Administrator's Guide

Volume I

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3Plus®

3+ Administrator's Guide

Volume I

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For use with DOS 3.1, DOS 3.2, or DOS 3.3.

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Preface

This guide is designed for use by a network administrator in the day-to-day operation of the network.

If you need to install the software on a 3Server386, check the *3+ Installation and Setup Guide*. To tune the software to suit your particular needs on a 3Server386, refer to the *3+ Network Tuning Guide*.

If you have any other server, consult the *3+ Installation and Configuration Guide* for information on installing and tuning the software.

Chapter 1: Quick Start

This chapter presents a quick overview of the steps required to set up the 3+ services on your network. This chapter is intended for the network administrator who already has experience setting up services and needs **minimal** instruction.

First-time users may want to begin with Chapter 2 which gives background information. We then recommend reading Chapter 4, which explains in greater detail how to set up services.

Before you set up any services, you must have already installed the server software. If you need to install software on a 3+Server386, refer to the *3+ Installation and Setup Guide.* Otherwise, refer to the *3+ Installation and Configuration Guide.*

The following pages describe setting up all 3+ services in the order we recommend that you use them. If you did not purchase or do not want to set up a particular service, just go on to the next service.

The following service setup procedures are described:

► Name service
► Print service
► 3+Mail service
► File service
► 3+Remote service
► 3+Route service
► 3+Backup service

Using 3+Menus to Set Up Services

The 3+Menus service provides preconfigured network administration sub-menus to help you administer the network. 3Com recommends that both administrators and end-users use 3+Menus as the primary user interface to the network.

For a detailed list of the 3+ functions these administrative menus supply, see Chapter 4. The *3+Menus Reference Guide* contains detailed information on setting up and customizing 3+Menus.

■ Name Service Setup

► **NOTE:** If you have difficulties understanding any of
the steps in this chapter, please turn to Chapter 4:
Setting Up Network Services. Chapter 4 contains
detailed explanations and examples for each step.

1. Insert the *3+Share User #2* diskette in drive A: and use the
   LOGIN program to log in to the network as Admin.

2. Use the 3N MODIFY command to assign a password to
   Admin. Write down the Admin password and store it in a
   safe place for future reference.

► **NOTE:** If you have installed the five-user version of
3+Share, proceed to Step 4.

3. Use the 3N MODIFY command to assign Admin a home
   directory.

► **NOTE:** The server you specify at the 3Share Server
prompt must have 3+Share software installed and be
operational. If you assign the Admin user a 3+Mail
server, that server must also have 3+Mail installed and
be operational.

4. Use the 3N ADD DOMAIN command to add domains and
   organizations as needed for your network.

▶ **NOTE:** If you supply only one name in response to the
Domain Name prompt, a domain is added to the current
organization. When you add an organization, you must
also add a domain; you cannot have an organization that
has no domain.

5. Use the 3N ADD USER command to create another user
   with administrative capabilities. If the user named Admin
   should accidentally be deleted or a password forgotten, you
   can log in as this user to perform administrative functions.

6. Use the 3N ADD USER command to add users to the
   network, assigning user capability, a server, and a home
   directory location to each. A three-part name consists of
   Name:Domain:Organization.

▶ **NOTE:** When adding users, follow the conventions
discussed in the "Name Service Setup" section of
Chapter 4.

7. Use the 3N ADD ALIAS command to add aliases to the
   Name service.

■■■File Service Setup

1. Log in as the server-user and use the 3F SHARE command
    to create and share a directory called APPS with read-only
    (public) access rights. (This directory is already in place on
    a system 3S/400).

2. Use the 3F SHARE command again to assign a second
    sharename (for example, APPSADMN) to the APPS directory
    with Read-Write-Create access rights and a password.

3. Create subdirectories under the APPS directory. All DOS
    files go in the DOS subdirectory. Public menus and the
    menu programs go in the MENUS subdirectory. Each
    application goes in its own directory. For a diagram of this
    directory structure, see Figure 4-2 in Chapter 4.

    The APPS root directory should contain the following files:

    3N.EXE (3+Name service command program)
    3F.EXE (3+File service command program)
    3P.EXE (3+Print service command program)
    3M.EXE (3+Mail service command program)
    LOGIN.EXE (3+ LOGIN command program)
    LOGOUT.EXE (3+ LOGOUT command program)
    MAIL.EXE (3+Mail user program)
    A batch file to start each resident application (optional)

4. Use the 3FSHARE command to share the \3PLUS\3CONFIG
    directory, assign the sharename CONFIG, private access
    rights, and a password.

■■■ Print Service Setup

1. Log in as the server-user for the server whose printers you want to share.

2. Link the APPS directory to D: or insert the *3+Share User #2* diskette in drive A:. Whichever you choose, make it the default drive.

3. Use the 3P SHARE command to share the printer. Repeat for each printer attached to the server. If other servers have printers attached, you must repeat these first three steps for each server and printer.

4. Make sure each printer is turned on and ready for use.

■■■ 3+Mail Service Setup

1. Log in as Admin and use the 3N ADD GROUP command to add groups. The groups are used as distribution lists so that users can send a message to many people by specifying the group rather than entering individual user names.

2. Use the 3N ADD MEMBER command to add members to the group or groups you created in step 1. Members can be individuals or other groups.

   Any members you add must already be registered in the Name service; that is, you must have added them to the Name service with the 3N ADD USER or 3N ADD GROUP command.

■■■ 3+Remote Service Setup

1. Use the 3N ADD USER command to add an entry in the
   Name service for each remote user.

▶ **NOTE:** An individual user needs only one entry in the
Name service to use the network both locally
and remotely.

2. Assign a unique network number to each remote user. This
   allows the network services to maintain a single, logical
   connection with the remote user, even if several telephone
   calls are required between the user logging in and logging
   out. The network number can range from 0004F000 to
   0004FFFF. Each remote user must have a unique network
   number and must enter it in the PROFILE.SYS file on the
   3+Remote Workstation Startup diskette. Refer to Figure 4-4
   for a template that will assist remote users.

▶ **NOTE:** This remote user network number has no
relation to the network number you assigned to the
Name service.

CAUTION: Make sure that each remote user is assigned
a unique network number. Otherwise, if two remote
users access the network using the same network
number, the results are unpredictable.

■■■3+Route Service Setup

1. Follow the steps for 3+Remote service setup described earlier in this chapter.

2. If you want to use File and Print service commands to access files and printers on a server from another network, use the 3N ADD SERVER command to add the server to your network's Name service.

3. If you want to communicate with users on another network using 3+Mail, use the 3N ADD DOMAIN command to add the other network's domain and organization to your network's Name service, and your network's domain and organization to the other network's Name service.

4. If you want to use File service commands to access a user's files on another network, use the 3N ADD USER command to add the user to your network's Name service.

3+Backup Service Setup

The 3+Backup service allows you to use a 3Server to back up all other 3+ servers on the network that have 3+ File and Print services installed. For detailed instructions on installing a tape backup unit in the 3Server 386, refer to the *3Server386 Guide*. For installlation in a 3Server Expansion Unit, see the *3Server Expansion Unit Guide*. See Chapter 6: 3+Backup in this guide for information on running Backup through the menus. The 3B commands are described in Chapter 7: Command Reference.

Chapter 2: The 3+ Network Services

This chapter gives you basic information about the 3+ network. You need to understand this information before you begin using 3+ software and before you read the rest of the chapters in this guide.

You will find information in this chapter about:

▶   3+ network users
▶   3+ network services

3+ Network Users

You communicate with 3+Share using commands or menus. There are three types of 3+Share commands corresponding to the three types of users on the 3+ network:

► Network users
► Administrators
► Server-users

A **network user** can use only user commands. An administrator can use both administrator and user commands. Anyone logged in as a server-user can use both server-user and user commands.

A network user is assigned the capability class U (for User) by the network administrator. A user runs application programs and uses DOS commands. As members of the network, users also share disk files, printers, and applications on the network. Users interact with the network and share its resources by using 3+Share user commands.

An IBM PC-compatible server that has both 3+Share server software and 3+Share user software installed can be used as a server and a workstation at the same time. Such a server is known as a **concurrent server,** and any user who is working at a concurrent server is a **concurrent user.** Refer to the *3+ Installation and Configuration Guide* for information on setting up concurrent servers and for concurrent server use.

A **network administrator** is a user with administrator capability (A). Administrator capability lets you manage the 3+Share server software and the devices on the network using both 3+Share user and administrator commands. Only users with administrator capability can use administrator commands.

An **initial user** or **Admin** (with administrator capability) is
created when the 3+Share Name service software is installed.
The network administrator first logs into the network as this
initial user to set up the 3+ services. Once logged in as the
initial user, the administrator can add his own name and
password to the 3+Name service, assigning himself administrator
capabilities; he can then continue setting up services.

He can also add a password to the Admin entry (in the 3+Name
service) to prevent its unauthorized use.

Some network management tasks, such as naming and sharing
printers, are done by logging into the network using the name
of the server. This is called logging in as the *server-user*.
When you log in as the server-user, you can only perform
functions affecting devices physically attached to, or services
actually installed on that server. In contrast, logging in as
Admin allows you to perform functions affecting users across all
servers on the network.

Table 2-1. Types of Users

Class	Designation	Capabilities
General user	U	Run applications programs Use DOS commands Use network resources
Network administrator	A	User capablities, plus: Manage 3+ Server software Manage network devices
Initial user/ Admin	A	User capabilities, plus: All network administrator functions First user on the network (created during 3+Share installation)
Server-user	Does not apply	Perform functions relating to devices attached to, or services installed on a specific server. Log in using name of server.

3+ Network Services

The 3+ network software services that make sharing resources
on the network possible are:
- ► 3+Menus
- ► 3+Name service
- ► 3+Share File service
- ► 3+Share Print service
- ► 3+Mail service (optional)
- ► 3+Remote service (optional)
- ► 3+Route service (optional)
- ► 3+NetConnect service (optional)
- ► 3+3270 service (optional)

3+Menus Service

The 3+Menus service works with 3+Share software to provide a
straightforward, visual interface to the 3+ network. Instead of
typing commands, you select items from the menus and from
lists to access network resources and run application programs.
The 3+Menus service also provides commands for file
management operations such as copying, moving, renaming, and
deleting.

3+Menus can be customized to meet the needs of network users.
Menu items can be added to perform network operations and to
run application programs and batch files.

Complete information on how to install and use 3+Menus can be
found in the *3+Menus Reference Guide* included in your 3+Share
package.

3+Name Service

The 3+Name service is a data base that stores the names of and
information about parts of the network. Figure 2-1 shows the
parts of the network that are named. For complete information
on 3+Name commands, refer to Chapter 6.
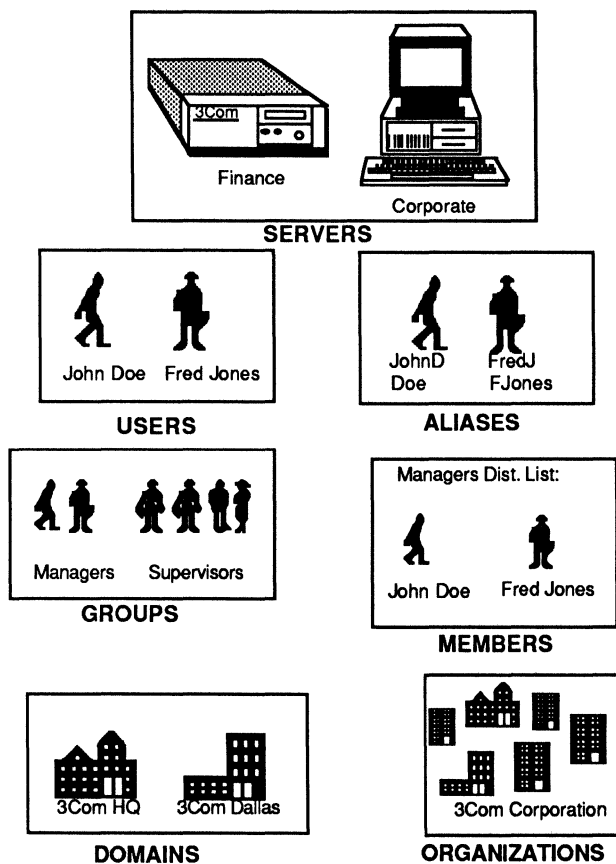
Figure 2-1. Objects Named in the Name Service

Each named part of the network has an entry in the Name
service. Network administrators manage the Name service by
adding, deleting, and modifying these entries. Users use the
Name service to get information about entries, such as a list of
users or groups.

Specifying Three-part Names
Each entry in the Name service has a three-part name that is
specified as:

Name: Domain: Organization

This three-part name structure uniquely identifies items on
different networks to allow easy communication between 3+
networks.

The **name** you give a user, group, alias, or server is the name
by which you want it known. For example, a user name might
be "John Doe", or a server, "Marketing", as shown in Figure 2-1.

A **domain** is a category within the organization. It is generally
the geographical location of part of the company. Using the
example in Figure 2-1, John Doe could be assigned the domain
HQ (Headquarters) because he works at the headquarters of
3Com. His name, then, would be specified as John Doe:HQ:3Com.
Domains have entries in the Name service as do organizations.
Domains **cannot** span multiple networks.

An **organization** is the top level category to which items on the
network belong. In most cases, an organization is the name of
a company. Usually there is one organization per network, but
you can have more than one, and an organization can span more
than one network. An organization has an entry in the Name
service. For example, in Figure 2-1, "3Com" is an organization.

> ▶ **NOTE:** The examples in this guide show just the name
> part of the three-part name except in those cases
> that require a full three-part name.

Aliases

Aliases are synonyms for entries in the Name service. For
example, in Figure 2-1, John Doe may want to call himself
JohnD instead of typing John Doe each time he logs in to the
network. Aliases obey the same rules as other entries in the
Name service. When three-part names are required, for example,
the alias must have three parts divided by colons.

Groups

A **group** is a collection of named entries. Each entry in a group
is a **member** of that group. Typically, a group is a collection of
users that make up a distribution list for use with 3+Mail. For
example, in Figure 2-1, the group Managers contains the
members John Doe and Fred Jones.

Passwords

Users, administrators, servers, printers, and directories can have
passwords. **Passwords** prevent unauthorized use of the network
and its resources. If a user or administrator has a password, he
must provide this password along with the user's three-part
name. For example, if John in the above example has added the
password **Mypass** to his name, he must type in that password
when he logs in to the network.

A>LOGIN JohnD:HQ:3Com /PASS=Mypass ◄─┘

In this example, the password will appear on the screen when typed. You may choose to be prompted for the password and not have it shown on the screen when typed. In this case, you would log in as follows:

A>LOGIN JohnD:HQ:3Com ◄─┘
Login 1.3-Copyright (c) 3Com
Corporation 1987. All rights reserved.

Password?   ◄─┘

You assign passwords to servers when you install the 3+Share software. When you log in to the network with a server name to perform server-user functions, you must type in the password.

3+Name Service and 3+Route or 3+NetConnect

Networks are identified by a unique network number. 3Com supplies a unique number printed on the labels of your *3+Share Name Service* diskette, as shown in Figure 2-2. Once you define the network number, do not change it or use a second number later when installing additional software.

When you add a domain to the Name service, you specify the domain's network by entering its network number. All users and servers within that domain must reside on the assigned network. The Name service can then examine a three-part name's domain and organization to determine on which network the named server or user resides.
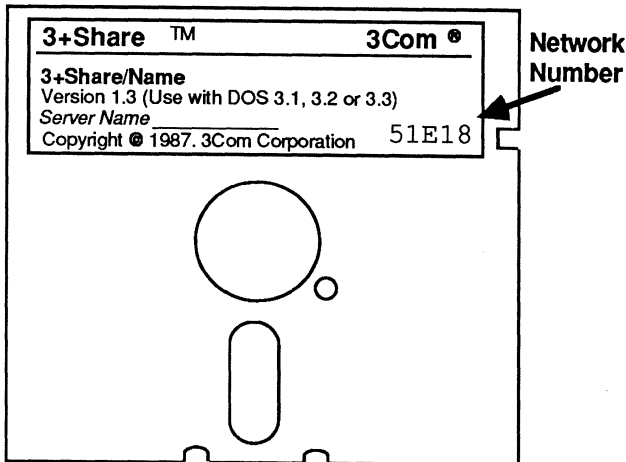
Figure 2-2. Location of the Network Number

When an application (either user or server based) needs to
locate a server or user, it passes the three-part name of that
server or user to the network's Name service. If the server or
user resides on the same network, the Name service can locate
it; if not, the appropriate 3+ service attempts to locate a
3+Route or 3+NetConnect service that can open a
communications link to that other network. If the server or
user name cannot be found, the message ***Name not found**
will be displayed.

The 3+Share File Service

The 3+Share File service manages shared directories on the
network. It is compatible with the DOS 3.1, 3.2, and 3.3 file
system and adheres to networking standards by licensing the
official Microsoft Redirector™ module (the same code IBM^R
licenses for the IBM PC Network™ and the Token-Ring
Network™). This module is a key part of each user's
workstation software.

The 3+Share File service commands are used to share directories
on the network. For complete information on 3F commands,
refer to Chapter 6.

▶ **NOTE:** Directories are not named in the 3+Name
service, they are controlled by DOS on the 3+Share
server.

Directory Structure

A **directory** is a logical grouping of entries for other directories
and files on a disk. Figure 2-3 shows the DOS directory
structure.

