

NETWORK
USER'S
GUIDE
FOR THE
IBM PC

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Network User's Guide

**for the
IBM PC**

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Description of Contents

This guide explains how to use an IBM Personal Computer running the MS-DOS operating system (version 2.0 or higher) with an OmniDrive™ network disk system and Constellation II utility software.

This guide introduces you to the basics of using an Omninet™ local area network. You'll learn about utility programs which you use to work with network storage space, to print files on network printers, and to back up information stored on the network to diskettes.

You should be familiar with the MS-DOS operating system and be an experienced IBM PC user. The network should already be functioning before you attempt to use programs described in this manual.

Chapter 1 explains how to begin using a network; everyone should read this chapter.

Chapter 2 explains several ways to print files using network printers. The chapter also describes how to send files to and receive files from other network users. The chapter begins with an overview of the network printing process and goes on to explain the different methods for printing and transferring files on the network.

Chapter 3 explains how to back up entire volumes to and restore volumes from diskettes. This program is typically used only if a network-wide backup system is not used on a regular basis.

Chapter 4 discusses the mount manager, the program used to manage your access to network storage space. If the space and information you need is available the first time you use the network, you may only need to use the mount manager once to find out if you have additional network storage.

The Appendix contains summaries of the options and parameters of all the programs described in this manual. You can use the appendix as a quick reference for the programs.

Conventions

Throughout this guide, *type* means to enter two or more characters on 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 COPY B:*.DOC

Type DIR C:

Do not type the spaces between *type* and the first character to its right.

Throughout this guide, *press* means to enter a single character or symbol on the computer keyboard. When a keytop symbol appears, press the key to which it refers. Do not type out each letter of the word in the keytop symbol.

Examples:

Press Y

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 and press [RETURN].

Chapter 1

Introduction to Omninet

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Introduction

In the first section you'll be introduced to some basic concepts about networks, such as the purpose of different network devices and the services networks offer you.

The chapter goes on to describe how to *log on*, the very first step in using the network. Logging on announces your intention to use the network and starts preparing different services. Logging on also starts MS-DOS on the computer, a process which is sometimes called *booting*.

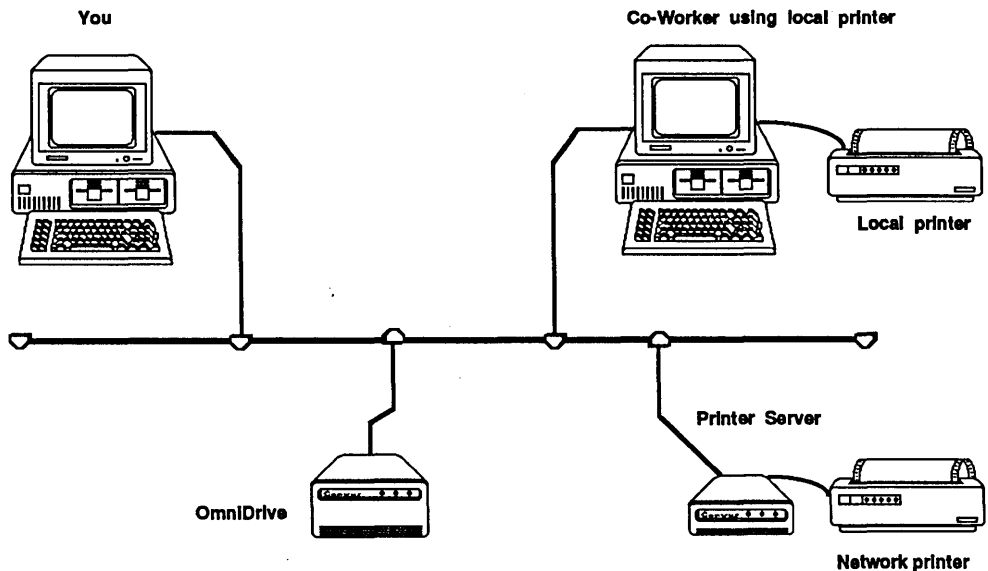
You'll also learn how to list files and run programs stored in your network storage space. By the end of this chapter you should be able to start working on the network.

Overview of Network Components

This section gives you an overview of an Omninet[™] local area network. You will be introduced to some basic network components and learn how to identify and communicate with different network devices.

An Omninet network consists of computers and devices connected by cable. This cable is the backbone of the network since it is the medium that allows devices to exchange information electronically. The ability to communicate over the network enables you and other network users to share storage space and printers.

The following diagram illustrates these major components:



OmniDrives are information storage systems containing the programs that keep the network running, as well as the programs and files used by network users such as yourself.

The storage space on an *OmniDrive* is divided into defined areas called *volumes*. You can think of each volume as a small, individual drive reserved for your use.

Like drives and diskettes, your volumes can store text files (such as memos or reports) and programs. Your volumes may have different storage capacities, although in most cases they are large enough to hold the same amount of information as many different diskettes.

You should be able to take the software from many different diskettes and store it all in one volume. Having your work organized in one or two volumes makes life easier since you won't have to search for diskettes. Another advantage is that programs run faster from volumes since the *OmniDrive* responds quickly to requests from the computer.

The network manager has assigned you and every other network user certain volumes. The network manager is the person responsible for setting up and maintaining the network. He or she decides which volumes are for your use by giving your *user name* access to specific volumes. Your user name is your passkey to the network; it also identifies ownership of your volumes and prevents others from using them without your permission. A user name may also have a *password* associated with it that provides an extra level of security.

Just as you are given a user name, *OmniDrives*, network printing devices, and network printers are also assigned names by the network manager. These names are labels used by network programs to identify different network devices.

OmniDrives have *server names*. If your network has several OmniDrives, certain network programs may ask you for the server name of the OmniDrive you want to use.

Network printers are assigned *printer names*. You may need to change printer names before you use a particular printer if there are several network printers. Without knowing the right names, you won't be able to print any files.

The difference between *local* and *network printers* is that a local printer is attached directly to a computer and can be used only by the individual at that particular computer. Network printers are shared by everyone and users can print files from any computer on the network.

A network device, either a printer server or a computer running the despool program (discussed in Chapter 2) ensures that files sent with the correct printer names are printed. The same programs that would normally send files to a local printer now send files to a network printer. Files are usually printed on a first-come-first-serve basis.

Now that you've been introduced to the idea of a network, it's time to get some hands-on experience. The next few sections explain how to find out about your volumes and how to use the information stored in them.

How to Log On

Your network manager should have given you a user name, a password, and a Corvus MS-DOS boot diskette. The boot diskette contains *device drivers*, special required programs that are automatically placed in the computer's memory at boot time; you cannot use other diskettes as substitutes for the boot diskette. Without a user name, password, and boot diskette you cannot begin the first step of using the network.

You should be careful with your user name and password since others can access your volumes if they know your user name and password.

The following steps describe how to log on; you'll repeat these same steps each time you log on to the network.

1. Insert the Corvus boot diskette in the drive A.
2. If the computer is off, turn it on. If the computer is already on, reboot it by pressing the following key sequence:

Hold down [CTRL] and [ALT]

Press [DEL]

After a moment the screen displays:

```

      *
      *
      C O R V U S   S Y S T E M S
      *
      C O N S T E L L A T I O N   I I
      *
      ( L O G O N   V x . x x )   ( N N )
      *   *

```

Please enter your name __

This screen is the Constellation II log-on display which appears each time the computer boots. The message *Rev. x.x* is the revision number for the log-on display, *Boot Server xx* is the address of the OmniDrive that is providing the initial information for the log-on process, and *Station xx* is the network address of the computer.

3. Enter a user name and password to the prompts that appear in the log-on display. For example, if your user name is KEN,

Type KEN

Press [RETURN]

You must type the user name and password correctly; any mistakes will display an error message.

The following prompt appears only if the user name has a password:

Please enter your password:

Type the password and press [RETURN]. If, for example, the password is BONJOUR,

Type BONJOUR

Press [RETURN]

After you answer the last prompt, the remainder of the boot process is automatic. Messages similar to the following should appear:

```
Mounting volume IBMMS from server SERVER1 on unit C
Mounting volume KEN from server SERVER1 on unit D
Mounting volume REPORT from server SERVER2 on unit E
```

Installing version CORDRV 5.9

```
Installing printer driver NETPRINT
Using printer PRINTER, Disk Server SERVER1
```

Date:

If these messages don't appear, start over, typing your user name and password again without making mistakes or entering extra characters.

