you specify which cells of the spreadsheet are to print.

BASIC

First String: PR#0
Second String: <NO STRING>
Within Basic: If you want to print a catalog or listing, type PR#1 to direct output to the printer card.
Type PR#0 to stop the output.

Terrapin Logo

First String: PR#0
Second String: <NO STRING>
Within Logo: Create a procedure called ENDPRINT by typing:
TO ENDPRINT
PRINT "PR#0
OUTDEV 0

Tips for Creating Termination Strings

- Create a first string that you type at the end of your document to indicate the end of the print job.
- Make sure that what you create as a first string is unique. If the same combination of characters appears elsewhere in the document, the pipe will close prematurely and your job will not print completely.
- Make sure that you type the first string exactly the same in both places in the application and on the Spooler Card Settings screen.
- If you know the last thing that the program will send to the printer, use that as the second string. For example, most word processors will send a form feed at the end of a page. The hexadecimal code for a form feed is /0C.
- If while you are experimenting with different termination strings your print job doesn't print, rerun SPOOLCARD. A useful additional function of running the SPOOLCARD program is that it causes the pipe to close automatically without any action on your part. Once the pipe is closed, the job will print.

To Specify the First and Second Termination Strings

1. Use the arrow keys to move the pointer to First String or Second String and press **RETURN**.

A dialog screen appears.

2. Type the string.

Both the first string and the second string together must not exceed 9 characters in length. You will not be allowed to type more than 9 characters.

Special characters, such as escape, carriage return, line feed, and form feed, can be represented by their hexadecimal codes following a slash. For example, to enter a form feed, type /0C.

If you want to include a slash in your termination string, use two slashes to represent a single slash. The screen will show both slashes, but the computer will interpret them as a single slash.

As you type, the characters appear near the bottom of the dialog screen. Make sure that what you type here exactly matches the termination string for your application.

You can edit what you type by using the left arrow key to erase the previous character. However, if you type a slash, you won't be able to backspace until you type a hex value or another slash.

If you want nothing for the string, press **[SPACE]** for <NO STRING> or **[ESC]** to return to the Spooler Card Settings screen.

- 3. To accept the change, press **[RETURN]**.**

The Spooler Card Settings screen will appear with the new string you typed.

To Change the Printer Name

The printer name is established by the network manager in the print service configuration program or in the File Despooler Program if a workstation is being used as a printer server. We have recommended that the printer be named PRINTER and have provided PRINTER as the default setting. If you have more than one printer on your network, however, each will have a different name and you must specify the name of the printer you want to use.

- 1. Use the arrow keys to move the pointer to Printer Name.**

A prompt appears.

2. Type the name of the printer you want to use.

The printer name can be a maximum of 8 characters.

Be sure to type the name exactly, with no extra spaces or punctuation.

To edit what you type, use the left arrow key to erase the previous character.

3. To accept the change, press `RETURN`.

The Spooler Card Settings screen will appear with your change in position.

To Change the Server Number

The file you want to print will be sent to the Transfer Area of the hard disk, the PIPES volume, on its way to the printer. You need to specify the location of the disk server that contains the PIPES volume. This location is defined by its Omninet network address (a number from 0 to 63). Usually the network manager puts the PIPES volume on SERVER0.

1. Use the arrow keys to move the pointer to Server and press `RETURN`.

A prompt appears.

2. Type the number of the Omninet node address.

The number is usually 0. It can be a number from 0 to 63.

You can edit the number you type using the left arrow key.

3. To accept the change, press **RETURN**.

The Spooler Card Settings screen will appear with your change in position.

To Echo to Screen

Sometimes you will want to see your information on the screen as it is being spooled. For example, when you print catalogs or BASIC program listings you might want to see them on screen as they are sent to the PIPES volume. YES in answer to the question "Echo to screen?" means the information will appear on the screen. NO means it won't.

■ Move the pointer to Echo to Screen? and press **RETURN**.

The Spooler Card Settings screen reappears with the preset option changed.

You can press **RETURN** again to change it back.

To Insert Line Feeds after Carriage Returns

This item on the Spooler Card Settings screen reads, "Insert LF after CR?" The LF stands for line feed and the CR stands for carriage return. This is one of the settings that must be coordinated with settings on the printer and printer server you are using. Trial and error is one way to find out if you have chosen the right setting.

If you select NO and find that your text is overprinting onto itself when you print, then change the setting to YES. If the setting is at YES and you are getting unwanted double line spacing when you print, then change the setting to NO to eliminate the extra line space.

- Use the arrow keys to move the pointer to Insert LF after CR? and press **RETURN**.

The Spooler Card Settings screen reappears with the preset option changed.

You can press **RETURN** again to change it back.

To Change the Omninet Card Slot

You shouldn't have to change this setting since we recommend that all Omninet cards be placed in slot 7. However, if change is required, perform the following steps:

1. Use the arrow keys to move the pointer to Omninet Card Slot and press **RETURN**.

A dialog screen appears.

2. Enter the Omninet card slot by typing a number from 4 to 7.

You can edit the number you type using the left arrow key.

3. To confirm the change, press **RETURN**.

The Spooler Card Settings screen will appear showing the changed setting.

TO QUIT THE SPOOLER CARD SETUP PROGRAM

- From the Spooler Card Setup menu, use the arrow keys to move the pointer to Quit and press **RETURN** to return to BASIC.

Chapter 4

Constellation III Utilities for Pascal

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Introduction

Constellation III Utilities for the Pascal operating system include three different programs. These programs are described briefly below.

■ Mount Manager Program

The Mount Manager Program is for users who need access to more than the six Constellation volumes that can be mounted at any one time. Because a Constellation volume on the hard disk can contain up to 117 individual Pascal volumes, not many ordinary users will need to use this program. But it is useful for the network manager, who can use the program to mount different sets of six volumes, change users' access to volumes, and generally mount and unmount volumes as need arises.

■ File Spooler Program

This program makes it possible for users whose network stations do not have a Print Spooler Card in slot 1 to print using a network printer. It also makes it possible for users on the network to send files to each other. The File Spooler Program sends files to the Transfer Area on the hard disk. From the Transfer Area, files can be printed on a network printer, or other users can retrieve them using the File Despooler Program.

■ File Despooler Program

This program enables users to retrieve files from the Transfer Area. It also enables an Apple to act as a printer server so users can use a printer that does not have a printer server. Files can be despoiled from the Transfer Area to the screen, a file, or a local printer.

The Mount Manager Program

PROGRAM OVERVIEW

Pascal users will usually find that access to six volumes is enough. Because of the large capacity of Constellation volumes, the Mount Manager Program should rarely have to be used by ordinary network users. On the other hand, the Mount Manager Program is an essential tool for the network manager. You can use the Mount Manager Program to give yourself access to multiple sets of six Constellation volumes so you can copy programs, organize the volumes, and mount volumes for any account.

The Mount Manager Program is used to

- mount volumes
- unmount volumes
- change the unit number of a volume
- change the user's read-write access to the volume
- change the mount status of volumes stored on different disk drives.

The Pascal Mount Manager Program is provided in volume A2PAS. We recommend that the mount location for the volume containing the Mount Manager Program be unit 4. The instructions that follow use that location. If you have assigned a different mount location to the volume containing the program, substitute that location for the one supplied in the instructions.

Do not mount a volume on the same unit as a diskette drive or another peripheral. If you do, the unit designations for volumes will take precedence over any peripheral you have installed in the same slot. The diskette drive or peripheral will be unusable until you assign the volume to a different unit number.

TO RUN THE MOUNT MANAGER PROGRAM

1. **Log on to the network using the log-on name of the account for which you want to mount or unmount volumes.**

The Pascal command line appears.

2. **Type X.**

A prompt appears asking which file you want to execute.

3. **Type A2PAS:MNTMGR and press RETURN.**

You see the main menu of the Mount Manager Program.

```
APPLE PASCAL: Mount Manager [1.6]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
- M A I N M E N U -
```

```
Please Select:
```

```
L - List Mounted Volume Status
```

```
M - Mount a Volume
```

```
U - Unmount a Volume
```

```
S - Select Network Disk Server
```

```
I - Search Drive Image [No ]
```

```
Q - Quit
```

```
Current Server Name : SERVER0
```

```
Server Number : 0
```

At the bottom of the screen, directly under the main menu options, the screen displays the current server name and number. (This is relevant information to users of networks with multiple servers.)

TO SEE A LIST OF MOUNTED VOLUMES

- From the Mount Manager menu, type L to see a list of mounted volumes.

A screen appears showing the following information for each mounted volume

- a letter used to identify the volume
- the volume name
- the length of the volume in blocks
- the unit number for current volume
- the server number
- whether or not the user has read-write access to the volume.

APPLE PASCAL: Mount Manager [1.6]

(C) 1984 Corvus Systems, Inc.

Volumes Currently Mounted

	Name	Length	UNIT	Loc.	R/W
A	A2PAS	1124	4	0	Y
B	VOLUME1	1124	5	0	Y
C	VOLUME2	1124	11	0	Y
D	*****				
E	*****				
F	*****				

3 Volumes Mounted

Press any key to continue

TO UNMOUNT A VOLUME

A maximum of six volumes can be mounted for an account at any one time. Sometimes you have to unmount a volume in order to free a unit location for another volume you want mounted.

1. From the Mount Manager menu, type U to unmount a volume.

A list of mounted volumes appears.

To return to the Mount Manager menu without unmounting any volumes, press **[ESC]**.

2. Type the letter next to the volume that you want to unmount.

WARNING: Do not unmount the account's home volume or the volume from which the Mount Manager Program was run.

The volume is unmounted and the Mount Manager menu is displayed.

3. To verify that the correct volume is unmounted, type L to see a list of volumes currently mounted.
4. Press any key to return to the Mount Manager menu.

TO MOUNT A VOLUME

The Mount function of the Mount Manager Program is used to

- mount volumes that are not currently mounted
- remount volumes to change their unit numbers
- change read-write access to a volume.

The function displays a list of all unmounted volumes that the current account has eligible for mounting. When establishing the access table for the account, the network manager determines which volumes an account will have eligible for mounting.