The 3+ network uses the DOS directory structure. This
structure is a hierarchical or tree structure because you begin
with a root directory and then add other directories under that
root. This structure makes it easy to organize files.

When you add a user to the Name service and assign him a file
server, a directory is created for that user called a **home
directory** (or **homedir**). The home directory can be thought of as
the user's personal root directory on the network. The home
directory stores all work a user does with files and programs.

The directory size is not fixed, but expands as files are added. Space is allocated to directories on the server's fixed disk on a first-come, first-served basis.

A directory that is below another directory on the tree is a **subdirectory** of the one above it. In Figure 2-3, directory DIRX is a subdirectory of directory DIR2.

A **path** takes you from one directory or file on the tree to another directory or file. You access a directory on the tree by specifying the path to it. In Figure 2-3, the path from the root directory (C:\) to FILEZ is C:\DIR2\DIRX\FILEZ.
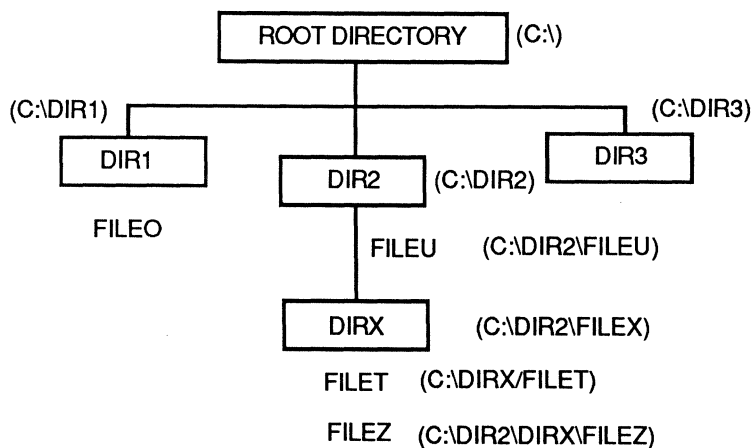
Figure 2-3. Hierarchical Structure of Directories

Specifying Paths

To specify a path when directories are shared with the 3F
SHARE command, first type the name of the first directory
below the home directory. Then type the name of the directory
you want. For example, using the files in Figure 2-4, you would
specify the path to the file SHIPMENT as **SALES\SHIPMENT**.

When a server-user shares a directory using the 3F SHARE
command, he specifies a path beginning with one of the server's
disk drives. For example, he would type **C:\APPS**. The term
"C:" identifies the disk drive that contains the shared directory.
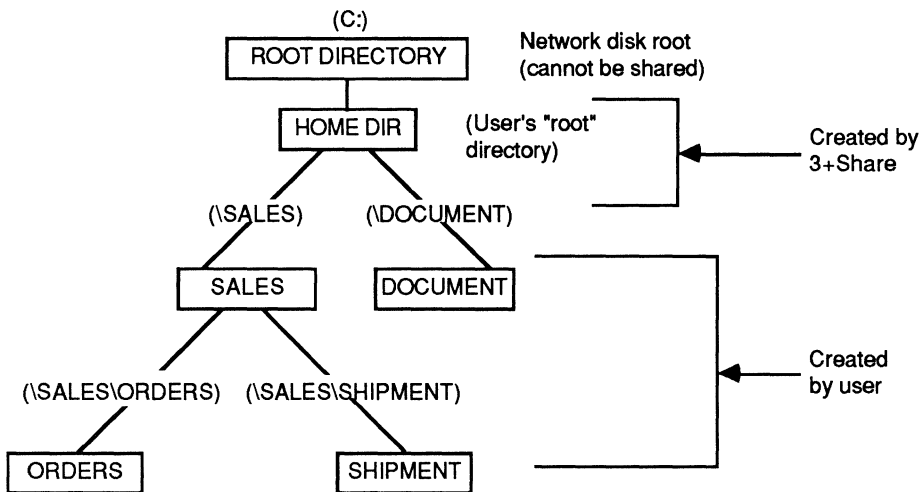
Figure 2-4. 3+Share User Directory Structure

Creating Subdirectories

You create directories using the standard DOS MKDIR (Make
Directory) command. These directories reside under your home
directory, and they can be used by other users only if you share
them via the 3F SHARE command. If you refer to a directory
that does not exist, 3F SHARE creates one for you.

Using the 3F SHARE command, a server-user can also create
first-level directories. A **first-level directory** is a directory that
is directly under a server's hard-disk root directory. Figure 2-5
illustrates the directory structure of a 3+Share server.

▶ NOTE: Only a server-user can create (and share) a
first-level directory using the 3F SHARE command.
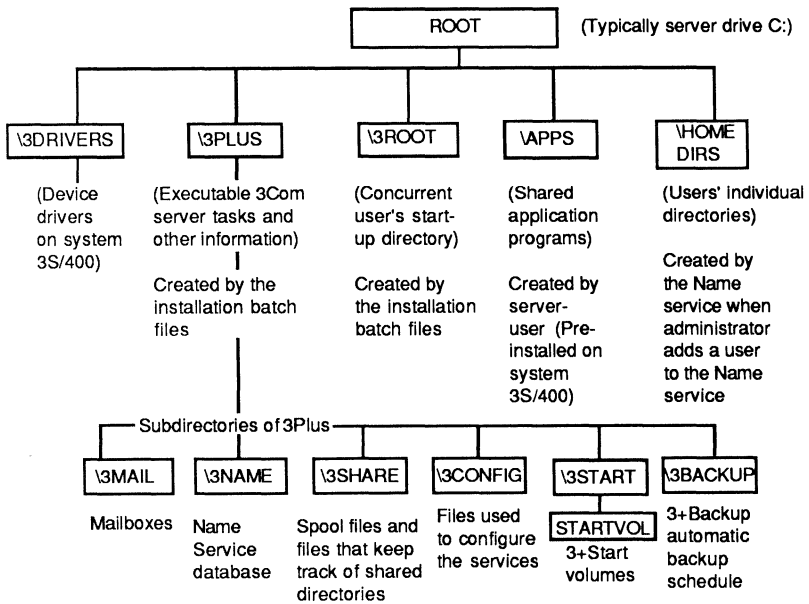
Figure 2-5. 3+Share Server Directory Structure

NOTE: Refer to the DOS manual supplied with your personal computer for more information on directory structures, paths, and the MKDIR command.

Using 3+Share Subdirectories

Once linked to the home directory, the user can create, read,
and write files and create subdirectories in the same way he
would if the directory was the root directory on a local disk
drive.

The user's home directory, and any directories under the home
directory, can be used by other network users if the user shares
them via the 3F SHARE command.

Sharing Directories

A home directory is special in that only you, the owner, can use
it. Even without a password, 3+Share automatically protects
your home directory for you with private access rights (PRIV).
Sharing your home directory is not usually recommended, but it
is possible.

When you share a directory, you also provide other users the
same access to any directories and files under that shared
directory.

You can share a directory that you own with other users on the
network by giving the directory a **sharename** which automatically
identifies the path to that directory. To use your directory,
other users type in your name and this sharename.

Given this information, the 3+Name service provides transparent
access to resources on the network. That is, even if a
directory is moved to a different server, a user can still access
it by using its sharename normally, without having to know the
new server or network specifications.

The server-user can also share a directory by specifying the path to that directory. In this case, users must specify that path instead of the directory's sharename. 3Com recommends that you specify paths only when required to do so by your application.

Specifying sharenames is advantageous in that you can modify and delete sharenames that you create (and thus own). You can also give more than one sharename to a directory. Each sharename can have its own access rights and password, which lets you control who shares the directory and how it can be shared.

Sharename Access Rights

You assign **access rights** to a sharename to control how that directory can be accessed. Table 2-2 shows the access rights you can give to a sharename.

► **NOTE:** In the following table, the reference to directories always includes its subdirectories.

Table 2-2. Sharename Access Rights

Access Right	Meaning
Private (PRIV)	Only one user at a time can access the directory via the sharename. To give other users access to a private directory, the owner must assign a password to the sharename.
Public (PUB)	Users can read files and subdirectories in a public directory but cannot create or write to files in the directory and subdirectories.
Read (R)	Users can read any files and sub-directories that are in the directory. This access right has the same effect as Public access.
Write (W)	Users can write to the files and sub-directories in the directory.
Read, Write (RW)	Users can read from and write to files and subdirecotries in the directory.
Write, Create (WC)	Users can write to, create, and delete files and subdirectories in the directory but cannot read them.
Read, Write, Create (RWC)	Users can read, write to, create, and delete files and subdirectories in the directory.
Shareable (SHAR)	Users can create sharenames for the directory, as well as read, write to, create, and delete files and subdirectories in the directory.

▶ **NOTE:** If you do not assign access rights to
sharenames, they are given private access rights (PRIV)
except for sharenames created by the server-user.
Sharenames created by server-users have the default
access rights of Read, Write, and Create (RWC).

Sharename Passwords

You can assign a password to a sharename to control access to
the corresponding directory. If you assign a password to a
sharename, other users must specify that password before they
can use the directory via that sharename.

If your directory has private access rights and a password, other
users can access it one at a time by supplying the password.

If your directory has private access rights and no password, no
one can access it unless they log in with your user name.

Accessing 3+Share Directories

To use any directory on the network:

▶ The directory or one above it must have been given a
sharename

▶ You must link that directory's sharename to a drive
identifier.

Any subdirectory under a shared directory can be accessed using
the standard DOS CD (Change Directory) command. For
example, if you assign a sharename to the subdirectory SALES
in Figure 2-4 and link to it, you can access the subdirectories
ORDERS and SHIPMENT using the DOS CD command. You need
not provide a separate sharename for each of these
subdirectories.

Linking to a drive identifier provides a logical connection to the
files in the directory. You link to directories with the 3F LINK
command. When using your home directory, you link it to a
drive identifier; no sharename is necessary because 3+Share
automatically makes your home directory available.

The letters A: through G: are used for drive identifiers. You
can increase or decrease this range using the DOS LASTDRIVE
option in the CONFIG.SYS file on your workstation. (If you
have a 3Server386 and and need information on the LASTDRIVE
command, refer to the *3+ Network Tuning Guide.* Otherwise, see
Appendix D of the *3+ Installation and Configuration Guide.)*
Each drive identifier can be linked to a directory. When you
link to a directory, the access rights given to that directory's
sharename apply to you whether or not you own that directory.

When you have finished using a directory, you can use the 3F
UNLINK command to **unlink** it from the drive identifier. You
can then use that drive identifier to link to another directory.

► **NOTE:** If you link to a drive identifier that represents a
local disk drive, you cannot use that disk drive locally
until you unlink.

The 3+Share Print Service
The 3+Share Print service is the software that manages the
shared printers on your network.

For complete explanations of the 3P commands, see Chapter 7 of
this guide.

► Each PC server can have up to four printers attached --
two parallel and two serial.

▶ A 3Server with a 3Server Port Expansion Board can have up
to seven printers attached -- two parallel and five serial.

▶ A 3Server386 can have up to 10 printers attached -- two
parallel and eight serial.

Like directories, printers are **not** named in the 3+Name service.
To use a printer on the network, the server-user must share
that printer using the 3P SHARE command. When a server-user
shares a printer, he gives it a **printer sharename** and, optionally,
a password. The printer sharename is like a directory
sharename: network users specify it when they want to use that
printer.

Assign logical sharenames to the printers you use on the
network. For example, assign the sharename **Laserjet** to an HP
LaserJet™ printer, or **Oki93** to an Okidata 93™ printer.

Linking to a Printer
Once a printer has been shared by a server-user, network users
can access it by linking the printer sharename to any of the
workstation **printer identifiers**: PRN: or LPT1:, LPT2:, or LPT3:.
The workstation printer identifier specified in a user link is a
local identifier to which the user links a shared printer. A user
can link to any shared printer on the network, up to three
printers at a time.

You link to a printer using the 3P LINK command. In the
example below, a printer on the server **Finance** with the
assigned sharename **Laserjet** is linked to the printer identifier
LPT2:.

```
D>3P LINK \\finance\laserjet lpt2: ◄─┘
\\FINANCE:HQ:3COM\LASERJET linked to LPT2:
```

Print Queues

When you link to a printer and enter a command to print a file,
that file is put into a print queue. The **print queue** is where
print files reside on the server while they wait to be printed.
Files are put into the print queue on a priority basis from 1 to
99, with 99 printing first. If you do not specify a priority, the
file enters the print queue with a priority of 50. Files with the
same priority are printed on a first-come, first-served basis.

Any user can change the priority of his own files relative to all
files in the print queue. Administrators can change the priority
of any user's files and can also move entire print queues
between printers attached to the same server. When you change
the priority of a file in the print queue, you must specify that
file's spool identifier. A **spool identifier** is a number that
identifies the file when it is in the queue.

Print queues show the spool identifier first, followed by detailed
information about the print file and its status. Below is an
example of a print queue viewed by issuing the 3P QSTAT
command.

`D>3P QSTAT /spool=all ◄──┘`

```
Queue for \\FINANCE:HQ:3COM\LASERJET:

5 Size:687 Status:Printing Time:6-24-86 10:55a
   Pri:50  Copies:    Form:1
   Owner:JOHN DOE

20 Size:283 Status:Waiting Time:6-24-86 10:56a
   Pri:50  Copies:1    Form:1
   Owner:FRED JONES
```

The 3+Mail Service

The 3+Mail service enables communications between users on the network. Local and remote users can send mail to any user, alias, or group established on the 3+Name server. For users not established on that server but who are established in the 3+Name service of another network, mail can be sent (a) using 3+Route, to a remote network; or (b) using 3+NetConnect, to a directly connected network.

The 3+Mail service consists of four functions: 3+Mail user, 3+Mail Minder, 3+Mail server, and 3+Mail administrator functions.

▶ 3+Mail user software enables a user to send mail messages to and receive them from other users. It functions in much the same way as your mailbox at home.

▶ 3+Mail Minder automatically notifies a user of any pending mail and provides the user with a "hot key" to check the status of any pending mail.

▶ 3+Mail server software enables a server to act as a "store and forward" vehicle for all mail messages. It functions in much the same way as the post office.

▶ 3+Mail administrator functions allow an administrator to manage mail using 3M commands.

The functions of 3+Mail appear in Figure 2-6. For complete information on 3+Mail commands, see Chapter 6. Information concerning user functions is in the *3+Mail User Guide.*

3+Mail Functions			
3+Mail User Functions	**3+Mail Minder Functions**	**3+Mail Server Functions**	**3+Mail Administrator Functions (3M)**
— Create — Send — Retrieve — Read — Print — File — Reply to — Forward — Delete — Receive help	— Automatically notify user of pending mail — Provide user with a hot key to check the status of mail	— Route mail to users on current server — Send mail to users on other servers — Receive and route mail from other servers — Return messages that cannot be delivered	— Delete undelivered and outbound mail — List users who have mail waiting — List addresses of servers with pending outgoing mail — Shut down 3+Mail — Display mail statistics

Figure 2-6. 3+Mail Functions

The 3+Remote Service

The 3+Remote service is the optional server software that allows remote users to access the network using modems over telephone lines. This access is the same as if the personal computer were physically attached to the network.

To use the service, you must also purchase and install the 3+Remote user software for each remote user's personal computer. A **modem** must be attached to the server that has the 3+Remote service installed, and a modem must be attached to the remote user's personal computer. If you have a 3Server386 and need to install 3+Remote user software, see the *3+ Installation and Setup Guide.* Otherwise, see the *3+ Installation and Configuration Guide.* For information on using 3+Remote see the *+Remote PC User Guide.*

The 3+Route Service

In addition to providing 3+Remote support, the 3+Route service provides communication links to other remote 3+ networks via dial-up or direct connections. These communication links are used by the other network users and services (such as a 3+Mail service). Such services and users can thus link directly to shared objects and printers on other networks. Network users utilize the 3+Route service transparently; that is, there are no Route service commands in the way there are, for example, File service commands.

Using modems over telephone lines, the 3+Route service allows communication between 3+ networks. You can also share resources with users of other 3+ networks.

All 3+ Network services use 3+Route to communicate with their counterparts on other networks. To use resources or communicate with users on another network, the particular service needs to know if the specified resource or user is on another network, and, if so, on which network. This information is provided by the 3+Name service.

A user, on the other hand, needs to know only the name of the user (for 3+Mail and 3+File service commands) or server (for 3+File and 3+Print service commands). The commands are the same as those used to access resources or communicate with users on one's own network. For example, a user links to a directory on another network using the same 3F LINK command that links to a directory on his own network.

The 3+Route service includes the capabilities of the 3+Remote service. You never need to install both 3+Route and 3+Remote on the same server. Like the 3+Remote service, 3+Route allows a user at a remote location to dial in to a 3+ network and use the network over telephone lines. This capability makes any 3+ network as close as the nearest telephone.

What is 3+NetConnect?

3+NetConnect acts as an intelligent high-speed internetwork bridge between two separate networks. Once a communication link is established through 3+NetConnect, the two networks have simultaneous access to the resources on each network.

3+NetConnect offers these additional features:

► Links different types of networks. 3+NetConnect does not care what the network type is, as long as the right 3+ network drivers are installed. For example, you could install 3+NetConnect on a PC server to link a token ring network and an Ethernet network, two Ethernet networks, or two token ring networks.

▶ Gives you transparent access to resources and users on other networks. Once you have the locations of your resources and users defined in the Name service, accessing another network is no different than accessing your own network.