The first series of messages tells you what volumes are ready to use. The message displays the volume name, the server name of the OmniDrive that contains the volume, and the unit letter assigned to it.

Notice that the volume REPORT in the previous screen has a different server name than the other volumes. Different server names indicate that your volumes are stored on several OmniDrives. Some network programs may need to know the server name before you can use the information in the volume.

Probably the most important information is the *unit letter* since it is the key to using network volumes. A unit letter is the equivalent of the MS-DOS operating system *drive letter*. Unit letters work the same way as drive letters: you use them to identify, select, and access information stored on the drive. *Mounting* is the process of assigning a unit letter to a volume.

The second and third messages describe the device drivers being placed into the computer's memory. The Corvus driver CORDRV allows your computer to communicate with network devices such as OmniDrives, while the network printer driver NETPRINT sends files to network printers. *If these program are not loaded into memory, you will not be able to use network drives or printers.*

Once the printer driver is in memory, you can no longer use a printer attached directly to your computer since all output is diverted to a network printer. See Chapter 2 for instructions on how to switch printing capability between network and local printers.

The last message in the series describes the printer and server names that will be used for printing. Go ahead and enter the correct date and time to the prompts. The MS-DOS

system prompt should appear. Once you are logged on, MS-DOS functions almost the same as on a stand-alone PC except that you now have volumes and network printers at your disposal.

The remainder of this section discusses the information in the first message in detail. These explanations describe how to find out what information is already available in your network volumes and how to use this information.

Using Volumes

Each storage device, whether a diskette drive or network volume, must be assigned a unit letter before it can be used. After a unit letter is assigned, it is reserved, and one less unit letter is available. After floppy drives and internal fixed disks have unit letters, volumes on the OmniDrive are automatically given letters. You have a total of ten unit letters available for volumes, which means that you can have up to ten volumes ready to use at any time.

Unit letters A and B are always reserved for diskette drives and, if the computer has its own internal fixed disk, unit C is reserved for it.

For example, an IBM XT uses unit letters A-C for its floppy drives and internal fixed disk. For an XT, the first network volume would be assigned unit letter D since letters A-C are already reserved. However, an IBM PC without an internal fixed disk would have its first network volume assigned to unit C. The diagram on the next page illustrates the example.

How Unit Letters Are Assigned

IBM XT <i>(with internal hard disk)</i>		IBM PC <i>(no internal hard disk)</i>	
Diskette Drive1	A	Diskette Drive1	A
Diskette Drive2	B	Diskette Drive2	B
Internal Hard Disk	C	Volume1	C
Volume1	D	Volume2	D
Volume2	E		

LISTING VOLUME CONTENTS

Take the time now to see what files are in your volumes. First, let's look at volume IBMMS. The network manager should have copied all the network utility programs into IBMMS where the programs can be shared by all network users.

You list the files in IBMMS by using the DIR command with the unit letter for the volume. You'll find the unit letter for IBMMS in the list you copied from the boot messages.

For example, if IBMMS is assigned to unit letter D,

Type DIR D:

Press [RETURN]

A list of all files in the volume appears. To look at the files in different volumes, use the DIR command again but use the other volume's unit letter with the command.

If you don't find programs and files that you need, use the MS-DOS COPY command to transfer files from diskettes to your volumes. Do not use the MS-DOS DISKCOPY, SYS, or FORMAT commands with your volumes since the results are unpredictable and data could be destroyed. Only use the COPY command to transfer files to volumes. The *IBM Disk Operating System* manual explains how to use the command.

Error messages may appear when you attempt to copy files. These messages can have several causes: the volume may not have enough room, or it may have been protected by the network manager from any changes. This protection is called *read-only access*; this concept is discussed in the next section.

WRITE ACCESS TO VOLUMES

The network manager determines your write access and only he or she can change it. You can have either *read-write* or *read-only* access to your volumes. Read-write access allows you to make changes to the files stored in the volume; you can edit, save, or even delete files.

With read-only access, you can use information but you can't make any changes. For example, with read-only access you can't copy files *to* the volume since the addition of new files changes the volume's contents. However you can copy files *from* the volume. If an error message appears when you attempt to save or copy files, you may have read-only access to the volume.

Every network user should have read-only access to IBMMS, the volume that contains the network utility programs. Read-only access lets everyone use the files without the risk of accidentally destroying data.

To find out the write access to your volumes, use the show mount program. The program displays a list of all volumes similar to the first message displayed in the boot process.

To use show mount,

Type *d*:SHOWMT

Press [RETURN]

Throughout this guide, the letter *d* appears before the names of programs. When you see *d*, substitute the appropriate unit letter for IBMMS.

The screen display is similar to the following:

```
--- MOUNTED CORVUS VOLUMES ---  
  
unit  access  volume  length  
C     R/O    IBMMS   1024  
D     R/W    KEN     2048  
E     R/W    REPORT  3000
```

The list displays the unit letter, your write access to the volume, and the volume length in blocks, with each block equal to 512 bytes.

If you forget the unit letter for a volume, you can always use the show mount program since it also tells you the unit letter for each volume.

RUNNING PROGRAMS

If a program is in the current volume you can use it by typing the program name. The current volume's unit letter is displayed as the MS-DOS system prompt; for example, if the system prompt is D> then the volume with unit D is the current volume.

If the program is in a different volume, the computer has to know which volume contains the program. You'll use the unit letter to identify the volume.

The following examples show how to run the show mount program from the current or from a different volume. Assume that the current volume is unit A and that IBMMS is assigned to unit letter C. If you actually do the example, substitute the unit letter assigned to IBMMS on your computer for unit C.

To use a program in a different volume *without changing the current volume*, you must type the volume's unit letter and a colon before the program name. For example, to run show mount without changing the volume, you would

Type C:SHOWMT

Press [RETURN]

The program executes and the volume remains the same.

Recall from the MS-DOS operating system that you change the current drive by typing the drive letter followed by a colon. The same method changes the current volume except that you use the volume's unit letter.

To run the show mount program and make IBMMS the default volume, you would first

Type C:

Press [RETURN]

This step makes C the current volume. Then to run the show mount program, you would

Type SHOWMT

Press [RETURN]

Once IBMMS is set to the current volume, you can use other utility programs described in this manual by typing the program name.

The next chapter describes various methods for sending files to network printers and other network users. You'll also learn how to receive files sent by other users.

Chapter 2

Network Printing and Data Transfer

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Introduction

This section introduces the different methods for sending files to network printers and other network users. There are several ways to transfer files:

- Application package print options
- MS-DOS PRINT or COPY commands or Print Screen function
- Corvus NPR command
- Spool program

The following paragraphs explain the differences between these methods.

Recall from Chapter 1 that the network printer driver, NETPRINT, is responsible for sending files to network printers. In actuality, the network printer driver intercepts data that would normally be sent to a local, parallel printer (MS-DOS devices LPT1, PRN, and the printer interrupt) and redirects it to a network printer.

When the network printer driver is installed in memory, the easiest way to print is to use the existing *print option in an application package* such as your word processing or data base management program. It's convenient to use available options since you won't have to exit the program to print a file.

If you don't have a program with built-in printing capability, you can use the MS-DOS *PRINT* or *COPY* commands, or the Corvus *NPR* command to print files. These commands allow you to send files to network printers directly from MS-DOS and are good methods for

printing files that do not require text formatting. You can also use the MS-DOS *Print Screen* function to send an entire screen to the network printer. For detailed instructions on how to use PRINT, COPY, or Print Screen, see the *IBM Disk Operating System* manual. The NPR command is discussed in the next section.

The *spool* program sends files to network printers independent of the network printer driver. Since spool requires more steps than other methods, it is not the recommended way to print files. However, spool *is* the best method for sending files to other network users; you can even use spool to send files to users of computer types other than PCs. The section "Sending Files to Other Users" explains how to use the program.