1. **From the Mount Manager menu, type M.**

The screen displays volumes that the system manager has made eligible for mounting in the account access table. Next to each volume is a letter that the Mount Manager Program uses to identify the volume. A volume in this list cannot be used by the account until it has been mounted and assigned a unit number.

```
APPLE PASCAL: Mount Manager [1.6]
```

```
(C) 1984 Corvus Systems, Inc.
```

```
A-A2BOOT  B-VOLUME4  C-VOLUME5
```

```
Mount Which Volume ?
```

If the volume you want to mount isn't on this list, the network manager must first make the volume eligible for mounting on the access table for the account. Press **[ESC]** to return to the Mount Manger menu and then type Q to exit to the Pascal Utilities main menu.

If no volumes are available for mounting, a message to that effect appears. Press **[SPACE]** to continue.

2. Type the letter for the volume you want to mount.

A dialog screen is presented asking you to supply a unit number (valid unit numbers include the number 5 and the numbers 9 to 12).

3. Type the unit number for the volume.

Remember, if you assign a unit location that is already taken by another volume, the volume you mount last is the only one the account will be able to access. Also, if you assign a unit number that has been assigned to a diskette drive, the diskette drive will no longer be usable.

A warning message will appear if you enter a unit number that has already been assigned to a diskette drive. If this happens, press **CTRL** - **RESET** to return to the Constellation III entry screen. You will have to unmount the volume and mount it again using a different unit number.

A dialog screen is presented asking you if you want the account to have read-only access to the volume. Refer to the section entitled "Fundamental Concepts" in the *Network Manager's Guide* for more information regarding volume access.

4. If you want the account to have read-only access to the volume, type Y.

Read-only access prevents the user from changing information stored in the volume.

OR

If you want the account to have read and write access to the volume, type N.

Read-write access allows the user to review, use, and make changes to information in the volume. Only a single user should have read-write access to a volume at one time. If a volume is a public volume, only the owner of the volume is permitted to have read-write access to it. The Mount Manager Program prevents all other accounts from having read-write access to public volumes.

7. **Press any key to return to the Mount Manager menu.**

MOUNTING VOLUMES ON MULTIPLE SERVERS

Servers enable network devices other than computers to communicate with each other. Each of these devices--printers, The Bank, an OmniDrive--has its own server. Sometimes the server is built into the device, as with OmniDrives and The Bank. In any case, each server has a unique name and number that identify it. The current server name and number are displayed at the bottom of the menu screen of the Mount Manager Program.

To mount or unmount Constellation volumes that are stored on a hard disk associated with a server other than the current server, you must first select the server you want in order to make it the current server. For example, if the current server is SERVER0 and you would like to mount a volume on SERVER1, you must first change the current server to SERVER1.

To select a network disk server

1. **From the Mount Manager menu, type S.**

The screen displays the names of all available servers on the network and asks you which server to select.

2. **Type the letter displayed before the server name of the server that you want to make the current server.**

The current server changes to the server you specified. You can now mount and unmount volumes from this server. The Mount Manager menu is displayed.

MOUNTING VOLUMES FROM IMAGES

The Select Drive Image function of the Mount Manager Program menu allows you to access Constellation III volumes contained within an image on a Bank Tape and is one of the programs that make it possible to restore damaged volumes using the image.

An image contains all the data on a mass storage system transferred onto a Bank Tape. An image may contain many volumes. Once you have access to an image, you can mount any of its Constellation III volumes to which you have access. A Constellation III volume mounted from an image can be used as if it were located on a disk drive.

The Select Drive Image function does not itself mount any volumes, it only selects them. To mount the volumes selected, use the Mount a Volume function of the Mount Manager.

Before using this option, make sure The Bank contains the tape you want and is on-line and accessible on your network. Also make sure that your account has access to the volumes that are contained in the image.

To mount a volume from an image

1. **Use the Select Server function of the Mount Manager Program to change the current server to the server name for The Bank.**

2. **From the Mount Manager Program menu, press I to select the Select Drive Image function.**

A message appears showing all the images contained on the Bank Tape.

3. **Select an image by pressing the letter displayed before the image name.**

The Mount Manager Program menu appears with *YES* next to the Select Drive Image function.

4. **Mount the volumes you want using the Mount a Volume function of the Mount Manager Program.**

The File Spooler Program

PROGRAM OVERVIEW

The File Spooler Program is used to

- print on a network printer when the network station doesn't have a Print Spooler Card in slot 1
- send files to another user via the Transfer Area.

From the Transfer Area files can be automatically despoiled to a printer, or another user can retrieve them using the File Despooler Program. To understand how the File Spooler Program works, you need to know about the Transfer Area and pipes. The Transfer Area and pipes are described fully in the *Network Manager's Guide*. A brief description follows.

The Transfer Area is actually a volume named PIPES on the hard disk. Each time you send a file to this volume, either by printing directly or by spooling, a pipe is created to hold the file. Many pipes can exist within the Transfer Area at one time. A pipe exists, i.e., is active, only as long as a file resides in it. Once the file is despoiled, the pipe disappears.

When a file is sent to the Transfer Area, it is assigned a job number by which it can be identified.

Each active pipe has a name. The name of the pipe determines where the file goes when it leaves the Transfer Area. All files in pipes with the pipe name assigned to a certain printer go that printer; files bound for another network user must be given a pipe name by the sender that is not already assigned to a printer. The intended receiver of the file uses that pipe name to despool the file.

There are two main steps in printing with the File Spooler Program:

1. Save your work in a text file located in the current Pascal volume.
2. Run the File Spooler Program to send the file to the Transfer Area.

Refer to the documentation that came with your word processing program or text editing program for information regarding how to save your work in an ASCII text file.

TO RUN THE FILE SPOOLER PROGRAM

1. **At the Pascal command line, type X.**

A prompt appears asking you which file to execute.

2. Type **A2PAS:SPOOL** and press **RETURN**.

The File Spooler menu appears.

```
SPOOL [4.0f]: Corvus Spool Program
(c) Copyright 1984 Corvus Systems, Inc.
```

```
Spooling to slot 7, server SERVER0
```

```
Valid options are:
```

```
S - Start spooling
T - Text file ..... YES
I - Include file ..... {$I
N - New page ..... {$P
P - Spool pipe name ..... PRINTER

M - File message .....
E - Strip enhancements .. YES
Q - Quit

C - Current pipe status
```

```
Select option:
```

TO CHANGE THE TEXT FILE SETTING

This option indicates whether a text or data file is being spooled. The default setting is YES, indicating that files spooled are text files. The Include File, New Page, and Strip Enhancements options are only available for text files.

NO for this setting indicates a data file. Data files do not require formatting and can be spooled as is. The options that are only available for text files disappear from the settings screen when the Text File setting is at NO.

- **From the File Despooler Program menu, type T to change the Line Feeds option from YES to NO, or from NO to YES.**

The File Spooler settings screen appears with your change.

TO INCLUDE FILES

The Include File setting allows you to include the contents of additional files when the original text file is printed.

In the original text file, place the Include File symbol at the location where the additional file should be inserted. Enter the name of the file to be inserted after the Include File symbol. For example, using the default Include File symbol [**\$I**], the following line inserts the file named **STATS.TEXT**:

[\$I STATS.TEXT

When the original file is spooled, the contents of the file **STATS.TEXT** will be inserted beginning where the line is placed.

Do not place any other text or commands on the same line in the original file as the symbol and the Include File filename. If an Include File symbol is not followed by a filename, an error message displays, and the file continues printing.

TO CHANGE THE NEW-PAGE SYMBOL

The new-page symbol causes the printer to begin printing on a new page. Wherever the printer finds the new-page symbol in the text, the printer skips to the top of the next page and resumes printing. The default new-page symbol is [**\$P**].

The new-page symbol should match the symbol or characters used by your word processing or text editing system to begin printing on a new page. The symbol itself is not printed.

1. From the File Spooler settings screen, type N.

A prompt appears asking for the new-page string.

2. Enter the new-page string and press **RETURN**.

Be sure the new-page string exactly matches the symbol or characters used by your application.

The File Spooler settings screen appears with your change in position.

TO SPECIFY THE PIPE NAME

Choose this option to specify the destination of your file after it leaves the Transfer Area. The default name, shown next to this option, is PRINTER. To print a file on a different network printer or to send it to another network user, enter the appropriate pipe name. The network manager should have a record of the names of printers on the network.

To send a file to another user, create a pipe name not already in use by a printer, enter the name, and tell the name to the user to receive the file.

For example, if you are sending a file to Harry Smith, you might name the pipe HARRY. Because you are using a pipe name not assigned to a printer, your file will remain in the Transfer Area until the person you sent it to retrieves it with the File Despooler Program.

Pipe names may be a maximum of eight characters.

1. From the File Spooler settings screen, type P to enter a pipe name.

A prompt appears asking for the pipe name.

2. Enter the pipe name and press **RETURN**.

If the pipe is destined for a printer, be sure the pipe name exactly matches the printer name assigned to it by the network manager.

The File Spooler settings screen appears with your change in position.

TO SPECIFY A FILE MESSAGE

You can include an identifying line on the first page of your printed file. The default message, "Route to Station XX," automatically gives the address of your network station.

1. From the File Spooler settings screen, type M to specify a message.

A prompt appears asking for the message.

2. Enter the message and press **RETURN**.

The message can be up to 80 characters long.

The File Spooler settings screen appears with your change.

TO CHANGE THE STRIP ENHANCEMENTS SETTING

The Strip Enhancements option set at YES removes all existing enhancements, such as boldface or underlines, from the text and prints the text file without them.

The Strip Enhancements option set at NO prints the file with text enhancements. The printer you use must be able to print enhanced characters in order for text enhancements to be printed.

- **From the File Despooler Program menu, type E to change the Strip Enhancements option from YES to NO, or from NO to YES.**

The File Spooler settings screen appears with your change.

TO START SPOOLING

- 1. Run the File Spooler Program.**

The File Spooler Program settings screen appears.

- 2. Confirm that the settings shown are correct.**

Check the pipe name on the File Spooler Program settings screen. If you are spooling to a printer, make sure you have the correct printer name. How to change the various settings is discussed in the preceding sections.

- 3. From the File Spooler settings screen, type S to start spooling.**

A prompt appears asking the name of the file that will be spooled.

- 4. Enter the name of the file and press `RETURN`.**

Be sure to enter the name precisely: punctuation and spaces must be exact. If the file is in a volume other than the current volume, type the volume name followed by a colon and the filename.