▶ Provides fast data transmission between networks because of the direct communications link.

▶ Runs on a concurrent server along with other services. 3+NetConnect does not require a dedicated server.

▶ Runs on IBM PC-compatible computers that have diskette drives only. 3+NetConnect does not require a hard disk.

▶ Makes troubleshooting easier by allowing you to connect two separate networks instead of having one large network; the smaller the network, the easier it is to isolate a problem. Also, since the networks are not interdependent you can still use one network while the other one is shut down.

▶ Localizes network traffic by only transferring packets of data to the network to which it is destined.

▶ Provides a fail-safe system by allowing you to store the services and data from your network onto another network. If you encountered a problem on your network, you could continue your normal activities on the remote network until you solved the problem.
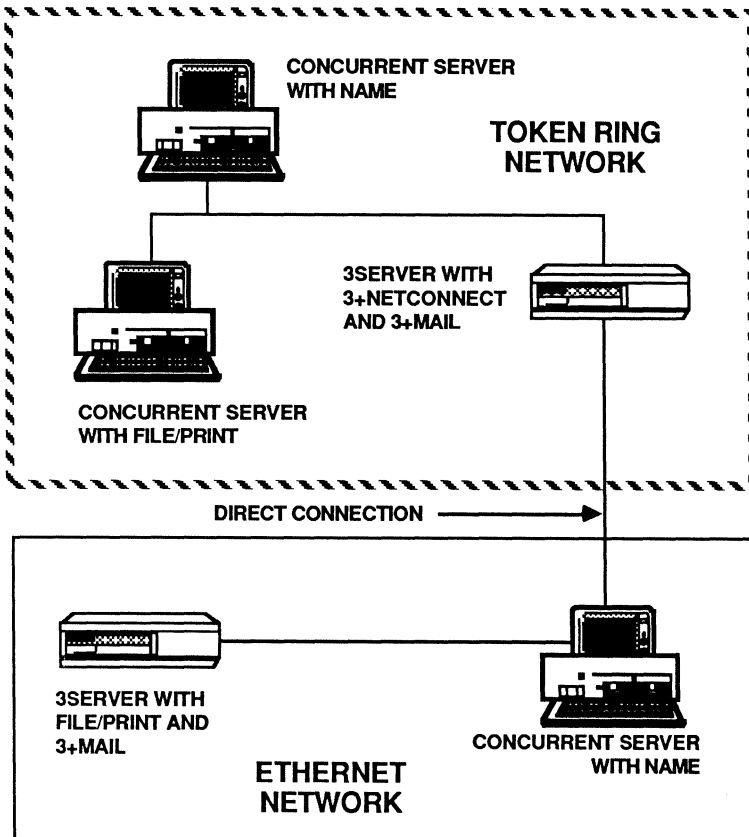
Figure 2-7. Token Ring and Ethernet Networks Linked with 3+NetConnect

Chapter 3:
Learning About 3+Commands

Each 3+ service -- 3+Share File, Print, and Name service;
3+Remote, 3+Start and 3+Mail -has its own commands. Different
prefixes indicate the service to which each command belongs:

- ►   3+Backup service - 3B
- ►   3+Share File service - 3F
- ►   3+Mail service - 3M
- ►   3+Share Name service - 3N
- ►   3+Share Print service - 3P

▶ NOTE: The 3+Route service has no specific commands.
3R commands for 3+Remote are for user functions
of 3+Remote only. For information concerning 3R
commands, consult the *3+Remote PC User Guide*.

The LOGIN and LOGOUT commands are stand-alone programs
and do not belong to a particular service. You can enter the
LOGIN and LOGOUT commands from DOS or from the Name,
File, or Print services.

Conventions Used in this Guide

Key Spellings

◄─┘ is used for the Return key.

All other keys in this guide are shown as they are spelled on
your keyboard; for example, **[Esc]** stands for the Escape key.

Key Combinations
If two or more keys are to be pressed simultaneously, the keys
are linked by a plus (+) sign, for example:

Press **[Ctrl]+[Alt]+[Del]** to restart the server.

Drive Identifier Conventions
We recommend that you follow certain conventions when setting
up users on your 3+ network. These recommendations are
detailed in Chapter 4. All examples in this guide assume the
use of drive identifiers following these conventions:

D: linked to the APPS directory
E: linked to the user's home directory
F: linked to shared data directories, if any
G: linked to applications requiring /RWC access rights
    to application program files, if any

If you set up users with links other than those specified above,
the drive identifiers used in this guide will not correspond.

Examples
Anything you must type is shown in blue, typewriter-like letters,
for example:

`LOGIN admin` ◄⎯⏋

Command Syntax Notation
The following notation is used to describe the syntax of
commands used in this guide.

CAPITAL LETTERS are used for key words. Enter key words
exactly as they appear here. Case is not significant in key
words: you can use UPPERCASE or lowercase as you prefer.

Italics indicate parameters for which you supply the particular
information or value. For example, for the *printername*
parameter, you would supply the name of the desired printer.

[parameter] is optional when enclosed in square brackets. If
you supply a value for an optional parameter, do not type
square brackets around the value.

PROMPT? parameter appears onscreen in the course of service
commands. When prompted, you enter the particular information
requested. If the parameter has an existing or default value,
the value is displayed (enclosed within parentheses) between the
end of the prompting text and the question mark (?).

[/OPTION] is an optional key word that you can include on the command line to alter the operation of the command. Optional key words allow you to use a single command in several different ways. When the number of optional key words and optional parameters is large, the options are stacked one below the other, each enclosed in square brackets ([]). Within the same command, you can enter as many of the optional key words as required. Do not enter the square brackets.

A vertical bar (|) represents an exclusive choice; you choose only one of the items separated by bars. For example, in the expression item1|item2|item3, you would enter one, and only one, of those items on the command line.

Slashes (/), backslashes (\), parentheses (()), and colons (:) must be entered as shown in the command descriptions.

Command Parameters

Each 3+ command consists of the command itself and several parameters that provide additional information about the command. The following sections tell you how to enter parameters in general. For information on specific 3+ command parameters, see Chapter 6.

NOTE: Case is not significant with names and other parameters. For example, the following are all equivalent: "mydir", "Mydir", MyDir", "mYdIR", and "MYDIR".

Most 3+ commands are available within 3+Menus for both the network administrator and the user. The following describes these commands and their parameters outside the 3+Menus environment.

File and Print Service Parameters

You can enter File service and Print service commands and
parameters in three different ways:

1. Type the command, including its parameters, and press
    [Return]. For example:

    D>3F SHARE apps=c:\apps /PASS=qwx /PUB ◄─┘
    \\FINANCE:HQ:3COM\APPS shared.

    If you do not enter all of the required parameters on
    the command line, the service prompts you for the
    missing one(s).

2. Type the command and press **[Return]**. The service then
    prompts you for the required parameters only. For example:

    D>3F SHARE ◄─┘
    Sharename? **apps** ◄─┘
    Path? **c:\apps** ◄─┘
    \\FINANCE:HQ:3COM\APPS shared.

3. Type the command, a space, a question mark (?), and press
    [Return]. The service then prompts you for all the
    command's parameters, required and optional. Default values
    appear in parentheses (()). To keep a default, press
    [Return]. To replace it, type in a new value. To delete it,
    press **[Esc]**. For example:

    D>3F SHARE ? ◄─┘
    Sharename? **apps** ◄─┘
    Path? **c:\apps** ◄─┘
    Password? **qwx** ◄─┘
    Access Rights (/RWC)? **/PUB** ◄─┘
    \\FINANCE:HQ:3COM\APPS shared.

Name Service Parameters

You can enter 3N commands and the name parameter (such as
the name of a user or server) on the command line. The Name
service then prompts you for any further information it needs to
complete the command. For many 3N commands, however, you
cannot enter *all* the parameters on the command line as you can
for all File service and Print service commands.

For example, to add a user to the Name service, you would type
the 3N ADD USER command and the name of the user you are
adding. The Name service prompts you for a comment about the
user, capability class, File Server, home directory, home
directory disk drive, and Mail Server.

```
D>3N ADD USER Chris Jones ◄─┘
Adding User Chris Jones:HQ:3Com ...
Comment? assistant supervisor for finance ◄─┘
CapabilityClass (U) ? ◄─┘
3ShareServer? finance ◄─┘
HomeDir? cjones ◄─┘
File Server Drive? c: ◄─┘
3MailServer (Finance:HQ:3Com) ? corporate ◄─┘
User Chris Jones:HQ:3Com added.
Adding Chris Jones:HQ:3Com to Share Server
Finance:HQ:3Com ...
Adding Chris Jones:HQ:3Com to Mail Server
Corporate:HQ:3Com ...
```

In the above example you supplied the user name Chris Jones on
the command line, and the Name service prompts you only for
the parameters you cannot enter on the command line.

You can also enter a Name service command without the name
parameter. In this case, the service prompts you for the name
as well as additional information. For example:

```
D>3N ADD USER ◄─┘
User Name?chris jones ◄─┘
Adding User Chris Jones:HQ:3Com ...
Comment? assistant supervisor for finance ◄─┘
CapabilityClass (U)? ◄─┘
3ShareServer? finance ◄─┘
HomeDir? cjones ◄─┘
File Server Drive? c: ◄─┘
3MailServer (Finance:HQ:3Com)? corporate ◄─┘
User Chris Jones:HQ:3Com added.
Adding Chris Jones:HQ:3Com to Share Server
Finance:HQ:3Com ...
Adding Chris Jones:HQ:3Com to Mail Server
Corporate:HQ:3Com ...
```

Default Values and Parameters

Many of the 3+Share command parameters have **default values**
which are used if you do not specify another value. Default
values for specific parameters are described in Chapter 7.

If you use a form of a command that prompts for parameters,
any default value for any parameter is displayed in parentheses
following the prompt (as shown in the previous examples of the
3N ADD USER command). You can accept the default value by
pressing **[Return]**, or you can type in a different value and then
press **[Return]**. Not all parameters with defaults are required.
If you want to clear the default value without specifying
another value, press **[Esc]** and then press **[Return]**. If the
parameter requires a value , a message wil be displayed and you
will be prompted again.

```
D>3N ADD USER ◄┘
User Name? chris jones ◄┘
Adding User Chris Jones:HQ:3Com ...
Comment? assistant supervisor for finance ◄┘
CapabilityClass (U)? ◄┘
3ShareServer? finance ◄┘
HomeDir? cjones ◄┘
File Server Drive? c: ◄┘
3Mail Server (Finance:HQ:3Com)? [Esc] ◄┘
User Chris Jones:HQ:3Com added.
Adding Chris Jones:HQ:3Com to Share Server
Finance:HQ:3Com ...
```

Command Usage

The following sections provide general information on using commands.

Multiple Commands

You can type more than one command on a single line by separating each command with a semicolon (;), provided the commands are all within the same service. For example:

```
D>3F LINK e:; LINK d: apps ◄┘
```

You do not need to enter the service prefix for the second and subsequent commands on the same line. If you are already in a service before you begin the command line, you do not need to enter the service prefix for the first command either. For example:

```
D>3F ◄┘
3F>LINK e:; LINK d: apps ◄┘
```

Wildcard Characters

In certain 3+Share commands, you can use an asterisk (*) as a wildcard character in place of a parameter or part of a

three-part name. Such an asterisk matches any string of
characters.

This is most useful with the various DIR commands. For
example, if you want to see all the entries in the Name service
beginning with "ser", you can use asterisks in the 3N DIR
command as shown:

D>3N DIR ser*:asd:3com

This will display all names within the domain and organization
ASD:3COM that begin with "ser".

D>3N DIR F*J*

This will display all names within your default domain and
organization that begin with "F" and have a last name beginning
with "J", such as "Fred Jones".

D>3N DIR *:hq:3com

This will display all names within the domain and organization
"hq:3com".

► **NOTE:** If you are unsure of whether you can use an
asterisk in a command, or you are unsure of its effect,
see Chapter 7 of this guide or Part II of the *3+Share
User Guide*.

If you do not specify the domain and organization, the service
will default to the last ones specified. If none is ever specified,
the service will use your own domain and organization. If you
want to see information about a domain or organization other
than the one you last specified, you must type the domain and
organization name.

The /NP Parameter

The /NP (no prompt) parameter is used with 3+Share commands
that request verification before performing their function. You
can use this parameter to suppress the prompt for verification
and when commands are executed from a batch file.

You can type this parameter anywhere in the sequence of
command parameters. It must be entered as /NP, including the
slash (/).

Correcting Errors

If you make a mistake while typing a command, use the
[Backspace] key to erase the error, then type the correct letter
or letters.

Canceling Commands

If you begin a command and do not want to complete it, press
the [Esc] key to cancel the command and return to the DOS
prompt. If you are entering the prompted form of a command,
you can cancel the command at any time before you type the
last response and press [Return]. If you are entering the
unprompted form of a command, you must cancel the command
before you press [Return].

If you press the [Esc] key in response to a prompt with a
displayed default value, you must press the [Esc] key a second
time to cancel the command. The first time clears the default
value but does not cancel the command. The second time
cancels the command.

Entering Commands from DOS

When you enter commands following the DOS prompt, you must
include the service prefix for that command. For example:

`D>3F UNLINK f: ◄──┘`

Entering a Service

If you type just a prefix (3F, 3P, 3M, or 3N) and then press
[Return], you enter that service and see the service prompt.
For example:

```
D>3F ◄─┘
3File 1.3 - Copyright (c) 3Com Corporation
1987. All rights reserved.

3F>
```

Following a service prompt, you can only enter commands for
that service. Do not include the prefix if you are entering
commands following a service prompt, for example:

```
3F>DIR ◄─┘
```

Returning to DOS

To return to DOS from any service, press **[Return]** without
typing a command. For example:

```
3F> ◄─┘

D>
```

If you enter the next service prefix and a command on the same
line, you return to DOS when the command is completed. For
example:

```
D>3N DIR ORG ◄─┘
Finding Organizations * ...
3COM

D>
```

▶ **NOTE:** To execute several commands in the same
service, it is more efficient to enter the
service and all the commands, one after the other, so
that you do not return to DOS after each command.

To move from one service to another, you must exit the first
service and then enter the second. For example:

D>**3F** ◄⎯⎮
3File 1.3 - Copyright (c) 3Com Corporation
1987. All rights reserved.

3F>◄⎯⎮

D>**3P** ◄⎯⎮
3Print 1.3 - Copyright (c) 3Com Corporation
1987. All rights reserved.

3P>

Getting Help

To get information on the 3+Share commands for a particular
service, type **HELP** or a question mark (?) after a service
prompt. The HELP command displays a list and description of
the service's commands. A question mark (?) only lists the
commands.

You can get information on a specific command by typing **HELP**
either before or after that command, for example:

3F LINK HELP

or

3F HELP LINK

You can get information on a particular parameter by using the
prompted form of a command and typing **help** or a question
mark **(?)** when prompted for that parameter.

Chapter 4:
Setting Up Network Services

This chapter tells you how to set up the 3+ services on your
network. Before you set up any of the services, you must have
installed the server software. For installation instructions if
you have a 3Server386, refer to the *3+ Installation and Setup
Guide.* Otherwise, refer to the *3+ Installation and Configuration
Guide.*

Follow the steps in this chapter to set up the services on your
network. This chapter explains:

▶   Using 3+Menus to set up services
▶   Drive identifier conventions
▶   3+ services setup procedures
▶   3+Name service entries listing

▶ **NOTE:** Use the examples in this chapter as guides
when you set up each of the services on your network.
Substitute your own names as you set up services.

For general information about using 3+ commands, see Chapter
3. For information about syntax of administrator and
server-user commands used in these examples, see Chapter 7.
For more information on the 3+ user commands used in these
examples, see the *3+Share User Guide*.

Using 3+Menus to Set Up Services

The 3+Menus service provides preconfigured sub-menus to help
you administer the network. 3Com recommends that both
administrators and end-users use 3+Menus as the primary user
interface to the network.

The 3+Menus service can be tailored to meet a variety of needs
on the network. Administrator menus include options to execute
Name service (3N), File service (3F), Print service (3P), and
3+Backup service (3B) commands. You can customize these menu
files to provide various levels of access by end-users to network
services. The *3+Menus Reference Guide* provides complete
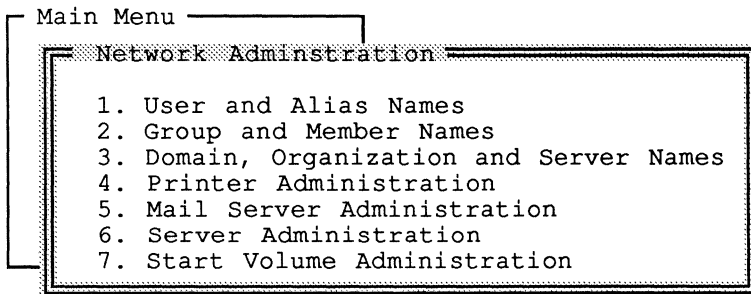information on customizing and setting up 3+Menus.

```
 ┌─ Main Menu ──────────────────┐
 │ ┌═══Network Administration══════════════════════╗
 │ │                                                ║
   │   1. User and Alias Names                      ║
   │   2. Group and Member Names                    ║
   │   3. Domain, Organization and Server Names     ║
   │   4. Printer Administration                    ║
   │   5. Mail Server Administration                ║
 └─┤   6. Server Administration                     ║
   │   7. Start Volume Administration               ║
   ╚════════════════════════════════════════════════╝
```

Figure 4-1. 3+Menus Administrator Menu Example

Figure 4-1, above, shows the Network Administration menu.
Table 4-1, below, details the specific administrator commands
used in each of the seven different administrator menus:
NETADMIN.MNI through START.MNI. The master menu,
NETADMIN.MNI, contains submenu items for each of the other
administrator menus.