How to Print Files

You can print files using almost any application package with a print function. To use your application, select the print option when you're ready and your file will be sent to the network printer.

If your application package is currently set up to send files to a serial printer, you'll have to change it to send files instead to the parallel printer port. See your program manual or the *MODE* command in the *IBM Disk Operating System* manual for instructions.

You must change the network printer driver so that it sends files to a local printer before you use the *MODE* command. If you don't, the command could cause the network printer to print indecipherable characters. Later in this chapter you'll learn how to change the network printer driver.

Certain word processors add command characters to files. You should not use the *PRINT*, *COPY*, or *NPR* commands to print files with non-printable characters since these characters can also cause unreadable printouts. In general, to print a file containing non-printable characters, only use the program that created it.

You can also use the *NPR* command to print files. The format for *NPR* is as follows:

NPR [*d:*] [*path*] *filename*

where *d:* is the unit letter of the volume containing the file, *path* is the path to the directory that contains the file, and *filename* is the name of the file you want to print. Only use *d:* or *path* if the file is in a different volume or directory, but you must always include a filename.

Let's say that you want to print the file named KEN.TXT which is stored in the volume on unit C. If the current volume is IBMMS, you would

Type NPR C:KEN.TXT

Press [RETURN]

The MS-DOS PRINT and COPY commands also send files to network printers. For example, you could use any of the following commands to print the file REPORT.TXT:

PRINT REPORT.TXT

COPY REPORT.TXT PRN

COPY REPORT.TXT LPT1

Either LPT1 or PRN must be used as the destination for the COPY command. For more information on how to use PRINT and COPY, see the *IBM Disk Operating System* manual.

Take the time now to print a test file. If your file doesn't print properly (or at all), certain *network printer driver parameters* may not be set properly. Parameters are a set of preconditions that determine how the driver sends files. The next five sections describe how to change these parameters.

Changing Printer Driver Parameters

When the network manager made your Corvus boot diskette, he or she should have assigned values to certain printer driver parameters to meet most network users' needs. If you experience problems printing your test file, the cause could be a parameter with an incorrect value.

The following chart describes some likely printing problems, their causes, and the parameters that may need to be changed.

Potential Printing Problems

<i>Problem</i>	<i>Cause</i>	<i>Parameter</i>
File didn't print at all	Incorrect printer name	Printer
	Incorrect server name	Disk Server
	Printer driver couldn't find the end of file	Control String
		Time out
One file split into two printouts	Time out too short	Time out
Two files combined in one printout	Time out too long	Time out
Can't print to local printer	File sent to network printer instead	Printer Location

You use the CNP (Change Network Printer) program to alter network printer driver parameters. CNP can be used by two different but functionally equivalent methods: menu or command line. Menus are easier to use since they contain explanations. Discussions of the parameters are based on menus, however the same information applies for the command line.

Users who are accustomed to MS-DOS commands may want to use a command line. If you prefer command lines, read through the section "Description of CNP Parameters" to familiarize yourself with the features of CNP and then turn to the section "Using the CNP Command Line."

Changes made with CNP are temporary; the parameters will revert to their original values when you reboot your computer. How to reinstate the changes automatically each time the computer boots is described in the section "Making Changes Permanent."

Using the CNP Menu

You should run the CNP program while you read through this section since the easiest way to learn about the menu is to actually use it. To run the CNP program,

Type CNP

Press Enter

The screen displays the CNP menu:

CNP - Change Network Printer Driver - [1.01]
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Message : User: KEN - Station Number: 34
File Name : KENNY

Using Printer	: PRINTER	New Page String	: .pg
Using Disk Server	: SERVER0	Tab Expansion	: 8
Printer Location	: NETWORK	Lines per Page	: 0
Processing Mode	: TEXT		
Control String	: ^Z	Character Enhancement	: NO
File Type	: TEXT		
Time Out (sec.)	: 15		
Number of Copies	: 1		
Print Priority	: 0		

Press <ESC> or F10 to Exit CNP

F2-LOCATION F3-MODE F4-TYPE F5-ENHANCE

F10-EXIT

If CNP won't run, the network printer driver may not be installed properly. Making sure that the Corvus boot diskette is in drive A, reboot the computer and try running the program again.

The CNP menu consists of parameters, each followed by a colon and a field with a value in it. The current field is highlighted, and its length indicates the maximum number of characters that can be entered.

You can accept the current value in the field or enter another. Any changes are implemented immediately after you press [RETURN]. You can always change something again, but you should be careful that all parameters are set as you desire before exiting the menu.

Look at the parameter values and consider if the current value should work properly; if so, then you shouldn't need to change the parameter. If you're not sure what a parameter does, read the section "Description of CNP Parameters" to find out more information.

SELECTING FIELDS

Select fields on the menu by moving the cursor to the field. One method of moving the cursor is to use function keys; the labels appear across the bottom of the screen. The labels show the corresponding keys on the keyboard and the names of the parameters.

The cursor can be moved with the cursor keys as well. Use the up-arrow or down-arrow keys to move the cursor to the preceding or following field, respectively.

ENTERING INFORMATION

Certain fields allow you to use function keys to enter new values. You can use function keys to enter values in the *Printer Location*, *Processing Mode* and *File Type* fields.

Some fields require that you type a new value if you want to change the current one. *When you type a new value in a field, you must press [RETURN] to actually change the value. If you don't press [RETURN], the old value will still be used.*

Several keys help you edit field entries. [Ins] and [Del] insert characters before the cursor or delete characters after it. [Back Space] moves the cursor back one space at a time, [End] moves the cursor to the end of the line, and [Home] moves the cursor to the beginning of the line.

You can also use the left-arrow and right-arrow keys to change the value in a field. For certain fields the keys toggle between two values or display a series of values. You can also use these keys to move the cursor to the right or left, a space at a time.

If you change your mind and want to use the original value in the field, just press [ESC] or use the up- or down-arrow keys before you press [RETURN]. The original value returns to the field and the cursor moves to the next field.

EXITING THE MENU

The [F10] function key always exits from the current menu. If you're in the main menu, pressing [F10] exits to the MS-DOS system prompt. You can also press [ESC] to exit the CNP program.

Description of CNP Parameters

Some of the parameters in the CNP menu are not operable unless a printer server is in use on the network. The following parameters are therefore not described in this manual:

Processing Mode	Tab Expansion
Number of Copies	Lines per Page
Print Priority	Character Enhancement
New Page String	

These parameters are described in the *Printer Server User's Guide*. You should already have a copy of the manual if there is a printer server on the network.

The following paragraphs describe the functioning parameters.

FILE NAME

The file name is printed on the header page and is used to identify your printouts. This parameter works only if header pages are printed. Choose a unique name so that you can find your printouts easily. The file name can be string of up to 20 characters.

PRINTER

The printer name identifies which network printer will print your files. Your network manager should have already set the correct printer name on your boot diskette. The wrong printer name will prevent you from printing any files.

If there are multiple network printers, the network manager should have given you a list of printer names. You print files to different network printers by entering the appropriate name. If you're not sure about the correct names, ask the network manager.

DISK SERVER

Disk server identifies the server which is used to help transfer files to the printer. Your network manager should have already set an appropriate server name.

If you're not sure about the correct server name, ask the network manager. Be careful when changing the server name since the wrong name prevents any files from printing.

PRINTER LOCATION

Printer location determines if a file is sent to a local or network printer. To use a printer connected to your computer, set the printer location to *LOCAL*. To use a network printer, set the parameter to *NETWORK*. If the printer location is *LOCAL*, you can ignore the disk server and printer name parameters; otherwise, these parameters must be set. *Always change this parameter to LOCAL before using the MS-DOS MODE command.*

CONTROL STRING and TIME OUT

The network printer driver needs some way of knowing when it has a complete file so that it can stop waiting for more data and send the file to the printer. There are three methods to complete

sending a file: the control string (the preferred method), time out, and close. Close can be used only with the command line and is described in the next section. You must use one of the three methods to finish sending the file.

The control string is a series of control characters placed in the file to indicate the end of the file. A control string is composed of control characters, or the single letter E, for Escape. A control character is a caret (^) followed by a character (A-Z); each caret followed by a character represents *one* control character.