The screen displays the spooling information along with a prompt requesting the name of another file to spool. Spooling information includes the pipe name, the pipe number, and the number of blocks spooled. This information is important because it allows you to check on the status of the spooling of your file using the Current Pipe Status option.

Enter the name of another file you want to spool and press **RETURN**.

OR

Press **ESC** to return to the File Spooler settings screen.

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance which pipes are waiting in the Transfer Area with the name on the menu screen. The jobs are identified by pipe numbers and the printers are identified by pipe names.

1. From the File Spooler settings screen, type **C** to check the current pipe status.

The screen displays the status of the pipe named on the menu screen. Status information includes a list of jobs by pipe number, whether the pipe is open or closed, and whether or not each pipe contains data. A pipe that is open may be in the process of being spooled, or it could be stuck in the open position. Refer to Chapter 4 in the *Network Manager's Guide* for instructions on clearing pipes.

2. To return to the Constellation III entry screen, press **CTRL** - **RESET**.

SPOOLING ON MULTIPLE SERVER NETWORKS

You can spool a file to a Transfer Area that is on a server other than the default server by using the Set Alternate Slot option on the File Spooler menu. The option changes the current server to the server with the Transfer Area you want to use.

The Set Alternate Slot option only appears on the File Spooler settings screen when there is more than one Transfer Area on the network.

To change the current server

1. From the File Spooler settings screen, type A to select the Alternate Slot option.

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

2. Type the letter that appears next to the server you want to select.

The current server is changed to the server you specified, and the File Spooler settings screen appears with the new server name displayed near the top of the menu. All files will be spooled to this server until you select a different server or run the File Spooler Program again.

TO QUIT THE FILE SPOOLER PROGRAM

- From the File Spooler settings screen, type Q to return to Pascal.

OR

Press **CTRL** - **RESET** to return to the Constellation III entry screen.

The File Despooler Program

PROGRAM OVERVIEW

The File Despooler Program enables users to

- retrieve files from the Transfer Area
- make a network station function as a printer server so a local printer can be shared as a network printer.

When another user spools a file to you, the pipe containing the file remains in the Transfer Area until you retrieve it. Once the file is despoiled, the pipe and its contents disappear from the Transfer Area.

A pipe can be despoiled to a file, the computer screen, or a local printer directly connected to the computer running the File Despooler Program. .

TO RUN THE FILE DESPOOLER PROGRAM

1. At the Pascal command line, type X.

A prompt appears asking you which file you want to execute.

2. Type **A2PAS:DESPOOL** and press **RETURN**.

The File Despooler settings screen appears.

```
DESPOOL [4.0f]: Corvus Despool Program  
(c) Copyright 1984 Corvus Systems, Inc.
```

```
Despooling from slot 7, server SERVER0
```

```
Valid options are:
```

```
S - Start despooling  
D - Despool device ..... Printer  
E - Expand tabs ..... 8  
M - Max lines/page ..... 58  
P - Despool pipe name ... PRINTER
```

```
L - Insert line feeds ... YES  
H - Print header page ... YES  
T - Print trailer page .. YES  
Q - Quit
```

```
C - Current pipe status
```

```
Select option:
```

TO SELECT THE DESPOOL DEVICE

Use this option to specify the destination of the despoiled file. The File Despooler Program can output to Console (the computer screen), File (a file), or Printer (a local printer, one attached directly to your computer).

1. From the File Despooler settings screen, type **D** to select the Despool Device option.

A prompt appears requesting you to select the despool device.

2. **Type the letter that represents the despool device you want.**

The File Despooler settings screen is displayed, with the despool device you chose shown.

CHANGING THE PRINTING OPTIONS

If you are despooling a file to a local printer, you should check the default settings for the four printing options.

1. The default setting for **Expand Tabs** is 08, meaning that for each tab in the file being spooled, the File Despooler Program will insert 8 character spaces.
2. The default setting for **Maximum Lines per Page** is 58.
3. The default for **Line Feeds** is YES, meaning that the File Despooler Program will insert a line feed after each carriage return.
4. The default for **Header Page** is YES, meaning that the first page that prints will be a header page containing the name of the file and the destination network station. Alternately, you could choose to print a trailer page.

To Specify Tab Settings

1. **From the File Despooler settings screen, type E to select the Expand Tabs option.**

A prompt appears requesting you to indicate the amount of space for each tab.

2. Enter the number of spaces you want for each tab and press **RETURN**.

The File Despooler settings screen is displayed showing the tab spaces you entered.

To Set Line Feeds

If you are despooling a file to a printer directly connected to your computer, you can set this option to add a line feed after each carriage return in the file. Set line feeds to YES if lines of text are printing on top of one another. Refer to the user's manual for your printer to see if you must insert line feeds.

- From the File Despooler Program menu, type L to change the Line Feeds option from YES to NO, or from NO to YES.

The File Despooler Program menu continues to be displayed with the line feeds option changed.

To Include a Header Page

You can choose to print a header page that includes the name of the file and the message specified in the File Spooler Program. The default message, "Route to Station XX," automatically gives the address of your network station.

- From the File Despooler Program menu, type H to select the Header Page option and change the option from YES to NO, or from NO to YES.

The File Despooler settings screen continues to be displayed with the header page option changed.

TO SPECIFY THE PIPE NAME

Use this option to specify the pipe name you want to despool.

- 1. From the File Despooler settings screen, type P to select the Pipe Name option.**

A prompt appears requesting you to enter the pipe name.

- 2. Type the pipe name used for the files you want to despool.**

The File Despooler settings screen is displayed with the pipe name you typed shown.

TO START DESPOOLING

After you have confirmed that the settings shown on the menu screen are correct, choose this option to despool a file from the Transfer Area. How to change the various settings is discussed in the preceding sections.

- 1. When all settings are okay, type S from the File Despooler settings screen to start despooling.**

If you have chosen to output to a file, a prompt appears requesting the name of the file.

- 2. Enter the name of the file and press `RETURN`.**

Be sure to enter the name precisely: punctuation and spaces must be exact. If the destination file is in a Pascal volume other than the current one, enter the name of the other volume followed by a colon and the filename. For example, HIST:PRES indicates the volume named HIST and the file named PRES. If you do not enter a volume name, the file will be despoiled to the current volume.

If you are despooling a program, not a text file, the screen displays a prompt requesting you to select the file type.

3. Select the file type, if requested.

If you don't know the file type, you will have to ask the person who spooled the file.

The screen displays a message indicating the pipe name being despoiled.

If there is more than one pipe with the same name, the File Despooler Program repeats the prompts for each pipe remaining to be despoiled. If the pipes are being despoiled to files, a prompt requests the name of the next destination file. The despool message continues to display until you return to the File Despooler settings screen.

4. To return to the File Despooler settings screen, press ESC.

TO CHECK THE CURRENT PIPE STATUS

Choose this option to check on the status of your file in the Transfer Area. You can see at a glance how many pipes are waiting.

1. From the File Despooler settings screen, type C to select the Current Pipe Status option.

The program lists by number all the pipes in the Transfer Area with the same pipe name that you specified. The current pipe status screen shows the open/closed status of each pipe and whether or not the pipe contains data.

```
DESPOOL [4.0f]: Corvus Despool Program
(c) Copyright 1984 Corvus Systems, Inc.
```

```
Despooling from slot 7, server SERVER0
```

```
Server: SERVER0
```

1.	PRINTER1	Closed	----	Contains data	13 blocks
2.	PRINTER1	Closed	----	Contains data	15 blocks
3.	PRINTER1	Closed	----	Contains data	6 blocks
4.	PRINTER1	Closed	----	Contains data	25 blocks
5.	PRINTER1	Closed	----	Contains data	4 blocks
6.	PRINTER1	Closed	----	Contains data	43 blocks

```
Press <space> to continue
```

Pipes are open during spooling and despooling; otherwise they are closed. Only pipes that contain data and are closed (indicating that spooling is complete) can be despoiled.

2. Press any key to continue.

The File Despooler settings screen is displayed.

DESPOOLING ON MULTIPLE SERVER NETWORKS

You can despool a file from a Transfer Area that is on a server other than the default server by using the Alternate Slot option on the File Despooler settings screen. The default server is the server with a Transfer Area and the lowest network address. The server that is set to address 0 and that contains a pipes area will always be the default server. When you select a different server using this option, you are actually changing the current server. Files will be despoiled only from this server until you select a different server or run the File Despooler Program again.

To change the current server

- 1. From the File Despooler settings screen, type A to select the Alternate Slot option.**

The program displays names of all servers on the network that have Transfer Areas. Next to each name is a letter that is used to select that server.

- 2. Type the letter that appears next to the server you want to select.**

The current server is changed to the server you specified, and the File Despooler settings screen appears with the new server name displayed near the top of the menu.

TO MAKE A NETWORK STATION INTO A PRINTER SERVER

1. Change the default options on the File Despooler settings screen.

Read the sections on selecting output device, changing the printer options, and specifying the pipe name, above. Output device should be *Printer*. You may have to experiment with the the printer options to get the results you want. The pipe name is whatever pipe name you want people to use for files they send to your printer.

2. Choose Start Despooling on the File Despooler Program settings screen.

If a file hasn't yet been spooled to this destination, the File Despooler Program will wait for one. The File Despooler Program will continue despooling files until you quit the File Despooler Program or turn off the network station.

TO QUIT THE FILE DESPOOLER PROGRAM

- From the File Despooler settings screen, type Q to return to Pascal.

OR

Press **CTRL** - **RESET** to return to the Constellation III entry screen.

Chapter 5

The Backup To Floppy Program

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Introduction

The Backup To Floppy Program can be used to back up OmniDrive volumes for any operating system onto diskettes. After you use the Backup function to create backup diskettes with this program, you can then use the Restore function to copy your backup diskettes onto the OmniDrive to restore volumes in which information has been lost or damaged. Other functions of the program allow you to get information about the backup diskettes, verify that the backup diskette can be read, and require a password before a volume can be restored from the diskette.

This program requires an Apple IIe computer with 128 kilobytes of memory and an extended 80-column card installed. The program cannot be used with an Apple II that has less memory.

Before you begin to back up volumes, make sure you have enough diskettes on hand to hold the backups. The number of diskettes you need depends on the size of the volumes you are backing up and on whether your floppy drive uses 140k or 800k disks.