Table 4-1. 3+Menus Administrator Functions

Menu File		Items	3+Command
NETADMIN.MNI	1.	User and Alias Names	See below
	2.	Group and Member Names	See below
	3.	Domain, Organization and	
		Server Names	See below
	4.	Printer Administration	See below
	5.	Mail Server Administration	See below
	6.	Server Administration	See below
	7.	Start Volume Administration	See below
USERS.MNI	A.	List Users	3N DIR USER
1. User and Alias	B.	Add a User	3N ADD USER
Names	C.	Delete a User	3N DEL
	D.	Modify a User	3N MODIFY?
	E.	Change Your Password	3N MODIFY /PASS=
	F.	List Aliases	3N DIR ALIAS
	G.	Add an Alias	3N ADD ALIAS
	H.	Delete an Alias	3N DEL ALIAS
GROUPS.MNI	A.	List Groups	3N DIR GROUP
2. Group and	B.	Add a Group	3N ADD GROUP
Member Names	C.	Delete a Group	3N DELETE GROUP
	D.	Modify a Group	3N MODIFY
	E.	List Members	3N DIR MEMBER
	F.	Add a Member	3N ADD MEMBER
	G.	Delete a Member	3N DELETE MEMBER
DOMAINS.MNI	A.	List Servers	3N DIR SERVER
3. Domain,	B.	Add a Server	3N ADD SERVER
Organization and	C.	Delete a Server	3N DELETE
Server Names	D.	Modify a Server	3N MODIFY SERVER
	E.	List Domains	3N DIR DOMAINS
	F.	Add a Domain	3N ADD DOMAIN
	G.	Delete a Domain	3N DELETE DOMAIN
	H.	Modify a Domain	3N MODIFY DOMAIN
	I.	List Organizations	3N DIR ORGANIZATION
PRINTERS.MNI	A.	Delete Job Queue from Printer	3P DEL LPT1:/SPOOL=
4. Printer			ALL
Administration	B.	Move Print Queue	3P MOVQ LPT1:LPT2:
	C.	Report Printer Status	3P STAT \\SYS
	D.	List Useres Linked to Printer	3P DIR \\SYS\LASERJET
			/LINK
	E.	Modify a User's Print Job	3P SET LPT1: /SPOOL=
			/HOLD=OFF /COPIES=1
			/PRI=50 /DEFER=OFF
			/FORM=1
	F.	Delete a User's Print Job	3P DEL LPT1L/SPOOL=
	G.	Stop Printing	3P STOP LPT1
	H.	Break Links to Printer	3P STOP LPT1: /LINK
	I.	Prevent New Links to Printer	3P STOP LPT1: /NEW
	J.	Enable New Links to Printer	3P RESUME LPT1:NEW
	K.	Resume Printing	3P RESUME LPT1:
	L.	Change Settings and Resume	
		Printing	3P RESUME LPT1:
	M.	Share a Printer	3P SHARE
			PRINTER=COM1:
	N.	Modify a Printer's Password	3P MOD LASERJET /PASS=
	O.	Unshare a Printer	3P UNSHARE LASERJET

Table 4-1. 3+Menus Administrator Functions

MAIL.MNI
5.Mail Server
Administration
	A. List Unretrieved Mail
	B. List Mail Outbound to Other
	    Servers
	C. Delete User's Undelivered
	    Mail
	D. Delete First Unretrieved
	    Message Only
	E. Delete Mail Outbound for
	    Other Sever
	F. Delete Oldest Message to
	    Other Server
	G. Report Mail Server Status
		3M DIRM
		
		3M DIRO
		
		3M DELM
		
		3M DEL 1M
		
		3M DELO
		
		3M DEL1O
		3M STATUS

SERVERS.MNI
6.Server
Administration
	A. Report Server Status
	B. Name Service Defaults and
	    Status
	C. List Sharenames Owned by
	    Servers
	D. Create 1st Lev. Server-User
	    Sharename
	E. Delete 1st Lev. Server-User
	    Sharename
	F. List Users Linked to a Server
	G. List Users Linked to a
	    Sharename
	H. Unlink a User from a Server
	I. Prevent New Users' Links on
	    Server
	J. Shut Down File and Print
	    Services
	K. Shut Down Mail Service
	L. Shut Down Name Service
	M. Set the Server's Time and Date
	N. Send a Broadcast Message
		3F STATUS \\SYS
		
		3F STAT
		
		3F DIR \\SYS
		3F SHARE /PASS=
		/RWC
		
		3F UNSHARE
		3F DIR \\SYS /LINK
		
		3F DIR \\SYS\ /LINK
		3F UNLINK \\SYS
		
		3F SHUTDOWN /NEW
		
		3F SHUTDOWN \\SYS
		3M SHUTDOWN
		3N SHUTDOWN
		3N SET /TIME= /DATE=
		SENDMSG

START.MNI
7. Start Volume
Administration
	A. List Start Volume Information
	B. List Users Linked to a Start
	    Volume
	C. Link to a Start Volume
	D. Unlink from a Start Volume
	E. Force an Unlink from a Start
	    Volume
	F. Create a Start Volume
	G. Create a Variable-Size Start
	    Volume
	H. Modify a Start Volume
	I. Delete a Start Volume
		3S DIR
		
		3S DIR /LINK
		3S LINK
		3S UNLINK
		
		3S UNLINK /ADDR=
		3S CREATE
		
		3S XCREATE
		3S MODIFY
		3S DELETE

In addition to administrator functions, most user functions are directly available from within the 3+Menus Directory, File services, and Shared Resources utilities. For complete information on the functions of 3+Menus, see the *3+Menus Reference Guide*.

Drive Identifier Conventions

By defining conventions for the drive letters by which users will refer to shared directories, you can easily set up batch files or public menus for many users. Application software often requires a configuration that defines where data is expected to be (e.g., the /Worksheet- Global-Default-Directory command in Lotus 1-2-3™). By standardizing drives and directory names, you don't have to reconfigure these applications for each user.

3Com recommends assigning drive letters D: through G: as follows:

▶ Link D: to the APPS directory
▶ Link E: to the user's home directory (HOMEDIR)
▶ Link F: to shared data directories, if any
▶ Link G: to application directories, if any

Note that D: and E: are always linked. When designing batch files or menu selections, try not to violate this convention.

▶ **NOTE:** The following pages describe setting up all 3+ services in the order we recommend. If you did not purchase or do not want to set up a particular service, just go on to the next one.

Setup procedures are described for the following services:
- ▶ Name service
- ▶ File service
- ▶ Print service
- ▶ 3+Mail service
- ▶ 3+Remote service
- ▶ 3+Route service
- ▶ 3+Backup service

Name Service Setup

The Name service manages names for the network. When you
set up the Name service, you create entries for users and other
groups that do not create their own entries (that is, special
interest groups, domains, and organizations). Entries for servers
are created automatically when you assign their names at
installation.

▶ **NOTE:** You need to add domains and organizations to
the Name service only if you want more than the
default domain and organization you assigned at
installation.

You may use international characters when naming entries in the
Name service.

Naming Conventions

Consistency in assigning user, alias, domain, and organization
names is an advantage as your network grows.
Recommendations follow for defining user, alias, domain, and
organization names.

User Names

Define user names as full names. Combined with the domain
name and organization name, the user name uniquely identifies
one user in your organization, even if you have several domains
around the world. The Name service preserves capitalization as
names are defined, so for best appearance, standardize on
"natural" capitalization. In normal use, of course, a user can
enter his user name in any combination of upper- and lowercase.
For example:

`Jeff Perez:Bldg3:My Company`

CAUTION: Certain words are reserved by the Name
service and should not be used as server or user names.
Their use may cause unexpected and undesirable results
when attempting to use 3N commands. These words are:
USER, SERVER, GROUP, ALIAS, PROP, SYS, MEMBER,
DOMAIN, and ORGANIZATION (or ORG).

NOTE: Three-part names are limited to 58 characters
total, including colons(:). See the "Three-Part Name
Syntax" section later in this chapter.

Aliases

Aliases provide shorter user names for use within a local group
of people. Across large organizations, the 3+ three-part naming
scheme lets you define unique user names within a particular
domain; however, aliases are often more convenient.

We recommend that you assign each user at least one alias in
the form of first name together with last initial, using a
maximum of eight characters. For example:

`JeffP`

The eight-character limit assures the name is short, and it
provides compatibility with other naming schemes using similar
restrictions (such as the IBM Machine Name and the DOS
Directory name).

NOTE: If two users have the same first name and last
initial, **do not assign an alias of this form to either
user.** You can, instead, use just a last name. If you
try to assign the same alias to two users, the Name
service will return the message **Name already exists.**

You can also use last names as a second alias. Backup alias
names help when users on larger networks do not know the
target user's first name or are unaware of duplicate users with
the same first names and last initials. If two users had the
name Jeff P (Jeff Parker and Jeff Perez), using their full last
names as aliases would indicate which Jeff P you wanted, for
example:

`Perez`

To avoid confusion, keep your alias scheme consistent and
accurate. Do not, for example, create an alias John Smith for
John Smythe just because some people might spell his name that
way. This will eventually lead to confusion.

Domains and Organizations

When choosing domain and organization names, **consistency** should be your first priority. Designing names that are **recognizable** should be your second priority, and **brevity** should be third. If you have sales offices in many cities, use the city's full name (i.e., DALLAS is preferred over DAL) whenever possible.

■■■Step 1: Login First Time

Before you can set up the Name service, or any other service, you must log in to the network at a workstation. The 3+Share software automatically creates an initial user with administrator capability when you install the server software. This initial user is named **Admin**, and his domain and organization are the default domain and organization you assigned when you installed the Name service.

1. Insert the *3+Share User #2* diskette in drive A:.

2. Use the LOGIN command to log in to the network, for example:

   `A>`**LOGIN admin** ◄─┘
   `Login 1.3-Copyright (c) 3Com`
   `Corporation 1987. All rights reserved.`

   `Admin:HQ:3Com logged in.`
   `A>`

   You are now logged into the network.

■■■Step 2: Assign a Password

The initial user **Admin** has no password. We recommend
that you assign **Admin** a password to protect your
network from unauthorized use of the 3N MODIFY user
command.

1. Enter the Name service by typing:

    ```
    A>3N ◄─┘
    3Name 1.3 - Copyright (c) 3Com
    Corporation 1987. All rights reserved.
    3N>
    ```

2. Type the 3N MODIFY command:

    ```
    3N>MODIFY ◄─┘
    Password? pass ◄─┘
    User Admin:HQ:3Com modified.
    3N>
    ```

CAUTION: Your new password will never be displayed
once when you enter it, so remember to write it down
and store it in a safe place.

■■■Step 3: Assign a Home Directory

We recommend that you assign the initial user, **Admin**, a
home directory from which to use 3F, 3N, 3M, and 3P
Administrator commands. Use the 3N MODIFY command
and type the name of the server in which you want the
home directory to reside at the **3ShareServer** prompt.

After you reply to the **3ShareServer** prompt, the service
will prompt you for the name of your home directory,

the file server drive in which it will be located, and the
3+Mail server that will be used if you are running
3+Mail.

▶ NOTE: The server you specify at the **3ShareServer**
prompt must have 3+File and Print software installed
and be operational. If you assign the Admin user a
3+Mail server, that server must also have 3+Mail
installed and be operational.

---

1. Type the 3N MODIFY command specifying the user name
   ADMIN.

   ```
   3N>MODIFY admin ◄─┘
   Looking for Admin:HQ:3Com ...
   Comment? ◄─┘
   Password (****)? ◄─┘
   CapabilityClass (A)? ◄─┘
   3Mail Server? ◄─┘
   3ShareServer? finance ◄─┘
   HomeDir? admin ◄─┘
   File Server Drive? c: ◄─┘
   User Admin:HQ:3Com modified.

   3N>
   ```

■■■Step 4: Add Organizations and Domains

The default domain is established when you install the server software. If you want additional domains on your network, you must add them to the network before adding anything, including users, to these domains.

Remember that domains represent geographical locations or part of a company. If you have purchased 3+Route and are setting up a network over more than one geographical location, you need to add domains and organizations to each Name service.

Organizations are added at the same time as domains. An organization must contain at least one domain in order to be added to the Name service. If you want to add a domain with a new organization, simply specify the two-part name as shown in the example below.

▶ **NOTE:** If you need only one domain and organization, skip to the next section, "Step 5: Add Users."

▶ **NOTE:** Use the conventions discussed in the "Name Service Setup" section of this chapter when adding domains and organizations.

1. The following exemplifies adding a new domain and organization to the Name service.

    3N>**ADD DOMAIN** ◄─┘
    Domain Name? **newdomain:othercorp**

2. The Name service then displays the current network number
    and prompts you to enter a different network number if
    appropriate. A network number is a number unique to each
    network and is printed on the label of the *3+Share
    Server/Name* diskette. You need to enter a different network
    number only when you add organizations or domains that
    belong to another network; in the example below, no new
    number is needed, so the Admin user presses **[Return]**
    instead.

    ```
    Net Number (00040004)? ←┘
    Adding domain newdomain:othercorp ...
    Domain newdomain:othercorp added.
    3N>
    ```

    Repeat for each domain and organization you want to
    add to the network.

    ▶ **NOTE:** When you add an organization, you must also
    add a domain; you cannot have an organization that
    does not have a domain. If you type in only one name
    in response to the **Domain Name** prompt, the service
    merely adds a domain by that name to the current
    organization.

3. The following example adds new domains to the current
    organization on the Name service.

    ```
    3N>ADD DOMAIN ←┘
    Domain Name? Seattle ←┘
    Net Number (00040009)? 00040017 ←┘
    Adding domain Seattle:3Com ...
    Domain Seattle:3Com added.
    3N>
    ```

Repeat for each domain you want to add to your
current organization.

Step 5: Add Users

You add users to the network's default domain and
organization with the 3N ADD USER command. Refer
to the example procedures below.

If your network has more than one domain and
organization, it is easiest to add users within the same
domain and organization at the same time. Since your
default domain and organization at any given time are
set to either your login domain and organization, or the
last domain and organization you specified, you need to
specify the domain and organization only with the first
addition if all the new users are in the same domain.

▶ **NOTE:** When you add users, we recommend you follow
the conventions discussed in the "Name Service Setup"
section of this chapter.

Three-Part Name Syntax

The rules for forming each part of a three-part name
are as follows:

- ▶   Name must be 1 to 40 characters long.
- ▶   Domain must be 1 to 20 characters long.
- ▶   Organization must be 1 to 20 characters long.
- ▶   Each part is separated from the next by a colon (:).
- ▶   The total length of all three parts cannot exceed 58
      characters including the two required colons (:).
- ▶   The characters allowed for each part are:
      - .   the letters A to Z and a to z
      - .   the digits 0 to 9
      - .   the special characters dash (-), underscore (_),
            period (.), and blank ( )
      - .   the international characters supported by the
            IBM PC

- ▶   Each part can contain embedded blanks. However, the
      service reduces multiple consecutive blanks to a single
      blank. No blanks are allowed next to a colon (:).

Case and Comparisons

When you add an entry to the Name service, that name
is recorded as entered. Any capitalization you enter is
retained and used for displays, but not for comparisons;
that is, the Name service overlooks capitalization when
it compares two names.

For example, the following are all considered to be the
same name: "John Doe:NorthWest:3Com",
"JOHN DOE:NORTHWEST:3COM", and
"john doe:northwest:3com".

1. Add users, using first and last names. If two users
   have the same first and last name, add each user's
   middle initial.

   3N>**ADD USER** ◄┘
   User Name? **James Jacobs** ◄┘
   Adding user James Jacobs:HQ:3Com ...

2. You can add remarks or notes about a user when the ADD
   USER command prompts you for a comment. For example,
   you may want to type in user's job title.

   Comment? **supervisor of finance** ◄┘

3. Assign user capability (U) to all users unless you are giving
   administrator privileges (A) to another user.

   CapabilityClass (U)? ◄┘

4. If your network uses 3+Mail, specify the three-part name of
   the 3+Mail server. The server you specify must have 3+Mail
   installed and be operational.

   3MailServer (Finance:HQ:3Com)? **corporate** ◄┘

5. Specify the server name in which the user's home directory
   will reside. The 3+Share service then creates the user's
   home directory. The server you specify must have already
   been installed and exist in the Name service, and the
   server must be operational.

   3ShareServer(Corporate:HQ:3Com)? **finance** ◄┘

6. Specify the name of the home directory that will be created
    for the user. The name must be unique on the server and
    must be from one to eight characters long. To establish a
    convention for keeping home directory names unique, you
    might use the first initial and the first seven letters of
    each user's last name.

    HomeDir? **jjacobs** ◄─┘

7. Specify the letter of the disk drive on which you want to
    create the user's home directory. It must represent a disk
    drive on the user's home directory server, and that disk
    drive must have been defined during CIOSYS installation.

    File Server Drive? **c:** ◄─┘
    User James Jacobs:HQ:3Com added.
    Adding James Jacobs:HQ:3Com to Share Server
    Finance:HQ:3Com.
    Adding James Jacobs:HQ:3Com to Mail Server
    Corporate:HQ:3Com.