For example, if you use ^Z as the control string, the network printer driver must find ^Z at the end of the file before it finishes sending the file.

If your application package automatically inserts characters indicating the end of the file (EOF), you should use these characters as the control string. However, make sure that you don't use characters that are already being used by the application for another function.

In addition, certain programs and printers may place limitations on the type of control string that may be used. Refer to the program or printer manual for more information.

If the program doesn't automatically insert a control string at the end of a file, you can enter the string in your file by holding down [CTRL] and typing the desired letter. If you use this method you should set the time out as a backup in case you forget to enter the string.

Time out is an alternative method of closing the file. A time out tells the network printer driver when to stop waiting for more data. If no data is received during the defined period, the driver assumes there is no more data and finishes sending the file. The maximum value for the time out is 1820 seconds. Setting the time out to 0 disables the mechanism; in this case, a control string must be used.

A busy network may require more time to send a file and a longer time out may be needed. However, if the time interval is too long, a second file may be sent as part of the first file. In this case, two separate files would be printed as one printout.

If the time interval is too short, the entire file may not be sent. One file would then be printed on two separate printouts and data could be lost. Adjust the time out according to the amount of traffic on your network.

FILE TYPE

The file type is either TEXT, DATA, or GRAPHICS. Only send files that contain printable characters to the printer.

EXIT CNP

When you have changed the values to suit your needs, press [F10] to exit the program. The parameters should now have the values you specified.

Using the CNP Command Line

A CNP command line consists of one or more *parameter names* modified by *parameter values*. The parameter name identifies which parameter is affected and the parameter value determines its new value.

Since parameters are the same for both command lines and menus, refer to the previous section "Description of CNP Parameters" for explanations of each parameter.

CNP command line parameters are also used to set the printer driver automatically each time the computer boots. This is explained in the next section "Making Changes Permanent."

Each parameter name must be preceded by a slash (/) and followed by a colon if it has a value associated with it. Parameter names and values can be upper or lower case and can be entered in any order or combination. The command line length can be up to 127 characters, including the program name and blank spaces. The end of a command is indicated by a carriage return.

For example, to change the value for the control string to ^Y, you would enter

```
CNP■/CONTROL:^Y
```

The box indicates that a space must be placed here. In this example, CONTROL is the parameter name and ^Y is the parameter value.

You can also use abbreviations of parameter names. A single letter can be a parameter name as long as no other parameter begins with the same letter. For example, you could also enter the command for the control string as follows:

```
CNP■/CON:^Y
```

Using abbreviated names helps ensure that all your commands will fit within the available space.

The following list shows parameter names and values. The capital letters in the parameter name indicate the shortest valid name.

NAME	VALUE	DESCRIPTION
C L ose	none	automatically stops sending
C O N T rol	string	control string to indicate end of file
F I lename	string	file name for header page
L O cation	L or N	printer type (local or network)
P R I N ter	string	printer name for sending files
S E rver	string	disk server name for printing
T I meout	1 to 1820	wait this long to finish sending
T Y pe	T, D or G	file type (text, data, or graphics)

The following are examples of valid command lines:

```
CNP■/PRIN:HPLASER
```

Sends the file to the HPLASER printer.

CNP■/CON:^Y/F:KEN.TXT/PRIN:DIABLO

Closes the file when the ^Y control string is received, changes the file name to KEN.TXT, and sends the file to the printer named DIABLO.

CNP■/TI:5/LO:L

Closes the file after it has been inactive for five seconds and sends the file to the local printer.

Making Changes Permanent

The network printer driver is activated by a special file on the Corvus boot diskette called CONFIG.SYS. By adding CNP parameters to CONFIG.SYS the printer driver is automatically set each time the computer boots. Placing CNP commands in CONFIG.SYS saves time since you won't have to use CNP to change parameters every time you use the computer.

You can use any word processing or text editing program to edit CONFIG.SYS as long as the program doesn't add non-printable characters to the file. If you don't have such a program, you can use the MS-DOS EDLIN program. For instructions on editing CONFIG.SYS or using EDLIN, consult the *IBM Disk Operating System* manual.

The following line of text in CONFIG.SYS is responsible for placing the printer driver in memory when the computer boots:

```
DEVICE=NETPRINT.BIN
```

If any parameters already appear after the command they were probably added by the network manager. To set a parameter, add its name and appropriate value to the line. Remember that you can abbreviate parameter names and use them in any order or combination.

Be sure to save the new version of the CONFIG.SYS file to your boot diskette after you've finished making changes.

The following examples should give an idea of the changes you can make:

```
DEVICE=NETPRINT.BIN■/S:SERVER5/PR:LASER
```

Sends files to SERVER5 and prints files on the printer named LASER. Notice that one space is required between the first parameter and the driver name; no spaces are required between different parameters.

```
DEVICE=NETPRINT.BIN■/CON:^Y/F:KEN.TXT
```

Closes the file when the ^Y control string is received and prints the file with the file name KEN.TXT.

Sending Files to Other Users

The easiest way to send files to another network user is to use the spool program. To send files you must select a unique pipe name and inform the receiving user of that name. Think of pipe names as labels that let users know that files are intended for them. If a user doesn't know the pipe name, he or she can't receive the file.

There are several steps to sending a file to another user. First, you enter the spool program. Second, you choose a pipe name, and if you're sending a program, change the file type. The last step is to send the file. You use these same steps to send files to any network user, even users who are not using PCs.

Until someone uses the despool program to retrieve the file, it remains in a way station for files sent across the network called the pipes area.

The following steps describe the process of sending files to other users.

1. Enter the spool program.

Type *d:SPOOL*

Press [RETURN]

Substitute the unit letter for volume IBMMS for *d*.

The screen displays the spool program main menu:

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All Rights Reserved

Corvus Spool Utility [x.xx]

Main Menu

S - Spool A File

C - Change Spool Parameters

D - Display Pipes

H - Help

E - Exit

Please select an option: _

Only options that pertain to sending files to other network users are discussed in this section; all other options are described in the Appendix.

2. Change the pipe name.

Before you can send the file you must first change the pipe name to a unique name that is different from any network

printer name. If you don't change the pipe name, the file may be printed instead of being sent to the intended user.

Press C

The screen displays the change parameters menu.

```
Corvus Spool Utility [x.xx]
Change Spool Parameters
-----

P - Pipe Name      : PRINTER
L - Lines per Page : 55
C - Chaining Symbol : (*I
N - New Page Symbol : (*P
T - Tab Length     : 8
S - Strip high bit  : FALSE
F - File Type      : TEXT
E - Exit to Main Menu

-----

Please select an option: _
```

The current pipe name is displayed next to the pipe name parameter. To change the pipe name,

Press P

The screen displays:

Pipe Name (up to 8 characters): _

Enter a name up to eight characters long that is not the name of a network printer; for example, you could use the person's name. Whichever name you choose, be sure to tell the user receiving the file that name since he or she must know it to get the file. After typing the pipe name, press [RETURN].

3. Change the file type.

If you are sending a text file such as a letter or a report, the default setting for a text file is correct. Skip this step and continue to step 4.

If, however, you are sending an executable program, you must change the setting of the *File Type* parameter from TEXT to DATA so that the file is sent without any text formatting. To change the parameter, press F.

4. Return to the spool program main menu.

Press E

The screen displays the main menu.

5. Select the *Spool a File* option.

Once the correct pipe name is entered and the file type is set, the file is ready to be sent. To send the file,

Press S

The screen displays:

```
Corvus Spool Utility [x.xx]
Spool a file
-----
File name: _
```

6. Enter the file name.

Type the name of the file you want to send and press [RETURN]. If the file is in another volume, type the volume's unit letter before the file name. For example, if the file REPORT.TXT is in the volume assigned to unit F, you would

Type F:REPORT.TXT

Press [RETURN]

You cannot use subdirectory names or wild-card characters in the file name. After you enter the file name, the screen displays a prompt for a message. Since messages can't be used when files are sent to other users,

Press [RETURN]

The screen display is similar to:

```
Spooling REPORT.TXT to pipe KEN [2]

.....
15 blocks spooled to pipe [2] named KEN
-----
CORVUS Spool Utility [x.xx]
Spool a File
-----
File Name: -
```

The program begins spooling the file. One dot appears on the screen for each block of information being transferred. When the file has been sent, the initial screen for spooling files reappears.