The Network Manager Program expresses the size of Constellation volumes in diskette equivalents when creating DOS 3.3 volumes. The Backup To Floppy Program, however, expresses the size of volumes in blocks. To work with the Backup To Floppy program, you need to convert diskette equivalents to blocks.

One 140k diskette holds 280 blocks, but it can back up only 277 blocks of a volume, at most. This is because three blocks of each diskette used in a backup must be allowed to hold information that maintains volume structure and keeps the backup organized. Similarly, an 800k diskette holds 1600 blocks, but at most 1597 blocks can be used for the backup: three blocks of each diskette are required to keep track of how the stored information fits together.

To find how many diskettes you need to back up a given volume, divide the size of the volume in blocks by the available space on one of your diskettes --either 277 or 1597 blocks. This figure makes allowance for the three blocks of head room each diskette requires. Round any fractions up. The answer is the number of diskettes you need.

For instance, a volume of 1024 blocks requires four 140k diskettes or one 800k diskette. A volume of 5000 blocks requires eighteen 140k diskettes or four 800k diskettes.

The Backup To Floppy Program has an option to format diskettes. If all the diskettes you have collected are not formatted already, use the program's Format Floppy option on any unformatted diskettes before performing the backup. All the diskettes must be formatted before they can be used to receive a backup.

When you do perform the backup, be sure to label each diskette carefully with the name of the volume it backs up and with its number in the sequence if the backup required more than one diskette. When you restore a volume, you must use the diskettes in the same order you used them in to do the backup.

Program Instructions

TO RUN THE BACKUP TO FLOPPY PROGRAM

1. With your computer off, place the floppy card in slot 4. Turn on the computer and log on to the network by typing **A2BACKUP** and pressing **RETURN**.

A prompt appears asking you to enter a user name and password. Enter the name of an account that has access to the volumes you want to back up.

2. Type the account name and press **RETURN**.

3. Type the account password and press **RETURN**, or if there is no password just press **RETURN**.

The Backup To Floppy menu appears.

CORVUS BACKUP-TO-FLOPPY UTILITY [1.9a]
(c) Copyright 1983..1987 Corvus Systems, Inc.

Server:
Drive:

-
- B - Backup a Volume
 - R - Restore a Volume
 - I - Identify a Diskette
 - L - List Volumes
 - S - Set Options
 - C - Choose Server
 - F - Format Floppy Diskette
 - E - Exit
-

TO CHOOSE A SERVER

If the volume you want to back up is on a different drive, this option lets you specify the server/drive containing the volume.

1. From the Backup To Floppy menu, press C to select the Choose Server function.

A list of network servers appears.

2. Type the name of the server you want and press **RETURN**.

If the server has a password, you are prompted to enter that as well.

TO FORMAT A FLOPPY

Use this function to format any unformatted diskettes before using the diskettes to receive a backup.

- 1. From the Backup To Floppy menu, press F to select Format Floppy Diskette.**
- 2. Insert the diskette to be formatted in slot 4, drive 1, and press `SPACE`.**

The program announces when it is done formatting the diskette and returns you to the Backup To Floppy menu.

TO IDENTIFY A DISKETTE

Use this function before doing a restoration to confirm that backup diskettes contain the volumes you want. The function displays volume name and date, account name and password, volume size, total number of diskettes used to back up the volume, and the number of the current diskette.

This function is especially useful in identifying diskettes that have been mislabeled. We suggest that you check the contents of all backup diskettes before using them to restore a volume.

- 1. From the Backup To Floppy menu, press I to select the Identify A Diskette function.**

A prompt appears asking you to insert a diskette into the drive.

2. Insert the first diskette into drive 1 and press **SPACE**.

The Identify A Diskette screen appears.

```
CORVUS BACKUP-TO-FLOPPY UTILITY [1.9a]
Identify a Diskette
```

```
Server:
Drive:
```

```
-----
                Volume Backed Up: A2NET
                  Date of Backup:
                    User Name: A2MGR (protected)
    Size of Volume (blocks): 1124
Total number of diskettes: 5
  Number of this Diskette: 1
-----
```

Press <space> to continue

3. When you are finished viewing the screen, press **SPACE** to return to the Backup To Floppy menu.

TO LIST VOLUMES

This function lists all the volumes accessible to the account currently using the Backup To Floppy Program. You might want to check this list before attempting to back up or restore a volume in order to confirm the volume name and to make sure the volume you want to back up or restore is available to you. You can back up or restore a volume only if it is on the list; you can restore a volume only if the account you are using has write access to it.

1. From the Backup To Floppy menu, press L to select the List Volumes function.

The List Volumes screen appears.

```
CORVUS BACKUP-TO-FLOPPY UTILITY [1.9a]          Server:
List Volumes                                     Drive:
```

volume	length	unit	write access
A2BOOT	300	-	
VOLUME1	1124	5	YES
VOLUME2	1124	11	YES
VOLUME4	1124	-	YES
VOLUME5	1124	-	YES
A2PAS	1124	4	YES

Press <space> to continue

2. When you are finished viewing the screen, press **SPACE** to return to the Backup To Floppy menu.

TO USE SET OPTIONS

There are two options you can set using this function:

- verification
- password protection

When the Verification option is Y, the program checks the data as it is being written to make sure it can be read. Although verification helps ensure accuracy, it doubles the amount of time needed for backup or restoration. The setting for this option is usually N.

When you set Password Protection to Y, the program writes a password on the backup diskette. This password must be entered before the volume can be restored from the diskette. The setting for this option is usually Y for yes. Be sure to record any passwords you assign.

To set the options

1. From the Backup To Floppy menu, press S to select the Set Options function.

The Set Options screen appears.

```
CORVUS BACKUP-TO-FLOPPY UTILITY [1.9a]
Set Options
```

```
Server :
Drive :
```

```
-----
Verification? [Y/N]: N
Password Protection? [Y/N]: Y
Ok to set option(s)? [Y/N]: Y
```

2. To change an option, press Y or N as required, then press **RETURN**.

After values for both options are entered, a prompt appears asking you to confirm that the option settings are correct.

3. To set the options, press **RETURN**.

A prompt appears indicating that the options have been set.

4. To return to the Backup To Floppy menu, press **SPACE**.

TO BACK UP A VOLUME

1. Prepare to back up the volume by using the Set Options function to check the Verification and Protection Options and by using the List Volumes function to check the volume name.

How to use these functions is described above.

2. From the Backup To Floppy menu, press **B** to select the Backup function.

A prompt appears asking you to supply the volume name and date.

3. Type the volume name and press **RETURN**; then type the date and press **RETURN**.

Type the volume name exactly as it appears in the volume record, and type the date as numbers with hyphens after the day and month. For example, type 1-04-87 for January 4, 1987.

A message appears asking you to insert a diskette.

4. Insert the diskette into the drive and press **SPACE**.

Label all diskettes with the appropriate volume name and a number representing the sequence in which you used them to make the backup. For example, a diskette labeled *Administration - 3* might represent the third diskette used to back up a volume named *Administration*.

A message appears telling you how many diskettes are required to make the backup. Use this information to prepare the labels for all the diskettes you'll need. As each block of data is copied, a dot appears on the screen. When the diskette is full, a prompt appears asking you to insert the next diskette.

Repeat Step 4 until a message appears saying that the volume backup is complete.

5. When the backup is complete, remove the diskette from the drive and press **[SPACE]**.

The screen displays the Backup To Floppy menu.

TO RESTORE A VOLUME

1. From Set Options, confirm that the Verification option is set the way you want, use Identify A Diskette to make sure you are restoring from the right diskettes, and use List Volumes to check that the volume you want to restore is listed as available to you.

How to use these options is described above.

Remember, you need read-write access to any volume you want to restore.

2. From the Backup To Floppy menu, press R to select the Restore function.

A prompt appears asking you to supply the volume name and date for the volume to be restored and for the floppy diskette.

3. Type the volume name for the volume to be restored and press **RETURN**; then enter the name of the floppy (e.g., *Administration - 3*) and press **RETURN**.

If the backup diskettes are protected, the current account name and password must be identical to the name and password assigned during the backup.

If all security checks are passed, a message appears asking you to insert a diskette.

4. Insert the diskette into the drive and press **SPACE**.

As each block of data is copied, a dot appears on the screen. When the diskette is full, a prompt appears asking you to insert the next diskette.

Repeat Step 4 until the message appears saying that the volume restoration is complete.

5. When the restoration is complete, remove the diskette from the drive and press **SPACE**.

The screen displays the Backup To Floppy menu.

TO QUIT THE BACKUP TO FLOPPY PROGRAM

- From the Backup To Floppy menu, press E to exit.

**Network
Diagnostics Guide
for Apple II**

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About This Guide

This guide explains the mass storage diagnostic program for Omnidrives.

The mass storage diagnostic program is used to detect and correct certain types of hardware and software problems that may develop in the Omnidrive.

CHAPTER OVERVIEW

Chapter 1 describes how to determine what a problem with the Omnidrive may be. This chapter also explains entering the diagnostics program.

Chapter 2 explains checking and updating the firmware.

Chapter 3 outlines how to exercise the drive, find media defects on the drive, and prepare the drive for transportation.

Chapter 4 details how to change drive parameters, including the interleave factor, spare tracks, and how to use the read after write option.

Chapter 5 discusses formatting the drive.

Chapter 6 highlights the application of advanced options in the diagnostics program.

Appendix A is a chart of drive error codes.

Appendix B is a table to be used by the network manager as a record of all diagnostic tests run on Omnidrives.

Conventions

Throughout this guide, *type* means to enter characters from the computer keyboard. Type all words, symbols, spaces and punctuation to the right of *type* exactly as shown. Do not add or leave out punctuation marks at the end of the statement.

Examples:

Type CATALOG,S6,D1,S2

Type C

Do not type the spaces between *type* and the first character to its right.

Throughout this guide, *press* means to press the keytop symbol to which it refers. Do not type out each letter of the word in the keytop symbol.

Examples:

Press SPACE

Press RETURN

When the command *type* or *press* appears in boldface in a sentence or paragraph, enter the information indicated.

Example:

Type your user name and password **press**
RETURN

The variables **x.xx** in the screen displays stand for software revision numbers.

The variable **NN** in the log-on displays stands for the number of the server that is providing the boot information.

The terms **boot** and **reboot** refer to loading and reloading the operating system into a computer.