▶ **NOTE:** If you see the message .... **server not
responding, add/delete to Name service anyway [Y/N]?**,
type **n.** Make sure the server specified (Mail or Share)
is operational and try adding the user again.
This is necessary to keep the Mail server inboxes and
home directory information synchronized with the Name
service.

---

8. Repeat these steps for all the users you are adding to the
    Name service.

9. Create another user with administrator capabilities. If the
    user **Admin** should accidentally be deleted or a password
    forgotten, you can log in as this other user to perform
    administrator functions.

```
3N>ADD USER ◄─┘
User Name? Backup Admin ◄─┘
Adding user Backup Admin:HQ:3Com ...
Comment? Backup user with administrative
capabilities ◄─┘
CapabilityClass U)  a ◄─┘
3Mail Server (Finance:HQ:3Com)? [ESC] ◄─┘
3ShareServer? ◄─┘
User Backup Admin:HQ:3Com added.

3N>
```

▇▇▇Step 6: Add Aliases

You can add aliases with the 3N ADD ALIAS command.
Servers as well as users can have aliases; however,
aliases are usually nicknames for users. Aliases are
three-part names that obey the same rules as the
original names and are used in their place.

NOTE: If you plan to use applications designed
for the IBM PC network, you should either use
server names that are compatible with the IBM
naming conventions (15 or fewer alphanumeric
characters) or assign an alias for the server that meets
this criterion.

```
3N>ADD ALIAS ◄─┘
Alias Name? MaxM ◄─┘
Name? Randy M Maxey ◄─┘
Adding Alias MaxM:HQ:3Com for
Randy M Maxey:HQ:3Com ...
Alias MaxM:HQ:3Com added.

3N>
```

▶ **NOTE:** To make changes in an alias, you must delete
the alias from the Name service, then add the new
alias; use the 3N DEL ALIAS and 3N ADD ALIAS
commands. See Chapter 7 for details on using these
commands.

File Service Setup

On each File service server, we recommend you set up a
directory called APPS that all network users can access. (Note
that this directory is already in place if you have a system
3S/400). This public directory will contain programs such as
the 3+Share user software, LOGIN and LOGOUT, and application
programs, such as word processing, that you want to make
available to network users.

While users can share their directories with other network
users, the APPS directory is set up and maintained by the
server-user.

In addition to sharing the APPS directory, it is important to
share the \3PLUS\CONFIG directory. This directory contains
the 3INS and 3OPT programs for the 3Server386 used to modify
parameters for 3+ services. (For other servers this contains the
3INSTALL program.)

The general steps below are discussed in detail on the next few pages:

1. Assign the APPS directory the sharename **APPS** and give users public (read-only) access to the directory and its subdirectories.

2. Assign an additional sharename, **APPSADMN,** to the directory APPS with Read-Write-Create access and a password.

3. Create several subdirectories under the APPS directory. In the DOS subdirectory, for instance, put all DOS files (DISKCOPY, FORMAT, and so on). In the MENUS subdirectory should be public menus and the menu programs. Each application goes in its own directory.

4. Share the \3PLUS\3CONFIG directory, assigning a password and private access rights.

C:\ (root directory of hard disk)

3PLUS

JDOE FSMITH

APPS (root directory of APPS)

3NAME

DOS MENUS WSTAR
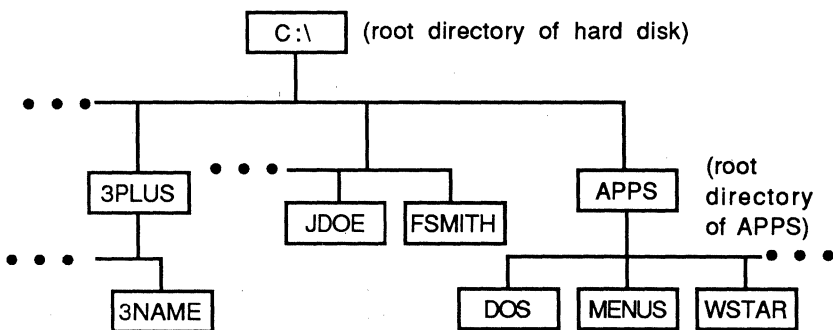
Figure 4-2. File Service Directory Structure

Keep the root directory of APPS as uncluttered as possible. It
should contain the following files:

3N.EXE (3+Name service command program)
3F.EXE (3+File service command program)
3P.EXE (3+Print service command program)
3M.EXE (3+Mail service command program)
LOGIN.EXE (3+ LOGIN command program)
LOGOUT.EXE (3+ LOGOUT command program)
MAIL.EXE (3+Mail user program)
A batch file to start each resident application (optional)

■■■Step 1: Log in as Server-User

Creating a first-level directory such as the APPS
directory is a server-user function. To set up this
directory, you need to log in as the server-user for the
server to which the APPS directory is being added. If
you gave the server a password at installation, you must
supply it to log in.

1. Insert the *3+Share User #2* diskette in drive A:.

2. Log in as the server-user.

    A>LOGIN finance ◄—⌐
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    Password? pass1 ◄—⌐
    finance:HQ:3Com logged in.
    A>

3. Enter the File service.

    A>3F ◄—⌐
    3File 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.
    3F>

■■■Step 2: Create the APPS Directory

You create the APPS directory and give it a sharename
using the 3F SHARE command. The example below
assigns the sharename **APPS** to the public APPS
directory and the sharename **APPSADMN** to the APPS
directory.

> **NOTE:** Make sure you are working within the
> File service before proceeding with these
> commands. The prompt should be **3F>**.

1. Use the 3F SHARE command to create the public APPS
   directory and respond to the command prompts exactly
   as shown below.

   ```
   3F>SHARE ? ◄─┘
   Sharename? apps ◄─┘
   Path? c:\apps ◄─┘
   Password? ◄─┘
   Access (/RWC)? /PUB ◄─┘
   \\FINANCE:HQ:3COM\APPS shared.
   3F>
   ```

2. Use the 3F SHARE command to create a second sharename,
   APPSADMN, for the APPS directory, giving it a password
   and keeping the default Read-Write-Create access rights.
   You can use this second sharename to install and maintain
   application software. **APPSADMN** should have a password to
   prevent unauthorized users from accidentally or purposely
   damaging files in this public data area.

   ```
   3F>SHARE? ◄─┘
   Sharename? appsadmn ◄─┘
   Path? c:\apps ◄─┘
   Password? password ◄─┘
   Access (/RWC)? ◄─┘
   \\FINANCE:HQ:3COM\APPSADMN shared.

   3F>
   ```

3.   Link to APPSADMN so that you can add files to it.
      Respond to the command prompts exactly as shown
      below, and then press **[Return]** to return to DOS (A>).

      ```
      3F> LINK ? ◄─┘
      Drive Id? d: ◄─┘
      Sharename? appsadmn ◄─┘
      Password? password ◄─┘
      D: linked to \\FINANCE:HQ:3COM\APPSADMN.

      3F> ◄─┘
      A>
      ```

4.   Make drive D: the current disk drive.

      ```
      A>d: ◄─┘
      D>
      ```

5.   Copy 3+Share user software.

      a.   Insert the *3+Share User #2* diskette into drive A:.
            Type:

            ```
            D>COPY a:*.* ◄─┘
            ```

      -     This copies all the files from the diskette to the APPS
            directory.

      b.   Insert the *3+Share User #1* diskette into drive A:.
            Type:

            ```
            D>COPY a:\compat\*.* ◄─┘
            D>COPY a:\util\*.* ◄─┘
            ```

      This copies all the files from the \COMPAT and \UTIL
      directories to the APPS directory.

6. If you are using 3+Mail on the network, complete the
    following procedure. If not, skip to the next section,
    "Step 3: Copy DOS" and "Step 4: Copy Applications to
    APPS."

    Copy 3+Mail user software by inserting the *3+Mail User*
    diskette into drive A:. Type:

    ```
    D>a:muinstall ◄─┘
    ```

    This copies all the files from the diskette to the APPS
    directory.

▇▇Step 3: Copy DOS to APPS

CAUTION: You must copy DOS utilities and
supplemental programs of version 3.1 or higher to the
APPS directory. (Note that if you have a system
3S/400 DOS is already installed.) If you install an
earlier version of DOS utilities and supplemental
programs, the 3+ network will not operate correctly.

These copied files will be placed in a subdirectory of
APPS called DOS. (The DOS subdirectory is already in
place on a system 3S/4002.) Having these files in a
public area will allow all users to communicate with the
network and use DOS commands at the same level
without having to insert DOS diskettes to access the
utilities and supplemental programs.

NOTE: The DOS software license requires that you
purchase a licensed copy of DOS for each personal
computer on your network.

1. Create a subdirectory under APPS called DOS.

   D>**MKDIR dos** ◄─┘
   D>

2. Make the current directory the DOS subdirectory.

   D>**CD \dos** ◄─┘
   D>

3. Copy all the DOS files from one of the DOS diskettes
   to the DOS subdirectory by inserting the DOS diskette
   in drive A: and typing:

   D>**COPY A:*.* D:** ◄─┘

   Repeat this step for the other DOS diskette.

4. Make the current directory the root directory of APPS.

   D>**cd ** ◄─┘
   D>

▌▌▌Step 4: Copy Applications to APPS

Following the conventions discussed earlier in this
chapter, create a subdirectory for each application on
the network. The examples below assume creation of
the subdirectories under the APPS directory.

NOTE: When you want to limit access to a particular
software package to a special group of users for
licensing or security reasons, you can "hide" the
software by installing it in a subdirectory of its
administrator's home directory.

► **NOTE:** Multiuser software written specifically for the
3Com EtherSeries products will not operate on 3+
servers. If you plan to continue to use EtherSeries
servers on the network, 3+ workstations can access
and use applications on those servers through EPATH,
provided with the workstation drivers. See the *3+Share
User Guide* for information on using EPATH.

1. Create a subdirectory under APPS for the application.

   D>**MKDIR wp** ◄─┘
   D>

2. Make the current directory the new subdirectory.

   D>**CD wp** ◄─┘
   D>

3. Copy the application that will be shared publicly on the
   network. Be sure to check the documentation that comes
   with the application for any additional instructions or steps.

► **NOTE:** It is your responsibility to comply with the
software license agreements for the application you are
copying.

Insert the application diskette in drive A: and type:

   D>**COPY a:*.*** ◄─┘
   D>

4. Use the DOS ATTRIB command to give read-only access to

the application's control files.

a. Use the DOS PATH command to allow access to the \DOS subdirectory of APPS containing the ATTRIB command.

D>**PATH=d:\dos** ◄─┘
D>

b. For the .EXE, .OVL, .OVR, and .COM files you have copied, use the DOS ATTRIB command to allow read-only access.

D>**ATTRIB +r *.EXE** ◄─┘
D>**ATTRIB +r *.OVL** ◄─┘
D>**ATTRIB +r *.OVR** ◄─┘
D>**ATTRIB +r *.COM** ◄─┘
D>

▶ **NOTE:** See the DOS manual for information about the DOS ATTRIB (Attribute) command.

5. Make the current directory the root directory of APPS.

D>**CD ** ◄─┘
D>

6. Repeat this process for each application that will be shared on the network.

Shared Program Directories

You can access the subdirectories you created under the APPS
directory in two ways:

▶ Assign sharenames to each of the subdirectories
▶ Use the DOS PATH command

In deciding which of these options to choose, keep in mind the
following factors:

▶ Each sharename uses a portion of the server's memory. The
maximum number of sharenames allowed was specified during
installation of 3+Share. (If you have a 3Server386, see the
3+ *Network Tuning Guide* for more information. Otherwise,
refer to the 3+ *Installation and Configuration Guide*.)

▶ If a software package has been designed for use on the 3+
network and requires that all users have Read-Write-Create
access, you must give a sharename to its directory. Using
the DOS PATH command to access the subdirectory of APPS
containing the application will not provide Read-Write-
Create access rights. Instead, the read-only (PUB) access
rights of APPS will apply, and the software package may
not function correctly.

▶ If you create sharenames, users are not required to link to
them to access the subdirectories of APPS. Once linked to
APPS, users can still use either the DOS PATH command or
the DOS CD (Change Directory) command to access the
subdirectories.

If you create sharenames, they ordinarily provide read-only
(public) access to the directory. This forces users to maintain
their data in private areas, and it protects the application code
from accidentally being configured incorrectly or abused. There
is one exception to this convention. Some software programs

require that all users have Read-Write-Create access to the
system area. In this case, the directory should be shared with
/RWC access rights.

Sometimes /RWC access is required only when changing program
default values. In these cases, the directory doesn't need /RWC
access. You can control the default settings by linking to
APPSADMN instead of APPS. You can then use the DOS CD
command to change directories and access, and to modify the
application defaults.

> **NOTE:** Some applications that were completely
> shareable under DOS 2.X-based networks can present
> problems with DOS 3.1, 3.2, or 3.3. Specifically, users
> will not be able to open code files unless you use the
> DOS ATTRIB command to give those files Read-Only
> access.
> Generally, files with the extensions .EXE, .OVL, .OVR,
> and .COM can be declared read-only. It is extremely
> important that you test each shared application from at
> least two workstations simultaneously to assure that this
> aspect of the system is properly installed.

Accessing Data Files

When people require access to certain information, that
information must reside in a directory that has been assigned a
sharename. Typical applications for shared data directories are
group word processing on a common pool of documents, and
multiuser database applications.

We suggest two configuration approaches. The first method
applies to data that is not generally attributed to a specific
person, such as a corporate general ledger or customer file. To
store such data, create a first-level directory with /RWC access.
First-level directories are owned by servers, and you can

substitute the abbreviation \\SYS for the server's name when
linking to the directory. Further, first-level directories cannot
be reached by means of other "parent" directories, as would be
the case if the directory was a subdirectory of APPS.

The second method applies to data that is closely associated
with a specific user -- for example, managers sharing word
processing documents with their secretaries. In this case, create
a subdirectory within the manager's home directory with /RWC
access for the data.

In either case, the directory should be linked to drive F:,
following conventions recommended earlier in this chapter.
Assign a password to the directory if security is a concern.

Figure 4-3 shows examples of both methods.

```
┌─────────────────────────────────────────────────────────────┐
│ Method 1                                                     │
│                                                              │
│                        Root  (\)                             │
│                           │                                  │
│  ···  ─────┬─────────┬────┴────┬──────────┐   ···            │
│           ┌┴───┐  ┌──┴────┐  ┌─┴──┐   ┌───┴────┐             │
│           │3PLUS│ │HOMEDIR│  │APPS│   │LEDGER  │ /RWC ACCESS │
│           └────┘  └───────┘  └────┘   └────────┘ \\SYS\LEDGER│
│                                                              │
├─────────────────────────────────────────────────────────────┤
│ Method 2                                                     │
│                        Root  (\)                             │
│                           │                                  │
│    ···  ──────┬───────────┴────────┬──────   ···             │
│             ┌─┴───┐    ┌──┴──┐    ┌─┴──┐                      │
│             │3PLUS│    │JDOE │    │APPS│                      │
│             └─────┘    └──┬──┘    └────┘                      │
│                       ┌───┴────┐                             │
│                       │WPDOCS  │ /RWC ACCESS                 │
│                       └────────┘ \\JDOE\WPDOCS               │
│                                                              │
└─────────────────────────────────────────────────────────────┘
```
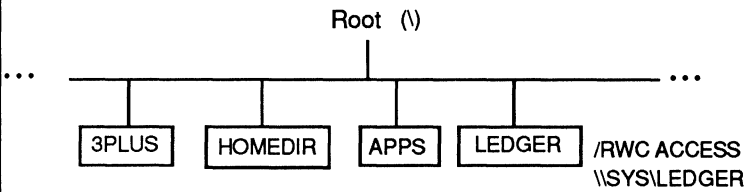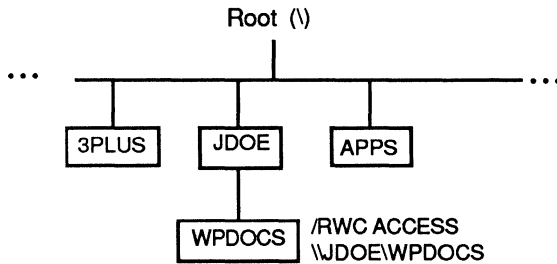
Figure 4-3. Accessing Data Files

CAUTION: DOS 3.1, 3.2, and 3.3 provide a fundamental level of protection with automatic file locking. However, data can still be lost or damaged in a number of ways if applications are not designed with multiuser access in mind. If more than one user must work simultaneously on files in a common directory, we strongly recommend you use only multiuser software specifically designed for this type of use.

Use single-user software only with data in private access files. If you want to risk allowing multiple users Read-Write-Create access to a directory, be sure to test the software extensively under multiuser conditions. Otherwise, associated data may be lost or corrupted.

▬Step 5: Share the Configuration Directory

1. If you have not already done so, log in as the server-user.

    A>LOGIN finance ◄—⌐
    Login 1.3-Copyright (c) 3Com Corporation 1987.
    All rights reserved.

    Password? **pass1** ◄—⌐
    finance:HQ:3Com logged in.

    A>

2. Use the 3F SHARE command to assign a sharename to the
    \3PLUS\3CONFIG directory, specifying a password and
    providing private (/PRIV) access rights.