7. Spool another file or exit the spool routine.

To spool another file, type the new file name and press [RETURN].

To exit the spool routine,

Press [RETURN]

The screen displays the main menu.

To exit the spool program,

Press E

The screen displays the system prompt. The file has been sent; it's now up to the other user to perform the steps to receive the file.

Checking for Files

This section explains how to find out if any files have been sent to you with a specific pipe name. The user who sent the file should have told you the pipe name.

You'll use the *Display Pipes* option to see if any files have been sent. When you use this option, the spool program checks the network for any files with the specified pipe name.

1. Enter the spool program.

From the system prompt,

Type *d*:SPOOL

Press [RETURN]

Substitute the unit letter for volume IBMMS for *d*.

The spool program main menu appears.

2. Select the *Display Pipes* option.

Press D

The screen displays:

```
Corvus Spool Utility [x.xx]
Display pipes
-----
Pipe Name: _
```

3. **Type** the pipe name to which the file was sent and **press** [RETURN]. The next screen displays all pipes with the same pipe name. For example,

```
1. KEN  Closed  ---  Contains data  15 blocks
2. KEN  Closed  ---  Contains data  84 blocks
```

This shows that there are two pipes named KEN. Both pipes are closed, indicating that they are ready to be received. The last column shows you the size of the file in blocks, with each block equal to 512 bytes.

Open pipes indicate that information is in process of being sent or that the pipe wasn't closed properly and is therefore unusable. To find out the true status of a pipe, press

[RETURN] to exit the display pipes routine, wait between 10-30 seconds, then press D and enter the file name again. If the screen shows an open pipe *with the same number of blocks*, there is probably a problem. Ask the user to send the file again and report the problem to the network manager.

4. Return to the spool program main menu.

Press [RETURN]

5. Exit the spool program.

Press E

The system prompt appears.

Receiving Files from Other Users

The process of retrieving a file is called *despooling*. When another network user is sending you a file on the network, you'll take the place of the despooling device and retrieve the file yourself. To do this, you'll use the despool program.

There are several steps to despooling a file. First, use the *Display Pipes* option in the spool program to see if the file is ready and waiting. Next, enter the despool program. Then enter the pipe name used to send the file and select the output device, which determines the destination for the file. The last step is to actually despool the file.

The following steps describe the despooling process.

1. Enter the despool program.

Type *d*:DESPOOL

Press [RETURN]

Substitute the unit letter for IBMMS for the letter *d*.

The screen displays:

```
Copyright 1982, 1983 Corvus Systems, Inc.  
All Rights Reserved
```

```
Corvus Despool Utility [x.xx]
```

```
Main Menu
```

```
-----
```

```
D - Despool a file
```

```
C - Change despool parameters
```

```
H - Help
```

```
E - Exit
```

```
-----
```

```
Please select an option: _
```

Only options that pertain to receiving files from other network users are discussed in this section; all other options are described in the Appendix.

2. Change the pipe name.

Press C

The screen displays the change parameters menu:

```
Corvus Despool Utility [x.xx]
Change Despool Parameters
-----
P - Pipe name           : PRINTER
O - Output device      : PRINTER
L - Do you want <LF> after <CR> : YES
T - Transparent despool of data : NO
S - Single page printing : NO
E - Exit to main menu
-----
```

Please select an option: _

To change the pipe name,

Press P

The screen displays:

Pipe name: _

Type the pipe name to which the file was spooled and press [RETURN]. The screen displays the change parameters menu.

3. Decide where to despool the file.

Press O

The screen displays:

```
Printer, File, Console: _
```

Files can be despoiled to one of three locations: a local printer, the console, or a file. Of the three, sending it to a file is the best choice. The next paragraphs explain why.

You should use the printer parameter only if a printer is attached directly to your computer. You may also want to change the Line feed and Single page parameters, which are discussed in the Appendix.

Only despool text files to the console or printer since sending a data file to either will cause an error.

The best choice is to despool to a file since the information is then saved to a file. The despool program creates a file in a volume and places the despoiled information in it. However, once the file is despoiled to the printer or console, it cannot be placed in a file.

To despool the pipe to a file,

Press F

4. Return to the despool program main menu.

Press E

5. Despool the pipe to a file.

Press D

The screen display is similar to:

```
Currently Despooling Pipe Named : KEN
Pipe Number                      : 2
Spooled Filename                  : REPORT.TXT
Filename to despool to           : REPORT.TXT
```

Enter the name of the file that will receive the despoiled information. You can use the suggested filename displayed in the menu, or enter a different volume and filename.

To change the name, type the file name and press [RETURN].

For example, to despool the information to the file RPT1.TXT on the volume assigned to unit E,

Type E:RPT1.TXT

Press [RETURN]

You cannot use subdirectory names or wild-card characters in the file name. The screen display is similar to:

```
.....  
15 Block(s) despoiled from pipe 2 named KEN
```

If there is more than one pipe with the same name, the program prompts for the next file name. Otherwise, the screen display is similar to:

```
Currently searching for Pipe named : KEN  
Press any key to escape...
```

This message indicates that there are no more pipes with the specified name.

6. Return to the despool program main menu.

Press any key on the keyboard.

7. Exit the despool program.

Press E

The system prompt appears. The despoiled information is placed in the file and is ready for your use.

The next chapter describes how to use the backup-to-floppy program to back up an entire volume to diskettes, and how to restore a volume on diskettes back to a volume on the OmniDrive.

Chapter 3

Volume Back Up and Restoration

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Introduction

This chapter explains how to use the backup-to-floppy program to save an entire volume on diskettes and restore the contents of the diskettes to a volume.

The key components of the backup-to-floppy program are its ability to perform *backups* and *restorations*. During a backup, the contents of a volume are copied to diskettes. Transferring information from the diskettes back to a volume on an OmniDrive is called restoration. The following illustration shows the flow of information during backups and restorations.

Your network may have a network-wide backup system such as The Bank[™] or the Mirror[™] which can back up an entire OmniDrive quickly and efficiently. If the entire network drive is backed up on a regular basis, you probably don't need to copy individual volumes to diskettes.

If only a few files change frequently and most files in the volume remain the same, you can probably use the MS-DOS COPY command to backup your daily work files and use the backup-to-floppy program on a weekly basis as a safeguard. Backup-to-floppy copies the *entire* volume, including unused space, to diskettes.

Restorations are typically performed when most of the files in a volume are destroyed or if you must retrieve earlier versions of files. Only the entire volume can be restored; you cannot retrieve individual files from the backup diskettes. However, you can use individual files after the entire volume has been restored.

Preparing for Back Up

There are two preliminary steps before you begin a backup. You need to find out certain information about the volume and to format enough diskettes to hold the entire volume.

Since the backup-to-floppy program is in a different operating system, it is important to format enough diskettes before you begin the backup to minimize rebooting the computer.

GATHERING INFORMATION

Use the show mount program to find out the size of the volume so you can estimate the number of diskettes needed to hold the entire volume.

Take the time now to use show mount, and write down the volume size. For information on how to use the program, see Chapter 1.

ESTIMATING THE NUMBER OF DISKETTES

The number of diskettes needed for a backup depends on the storage capacity of the diskette and the size of the volume. Use the chart on the next page to estimate the number of formatted diskettes.

Volume Size

Diskette Capacity

	512 blocks	1024 blocks	2048 blocks (1MB)	4096 blocks (2MB)
180KB	2 diskettes	3 diskettes	6 diskettes	12 diskettes
360KB	1 diskette	2 diskettes	3 diskettes	6 diskettes
1.2MB	1 diskette	1 diskette	1 diskette	2 diskettes

For example, backing up an 1800-block volume using a 360KB diskette drive requires between two to three diskettes. Estimate on the high side and format three diskettes.