The term **server** refers to the combination of a disk server and a disk drive. The term **server** also refers to an **Omnidrive**. Disk drives need an external disk server to communicate on the network while the **Omnidrive** has a built-in server.

The term **mass storage system** refers to an **OmniDrive**, a disk drive with a disk server, or a **Corvus Bank**.

The term **Omninet** refers to a **Corvus network system**. **Network** refers to one or more computers that use **Constellation II** software and are attached by **Omninet** to one or more **Omnidrives**.

The term **default** refers to the value or option that is assigned by **Constellation III** when another has not been specified by the user.

Before You Begin

Back up the Omnidrive on a regular basis to avoid loss of valuable data. It is recommended that at least one backup be made prior to using the diagnostic program.

The diagnostic program should be administered only by the person responsible for maintaining the Omnidrive and the network. To prevent data loss, all other users should avoid working on the network while the diagnostic program is in operation.

To format the drive, update firmware, or to spare tracks, a backup is required to preserve the data on the drive. For these programs, you *must* run the diagnostic program from the diagnostic diskette A2C3.1 instead of from Constellation III on the Omnidrive. It is recommended that you run all diagnostic programs from the A2C3.1 diskette.

When possible use the diagnostic program with the drive attached to a computer by convenience connector.

Contact an authorized Corvus Service Center for problems beyond the scope of this guide.

Chapter 1

Overview of Drive Diagnostics

Contents

9	To Orient You
10	Drive Indicator Lights
12	Setting Up for the Diagnostic Program
14	Entering the Diagnostic Program
14	From Constellation III
19	From Diskette

To Orient You

The diagnostic program is a tool, or several tools, really, that you can use to fix certain problems on a hard disk drive. It also offers you some ways to customize your drive for special situations.

This opening section describes the diagnostic functions discussed in this guide, and the remaining sections of the chapter explain how to start using the program.

Drive Indicator Lights

Notice that the drive has three lights, labeled Fault, Busy, and Ready on the front panel. These indicator lights can provide useful clues to the state of the drive.

The drive takes a minute or so after it's turned on to come ready. During this time the Fault and Ready lights will flash. Then the Ready light will come on by itself, signifying that the drive is ready to respond to a command.

If the Ready light *doesn't* come on after a minute, reset the drive by turning it off; wait a minute, and then turn it on again.

If the drive has been given a command and is in the process of responding to it, the Busy light will come on and flicker with the Ready light as data is transferred to and from the drive.

The behavior of these lights taken in conjunction with other symptoms can help identify problems with the drive. Some common problems and their symptoms are listed in the following chart.

Problem/Condition	Possible Cause	Possible Remedy
Drive indicator lights are off and fan is off.	No power.	Check power cord connection. Make sure drive is turned on.
Indicator lights are off and fan is on.	Controller or power supply	Reset drive.
Indicator lights are on but the drive does not become ready.	Faulty drive.	Reset drive.
Indicator lights are on but computer cannot communicate with the drive.	Faulty Omninet connection or incorrect Omninet address settings.	Check all Omninet connections. Check Omninet address settings. Reset drive.
Disk read or write errors occur.	Media defects.	Check for bad tracks.
Drive ready but does not respond to computer.	Bad connections or switch 7 set incorrectly.	Check connections and switch 7, then reset drive.
Fault light is on.	No firmware or firmware is faulty.	Update firmware.

Setting Up for the Diagnostic Program

If you are using a multiple server network, Corvus engineers suggest attaching the drive locally to the computer when using options in the diagnostic program that write to the drive. The options that write to the drive are Spare Tracks, Format Drive, Update Firmware, and Read After Write.

Isolating a drive performs two functions. One, it ensures the correct drive is subjected to diagnostic operation and helps prevent data loss on other drives. Two, it makes it impossible for someone else to use the same drive at the same time. If you are performing a diagnostic operation while someone else is using the drive, it is possible to destroy the other user's files.

To isolate an Omnidrive that is on a multiple server network, follow the steps below.

- Turn off all equipment.
- Unplug the Omnidrive tap cable from its tapbox.
- Plug the free end of the tap cable into the convenience connector supplied with the Omnidrive.
- Unplug the Apple II's transporter cable from its network tap box.
- Plug the Apple II's transporter box cable into the other end of the convenience connector.

Your Apple IIe and Omnidrive are connected to each other with the convenience connector.

Entering the Diagnostic Program

In most cases you should run the diagnostic program from a diskette rather than a volume. *However, to format the Omnidrive, update firmware or to spare tracks, the A2C3.1 diskette must be used. It is always recommended that you use the A2C3.1 diskette to run all diagnostics tests.*

To run the diagnostic program from floppy diskette, go to page 19.

To enter the diagnostic program from Constellation III, follow the instructions in the next section.

FROM
CONSTELLATION III

1 Turn on all Corvus equipment.

2 Turn on the Apple IIe.

3 Log on as the system manager.

Log on as A2MAINT with the password NOS. After you log on, the Corvus management utility main menu appears.

```
Constellation III Maintenance Utilities
Version [x.xx]
(c) Copyright 1982..1986 Corvus Systems, Inc.
-----
```

D - Mass Storage Diagnostic

T - Transfer Manager

M - Mirror Server

U - Update Utilities

C - Copy Diskette

H - Help

```
-----
Please select an option: _
```

4 Select the mass storage diagnostic program.

Type D

The screen displays the following:

```
Disk Diagnostic [x.xx]                Slot: 7
(c) Copyright 1984 Corvus Systems, Inc.  Srvr: 0
.....
Slot 1:....
Slot 2:....
Slot 3:....
Slot 4:....
Slot 5:....
Slot 6:....
Slot 7:Omninet interface
.....
Select slot number: [7]
```

The default prompt is 7, the number of the slot that contains the Omnet interface card.

5 Select the slot number.

Press **RETURN**

The screen display is similar to:

```
Active network nodes ( "*" indicates this node)

0 . . . . . 11* . . .
. . . . .
. . . . .
. . . . .
. . . . .

Select server number [0..63]: 0
```

Since you have your Apple IIe connected directly to the Omnidrive with a convenience connector, only two numbers will display.

6 Select the server number.

The server number is the Omninet address of the Omnidrive.

Type the address for the Omnidrive, then

Press

When you are asked for the drive number, enter the drive number.

After you enter the server and drive information, the screen displays the diagnostic main menu:

```
MDIAG [x.xx]: Corvus Mass Storage Diagnostic
(c) Copyright 1986 Corvus Systems Inc.
Slit:7 Srv: 0 Drv:1
```

```
D - Select Drive
V - Version Check
P - Park Heads for Shipment
X - Exercise Drive
C - Check for Bad Tracks
S - Show Results
```

```
F - Format Drive
U - Update Firmware
M - Modify Parameters
```

```
N - Set Diag Data File Name
A - Advanced Options
```

```
E - Exit
```

```
.....
Select diagnostic option:
```

Select a diagnostics option from the menu and refer to the chapter that discusses that particular diagnostic problem.

FROM
DISKETTE

Follow the steps below to enter the program from diskette.

- 1** Insert the diagnostic diskette in drive 1.
- 2** Turn on the Apple IIe.
- 3** Type PR#(slot number of floppy card) and press RETURN.

For example, if your floppy card is in slot 6, type PR#6 and press RETURN.

After a moment, the screen displays:

```
Constellation III Maintenance Utilities  
(c) Copyright 1984..1986 Corvus Systems, Inc.  
.....
```

```
C - Copy Diskette  
D - Disk Diagnostic  
S - System Generation  
X - Transfer Manager  
.....
```

```
Please select an option:
```

Type D

The screen asks you to insert a diskette. After putting the diskette in drive 2, press **SPACE**.

The screen displays the following:

```
Disk Diagnostic [x.xx]                      Slot: 7
(c) Copyright 1984 Corvus Systems, Inc.  Srvr: 0
-----
Slot 1:....
Slot 2:....
Slot 3:....
Slot 4:....
Slot 5:....
Slot 6:....
Slot 7:Omninet interface
-----
Select slot number: [7]
```

The default prompt is 7, the number of the slot that contains the Omninnet interface card.

4 Select the slot number.

Press **RETURN**

The screen display is similar to:

```
Active network nodes ( "*" indicates this node)

0 . . . . . 11* . . .
. . . . .
. . . . .
. . . . .
. . . . .

Select server number [0..63]: 0
```

Since you have your Apple IIe connected directly to the Omnidrive with a convenience connector, only two numbers will display.

5 Select the server number.

The server number is the Omninet address of the Omnidrive.

Type the address for the Omnidrive, then

Press

When you are asked for the drive number, enter the drive number.

After you enter the server and drive information, the screen displays the diagnostic main menu:

```
MDIAG [x.xx]: Corvus Mass Storage Diagnostic
(c) Copyright 1986 Corvus Systems Inc.
Slit:7 Srv: 0 Drv:1
```

```
D - Select Drive
V - Version Check
P - Park Heads for Shipment
X - Exercise Drive
C - Check for Bad Tracks
S - Show Results
```

```
F - Format Drive
U - Update Firmware
M - Modify Parameters
```

```
N - Set Diag Data File Name
A - Advanced Options
```

```
E - Exit
```

```
.....
Select diagnostic option:
```

Select a diagnostics option from the menu and refer to the chapter that discusses that particular diagnostic problem.

Chapter 2

Firmware Diagnostics

Contents

- 25 Introduction
- 26 Checking the Version
- 29 Updating the Firmware

Introduction

This chapter presents two diagnostic procedures for drive firmware. The two procedures used to diagnose and correct firmware problems are *version check* and *firmware update*.

Firmware is the factory-supplied software that enables the computer to communicate with the drive. If there is no firmware on the drive or faulty firmware exists, then the computer cannot work with the drive.

The version check option is used to determine the current firmware version and other drive information, such as the drive size and type. The firmware update option transfers a firmware file from a floppy diskette or another drive to the Omnidrive. Update the firmware after a format, if there is no firmware on the drive, or if suggested by an authorized Corvus service representative.

Checking the Version

The version check should be performed before other diagnostic tests. Write down the version information for future reference.