    ```
    A>3F SHARE ? ←⌐
    Sharename? config ←⌐
    Path? c:\3plus\3config ←⌐
    Password? change ←⌐
    Access (/RWC) ? /PRIV ←⌐
    \\FINANCE:HQ:3COM\CONFIG shared.

    A>
    ```

Print Service Setup

Printers must be connected to a server before you can use them
on the network. The physical configuration of each printer on
the network must be specified when you install the 3+Share
service. If you have added a printer to the system after
installing 3+Share, you must run the installation program again
to update the installation parameters. For more information if
you have a 3Server386, see the 3+ *Installation and Setup Guide*.
Otherwise, refer to the 3+ *Installation and Configuration Guide*.

After the printers have been attached and configured, you can
make them accessible to the network by logging in to the
network as the server-user and using the 3P SHARE command.
Printers must be shared before anyone can link to and use them.

The 3P SHARE command links a printer with the port on the
server you assigned that printer during installation. Table 4-2
lists the available printer ports for PC servers and 3Servers.

Table 4-2. Available Printer Ports

Type of Port	PC Server	3Server	3Server386
Parallel	LPT1: LPT2:	LPT1: LPT2:	LPT1:* LPT2:
Serial	COM1: COM2:	COM1: COM2: COM3: COM4: COM5:	COM1:* (Asynchronous) COM2:* (Synchronous) COM3:* (Synchronous) COM4: COM5: COM6: COM7: COM8: * Standard

▶ **NOTE:** If you do not remember the port you assigned the printer during installation, display its name by using the 3PSTAT command.

The name you give the printer with the 3P SHARE command is the name other users will specify when they link to the printer, and is called the **printer sharename.** A printer sharename can be up to eight characters long.

You can also create a password to control who can use the printer. Printer passwords can be up to eight characters long.

The procedure exemplified below makes a printer accessible to the network by assigning the sharename **FASTPRINT** and associating FASTPRINT with the parallel port **LPT1:.** The printer is also assigned the password **FAST.**

1. Log in as the server-user for the server whose printers you
    want to share.

    A>LOGIN finance ◄─┘
    Login 1.3-Copyright(c)3Com
    Corporation 1987.
    All rights reserved.
    Password? **pass1** ◄─┘
    Finance:HQ:3Com logged in.
    A>

2. Link the APPS directory to drive D: and make it the default
    drive.

NOTE: You can eliminate this step if you prefer to use
the *3+Share User #2* diskette in drive A:. If you choose
to do this, continue to use A: as the default drive.

    A>3F LINK d: apps ◄─┘
    D: linked to \\FINANCE:HQ:3COM\APPS.
    A>d: ◄─┘
    D>

3. Use the 3P SHARE command to share the printer.

    D>3P SHARE ? ◄─┘
    Printer sharename? **fastprint** ◄─┘
    Printer ID? **lpt1:** ◄─┘
    Password? **fast** ◄─┘
    \\FINANCE:HQ:3COM\FASTPRINT shared.
    D>

4. Repeat this process for each printer attached to the server for which you are logged in. If other servers have printers attached, you must log in as the server-user for those servers and share each printer.

5. Log out as the server-user.

    D>**a:** ◄─┘
    A>**LOGOUT** ◄─┘

6. When you have shared each printer on the network, make sure that each printer has paper, is turned on, and is on-line.

3+Mail Service Setup

When you use 3+Mail, you may find you send messages to certain people on a regular basis. To save time addressing such messages, you can create distribution lists, called **groups**. Once you create a group in the Name service, you can address your message to the group name; the service then sends it to everyone on the list. You can add and delete group members as needed.

Adding Groups

Groups are typically used as 3+Mail distribution lists so that
users can send a message to many people by specifying the
name of a group rather than each individual. Use the 3N ADD
GROUP command for each group you want to add to the
network.

The following example illustrates the use of the 3N ADD GROUP
command.

```
3N>ADD GROUP ◄┘
Name? Sales ◄┘
Adding Group Sales . . .
Comment? Distribution list for sales ◄┘
Group Sales:HQ:3Com added.
```

Adding Members to Groups

Once you create a group, you can add members to it as needed.
Members can be local or remote individuals or other groups.
Any members you add must already be registered in the Name
service; that is, you must have added them to the Name service
with the 3N ADD USER or 3N ADD GROUP command.

To add members to groups, use the 3N ADD MEMBER command.
This command prompts you with the last group you specified.
To add a member to that group, press **[Return]**. If you are
adding a member to a group other than the group you last
specified, type the appropriate three-part group name following
the prompt.

The example below adds a member to the sales group specified
in the previous example.

```
3N>ADD MEMBER ◄─┘
Member Name? Mac Murphie ◄─┘
Group Name (Sales:HQ:3Com)? ◄─┘
Adding member Mac Murphie:HQ:3Com to Sales:
HQ:3Com . . .
Member Mac Murphie:HQ:3Com added.

3N>
```

▰▰3+Remote Service Setup

1. Remote users must have an entry in the Name service
    exactly as if they were local users. Use the 3N ADD USER
    command to add an entry in the Name service for each
    remote user.

▶ **NOTE:** A single entry in the Name service is sufficient
for an individual user to use the network both locally
and remotely.

2. You must assign a unique network number to each remote
    user. This allows the network services to maintain a single
    logical connection with the remote user, even if several,
    separate telephone calls are required (due to inactivity
    timeouts, for example) between the user logging in and
    logging out.

▶ **NOTE:** This remote user's network number has no
relation to the network number you assigned to the
Name service.

Using the remote user's network number, the network services
can keep track of the remote user even if his incoming calls go
to separate ports or different servers.

The network number range is 0004F000 to 0004FFFF, which
allows up to 4,096 different network numbers. Each remote user
who can call your network must have a network number that is
unique within your network or the group of networks that he
can access. The network number must be an eight-character
sequence (leading zeros can be omitted) composed of the digits 0
through 9 and the letters A through F.

CAUTION: Make sure that each remote user is assigned
a unique network number. Otherwise, if two remote
users access the network using the same network
number, the results are unpredictable.

The remote user must enter his assigned network number in the
PROFILE.SYS file on the *3+Remote Workstation Startup* diskette
created during the installation process.

Figure 4-4 can be filled in and given to each remote user as an
aid in creating his PROFILE.SYS file. Assign network numbers
and complete a sheet for each user. Keep a copy for your own
file for future reference.

Information for creating your individual PROFILE.SYS file.
(Please see the *3+Remote User Guide* or Appendix A: The PROFILE.SYS
File in this guide for a complete list of items specified in PROFILE.SYS.)

USER NAME: _____

LINE1= _____
        (Phone number to access the network/maximum 49 characters)

NETWORK= _____
        (Unique number assigned to this remote user)

Figure 4-4. Template to Assist Remote Users

3+Route Service Setup

NOTE: 3+Route includes the functions of 3+Remote.
Follow the instructions for setting up the 3+Remote
service, earlier in this chapter, in addition to the steps
below.

Before you can use 3+Route to communicate with other
networks, you must have entries in your network's Name service
for the other networks. For each network, your Name service
must have at least one entry for a domain on that network; you
can communicate only with users and servers in the domains
entered in your Name service.

■■■For Servers on Other Networks

To use File service (3F) and Print service (3P) commands to
access files and printers on another network's server, add
that server to your network's Name service. The 3N ADD
SERVER command adds the server to your network's Name
service.

1. Insert the *3+Share User #2* diskette in drive A:.

2. Add the server to the Name service with the 3N ADD
   SERVER command, for example:

   ```
   A>3N ADD SERVER Sales:HQ:OtherCorp ◄─┘
   Adding Server Sales:HQ:OtherCorp ...
   Comment? A server on another network ◄─┘
   Net Number (00040006)? 0004010A ◄─┘
   Ethernet Address? 02608C00809E
   3ShareInstalled? y ◄─┘
   3MailInstalled? ◄─┘
   3RouteInstalled? y ◄─┘
   Server Server1:HQ:OtherCorp added.

   A>
   ```

3. Repeat Step 2 to add each or any server on that other
   network.

For Users on Other Networks

To communicate with users on other networks using 3+Mail only,
you do not need to enter the users in your network's Name
service. However, if you intend to use File service commands
to access certain users' files, you must enter those users in
your network's Name service. Each case is discussed below.

Mail Users

The 3+Mail service does not require that the Name service have an entry for each user of another network who is named as a mail recipient. It only requires the domain and organization of any such user be entered in the Name service. The domain and organization allow the Name service, and thus 3+Mail, to identify the user's network.

Given the user's network, 3+Mail sends the mail to a 3+Mail server on that network and then lets that server locate the user. If the other network has no 3+Mail server or the user cannot be located, the service informs the sender that 3+Mail is unable to deliver to that user.

You can include users from other networks in distribution lists (Name service groups) without adding those individual users to the Name service, provided you have added those users' domains and organizations to the Name service.

████File Service Users

To use File service commands to access the files of a user on another network, you must add the names of that user and his File service server to your Name service. You must add the server before you add the user. For information on adding servers, see "For Servers on Other Networks" earlier in this chapter. Then use the 3N ADD USER command to add the user to the Name service.

1.   Insert the *3+Share User #2* diskette in drive A:.

2.   Add the user to the Name service with the 3N ADD USER
     command, for example:

     `A>`**`3N ADD USER John Doe:HQ:OtherCorp`** ◄⎤
     `Adding User John Doe:HQ:OtherCorp ..`
     `Comment?` **`Person at OtherCorp's HQ`** ◄⎤
     `CapabilityClass (U)?` ◄⎤
     `3MailServer?` **`Sales:HQ:Othercorp`** ◄⎤
     `3ShareServer?` **`(Sales:HQ:OtherCorp)`** ◄⎤
     `HomeDir?` **`jdoe`** ◄⎤
     `FileServer Drive?` **`c:`** ◄⎤

3.   At this point, the service will establish a communication
     link with the other network and check to see if the user
     exists in your Name service.

     If the link is completed correctly, you will see the message
     User already exists followed by a prompt asking if the user
     should be added to your Name service anyway. Respond **Y**
     (yes) to the prompt and continue.

     If the communication link fails, you will see the message
     Failed to add user . . . followed by a prompt asking if the
     user should be added to your Name service anyway. If you
     know the other user exists on the remote network, respond
     Y (yes) to the prompt and continue, or respond **N** (no) and
     attempt this again when the communication link is
     functioning.

     Finally, you will see the message **User John
     Doe:HQ:OtherCorp added.**

4.   Repeat Step 2 for each user.

After you have added the entries to the Name service, you can
use 3+Route to communicate with other networks.

3+NetConnect

3+NetConnect provides a communication link between separate 3+ networks. The local network, or primary network, is the network to which you are directly connected. The remote network, or secondary network, is the network that you connect to using 3+NetConnect. Once a communication link is established, users can use the services of each network.

To establish the communication link, you must perform the following steps:

► Install the necessary adapter boards in each workstation or server and set the correct jumper settings on each board. See the hardware installation instructions in the *3Server386 Guide*.

► Install 3+NetConnect software on a server on one of the networks. See the software installation instructions given in the *3+ Installation and Setup Guide*.

► Change the server parameters and edit the CONFIG.SYS file (if necessary). See the instructions given in Appendix B: System Configuration Files.

► Make entries in each of the network's Name service to keep track of all the users and servers residing on the networks. For information on updating the Name service, see Chapter 2.

Once a communication link is established, all you need to know is the name of the user (for Mail and File service commands) or server (for File and Print service commands) to use the resources or communicate with the remote network. You use the same commands as those used to access resources or communicate with users on your own local network.

For example, you can link to a directory on another network using the same 3F LINK command that links to a directory on your own network. The only difference is you need to include the standard Name service three-part name (name:domain:organization) to identify the location of the directory.

To link to the Files directory on your local network, you would type:

3F LINK e: \\John Smith\files

To link to this same user on a remote network, you would also need to include the domain and organization (if different) as in:

3F LINK e: \\John Smith:HQ:3Com\files

Using 3+NetConnect with Other 3+ Services

The following sections list individual services and describe how each interacts with 3+NetConnect. Be sure you read the sections for those services you intend to use with 3+NetConnect.

Server Memory Requirements

You should determine the memory available on your server before installing services on it. For more information on determining your server's memory requirements, see the *3+ Installation and Setup Guide*.

Also, sharing a Share server between two networks requires more memory than having each service available on each network. We recommend installing these services on both networks, and having users only share data applications and peripherals. If you do decide to share a Share server between two networks, see the *3+ Network Tuning Guide*.

Share (File/Print)

3+File manages disks, directories and files. To access the files of users on the remote network, you must add the users and their File service server to your Name service.

Print manages shared output devices such as printers and plotters. To use the printer on the remote network, you must add the Print service server to your Name service.

For information on adding entries to the Name service, see information earlier in this chapter.

3+Route

3+Route lets you have separate networks communicate with each other over telephone lines. The difference between 3+NetConnect and 3+Route is that one works with direct cable links and the other over telephone lines.

3+Mail

3+Mail allows users to send mail to each other. Using 3+Mail has an advantage over using the Print service or File service to communicate because it does not require that you add an entry in your network's Name service for each user. You only need to make sure that the user's domain and organization are in the Name service. This feature can greatly reduce the number of entries you must maintain in the Name service. For information on making entries to the Name service, see information earlier in this chapter.

CAUTION: If you are installing 3+Mail and another
router service (such as 3+Route) on your network, you
can install any combination of services on the servers
on the network except the following: you must not
install 3+Mail and 3+NetConnect together on one server,
and install 3+Route on another server on the network.
Using this configuration will, in some cases, prevent
3+Mail from forwarding messages over the phone line.

Any of the following configurations are acceptable:

▶ 3+Mail, 3+NetConnect and 3+Route installed on one server.

▶ 3+Mail, 3+NetConnect and 3+Route installed separately on
different servers.

▶ 3+Mail installed on one server. 3+NetConnect and 3+Route
installed together on another server.

▶ 3+Mail and 3+Route installed on one server. 3+NetConnect
installed on another server.

3+Backup Service Setup

When you use a 3Server with a tape backup unit, you will be
able to back up all 3+ servers on your network that have 3+
File and Print services installed. Chapter 6: 3+Backup describes
how to use backup through the menus. 3+ Backup (3B)
commands are described in Chapter 7: Command Reference.

■■Name Service Entries Listing

When you have set up all the services on the network,
list the Name service entries and check that you have
added each one correctly. You can list the entries by
entering a 3N DIR command for each item (domain,
organization, users, and aliases) and then redirecting the
listing to a printer.

1. Log in to the network as a user.

    A>LOGIN james jacobs ←⏎
    ```
    Login 1.3-Copyright(c)3Com
    Corporation 1987. All rights reserved.
    ```
    ```
    User James Jacobs:HQ:3Com logged in.
    ```

2. Insert the *3+Share User #2* diskette in drive A:.

3. Link to the printer on which you want the list printed.

    A>3P LINK ? ←⏎
    Printer Id (PRN:)? **lpt1: ←⏎**
    Printer Share Name? **fastprint ←⏎**
    Password? **←⏎**
    ```
    LPT1: linked to \\Finance:HQ:3Com\Fastprint.
    ```

4. Use the 3N DIR command to direct a listing of the servers
    on your network to the printer.

    A>3N DIR SERVER >LPT1: ←⏎

▶ **NOTE:** This command must be entered at a DOS
prompt. It will not work from a service prompt. If you
are working within a service, you must first exit that
service before directing a listing to a print file.

It is recommended that you file these printouts for future
reference.

Chapter 5:
Managing the Network

After you have installed your 3+ network, you need to perform
various management functions to keep it running smoothly. This
chapter tells you how to manage your network after you have
installed the software and set up the services.

The management functions that are covered in this chapter are:

►   Organizing network administration
►   Managing storage space
►   Moving users
►   Managing printers
    o   Changing a printer sharename
    o   Adding a printer
    o   Deleting a printer
    o   Reordering a print queue
►   Managing the 3+Remote service
►   Managing the 3+Route service
►   Deinstalling and moving services
►   Shutting down the services

For a detailed description of all 3+Share administrator and
server-user commands, refer to Chapter 7.

Organizing Network Administration

Your task in organizing network administration is to determine who is to manage what. There are three general approaches:

► No formal management
► Centralized management
► Distributed management

No Formal Management

Very small networks may not need any type of formal management -- the users can manage themselves. When the entire network is in a single room and consists of fewer than 20 netstations, self-management may work well. Larger networks, however, often require some structured form of management in order to operate smoothly.

Centralized Network Management

Centralized management means a single individual or group is responsible for managing the entire network. All network administrator functions are requested and coordinated through this single individual or group. This form of management provides the most control over the network.

Distributed Network Management

In a network with multiple servers, distributed management may be appropriate. Each department has its own network administrator who is responsible for managing the servers and services within that department. Some central coordination is required in the management of the 3+Name service since there is only one for the entire network.

Most networks combine distributed and centralized management to some degree. Some administrative functions are centrally controlled, some are distributed. The mix appropriate to your organization is partially a function of how you have distributed the servers and services and partially a function of your organization's management style.

Managing Storage Space

As network administrator, you are responsible for managing the
disk space for each file server on the network. To manage disk
space, you need to:

▶ Monitor how much space is available for each file server
▶ Provide more space when it is needed

Available space is the amount of storage space available on the
server's disk or disks for network users to access. Too little
available space can slow down the network and affect users'
productivity.