Go ahead and format the approximate number of diskettes before continuing. Remember that diskettes formatted with high-capacity drives (such as those in an IBM AT) are incompatible with low-capacity drives. For more information on formatting diskettes, see the `FORMAT` command in the *IBM Disk Operating System* manual. If you want to back up several volumes, make sure you format enough diskettes for each volume.

ENTERING THE BACKUP-TO-FLOPPY PROGRAM

You must log on to the network with a special user name to use the program since it is not an MS-DOS program. The user name **IBMBACKUP** boots the computer into the UCSD p-System operating system and automatically runs backup-to-floppy.

You can set program options which help ensure an accurate backup or protect the backup diskettes from unauthorized use. These options must be set before the backup begins.

The steps below describe these preliminaries.

1. Reboot the computer and log on as **IBMBACKUP**.

Hold down [CTRL] and [ALT]

Press [DEL]

When the Constellation II log-on display appears,

Type IBMBACKUP

Press [RETURN]

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
Copyright 1983, 1984 by Corvus Systems, Inc.
.....
```

Please enter:

User name: _

Password: _

2. Enter the user name and password with access to the volume to be backed up.

Type the user name and password, pressing [RETURN] after each. If there is no password, press [RETURN] in response to the password prompt.

The screen displays the backup-to-floppy main menu:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]  
Copyright 1983, 1984 by Corvus Systems, Inc.  Server:  SERVER1  
-----
```

B - Backup a Volume

R - Restore a Volume

I - Identify a Diskette

L - List Volumes

S - Set Options

C - Choose Server

E - Exit

```
-----  
Please select an option: _
```

The server name of the particular OmniDrive that the program is looking at appears at the top right corner of the screen. If the appropriate name is displayed, skip the remainder of this step and continue to step 3.

If this is not the name of the OmniDrive that contains the desired volume, use the *Choose Server* option to direct the program to look at another drive. To use the *Choose Server* option,

Press C

The screen display is similar to:

```
Valid servers are: SERVER1, SERVER2
Enter server name:
```

The server names of all OmniDrives and disk systems on the network are displayed. Type the name of the OmniDrive that contains the volume you wish to back up and press [RETURN]. The main menu appears with the new server name. You can use the *List Volumes* option to make sure that the volume is on the new server.

3. Set the *Verification* and *Password Protection* options.

Press S

The screen displays:

CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]

Set Options

Verification (Y/N): N

Password Protection (Y/N): Y

The *Verification* option verifies that information is correctly copied from the volume to diskette.

The *Password Protection* option prevents other users from reading the backup diskettes unless they know the correct user name and password.

To select an option, press Y to the appropriate prompt and press [RETURN].

A prompt asks you to confirm the option settings. To accept the current option selections,

Press [RETURN]

4. Return to the the backup-to-floppy main menu.

Press [SPACE]

The screen displays the main menu.

Beginning the Backup

You should have the formatted diskettes ready before you begin.

1. Select the backup option.

Press B

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
Backup a Volume
-----
Please enter:

Volume Name: _
Date: _
```

2. Enter the volume name and the current date, **pressing [RETURN]** after entering each. For example,

Type VOL13

Press [RETURN]

Type 10-08-85

Press [RETURN]

Messages similar to the following display:

```
Insert formatted diskette in drive A.  
Press <space> after inserting diskette. _
```

3. Insert a formatted diskette in drive A and

Press [SPACE]

The screen display is similar to:

```
Checking capacity of the floppy drive... 360KB  
Backup of VOL13 requires   n Diskettes.
```

4. The n in the last prompt represents the number of diskettes required to back up the volume; you must have at least that number of diskettes already formatted and ready to use.

If you don't have enough diskettes, press [ESC], exit the program, log on with an MS-DOS user name, and format more diskettes. You'll have to start the program over from the beginning.

If there are enough diskettes, continue. The program begins to copy data from the volume to the first backup diskette. As each block of data is copied, a dot appears on the screen.

When the first diskette is full, the screen display is similar to:

```
Insert formatted diskette in drive A.  
Press <SPACE> after inserting diskette. _
```

5. Remove the first backup diskette and label it with the name of the volume followed by -1, for example, VOL13-1.
6. Label the second backup diskette with the volume name followed by -2 and insert it in drive A.

Press [SPACE]

Continue to label and insert diskettes at the program's request. When all information has been stored on diskettes, the screen displays:

```
Volume backup complete.  
.....  
Press <space> to continue. _
```

7. The entire volume has been backed up to the set of diskettes. Make sure that you keep the set together since *all* the diskettes are needed to restore the volume.

To exit the backup routine,

Press [SPACE]

The screen displays the main menu. You can back up another volume, or exit the program and return to the MS-DOS operating system.

Return to step 1 of this section and repeat the steps to backup another volume.

To exit the program,

Press E

You have to reboot the computer after exiting the program. To reboot,

Hold down [CTRL] and [ALT]

Press [DEL]

Log on to the network with an MS-DOS user name.

Preparing for Restoration

Before you begin the restoration, you need to choose the volume that will receive the information being transferred from the diskettes. This volume should contain no important information since its contents will be overwritten. The volume must also be the same size as the volume on the diskettes.

You must know a user name that has read-write access to the destination volume. If the diskettes are password-protected, you must employ the same user name and password used to back up the volume.

GATHERING INFORMATION

Take the time now to use the show mount program to determine the destination volume's size. Choose a volume that is the same size as the volume contained on the diskettes.

ENTERING THE BACKUP-TO-FLOPPY PROGRAM

You can have the program verify that information is copied correctly from the diskettes to the volume by setting the *Verification* option. You should also make sure that the diskettes are labeled properly and contain the correct volume.

The following steps describe these preliminaries.

1. Reboot the computer and log on as IBMBACKUP.

Hold down [CTRL] and [ALT]

Press [DEL]

When the Constellation II log-on display appears,

Type IBMBACKUP

Press [RETURN]

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
Copyright 1983, 1984 by Corvus Systems, Inc.
.....
```

Please enter:

User name: _

Password: _

2. Enter a user name and password with read-write access to the destination volume. If the backup diskettes are password-protected, use the same name used for the backup. Type the user name and password, **pressing [RETURN]** after entering each.

If there is no password, **press [RETURN]** in response to the password prompt.

The screen displays the backup-to-floppy main menu:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
Copyright 1983, 1984 by Corvus Systems, Inc.  Server: SERVER1
.....
```

- B - Backup a Volume
- R - Restore a Volume
- I - Identify a Diskette
- L - List Volumes
- S - Set Options
- C - Choose Server
- E - Exit

```
.....
Please select an option: _
```

If the current server name is not that of the OmniDrive containing the destination volume, use the *Choose Server* option to enter the appropriate server name.

3. Set the *Verification* option.

Press S

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
Set Options
-----
```

```
Verification (Y/N): N
Password Protection (Y/N): Y
```

To have the information copied to the volume verified against the contents of the diskettes,

Press Y and press [RETURN]

Since password protection is only applicable to backups, **press [RETURN]**.

A prompt asks you to confirm the option settings. To set the current option selections,

Press [RETURN]

The screen displays that the options are set.

4. To return to the backup-to-floppy main menu,

Press [SPACE]

IDENTIFY THE DISKETTE CONTENTS

Use the *Identify a Diskette* option to find out which volume is contained on the backup set of diskettes. The option displays useful information such as the volume name, the sequential number of the diskette in the set, whether the diskettes are password-protected, the volume size, and the total number of diskettes in the set.

1. Select the *Identify a Diskette* option.

Press I

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
  Identify a Diskette
-----

Insert diskette in drive A.
Press <space> after inserting diskette._
```

2. Place one of the diskettes in the backup set in diskette drive A.

Press [SPACE]

The screen display is similar to:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
  Identify a Diskette
-----
      Volume Backed Up: VOL13
      Date of Backup: 1-04-84
      User Name: PAUL (protected)
      Size of Volume (blocks): 1024
Total number of Diskettes: 5
  Number of this Diskette: 1
-----
Press <space> to continue. _
```

If the diskette contains the desired volume,

Press [SPACE]

The screen displays the main menu.

Starting the Restoration

You should have the diskettes and the name of the destination volume ready. With the preliminary steps out of the way, you're ready to begin the restoration.