To check the version,

Type V

For Omnidrive systems, the screen display is similar to:

```
Drv P/V Capacity Size/Rev SPT TPC CPD
--- ---
  1  P   32472  16 mb/O  18  6 306

ROM DB Firmware
--- --
 21  7  ODRV.1.7 -- CONST II - 09/84

.....

SPT = Sectors (512 bytes) per track
TPC = Tracks per cylinder
CPD = Cylinders per drive
ROM = Drive ROM version number
DB  = Diag block version number

.....

Press <space> to continue,
or press F to list to a file.
```

The firmware version is a number, **ODRV.1.7** for Omnidrives. The version number should be 1.7 or higher for Omnidrives. The firmware is the drive's operating system software and is replaced when firmware is updated. Keep a copy of the firmware version for future reference.

Another firmware version number is listed under **ROM** (read-only memory). This firmware is a permanent part of the drive's hardware and cannot be changed except by authorized service centers.

Other information displayed in the version check are attributes of the drive. For example, the drive number is listed under **Drv**. An Omnidrive is always drive 1. Type of drive, physical or virtual, is listed under **P/V**. An Omnidrive does not have a virtual drive option and should always display the letter P.

Capacity is measured in 512-byte blocks and indicates the drive's storage capability. This number will vary depending on drive size. For Omnidrive systems, the nominal drive size and type of drive is listed under **Size/Rev**. The size shown is the rated size of the drive. The rev shown should always be O, for Omnidrive.

Also displayed are the number of sectors per track (SPT). The mass storage system is divided into sections so that it can access information quickly. The drive is divided into cylinders (CPD: cylinders per drive), which are divided into tracks (TPC: tracks per cylinder), which are in turn divided into sectors.

The version of the data block file is found under **DB**.

After reviewing the version check, write down the version information before returning to the diagnostic main menu.

To return to the main menu,

Press **SPACE**

Updating the Firmware

To update firmware, use the A2C3.1 diagnostic diskette.

The firmware code is contained in the file ODRV.FIRMWARE or DSRV.FIRMWARE for Corvus drives. The version numbers should be 1.7 or greater for Omnidrives, and 18.6 or greater for Corvus drives. The firmware file is on the same diskette as the diagnostic program.

The diagnostic main menu should be displayed.

Select the update firmware option from the main menu.

Type U

The screen display is similar to:

The selected option may destroy data on the drive.
Ensure the correct device is selected.

Selected device is slot 7, server 0, drive 1

Continue? [Y/N]:

To proceed with the update, type Y.

The screen displays:

Change drive tables? [Y/N]: N

The drive tables are a segment in the firmware block and are updated throughout the diagnostic process. Drive tables group together parameter information such as drive capacity, spare track table, interleave factor and read after write status. For Corvus drives, the virtual drive offset table is included.

Changing the drive tables can destroy data on the drive. Unless all data on the drive has been backed up or is not needed, do not change the drive tables.

When these tables are changed, the spare track table is cleared, the interleave factor is set to 9, the read after write is set to OFF, and the virtual drive offset table is set to 0.

It is suggested that you keep the current tables.

Press **RETURN**

The screen displays:

```
Enter firmware file name: ODRV.FIRMWARE
```

The diagnostic program will read the firmware data file from the floppy diskette when the diagnostic program is run from the diskette.

Press **RETURN**

Once the correct names are entered, the screen displays:

```
Firmware file message: ODRV.1.7 -- CONST II - 09/84
```

```
Continue? [Y/N]:
```

Recall that the firmware version number for Omnidrive systems must be 1.7 or higher.

If the firmware version is correct, update the firmware.

Type Y

The screen displays:

```
Moving firmware from file ODRV.FIRMWARE to drive
.....

Drive firmware updated.

Reset device -- Turn drive power off then on again.

Press <space> to continue
```

In order for the firmware to be updated on the drive, the Omnidrive must be reset. Press **SPACE** to return to the diagnostic main menu. The firmware is now updated. To reset the drive, turn it off, then on again.

Chapter 3

Hardware Diagnostics

Contents

- 37 Introduction**
- 37 Exercising the Drive**
- 40 Checking for Bad Tracks**
- 46 Parking the Heads**

Introduction

In this chapter, three hardware diagnostics options are detailed. Two options, exercising the drive and checking for bad tracks, check drive hardware for problems in data storage. A third option prepares the drive to be shipped or moved.

Exercising the Drive

Exercising the drive checks the movement of the read-write heads across the platters in the drive mechanism. This test makes sure the heads move freely while also checking for hard and soft data errors. A hard error in this test indicates the read-write heads could not find the track on the platter surface. A soft error is a read-write error that has been detected by the drive controller.

The detection of hard and soft errors indicate media problems that can result in data loss. Keep a record of errors. Follow the steps on the next page to determine hard and soft errors.

To exercise the drive,

Type X

The test begins. To stop the exercise manually, press **SPACE**.

After the test is finished, the screen display is similar to:

```
Test results summary:

Drive      1

Pass      80
Soft Errors 0
Hard Errors 0

-----

Press <space> to stop test
```

If several hard errors are detected, back up all data and check for bad tracks. Hard errors usually indicate media damage that results in data loss.

If few or no soft errors appear, the drive should be in good operating condition.

If a large number of soft errors are detected, update the firmware and exercise the drive again. If soft errors persist, check for bad tracks and refer to the following section.

To return to the diagnostic main menu,

Press **SPACE**

To check for bad tracks, follow the instructions in the next section.

Checking for Bad Tracks

This test performs a cyclical redundancy check (CRC) of the magnetic media on the drive platter surfaces. The test is designed to read all sectors on a particular cylinder, advancing through the entire drive. A CRC determines if an error has occurred in the reading, writing, or transmission of data. If errors are discovered, bad tracks are noted.

Media defects causing bad tracks result in hard errors that cannot be corrected by the drive controller. Follow these steps if hard errors appear in one of the other tests or if the drive has been subjected to a sudden impact.

Also check for bad tracks if soft errors have noticeably increased and a firmware update does not prevent further increases.

Check for bad tracks at least three consecutive times if any are discovered in the first test. If a track is designated as bad after a third check, it is defective and should be corrected.

If bad tracks appear within tracks 0 through 7, the Omnidrive is defective. Refer to Chapter 5 and follow steps to format your Omnidrive. Remember to back up all the data on the Omnidrive before formatting it. Also record tracks that have been spared in the Spare Track Table in Appendix B. Record the interleave factor also.

Correcting a bad track involves a process known as sparing. When a bad track is spared, an entry in the spare track table tells the drive controller to skip that track when data is written to the drive. Since all subsequent tracks are bumped up by one, data *must* be backed up before tracks are spared.

For example, if track 280 is spared, it will no longer exist. Track 281 will become 280, 282 will become 281, etc.

The diagnostic program can automatically correct or spare bad tracks if so designated. The network manager can choose to automatically correct bad tracks at the end of a CRC, or use a separate option and manually spare them. All data on the drive should be backed up if any tracks are to be spared.

For specific information and directions on manually correcting bad tracks, refer to the section "Sparing Bad Tracks" in Chapter 4.

The diagnostic main menu should be displayed. To check for bad tracks,

Type C

The screen display is similar to:

```
Check for bad tracks? [Y/N]:
```

To begin the test,

Type Y

The screen display is similar to:

```
This test takes about 2 minutes.
```

```
Test in progress .....
```

Very large drives will require more time for the test. The test is performed automatically. The busy light flashes during the test.

If no bad tracks are discovered, the screen display is similar to:

No blocks with CRC errors found

Press <space> to continue

If bad tracks are discovered, the screen display is similar to:

3 block(s) with CRC errors

Cylinder	Head	Sector	Track
-----	----	-----	-----
229	0	6	916
170	0	13	600
280	0	7	1120

Press <space> to continue,
or press F to list to a file

It is a good idea to keep a record of bad tracks found during a CRC. Write down the results in the Appendix B for future reference. After recording the results,

Press

The screen displays:

Add indicated tracks to spare track table? [Y/N]: N

The diagnostic program can automatically spare bad tracks found in the CRC. However, if you choose to automatically add tracks, data is destroyed from the point of the first added track to the end of the drive. Only add tracks automatically to the table if you have already backed up data on the drive.

If data has not been backed up or if you would rather manually add tracks, type N. The diagnostic main menu reappears. Go on to Chapter 4 to learn how to spare bad tracks. Remember to back up data that cannot be replaced before sparing tracks.

Go to Chapter 4 under the section "Adding Tracks to the Spare Track Table" to add the bad tracks that you have written down to the spare track table.

Parking the Heads

Use this option before shipping or transporting the drive for extended distances. Parking the heads moves them over an area on the disk containing no data so that a sudden impact will not damage any media surfaces containing data.

Parking the heads deactivates them and all the indicator lights go out. Before the drive can be used again, it must be reset by turning the Omnidrive off and on to activate the heads.

To park the heads,

Type P

The screen displays:

```
Park heads? [Y/N]: Y
```

Press **RETURN**

The indicator lights go out, and the screen displays:

Heads parked.
Drive must be reset or turned on to be used.

Press <space> to continue

To return to the main menu,

Press **SPACE**

Exit the diagnostic program and prepare the drive for shipping or transportation.



Chapter 4

Modifying Drive Parameters

Contents

51	Introduction
52	Modifying Omnidrive Parameters
55	Modifying the Interleave Factor
57	Sparing Bad Tracks
58	Adding Bad Tracks to the Spare Track Table
60	Deleting Tracks from the Spare Track Table
61	Clearing the Spare Track Table
63	Setting Read After Write
65	Saving Changes

Introduction

In this chapter, options used to alter drive parameters and correct media defects are discussed.

The options available to change drive parameters and correct media defects are found in the modify parameters option of the diagnostic main menu.

Modifying Omnidrive Parameters

Three Omnidrive parameters can be changed: the interleave factor, spare track table, and read after write option. The interleave factor determines how many sectors on a track the head will skip before reading the next sector. The spare track table identifies any tracks that have been replaced because of media defects. The read after write option tells the drive whether or not to read each sector after it is written.

For an Omnidrive, these three parameters are stored in the drive tables in the firmware. The default settings are as follows:

Interleave Factor — 9
Spare Track Table — No spared tracks
Read After Write — OFF

Also contained in the modify parameters option is the add tracks to spare track table option. This option is used to spare bad tracks.

To change drive parameters or correct bad tracks, select the modify parameters option.