As a general guideline, at least 10 percent of a server's disk
space should be available. This may vary, depending on the
kind of application you are running. For example, with an
application that uses a large amount of temporary file space,
you will need more available space on the disk. Servers that
are used for shared printers also require space for storing files
waiting to be printed.

Checking Disk Space

You should monitor the amount of available disk space at least
once a week to be sure that there is an adequate amount for
your network. Use the 3F STATUS command to determine the
amount of available disk space on a server. This command lists
the shared disks for a server and the available space. For
information about the 3F STATUS command, see the *3+Share
User Guide*.

Creating Disk Space

When the amount of available disk space on a file server
becomes too low for efficient use of the network resources, you
need to provide more available space. There are four ways to
do this:

► Have users delete unnecessary files and/or directories.
► Add an expansion disk.
► Store directories on diskettes or tape, and then delete the
   from the server.
► Redistribute users and programs to file servers that have
   more available space.

If you add hard disks to a server or servers on your network,
you must:

1. Shut down the services on the affected server. Be sure to
   follow the instructions in "Shutting Down the Services" later
   in this chapter.

2. Install the expansion disk, following the manufacturer's
   instructions.

3. Restart the server in DOS mode.

4. Run the appropriate programs to modify the software for
   the addition of your disk. If you have a 3Server386, run
   3DISK386 as described in the *3Server386 Guide*, then 3OPT
   as described in the *3+ Network Tuning Guide*. Otherwise,
   run 3INSTALL as described in the *3+ Installation and
   Configuration Guide*.

5. Restart the server and resume network operations. To utilize
   the new available space, follow the instructions in the
   section "Moving Users" in this chapter.

Storing directories and files on tape or diskete is a good
solution provided users have files that they do not need
immediately. For information on using 3+Backup, see
Chapter 6: 3+Backup.

Moving Users

From time to time, it may be necessary to move a user's home
directory to a different location on the network. This may
occur if your file server runs out of space or has less
available space available than you desire. Your options for
creating space are discussed in this chapter under "Managing
Storage Space."

This section describes two ways to move users:

► Between file servers
► Between drives on a server

You will need to move users in the following instances:

► An expansion disk is added to the system. For this disk
space to be used, you may need to move some user home
directories to it.

► Users are deleted from the system. If this occurs, you
may want to move users from one drive to another so that
available disk space is more evenly distributed.

► Too many users have home directories on one drive. In
this case, you may want to move users from one server to
another or from one drive to another.

The procedure for moving users between servers or between
drives on a single server is outlined below.

▶ **NOTE:** When you have completed these steps, the
users' home directories will have new names.

---

1. Log in as the server-user for the server to which you are
    moving the user.

    A>**LOGIN finance** ◄──┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.
    Finance:HQ:3Com logged in.

2. Create a directory with the 3F SHARE command. Give the
    directory a name different from the user's current home
    directory, and with Read-Write-Create access rights.

    A>**3F SHARE ?** ◄──┘
    Sharename? **johndir** ◄──┘
    Path? **c:\johndir** ◄──┘
    Password? ◄──┘
    Access (/RWC)? ◄──┘
    \\Finance:HQ:3Com\johndir shared.

3. Log in as the user. If the user has a password that you do
    not know, log in as the administrator and use the 3N
    MODIFY command to delete the password. Once you have
    moved him, the user can restore his password.

    A>**LOGIN john doe** ◄──┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    John Doe:HQ:3Com logged in.

4. Link to the user's home directory.

    A>3F LINK ? ◄┘
    Drive Id?**e:** ◄┘
    Sharename? ◄┘
    Password? ◄┘
    E: linked to \\John Doe:HQ:3Com.

5. Link to the directory on the second server.

    A>3F LINK ? ◄┘

    Drive Id?**f:** ◄┘
    Sharename?**\\finance\johndir** ◄┘
    Password? ◄┘
    F: linked to \\Finance:HQ:3Com\johndir.

6. Link to APPS and use the 3COPY utility to copy all
    directories and subdirectories from the user's old home
    directory to the directory you created on the second server.
    See Appendix E for information about 3COPY.

    A>3F LINK ? ◄┘
    Drive Id?**d:** ◄┘
    Sharename?**\\finance\apps** ◄┘
    Password? ◄┘
    D: linked to \\Finance:HQ:3Com\APPS.

    A>d:3COPY e:*.* f:/s ◄┘

7.   Use the 3F DIR command to see if the user has any shared
     directories. If so, use the 3F UNSHARE command to delete
     their sharenames.

     A>3F DIR ◄⎯⎓
     \\JOHN DOE:HQ:3COM C:\JDDOE /HOME 1 users
     INBOX C:\JDDOE\SUBDIR1 /PRIV 0 users

     A>3F UNSHARE ◄⎯⎓
     Sharename? inbox ◄⎯⎓
     \\JOHN DOE:HQ:3COM\INBOX unshared

     A>

8.   Use the DOS DELETE command to delete all the files from
     the user's home directory and its subdirectories (if any).
     When all the files have been deleted, use the DOS RMDIR
     (Remove Directory) command to delete any subdirectories
     under the home directory.

     A>DELETE e:*.* ◄⎯⎓
     A>DELETE e:\subdir*.* ◄⎯⎓
     A>RMDIR e:\subdir ◄⎯⎓

     For information about using these commands, see your DOS
     manual.

9. Log in as the server-user and use the 3F UNSHARE
    command to delete the sharename assigned to the new
    directory.

    ```
    A>LOGIN finance ◄─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987.
    All rights reserved.
    Finance:HQ:3Com logged in.

    A>3F UNSHARE johndir ◄─┘
    \\Finance:HQ:3Com\johndir unshared.
    ```

10. Log in as the initial user or any user with Admin
    capabilities.

    ```
    A>LOGIN admin ◄─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    Password ? pass ◄─┘
    Admin:HQ:3Com logged in.
    ```

11. Link to the APPS directory and make it the default drive.

    ```
    A>3F LINK d: \\sys\apps ◄─┘
    D: linked to \\FINANCE:HQ:3COM\APPS.

    A>d: ◄─┘
    D>
    ```

12. Use the 3N MODIFY command to delete the user's current
file server. Press **[Esc]** when prompted for the
3ShareServer. Deleting the user's file server also deletes
the user's home directory if it is empty.

```
D> 3N MODIFY ◄—
Name? john doe ◄—
Looking for John Doe:HQ:3Com ...
Comment (New user 5-12-84)? ◄—
Password? ◄—
CapabilityClass (U)? ◄—
3MailServer? (Corporate:HQ:3Com)? ◄—
3ShareServer (Corporate:HQ:3Com) ? [ESC] ◄—
User John Doe:HQ:3Com modified.
A>
```

13. Use the 3N MODIFY command a second time and, when
prompted, enter the name of the user's new file server, the
new home directory, and file server drive.

```
D> 3N MODIFY ◄—
Name? john doe ◄—
Looking for John Doe:HQ:3Com ...
Comment (New user 5-12-86)? ◄—
Password? ◄—
CapabilityClass (U)? ◄—
3MailServer? (Corporate:HQ:3Com) ◄—
3ShareServer? finance ◄—
HomeDir? johndir ◄—
File Server Drive? c: ◄—
User John Doe:HQ:3Com modified.
Adding John Doe:HQ:3Com to Share Server
finance:HQ:3Com.
```

Once you have assigned the new file server and home directory,
have the user reshare any directories that were shared in the
old home directory.

Managing Printers

As network administrator, you are responsible for maintaining printers on the network. Some printer management functions must be performed while you are logged in as the server-user, others while logged in as the administrator. Details of the various commands used in printer management are in Chapter 7.

▶ **NOTE:** If you are using a printer with a large buffer configured for normal (i.e., non-interrupt) processing, 3+Share will attempt to fill the printer's buffer with information. This may cause servers that are heavily loaded with disk activity to become temporarily unavailable to users. If this occurs, users will receive error messages indicating network timeouts.

To remedy the situation you should run the 3INS program if you have a 3Server386 and specify a smaller print buffer in the printer configuration. See the *3+ Installation and Setup Guide* for more information. If you have a server other than a 3Server386, run the 3INSTALL program and specify the same information. Refer to the *3+ Installation and Configuration Guide*.

This section describes printer management functions that involve use of multiple commands:

▶ Changing a printer name
▶ Changing a printer configuration
▶ Adding and deleting printers from the network
▶ Reordering print queues.

Changing a Printer Sharename

The printer sharename is assigned when a server-user
uses the 3P SHARE command to share the printer.

To change a printer sharename:

1. Log in as the server-user for the server to which the
    printer is attached.

    A>LOGIN finance ◄─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    FINANCE:HQ:3COM logged in.

2. Link to the APPS directory and make it the default drive.

    A>3F LINK d: apps ◄─┘
    D: linked to \\FINANCE:HQ:3COM\APPS.
    A>d: ◄─┘
    D>

3. Disallow sharing of the printer with the 3P UNSHARE
    command, specifying the current printer sharename.

    D>3P UNSHARE ? ◄─┘
    Printer Sharename? **Laserjet** ◄─┘
    \\Finance:HQ:3Com\Laserjet unshared.
    D>

4. Share the printer again, using the 3P SHARE command, and
    specify a new printer sharename when prompted.

    D>**3P SHARE ?** ◄─┘
    Printer Sharename? **Letters** ◄─┘
    Printer Id? **lpt2:** ◄─┘
    Password? ◄─┘
    \\Finance:HQ:3Com\Letters shared.
    D>

� Changing a Printer's Configuration

Occasionally you may need to change part of a printer's
configuration. For example, you may discover the
printer was configured incorrectly at installation. In
such a case, you may need to add or change the
printer's reset sequence.

To change the configuration of a printer:

1. If you have not already done so, log in as Admin.

    A>**LOGIN admin** ◄─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987.
    All rights reserved.

    Admin:HQ:3Com logged in.
    A>

2. Use the 3F LINK command to link the shared directory
    3CONFIG to D: and make D: the default drive.

    A>**3F LINK 3config d:** ◄─┘
    D: linked to \\FINANCE:HQ:3COM\APPS.

    A>**d:** ◄─┘
    D>

3. Run the 3INS program if you have a 3Server386 (if you have a different server run 3INSTALL) and make the necessary configuration changes. For details on using the 3INS program see the 3+ *Installation and Setup Guide.* Otherwise, refer to the 3+ *Installation and Configuration Guide.*

4. Inform users that the server will be shut down and ask them to unlink from everything on that server.

5. To shut down all 3+ network software running on the server, follow the instructions in this chapter's last section "Shutting Down Network Services."

6. Restart the server.

> ▶ **NOTE:** The configuration changes you made will take effect only after you restart the server.

■■■Adding a Printer

To add a new printer to a server:

1. Inform users that the 3+File and 3+Print services on the server will be shut down, and ask them to unlink from everything on that server.

2. To shut down all 3+ network software running on the server, follow the instructions in the last section "Shutting Down Network Services."

3. Attach the printer to the server. For assistance, see the manual that comes with your printer.

4. Restart the server and run 3INS if you have a 3Server386 (or 3INSTALL otherwise).

5. Configure the printer following instructions in the *3+ Installation and Setup Guide* if you have a 3Server386. Otherwise, refer to the *3+ Installation and Configuration Guide.*

6. Restart the server.

7. Log in as the server-user. Link to the APPS directory and make it the default drive.

   ```
   A>LOGIN finance ◄─┘
   Login 1.1-Copyright (c) 3Com
   Corporation 1986. All rights reserved.

   Password? pass ◄─┘
   Finance:HQ:3Com logged in.

   A>3F LINK d: apps ◄─┘
   D: linked to \\FINANCE:HQ:3COM\APPS.

   A>d: ◄─┘
   D>
   ```

8. Type the 3P SHARE command and give the new printer a sharename. This is the name that will be used to link to the printer.

   ```
   D>3P SHARE ? ◄─┘
   Printer Sharename? Laserjet ◄─┘
   Printer Id? lpt2: ◄─┘
   Password? ◄─┘
   \\Finance:HQ:3Com\Laserjet shared.
   D>
   ```

■■■Deleting a Printer

To delete a printer from the network:

1. Inform users that the printer will be deleted, and have them
    unlink from it.

2. Log in as the server-user for the server to which the
    printer is attached.

    A>LOGIN finance ◄─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    Password? **pass** ◄─┘
    Finance:HQ:3Com logged in.
    A>

3. Link the APPS directory to D: and make D: the default
    drive.

    A>3F LINK d: apps ◄─┘
    D: linked to \\FINANCE:HQ:3COM\APPS

    A>d: ◄─┘
    D>

4. Link to the printer you want to delete.

    D>3P LINK laserjet ◄─┘
    \\FINANCE:HQ:3COM\LASERJET linked to PRN:

    D>

5. Use the 3P QSTAT command to see if there are files in the
   print queue. If there are, you will need to either let them
   print or move them to another printer.

```
D>3P QSTAT ◄─┘
Printer Id (PRN:)? ◄─┘
Spool ID ? all ◄─┘

Queue for \\FINANCE:HQ:3COM\LASERJET:

Size: 687  Status: Printing  Time 6-24-86 10:44a
Pri: 50     Copies:  1        Form: 1
Owner:  JOHN DOE

20 Size:283  Status: Waiting   Time: 6-24-86 10:55a
Pri: 50      Copies:  1         Form: 1
Owner:  JOHN DOE

D>
```

6. If you do not want the files to be printed, log in as Admin
   and use the 3P STOP command to halt printing. Then use
   the 3P MOVQ command to move the print queue to another
   printer. For information about these two commands, see
   Chapter 6.

7. Disallow sharing of the printer by using the 3P UNSHARE
   command.

   D>3P UNSHARE ? ◄─┘
   Printer Sharename? **laserjet** ◄─┘
   \\Finance:HQ:3Com\Laserjet unshared.

   D>

8. To shut down the server, follow the instructions in this chapter's last section, "Shutting Down Network Service."

9. Disconnect the printer from the server.

10. Restart the server and run 3INS if you have a 3Server386 (or 3INSTALL otherwise).

11. Configure the printer following instructions in the *3+ Installation and Setup Guide* if you have a 3Server386. Otherwise, refer to the *3+ Installation and Configuration Guide.*

12. Restart the server.

Reordering a Print Queue

You can change the priority of a file in a print queue as long as the file is not printing. You will want to do this if for some reason a user is not available to change the priority of his own file.

As an Administrator, you can also change the priority of all files in a print queue. This may be helpful if several users have designated their files high priority, causing other users' files to be excessively delayed in printing.

When you reorder a file in a print queue, you must indicate the **printer identifier** for the printer you want to reorder. A printer identifier is one of the device names (PRN: or LPT1:, LPT2:, or LPT3:) that specifies the link to the shared printer whose queue you want to reorder. If you do not specify a printer identifier, the 3+Print service assumes the printer identifier PRN: (LPT1:). If you do not specify a printer identifier and you are not linked to PRN:, you receive an error message.

You must also specify a **spoolid** (spool identifier) when you
reorder files in a print queue. A spoolid is a file's
identification when it is in the queue. To find the spoolid of a
particular file, use the 3P QSTAT command. To change the
priority of all files in the print queue, type **ALL** when the
service prompts you for the spoolid.

███ To change the priority of a file in a queue:

1. Log in as the administrator.

   A>**LOGIN admin** ◄─┘
   Login 1.3 Copyright (c) 3Com
   Corporation 1987 All rights reserved

   Password? **pass** ◄─┘

   ADMIN:HQ:3COM logged in.
   A>

2. Link the APPS directory to D: and make D: the default
   drive.

   A>**3F LINK d: \\sys\apps** ◄─┘
   D: linked to \\FINANCE:HQ:3COM\APPS

   A>**d:** ◄─┘
   D>

3. Link to the printer whose file you want to reorder.

   D>**3P LINK ?** ◄─┘
   Printer Id (PRN:)? **lpt2:** ◄─┘
   Printer Sharename? **laserjet** ◄─┘
   Password ? ◄─┘
   LPT1: linked to \\Finance:HQ:3Com\Laserjet.

4. Type the 3P QSTAT command to determine the spoolid of
    the file.

    ```
    D>3P QSTAT ? ◄┘
    Printer Id (PRN:)? lpt2: ◄┘
    Spool Id? all ◄┘


    Queue for \\Finance:HQ:3Com\Laserjet:

    5 Size:26  Status: Waiting  Time: 1-01-80  0:32a
    Pri:  50   Copies: 1        Form: 1
    ```

    Note the spoolid number for the file you want to reorder.
    In this example, it is 5.

5. Type the 3P SET command and give the priority and spool
    identifier for the file when prompted. If the printer
    identifier is different from the one listed, type it when
    prompted.

    ```
    3P SET ? ◄┘
    Printer Id (PRN:)? lpt2: ◄┘
    Hold [ON/OFF]? ◄┘
    Copies? ◄┘
    Priority? 99 ◄┘
    Defer [ON/OFF]? ◄┘
    Form Number? ◄┘
    Spool Id? 5
    \\Finance:HQ:3Com\Laserjet set.
    ```

Managing the 3+Remote Service

If you have installed the 3+Remote service, you need to manage both the server software and the remote users on the network.

Management of the server operation includes:

► Maintaining the telephone line and modem connections
► Adding modems when necessary
► Removing or replacing modems when necessary.

Maintenance of telephone lines and modems is normally not time-consuming. If users try to access the system and the modem does not answer, check to make sure the modem is connected properly and has power.