1. Select the *Restore a Volume* option.

Press R

The screen displays:

```
CORVUS BACKUP-TO-FLOPPY UTILITY [x.xx]
      Restore a Volume
-----
```

Please enter:

Volume to be restored: _

Volume name on floppy: _

Type the name of the destination volume on the OmniDrive in response to the first prompt and the name of the volume contained on the diskettes to the second prompt. Press [RETURN] after entering each name.

The screen display is similar to:

```
Insert VOL13-1 diskette in drive A.  
Press <space> after inserting diskette. _
```

2. Place the first diskette from the backup set into drive A.

Press [SPACE]

The screen displays:

```
Checking capacity of the floppy drive...
```

Restoration begins. As each block of data is copied from the diskette to the volume, a dot appears on the screen. After the first diskette is copied, the screen display is similar to:

```
Insert VOL13-2 diskette in drive A.  
Press <space> after inserting diskette. _
```

3. Place the next requested diskette in diskette drive A.

Press [SPACE]

Restoration continues. The program will request each diskette in the order created during the backup. When all information has been restored, the screen displays:

```
Volume restoration complete.  
.....  
Press <space> to continue. _
```

4. The volume on the diskettes has been copied to the destination volume on the OmniDrive. Remove the last diskette and exit the restoration routine.

Press [SPACE]

The screen displays the main menu. To exit the program,

Press E

You have to reboot the computer after exiting the program.

Hold down [CTRL] and [ALT]

Press [DEL]

Log on to the network with an MS-DOS user name with access to the volume. The files in the volume will be at your disposal.

The next chapter describes the mount manager program which is used to assign unit letters to and display useful information concerning network volumes.

Chapter 4

Mounting Volumes

Contents

- 81 Introduction**
- 82 Listing Volumes**
- 87 Selecting Drives**
- 89 How to Mount Volumes**

Introduction

Although the network manager has ultimate control over all volumes on the OmniDrive, there is one tool available for working with your volumes: the mount manager program.

You should first use the mount manager to see if you have more volumes than are immediately usable. Remember from Chapter 1 that each usable volume must have a unit letter, and that only ten volumes can have unit letters at any given time. If ten volumes are already in use, you'll have to exchange one working volume for each volume without a unit letter.

You use the mount manager to assign unit letters to volumes. The mount manager also shows the volume's size and your write access to it.

Any changes made to a volume's status using the mount manager are temporary; as soon as the computer is rebooted, the volume reverts to its original status. Only the network manager can make permanent changes to volumes. If you consistently have to mount the same volumes, you should probably ask the network manager to assign unit letters to them so that volumes are automatically mounted at boot time.

The main program functions are discussed in the next three sections.

Listing Volumes

The *List Units and Volumes* option displays all volumes to which you have access on the specified drive. By using this option you may find additional volumes that have not yet been assigned unit letters.

This option produces two lists. The first list shows the same volumes displayed in the boot messages—volumes that have already been assigned unit letters and are ready to use. The second list shows these volumes plus any volumes which do not have unit letters.

Both lists should not change unless the network manager modifies your access to volumes.

The following steps describe how to enter the mount manager and use the *List Units and Volumes* option.

1. Enter the mount manager.

Type *d:MNTMGR2*

Press [RETURN]

Replace *d* with the unit letter for volume IBMMS.

The screen display is similar to:

```
CORVUS MOUNT MANAGER UTILITY [x.xx]

Number of disk servers : 2

Building access table for : SERVER1
Building access table for : SERVER2

MOUNT MANAGER UTILITY [x.xx]
(c) 1983, 1984 by Corvus Systems, Inc.
```

```
User: KEN
Server: *
Drive: DRIVE1
```

```
-----
C - Change Mount Status
L - List Units and Volumes
S - Select Drive
H - Help
E - Exit
-----
```

```
Enter MOUNT MANAGER option:
```

Before continuing, let's look at the information displayed in the menu. The menu starts off with how many disk servers (such as OmniDrives or other disk systems) are on the network. If there is only one disk server, then all your network volumes are on that server. If there are several disk

servers, you could have volumes on more than one server. Later in this chapter you'll learn how to use the *Select Drive* option to see if you have volumes on other servers.

The second set of lines tell you the server names of all disk systems on the network.

2. Select the *List Units and Volumes* option.

Press L

The screen display is similar to:

Mount Unit Assignments -

unit	volume	write acc	length	clus	res secs	dir ents	FAT secs	server	drive
E	IBMMS	no	1024	4	0	256	1	Server	Drive1
F	VOL1	yes	1024	4	1	256	1	Server	Drive1
G	VOL2	yes	1024	4	1	256	1	Server	Drive1
H	VOL3	yes	1024	4	1	256	1	Server	Drive1
+I			0	0	0	0			
+J			0	0	0	0			

+indicates available unit

Press <SPACE> to continue

To stop the listing and return to the main menu, press [ESC].

The first list displays only the volumes that are currently mounted. The following table describes each column in the listing:

Unit	– Unit letter currently assigned to the volume
Volume	– Volume name
Write Access	– Describes the type of access the current user name has to the volume. <i>Yes</i> indicates read-write access where you can change information, while <i>no</i> shows read-only access where information cannot be changed.
Length	– Volume size in blocks, with one block equal to 512 bytes.
Cluster Size Resv Sctrs Dir Entries <i>FAT Sctrs</i>	– These are MS-DOS structures that define how information is stored on the OmniDrive. For more information, refer to the <i>IBM Disk Operating System</i> manual. The number of FAT sectors for a volume determines if the volume can be mounted. The application of this information is discussed shortly.
Server	– Server name of the disk system containing the volume
Drive	– Drive name of the disk system containing the volume

To continue to the second volume list,

Press [SPACE]

The screen is similar to:

Volumes Accessible -

unit	volume	write acc	length	clus	res sects	dir ents	FAT sects	Server	Drive
E	IBMMS	no	1024	4	0	256	1	Server	Drive1
F	VOL1	yes	1024	4	1	256	1	Server	Drive1
G	VOL2	yes	1024	4	1	256	1	Server	Drive1
H	VOL3	yes	1024	4	1	256	1	Server	Drive1
-	VOL4	yes	2048	4	1	256	1	Server	Drive1
-	VOL5	no	1024	4	1	256	1	Server	Drive1

-indicates unmounted volume

Press <SPACE> to continue

This list shows all the volumes available to your user name. If all volumes have unit letters, then all your volumes on the current server are ready to use.

Volumes with a dash in the unit column are unmounted volumes. For example, in the preceding screen, volumes VOL4 and VOL5 do not have unit letters. The section "How to Mount Volumes" describes how to use the *Change Mount Status* option to assign unit letters to volumes.

To prepare for mounting a volume, write down the volume name and the volume's number of FAT sectors. You can mount a volume only if the volume has a lesser or equal number of FAT sectors than all other mounted volumes.

If no unit letters are free you'll have to replace a working volume with the unmounted volume. Pick a volume you don't use often and compare its number of FAT sectors to those of the unmounted volume. If the unmounted volume has an equal or lesser number of FAT sectors, you can swap the volumes. However, if the unmounted volume has more FAT sectors, you'll have to choose a different volume.

When you have a compatible pair of volumes, write down the name of the volume you want to mount and the unit letter of the volume it will replace. You'll use this information later.

3. Return to the mount manager main menu.

Press [SPACE]

Selecting Drives

You need to use this option only if the main menu showed two or more servers on the network. The option allows you to use the mount manager with volumes stored on a specific OmniDrive or with all disk systems on the network.

The mount manager menu should already be displayed on the screen.

1. Choose the *Select Drive* option.

Press S

The screen display is similar to:

Active servers are -

```
SERVER0  
SERVER1  
*
```

Enter server name: SERVER0

This screen displays the names of all available servers on the network.

2. Select the server by typing one of the displayed server names or entering an asterisk (*) to select all servers. It is recommended that you enter an asterisk so you can look at all servers simultaneously.

Type *

Press [RETURN]

The screen displays the main menu. Notice that an asterisk is displayed next to the word *Server* in the menu. The mount manager can now work with your volumes on all network servers.