From the diagnostic main menu,

Type M

For Omnidrive systems, the screen display is similar to:

```
Parameters for Slot 1, Server 0, Drive 1
Interleave: 9
Read After Write: NO
No track(s) currently spared. 28 more tracks
may be spared.

-----

I - Modify Interleaving
W - Modify Read After Write

A - Add Track to Spare Track Table
D - Delete Track from Spare Track Table
C - Clear Spare Track Table

E - Exit to Main Level

-----

Select diagnostic option:
```

The number of tracks available to spare will vary according to the size of the drive. In the above example, 28 tracks can be spared on a 16-Megabyte (MB) Omnidrive.

After the modify parameters main menu appears, go on to appropriate sections to learn how each option works.

Modifying the Interleave Factor

The interleave factor determines the frequency at which the drive controller attempts to read data from, or write data to, sectors on the drive platters. For example, an interleave factor of 9 means every ninth sector is read, while an interleave factor of 6 means every sixth sector is read. The default interleave setting of 9 is designed to optimize drive performance for most computer types.

Do not change the interleave factor unless instructed to do so by your Corvus dealer. Back up the drive before changing the interleave factor; changing the interleave will render all current data inaccessible.

The save changes option on the diagnostic program main menu must be used to write the new values in the drive tables after changing any parameters.

The modify parameters main menu should be displayed.

To change the interleave factor,

Type I

The screen display is similar to:

Enter new Interleave: 9

Type the new interleave factor number and press **RETURN**.

The new interleave factor is then displayed in the drive parameters section.

To keep the current interleave factor of 9,

Press **RETURN**

If changes were made, go to the section "Saving Changes" at the end of this chapter.

Sparing Bad Tracks

When a bad track is found, it must be corrected or added to the spare track table. The process used to add a bad track to the spare track table is known as sparing. When a track is added, it is flagged as bad to prevent data from being stored there.

To spare a bad track, use the add track to spare track table option. Two other options are available when sparing bad tracks. One is deleting tracks from the spare track table, the other is clearing the spare track table.

Use the delete track from spare track table option if a track is spared in error. Only one track may be deleted at a time. The clear spare track table option may be used to delete all spare tracks at once.

**ADDING
BAD TRACKS TO
THE SPARE TRACK
TABLE**

Check for bad tracks (CRC) to verify the condition of all tracks on a drive. Use the add track to spare track table option when bad tracks are discovered during the CRC. However, if the maximum number of tracks are already spared (28), go to Chapter 5, "Formatting the Drive." When a drive is formatted, the number of bad tracks may be reduced.

Data will be lost when using the add track option. Always back up data before sparing tracks and restore it when finished.

If a track is spared by mistake, delete it immediately. Data will not be lost if no data is placed over or beyond the added track. Use the delete a track option following the instructions in the next section.

The modify parameters main menu should be displayed.

To spare a bad track,

Type A

The screen displays:

Enter track number to be added:

Enter the track to be spared. For example, if the CRC found track 321 defective,

Type 321

Press **RETURN**

The screen display is similar to:

```
Parameters for Slot 1, Server 0, Drive 1
Interleave: 9
Read After Write: NO
Spared Tracks: 321
1 track(s) currently spared. 27 more track(s)
may be spared.
```

Add all tracks to be spared by repeating the above process.

If spare tracks were added, go on to the section "Saving Changes."

**DELETING
TRACKS FROM
THE SPARE TRACK
TABLE**

This option may be used to remove a track if one was spared in error. If a track is added by mistake and data was not backed up, data may be saved if (1) no data was sent over or beyond the track, and (2) the track is deleted from the spare track table.

Generally, tracks should not be deleted. Do not remove tracks unless instructed to do so by an authorized Corvus service center or unless you put a track in the spare track table accidentally.

The modify parameters main menu should be displaying.

To delete a track,

Type D

The screen displays:

Enter track number to be removed:

Enter the track number to be deleted. From the previous example, remove track 321.

Type 321

Press RETURN

The screen display is similar to:

```
Parameters for Slot 1, Server 0, Drive 1
Interleave: 9
Read After Write: NO
No track(s) currently spared. 28 more track(s)
may be spared.
```

After removing tracks, go on to the section "Saving Changes."

CLEARING THE SPARE TRACK TABLE

When the spare track table is cleared, all spared tracks are removed. Record all spared tracks before clearing the table. Use this option if all spare tracks are to be deleted.

However, when a drive is formatted and the firmware updated, the spare track table is cleared. If all tracks must be cleared but a format is not necessary, use this option. Add spare tracks again as needed.

Do not clear the table unless instructed to do so by an authorized Corvus service center.

The modify parameters main menu should be displayed.

To clear the table,

Type C

The screen displays:

This option deletes all tracks from the table.

Continue? [Y/N]:

To clear the spare track table,

Type Y

All spared tracks are cleared from the table.

If changes were made, go to the section "Saving Changes."

Setting

Read After Write

If read after write is set to ON, the Omnidrive reads each sector after writing to it, verifying that data sent was written correctly. This adds to data reliability but slows down the operating speed. The drive normally has the read after write option OFF.

Change the setting from the modify parameters main menu.

Type W

The screen displays:

Read after Write? [Y/N]:

Select the desired setting. For example, to turn read after write ON,

Type Y

The screen displays:

```
Parameters for Slot 1, Server 0, Drive 1
Interleave: 9
Read After Write: YES
No track(s) currently spared. 28 more track(s)
may be spared.
```

Pressing Y or N returns you to the modify parameters main menu with the new read after write setting. If a change was made, go to the section "Saving Changes."

Saving Changes

Changes made to the interleave factor, spare track table or read after write option must be saved to become permanent. If you exit without saving changes, the changes will not be made.

Once changes are made, a save changes option appears in the modify parameters main menu. To save changes before exiting,

Type S

The screen displays:

You are about to destroy data on the disk.
Continue? [Y/N]:

Selecting the save changes option after setting read after write will not produce the screen above.

Parameter modifications are not actually written to the drive until changes are saved. This is the last opportunity to prevent changes from being made.

To retain the original values, type N. The diagnostic main menu reappears. To save the changes,

Type Y

The screen displays:

```
Parameters updated.  
  
Press <space> to continue
```

Press

The modify parameters menu reappears. To return to the diagnostic program main menu,

Type E

If you make changes and try to exit the program before exercising the save changes option, the screen displays:

```
Warning: Changes have not been saved.  
Do you wish to save changes? [Y/N]:
```

To retain the original values, type N. The diagnostic main menu reappears. To save changes permanently,

Type Y

The screen displays:

```
You are about to destroy data on the disk.  
Continue? [Y/N]:
```

For this example, choose to save the changes.

Type Y

The screen displays:

```
Parameters updated.  
  
Press <space> to continue
```

To return to the diagnostic main menu,

Press **SPACE**

Chapter 5

Formatting the Drive

Contents

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Introduction

The format option can correct some drive problems and errors. Formatting structures a drive by laying down patterns. Some of these patterns enable the disk to pick up data at specific points on a drive. Formatting also provides patterns for error detection. However, before these patterns are placed on a drive, the formatting procedure clears all data from the drive, including the volume and file structure. To save data stored on a drive, back up the drive before formatting; there is no way to recover data destroyed during formatting.

Format a drive when (1) a check for bad tracks (CRC) lists many errors, (2) a notable and continuous increase in soft errors occurs before and after updating the firmware and sparing bad tracks, and (3) the spare track table reaches its maximum entry capacity. If the spare track table does reach its maximum capacity, you should call an authorized Corvus service center for additional instructions.

Before you format a drive, you should record the bad tracks and respare them to the spare track table after the format is completed.

After the drive has been formatted, update the firmware. Then, run several CRC checks for bad tracks and spare bad tracks as necessary. Finally, initialize the drive with the system generation program before restoring data.

Run the diagnostic program from diskette to format the drive if the drive to be formatted contains the diagnostic program or is the only drive on the network. The ODRV.DIAG.DATA and the ODRV.FIRMWARE files for Omnidrive are on the A2C2.1 diskette.

Formatting the Drive

Format the drive from the diagnostic program main menu.

Type F

The screen displays:

The selected option may destroy data on the drive.
Ensure the correct device is selected.

FORMAT and UPDATE options require the firmware file
to be on a controller other than the selected device.

Selected device is slot 7, server 0, drive 1.

Continue? [Y/N]:

After making sure you have selected the correct server and drive, continue the format.

Type Y

The screen displays:

Reminder: Firmware MUST be updated after the
drive format.

Continue? [Y/N]:

Type Y

The screen displays:

Enter the format password:

The password is ODFORMAT.

Type ODFORMAT

The password will not appear on the screen.

Press RETURN

The format procedure begins immediately.
The screen displays:

Format in progress.
Format takes about 1 minute.

For large capacity drives, the format takes longer than one minute.

The busy light remains on during formatting. When the drive has been formatted, the screen display is similar to:

```
Format complete.
```

```
Enter firmware file name: ODRV.FIRMWARE
```

If the firmware file name is correct,

Press **RETURN**

The screen displays:

```
Firmware file message: ODRV.1.7 -- CONST II - 09/84
```

```
Continue? [Y/N]: Y
```

If the firmware version is 1.7 or higher,

Press **RETURN**

If a different firmware version is to be placed on the drive, enter the correct version and press **RETURN**.

The screen displays:

```
Moving firmware from ODRV.FIRMWARE to drive
.....

Drive firmware updated.

Press <space> to continue
```

In order for the firmware to be loaded into the drive, the drive must be reset. Turn the Omnidrive off, then on again. Press **SPACE** to return to the diagnostic main menu.

The formatting and firmware updates are now complete. The ready light reappears, and the screen displays the diagnostic main menu.

After formatting, check for bad tracks (sparing any if necessary). Then, initialize the drive with the system generation program before restoring data. Remember to use the add option from the pipes management menu in the Maintenance Utilities program after restoring the data if you have a PIPES volume in the data being restored.

Chapter 6

Advanced Options

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82	Setting the Diagnostic Data File Name
83	Advanced Options
85	Sending Commands
89	Reading Firmware
91	Reading Diag Block File
92	Filling the Drive with a Pattern

Introduction

This chapter discusses setting the disk diagnostic file name and advanced options. Some of these options may be used to manually construct disk commands. Advanced options may also be needed when writing application software. However, use of these options should be restricted to those with advanced knowledge of Corvus equipment and software.

Do not access the set diagnostic data file name option or the advanced options unless instructed to do so by an authorized Corvus service center. These functions are generally relied upon for testing purposes by Corvus engineers. Use of these options can result in permanent data loss.