How to Mount Volumes

Assume that you have ten mounted volumes and that the *List Units and Volumes* option showed an additional unmounted volume. You want to see what's in the volume but before you do anything else you must mount the volume. Since all ten units are already occupied, you'll have to mount the new volume in place of an existing one. In the "Listing Volumes" section you should have chosen which volume will be replaced by the new volume.

The *Change Mount Status* option is used to mount volumes. The option automatically unmounts a volume to make room for mounting another volume in its place.

If there are multiple servers on the network, make sure that an asterisk is displayed for the server so that volumes across all servers can be used.

1. Select the *Change Mount Status* option.

Press C

The screen displays:

Enter volume name: _

2. Enter the name of the volume that you want to mount. For example, if the volume name is VOL1,

Type VOL1

Press [RETURN]

The screen display is similar to:

```
Location of Volume -  
      Server: SERVER1  
      Drive: DRIVE1  
  
Current Status of Volume -  
      Mount Status: Umounted  
  
Enter New Status of Volume -  
      Mount Status (M/U):
```

Since you want to mount the volume,

Press M

The next two prompts ask for the unit letter and write access that will be assigned to the volume. The screen displays:

```
Mount Unit (E-J):
```

3. Type the unit letter of the volume you want to replace and press [RETURN]. The volume currently assigned to that unit letter will be automatically unmounted. Never unmount IBMMS, the volume which contains the mount manager.

The screen displays:

Write Access (Y/N)? Y

4. Determine the write access to the volume.

To write to and read from the volume,

Press Y

To prevent any changes to the contents of the volume,

Press N

Since you are mounting a volume in place of another volume, the next screen display is similar to:

WARNING: Unit H is currently assigned volume /* /DRIVE1/VOL1
Change volume status (Y/N) ?

5. Accept the changes you made.

Press Y

The screen display is similar to:

```
Volume VOL1 unmounted
```

```
Volume VOL2 mounted
```

```
Press "C" to change another volume  
press <SPACE> to continue_
```

6. Return to the main menu.

Press [SPACE]

7. Exit the mount manager program.

Press E

The system prompt appears, and you're now ready to use the new volume.

Congratulations, you've finished the manual! You should now be comfortable using all the network utility programs as tools to help you use the network effectively. Remember that you can use the Appendix to get quick answers to questions you may have about individual program options.

Appendix

Program Summaries

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103 Mount Manager

Introduction

This appendix contains summaries of the options and parameters for all programs described in this guide. Lists of the default values for each parameter are also included.

CNP

The following list is the default values for CNP parameters:

PARAMETER	PARAMETER VALUE
File name	"OUTPUT.TEXT"
** Using Printer	"PRINTER"
** Using Disk Server	user's home disk server
Printer Location	NETWORK
Control String	^Z
File Type	TEXT
Time Out (sec.)	15 seconds

**Should already have been set by the network manager.

MENU OPTIONS

- Control String — Used to indicate the end of the file being printed. Specifies the string placed at the end of file.
- Filename — Message printed on the first page of the file.

CNP (cont.)

- Location — Determines if the file is printed using a local or network printer.
- Printer — Name that determines which network printer prints the file. Must use the assigned name for the printer.
- Server — Identifies the disk server that is used as an intermediate point between the computer and the printer.
- Time out — Finishes sending the file after the specified number of seconds has elapsed.
- Type — Identifies the type of file being printed (only text files should be printed).

The following list shows the parameter names and values that can be used in a CNP command line. The capital letters in the parameter name show the shortest valid name.

NAME	VALUE	DESCRIPTION
CONtrol	string	control string to finish sending
Filename	string	file name for header page
LOcation	L or N	printer type (local or network)
PRINter	string	printer name for sending files
Server	string	disk server name for printing
TIme out	1 to 1820	wait this long before finishing sending
TYpe	T, D or G	file type (text, data, or graphics)

Spool

MAIN MENU OPTIONS

- Spool a File — Sends the file to the network pipes area.
- Change Spool Parameters — Displays the change spool parameter menu where the values for different program parameters can be changed.
- Display Pipes — Displays all pipes with the specified pipe name.

SPOOL PARAMETERS

The following is the list of default values for spool program parameters.

PARAMETER	PARAMETER VALUE
Pipe name	"PRINTER"
Lines per page	55
Chaining symbol	(*I
New page symbol	(*P
Tab length	8
Strip high bit	False
File type	Text

Spool (cont.)

Pipe Name — Name used to determine the destination of a spooled file. Must be an alphanumeric name up to eight characters long that begins with a letter.

An assigned pipe name must be used to print files using network printers, and a name different from that of any network printer must be used to send files to other users.

Lines per Page — Indicates the number of lines of text that will be printed on each page. Enter 0 to print continuously. *Only applicable to files that will be printed.*

Chaining Symbol — Means of printing multiple files. The symbol is always followed by the name of the file to be included. The symbol and file name are placed at the location where the file should begin printing. Neither the symbol or file name are printed.

The combination of the chaining symbol and file name can be any string of up to 80 characters. *Only applicable to files that will be printed.*

Spool (cont.)

- New Page Symbol** — Indicates when the printer should start printing on a new page. The symbol can be any string of up to 80 characters. *Only applicable to files that will be printed.*
- Tab Length** — Determines the number of blank spaces inserted whenever a tab character is encountered. For example, if the tab length is eight, tab stops occur every eight spaces. Valid tab lengths are 1 to 133. *Only applicable to files that will be printed.*
- Strip high bit** — Removes the high bit of every character in a text file. If printouts are truncated or strange characters appear, setting this parameter to TRUE strips the high bit and may correct the problem.
- File Type** — States whether a text or data file is being spooled. Text files can be formatted using the lines per page, chaining symbol, new page symbol and tab length parameters while data files are printed as is.

Despool

MAIN MENU OPTIONS

- Despool a File — Begins retrieving the file and sends the file to its final destination.
- Change Despool Parameters — Displays the change spool parameter menu where the values for different program parameters can be changed.

DESPOOL PARAMETERS

The following is a list of default values for despool program parameters.

PARAMETER	PARAMETER VALUE
Pipe Name	"PRINTER"
Output device	Printer
Do you want <LF> after <CR>	Yes
Single page printing	No
Transparent despool of Data	No

Despool (cont.)

- Pipe Name — The pipe name to which the file was originally spooled. The same name must be used to despool the file.

- Output Device — Determines if the file is despooled to a local printer, the console, or a file. The best choice is a file since the information is then saved to a file.

- Do you want <LF> after <CR> — Adds a linefeed after each carriage return in the file. Only used if the printer does not automatically advance the page one line after each carriage return; consult the printer manual for more information. *Only applicable to files that will be printed.*

- Single page Printing — Prints individual pages so that the file can be printed on letter head or forms. *Only applicable to files that will be printed.*

- Transparent Despool of Data — Despools the file without performing any text formatting. Should be set to *yes* when data files are despooled.

Backup-to-Floppy

MENU OPTIONS

- Backup a Volume** — Begins to copy the specified volume to diskettes. The user should already have enough formatted diskettes to hold the entire volume.
- Restore a Volume** — Begins to copy the volume contained on diskette to the specified volume on the OmniDrive. Destroys any existing data in the destination volume.
- Identify a Diskette** — Displays information about the volume contained on the backup diskettes such as the volume name, the sequential number of the diskette in the set, whether the diskettes are password-protected, the volume size, and the total number of diskettes in the set.
- List Volumes** — Displays a list of all mounted volumes for the specified user name. The list includes the length, unit letter, and write access for each volume.
- Set Options** — Changes the settings for the verification and password protection options. Verification checks the data transferred during the backup or restoration against the source, and password protection prevents diskettes from being used unless the proper user name and password is used.

Mount Manager

MENU OPTIONS

- Change Mount Status — Assigns unit letters to and removes unit letters from volumes. Changes write access to volume.
- Lists Units & Volumes — Displays list of all accessible volumes for the current user name. The list displays the volume's unit letter, write-access, length, number of FAT sectors, and the name of the server that contains the volume.
- Select Drive — Allows the mount manager to be used with volumes on different network disk systems.

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