For more information regarding advanced diagnostics options, refer to the *Mass Storage General Technical Information Guide* that is available from Corvus Customer Service.

Setting the Diagnostic Data File Name

This option contains the diagnostic data file name. The default file name can be changed so that the diagnostic program will look to a different file for diagnostic information. Setting the file name is sometimes used in conjunction with the advanced options. Unless otherwise instructed, do not change the file name.

To set the diagnostic data file name from the main menu,

Type N

The screen displays:

```
Enter diag data file name: ODRV.DIAG.DATA
```

To accept the current file name,

Press **RETURN**

To change the file name, type the new name and press **RETURN**.

The new name is now set until the program is exited or a different device is selected.

Advanced Options

Advanced options contain five command blocks which allow manual operation of the diagnostic program; send command to drive, read firmware from drive, read diag block from drive, set drive diag mode, and reset drive diag mode. Do not access these commands unless instructed to do so by an authorized Corvus service center. Unsupervised use of these options can result in permanent data loss.

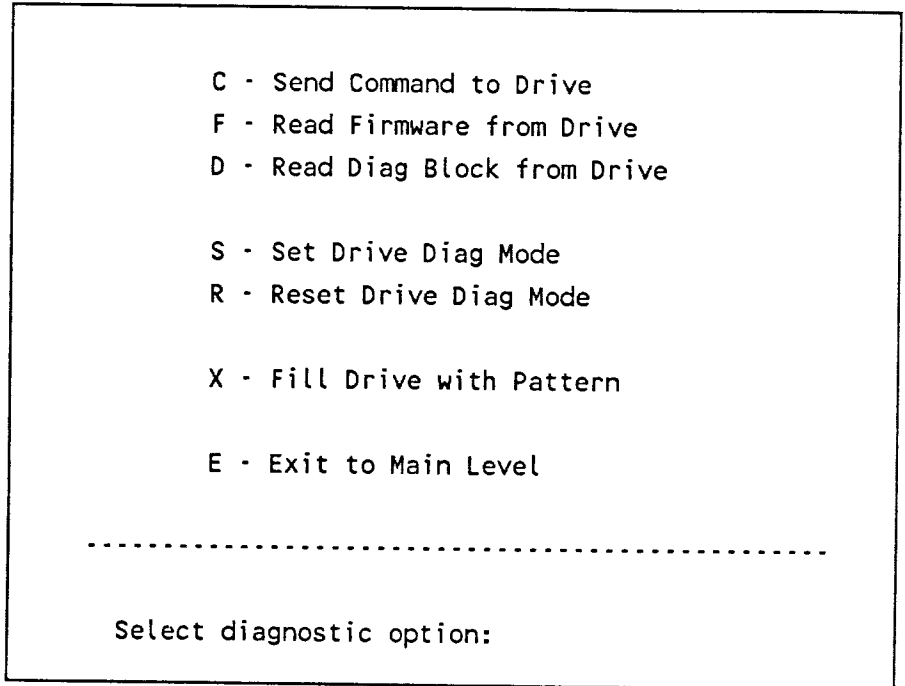
Two other advanced options include filling the drive with a pattern and the network map. The filling drive with pattern option may be likened to a format—and is as destructive as a format. Also like a format, data must be backed up, firmware updated, a CRC run, and the drive must be initialized with the system generation program before data can be restored.

The filling drive with pattern option is used primarily by Corvus engineers to test the reliability of data patterns.

To select advanced options,

Type A

The screen displays:



Choose the appropriate option and go to the corresponding section on the following pages.

SENDING COMMANDS

This option asks for specific data to send to the drive. Necessary data to send includes the command's length (i.e., number of bytes in a command) and value.

To send a command to the drive,

Type C

The screen displays:

The selected drive option may destroy data on the drive. Ensure the correct device is selected.

FORMAT and UPDATE options require the firmware file to be on a controller other than the selected device.

Selected device is slot 1, server 0, drive 1.

Continue? [Y/N]:

To return to the advanced options main menu, type N.

To continue,

Type Y

The screen displays:

Number of bytes to send to device:

Enter the correct number of bytes in the command. For example, if the number of bytes is 1,

Type 1

Press `RETURN`

The screen displays:

Byte 1 = 0

To accept the default,

Press `RETURN`

The screen displays:

Bytes to be sent: 1

00 *.*

OK to send command? [Y/N]:

To send the command to the drive,

Type Y

The screen displays:

```
Command sent

Bytes returned: 1
8F *.*

Press <space> to continue
```

Press **SPACE** to return to the advanced options main menu.

Repeat the above process to send additional commands. Refer to the *Corvus Mass Storage Systems General Technical Information* manual for disk command definitions.

READING FIRMWARE

This option reads the firmware from the drive and writes it to a file in UCSD P-system format. You must have made a copy of the A2C3.1 diskette and left the write-protect tab off, or have a volume mounted for A2MGR to be able to write the firmware to a file.

To read the firmware,

Type F

The screen displays:

Enter name of NEW firmware file:

Type the name of the file.

Press

The screen display is similar to:

Read 40 blocks of firmware? [Y/N]: Y

Press

The screen displays:

```
Moving firmware from drive to file FILE
.....
Press <space> to continue
```

where FILE is the name of the new file.

To return to the advanced options main menu,

Press **SPACE**

**READING DIAG
BLOCK FILE**

Similar to reading firmware from the drive, this option reads the diagnostic block file from the drive and writes it to a file in UCSD P-system format. You must have made a copy of the A2C3.1 diskette and left the write-protect tab off, or have a volume mounted for A2MGR, to be able to write the diag block to a file.

To read the diagnostic block file,

Press D

The screen displays:

Enter name of NEW diag block file:

Type the name of the new file.

Press RETURN

The screen displays:

Moving diag blocks from drive to file FILE

where FILE is the name of the new diagnostic block file.

To return to the advanced options main menu,

Press SPACE

FILLING THE DRIVE WITH A PATTERN

This option is generally used by Corvus engineers for checking the reliability of test patterns. Do not use this option unless instructed to do so by an authorized Corvus service representative.

Use of this option destroys all data on the drive. Make sure to back up any data you wish to save before beginning. The firmware must be updated, and a CRC should be run at the conclusion of the test. Also note that the drive must be initialized with the system generation program before data is restored.

The advanced options main menu should be displayed.

To check for writing errors,

Type X

The screen displays:

The selected option may destroy data on the drive. Ensure the correct device is selected.

FORMAT and UPDATE options require the firmware file to be on a controller other than the selected device.

Selected device is slot 1, server 1, drive 1

Continue? [Y/N]:

To begin the program,

Type Y

The screen displays:

```
Enter byte 1 of pattern [0..255]: 0
```

Enter the correct byte value and press `RETURN`.

The screen displays:

```
Enter byte 2 of pattern [0..255]: 0
```

Enter the value of byte 2 and press `RETURN`.

The screen displays:

```
Filling drive with pattern.
```

When the pattern has been written, the screen displays:

```
Finished ....
```

```
Enter firmware file name: ODRV.FIRMWARE
```

If the firmware file name is correct,

Press **RETURN**

The screen displays the firmware file message. For Omnidrive systems, correct versions should be ODRV.1.7 or higher.

If the file is correct, press **RETURN**.

The screen displays:

```
Moving firmware from file ODRV.FIRMWARE to drive
.....

Drive firmware updated.

Reset device -- Turn drive power off then on again.

Press <space> to continue
```

Reset the Omnidrive by turning it off then on again. Press **SPACE** to return to the diagnostic options main menu.

Appendix A

Diagnostic Error Messages

Drive Error Codes

Decimal	Hexidecimal	Signed Decimal	Description
32	20	-224	Soft Error
128 160	80 A0	-128 -96	
192 224	C0 E0	-64 -32	Error in preparing read-write
129 161	81 A1	-127 -95	Seek timeout
193 225	C1 E1	-63 -31	
130 162	82 A2	-126 -94	Seek fault
194 226	C2 E2	-62 -30	
131 163	83 A3	-125 -93	Seek Error
195 227	C3 E3	-61 -29	
132 164	84 A4	-124 -92	Header CRC error
196 228	C4 E4	-60 -28	
133 165	85 A5	-123 -91	Rezero Timeout
197 229	C5 E5	-59 -27	
134 166	86 A6	-122 -90	Rezero Fault
198 230	C6 E6	-58 -26	
135 167	87 A7	-121 -89	Drive not online
199 231	C7 E7	-57 -25	
136 168	88 A8	-120 -88	Write fault
200 232	C8 E8	-56 -24	
136 168	89 A9	-119 -87	Format protected
201 233	C9 E9	-55 -23	
138 170	8A AA	-118 -86	Read fault
202 234	CA EA	-54 -22	
139 171	8B AB	-117 -85	Data CRC error
203 235	CB EB	-53 -21	
140 172	8C AC	-116 -84	Sector locate error
204 236	CC EC	-52 -20	
141 173	8D AD	-115 -83	Write protected
205 237	CD ED	-51 -19	
142 174	8E AE	-114 -82	Illegal sector address
206 238	CE EE	-50 -18	
143 175	8F AF	-113 -81	Illegal command op code
207 239	CF EF	-49 -17	
144 176	90 B0	-112 -80	Spare track table overflow
208 240	D0 F0	-48 -16	
145 177	91 B1	-111 -79	Overlay failure
209 241	D1 F1	-47 -15	
159			Cannot read boot block
255	FF		Controller timeout

Drive error codes are generated by the drive controller. Depending on the type of device in use, the error codes may appear in decimal, hexadecimal, or signed decimal form. The errors will always be preceded by a message stating the drive error.

To correct most of these diagnostic errors, do the following:

- 1** Try the command again.
- 2** Reset the drive by turning it off and on again.
- 3** Update the firmware—remember to back up data first.
- 4** Check for bad tracks and then add those tracks to the spare track table.
- 5** Call your Authorized Corvus Service Dealer.

If you receive the error message "Drive not online," check to see if the drive has completed the self test. Check network and power connections. Use the Omninet Test to see if the drive registers as part of your network.

Appendix B

Diagnostics Records

Introduction

Appendix B is to be used as a diagnostic record of the types of diagnostic tests performed by the network manager. There is also a separate chart for recording the numbers of tracks that are added to the spare track table.

Diagnostics Records

Date	Diagnostic Performed

Spare Track Table

Date Spared	Track number

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