If you add, remove, or replace a modem on the server, you must update the 3+Remote service to reflect those changes. To do this, run the 3INS program if you have a 3Server386 (otherwise run 3INSTALL). Once you have made the changes, you must shut down and then restart the server. To shut down, follow the instructions in "Shutting Down Network Service" at the end of this chapter. After the software has been shut down properly, restart the server.

Management of the remote users includes:

► Use of the 3N ADD USER command to add an entry to the Name service for each remote user. Details of this command are in Chapter 7.

► **NOTE:** A single entry in the 3+Name service is sufficient for an individual user to use the network both locally and remotely.

► Assignment of a unique network number to each remote user. See Chapter 4 for information about assignment of these numbers.

A. If you are running 3+Remote on a DOS-only server (without a hard disk), you must add the server's name to the Name service. If you remove the server, you must remove the server's name from the Name service.

Managing the 3+Route Service

If you have installed 3+Route, you need to manage:

► Updating 3+Route to understand:

o How to access remote networks
o What remote networks are available
o What modems are available for use
o What ports are available for use

► Monitoring the use of 3+Route

► Isolating communication problems

In addition, 3+Route includes the capabilities of the 3+Remote service. For information, see the section "Managing the 3+Remote Service" earlier in this chapter.

B. If you are running a 3+Route on a DOS-only server (without a hard disk), you must add the server's name to the Name service. If you remove the server, you must remove the server's name from the Name service.

Updating the 3+Route Service

You will need to run the 3INSTALL program to update
information for 3+Route if you:

► Add or delete a network from the list of networks with
which 3+Route can communicate
► Add, delete, or modify a remote network's telephone number
► Add, delete, or modify a telephone line or port available to
3+Route
► Add, delete, or modify modems

Monitoring Use and Isolating Problems

The 3+Route service writes entries to a log file, STATUS.LOG,
in the \3ROOT directory. These entries record incoming and
outgoing telephone calls and any errors that may occur. You
can use the entries in STATUS.LOG to monitor the use of
3+Route and to help isolate communication problems.

▮▮▮Accessing STATUS.LOG

To read the STATUS.LOG file, use the STATUS program in
the \3ROOT directory. How you access the file depends on
the server's configuration. Appendix A contains information
concerning messages displayed in the STATUS.LOG file.

Follow the steps below if you are working as a:

► Concurrent user
► Concurrent server with 3+File and 3+Print services, or
► Concurrent server without the 3+File and 3+Print
services; access in this case is read-only.

1. Make drive C: the current drive.

   A> c: ◄─┘
   C>

2. Use the STATUS program to view the STATUS.LOG file.

```
C>STATUS status.log ◄┘

CALL: Originate  NET: 0040009  PORT: COM2
CALL: Terminate  NET: 0040009  PORT: COM2
XNS PKTS: xmtd:21 rcvd:13 xmterr:01 lost:01
MNP PKTS: xmtd:21 rcvd:13 rxmtd:03 chksum:0 dups:0
SERIAL: ovrns:00 brks:03 frms:02 parity:00

C>
```

Follow these steps if you are working on a netstation.

1. Link \3ROOT to D: using the 3F LINK command and make
    D: the default drive.

    A>3F LINK d: \\sys\3root ◄┘
    D: linked to \\FINANCE:HQ:3COM\3ROOT.

    A>D: ◄┘
    D>

2. Use the STATUS program to view the STATUS.LOG file.

```
D>STATUS status.log ◄┘

CALL: Answer  NET: 0040009  PORT: COM2
CALL: Terminate  NET: 0040009  PORT: COM2
XNS PKTS: xmtd:21 rcvd:13 xmterr:01 lost:01
MNP PKTS: xmtd:21 rcvd:13 rxmtd:03 chksum:0 dups: 0
SERIAL: ovrns:00 brks:03 frms:02 parity:0

D>
```

Follow these steps if you are using a dedicated server without the 3+Share File and Print services installed:

a. To shut down the server, follow instructions in this chapter's last section, "Shutting Down Network Services."

b. Restart the server in DOS mode.

c. Change directories to \3ROOT.

```
C>CD \3root ◄─┘
C>
```

3. Use the STATUS program to view the STATUS.LOG file.

```
C>STATUS status.log ◄─┘

CALL:Originate  NET:0040009  PORT:COM2

CALL:Terminate  NET:0040009  PORT:COM2
XNS PKTS: xmtd:21  rcvd:13  xmterr:00  lost:01
MNP PKTS: xmtd:21 rcvd:13 rxmtd:03 chksum:0 dups:0
SERIAL: ovrns:00 brks:03  frms:02  parity:00

C>
```

Sending and Receiving Network Messages

The SENDMSG command allows you to send messages over the network to quickly notify network users of important information or critical network conditions. For example, with SENDMSG you can send a message with the name and location of an alternate printer when you remove a printer from service; or you can instruct users to log out of a server before you shut it down for maintenance.

Messages sent with SENDMSG are instantly display on the workstation screen of the recipients. This differs from the mail program, which files your messages in user inboxes.

SENDMSG is intended primarily for the network administrator. Users can access it too, but you should instruct them to use it in moderation. The frequent appearance of messages on a workstation's screen can be more of an annoyance than a help. For this reason, try to limit the use of SENDMSG to those occasions that demand the immediate attention of the network users.

You can send a message to any of the following users or groups:

- ► A user
- ► A group
- ► All users of a domain
- ► An entire network

You can send a message in two ways. You can enter it in a special form and be prompted for the information or directly from the DOS prompt. Both methods are explained in the following pages.

Also included is the RECVMSG command. This command allows the users to control how and when the messages they receive are displayed on their workstation screens.

► **NOTE:** Before a user can receive messages from other users, the RECVMSG command must be executed at the workstation. For convenience, this command has been made a part of the AUTOUSER.BAT file, which is added to each user's home directory when a user is created and runs automatically when the user logs on. If this batch file has been deleted or the command removed, other provisions must be made for the execution of the command.

On-line help messages are provided in SENDMSG and RECVMSG to assist you in creating and sending your messages.

Sending Messages with the Message Form

The message form offers one way to send messages over the network. The form looks similar to the illustration below. The fields in the form are explained in Table 5-1.

Default Domain: Sales
Default Organization: 3Com
Message Priority: 2

Broadcast destination
SPD:3Com
Directed destination

Message:

```
┌─On-Line Help─────────────────────────────────────────────────────┐
│  Fill in this field to broadcast to an entire network.            │
│                                                                   │
│  Specify the network by entering a domain it hosts.               │
│  e.g.,    SPD:3Com broadcasts to the network that hosts the domain SPD:3Com. │
│           (The default shown is your domain.)                     │
│                                                                   │
│  Press [Ctrl]+[A] to deliver the message.  [Esc] to cancel ───────┘
```

Figure 5-1. Send Message Form

NOTE: If you are a user without administrator capability, the form contains only one destination field called the Message Destination. This field functions the same as the Directed Destination field.

Table 5-1. Fields in the Send Message Form

Field	Purpose
Default Domain	The name of your default domain. You cannot change the contents of this field. To send a message to someone not a part of your default domain, enter the correct domain in the destination field.
Default Organization	The name of your default organization. You cannot change the contents of this field. To send a message to someone not a part of your default organization, enter the correct organization in the destination field.
Message Priority	A value from 0 to 9 representing the priority of the message, with 0 the highest priority. Only network administrators can assign a priority level of 0 to a message. Default for administrator: 2; for a user: 3. Users can use the priority level to ignore or mask out low priority messages from other users and the network administrator. For example, a user can configure the workstation to ignore messages with priority levels of 3 to 9 and display only those with a priority of 0 through 2. This prevents the user from being interrupted by unnecessary messages. You establish the meaning of your priorities; Table 5-2 lists a few suggestions.

Broadcast Destination	The name of a domain. Entering a domain in this field sends your message to all the domains of the host network. See "Broadcast Destination" later in this section for further information.
Directed Destination	The name of a user, group, or domain to receive the message. See "Directed Destination" later in this section for further information.
Message	The text of the message. A message can be up to two lines, with 74 characters per line. Special characters (e.g., %, +, =, etc.) are allowed.

▶ **NOTE:** We recommend using only one destination field when you fill in the form. The Broadcast Destination field broadcasts a message over an entire network, while the Directed Destination field sends it to a specific user, group, or domain.

Table 5-2. Priority Levels

Priority	Purpose
Priority 0	Critical system messages, for example when you need to shut down a server. Messages with a priority of 0 cannot be masked out by the user. (For instructions on masking messages, see the section "Customizing the Message Program.")
Priority 1	Noncritical system messages, for example when you remove a network printer from service.
Priority 2	Administrative messages such as the date and time a server will be shut down for maintenance purposes. This is the default for an administrator's message.
Priorities 3 - 9	User to user messages.

Broadcast Destination

To broadcast a message to an entire network, enter the name of
one of the network domains in this field. In response, the
program sends your message to all the network domains.

For example, assume your network has the following three
domains: Sales, Production, and Support. By entering one of
the domains in the Broadcast Destination field, your message is
sent to all.

When the message form is first displayed, this field contains
your default domain and organization. If you want to send a
message to the entire network and your default domain is a part
of that network, leave the field unchanged by pressing **[Return]**.

To broadcast a message to another network, erase the
information in this field with the **[Del]** key and then enter the
appropriate domain and organization.

▶ **NOTE:** Delete the contents this field with [Del] if you
intend to send your message to a specific user, group,
or domain; otherwise, the entire network will receive
the message.

Directed Destination

This field sends your message to a specific user, group, or
domain. To send the message, you enter the user, group, or
domain name.

For example, to send a message to user John Smith you enter:

John Smith

If the user is not a member of your default domain or
organization, this information must be entered along with the
name. (Your default domain and organization are displayed at
the top of the form.) For example, to send a message to user
John Smith in the *Dallas* domain, enter:

John Smith:DALLAS

To send a message to all the users of a domain, enter the name
of the domain preceded by an asterisk (*). For example,
entering the following command in the Directed Destination field
sends your message to all users in the *Dallas* domain.

*:DALLAS

You can also send your message to all the members of a group,
such as a mail group. This entry in the Directed Destination
field distributes the message to everyone in the group *Docstaff*
in the *Dallas* domain.

docstaff:DALLAS

Sending a Message

To send a message with the message form, follow the steps
below.

1. Enter the command SENDMSG at any DOS prompt. If you
    are a network administrator and are using the 3+Menus, you
    can display the form from the Main menu. Select the
    Network Administrator selection, then the Server
    Administrator selection, and finally Send a Broadcast
    Message.

    The message form is displayed.

2. Enter a network domain in the Broadcast Destination field
    to broadcast your message over an entire network.
    Otherwise, delete the contents of this field with the **[Del]**
    key.

    If you are a user without network administrator capability,
    skip this step. Your form does not contain the Broadcast
    Destination field.

▶ **NOTE:** Be sure to delete the contents of this field if
you are sending your message to a specific user, group,
or domain.

3. Enter the name of a user, group, or domain in the Directed
    Destination field to send your message to a selected user(s).

    If you are a user without network administrator capability,
    this field is called the Message Destination field.

4. Type the message. If your message extends over one line,
    press **[Return]** when you reach the end of the first line.
    Otherwise, the cursor will break the last word in the line as
    it automatically moves down.

5. Press **[Return]** from the second line of the message field to
    finish the message and move the cursor to the priority field.

6. Enter a new priority or leave the default priority
    unchanged.

    Your message is now complete.

7. Press **[Ctrl]+[A]** to send the message or **[Esc]** to cancel.

    As the message is delivered, status messages are displayed
    on the screen:

```
***Checking destination network...
***Checking destination name...
***Sending message to:  John Smith:Sales:3Com
***Message sent.
```

NOTE: The prompt **Message sent** is displayed even if
the recipient is not logged in and did not receive the
message.

If you misspelled the name of the destination, an error message
is displayed. For example, if you spelled Smith as Simth, you
will see:

```
***Can't find name: John Simth:DALLAS:3Com [-104]
```

Once the message is sent, the DOS prompt or the Network
Administrator menu is displayed, depending on how you started
the program.

Sending Messages from the Command Line

You can send messages directly from the DOS prompt without
filling in the message form. Type the command SENDMSG at
the prompt along with the message, the destination, and one or
more parameters. The command format is:

```
SENDMSG  [/h] "message" /ffilename  destination [/b|/d] [/pri=priority] [/NP]
```

The SENDMSG command parameters are described in Table 5-3:

Table 5-3. SENDMSG Command Parameters

Parameter	Function
/h	Displays help messages about the command format, options, and default settings. The /h must be lowercase.
message	Text of the message. The message can be from 1 to 70 characters and must be enclosed in quote marks. Spaces and special characters (i.e., &, ^, $, etc.) are allowed.

/ffilename	Sends the contents of a file as your message. You can use this feature with frequently sent messages. Instead of typing the same message every time you want to send it, enter it in a file and then enter the name of the file in the command line. The message in the file can be up to 148 characters. The /f must be lowercase.
destination	The destination is the name of the user, group, or domain to receive the message. If the user or group is not a member of your default domain or organization, the full name (i.e., John Smith:Sales:3Com) is required.
/d	This parameter sends your message to the specified user, group, or domain. This is referred to as a directed message. You do not need to enter this parameter in your command line if you are sending a directed message, because a directed message is the default.
/b	This parameter sends your message to all network users and can only be used by the network administrator. A message sent with this parameter is referred to as a broadcasted message. To broadcast a message to an entire network, enter this parameter and the name of one of the network domains on the command line, along with your message. Though the destination network may consist of more than one domain, only one is necessary. The program sends the message to all domains. The /b must be lowercase.

/pri=*priority*	Sets the message's priority level. The value can be from 0 to 9 with 0 the highest priority. The default for a network administrator's message is 2, and for a user's 3. The */pri* must be lowercase.

/NP	Automatically sends your message to another network. If the destination of your message is not your home network, the following prompt is displayed before the message is delivered:
	
	`***Can't find name: JSmith:Production:3Com`
	`***But the target domain is remote, send anyway? (y/n)`
	
	If you respond with **Y** for yes, the message is delivered; otherwise, the message is canceled.
	
	To skip this prompt and have the message delivered automatically, enter the /NP parameter in the command along with your message.

SENDMSG Command Examples

1. Displaying help messages:

    ```
    D>sendmsg /h
    ```

2. Sending a message to user John Smith:

    ```
    D>sendmsg "The 2:00 meeting has been postponed until 3:00."
    John Smith
    ```

    The /d parameter was omitted because the default is a directed message.

3.   Sending a message to the mail group *sales* in the *Dallas*
     domain:

     ```
     D>sendmsg "The 2:00 meeting has been postponed until 3:00."
     sales:Dallas
     ```

4.   Sending a message to the mail group *production* in the
     remote domain *manufact*:

     ```
     A>sendmsg "Server MARKETING will be down for 10 minutes"
     production:manufact
     ```

5.   Sending the message in the file *shutdown* to all users of the
     network and giving it a priority of 0. The *Dallas* domain is
     one of the network domains.

     ```
     A>sendmsg /fshutdown Dallas:3Com /b /pri=0
     ```

Receiving a Message

When you receive a message from a user, it looks like the
example in Figure 5-2.

Message from: John Smith:Dallas:3Com   Oct 2nd, 8:51am

The Sales server will be shut down today at 4:00pm for maintenance. Please be
prepared to log off at that time. Thanks from John Smith at x665.

[B]EEP is ON   [A]UTO is ON   [C]LEAR   [ESC] to close window
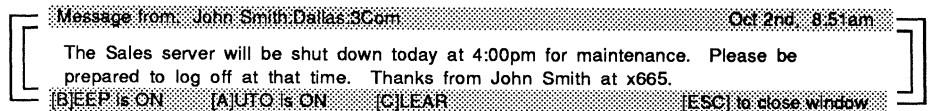
Figure 5-2. Message Window

The *message window* contains the message, the name of the
sender, and the date and time the message was sent. The
window also contains two parameter switches that you can use
to configure how you receive messages. The parameters are
explained in the next two sections.

Clearing the Message

To clear the message from the screen, type **C** for clear.   The
message disappears and you can resume work. You cannot
continue with your work until you clear the message.

You can also press **[Esc]** to close the message window but keep
the message in your workstation's memory, to recall it later.
When you press **[Esc]**, the message disappears but remains in
memory. The message is recalled with the hot key combination.
The default hot key combination is **[Alt]+[Left Shift]+[R]**.

Turning Off the Beep

When a workstation receives a message, it beeps to notify you
that a message has arrived. If you do not want to hear the
beep, type the letter **B** when the message window is on the
screen. (If necessary, use the hot key to display the window.)
This toggles the workstation beep on and off. If you turn it
off, the workstation will not beep when you receive a message,
until you either turn off or reset your workstation. To
permanently turn off the beep, refer to the instructions in the
section "Customizing the Receive Message Program" in this
chapter.

Adjusting the AUTO Parameter

This is the second parameter that you can control from the
message window. When AUTO is turned on, a message from
another user is automatically displayed on your screen. If you
turn the feature off by typing the letter **A**, a received message
remains hidden until you display it with the hot key. As with
the workstation beep, this continues until you turn off or reset
your workstation.

We do not recommend that you turn off both the workstation
beep and the AUTO feature; otherwise, you will have no way
of knowing when you have received a message.

Customizing the Receive Message Program

The following features of the receive message program can be
adjusted at each user workstation:

► Adjusting the tone of the workstation beep
► Turning off the workstation beep
► Positioning the message on the screen
► Defining how a message is cleared from the screen
► Filtering messages

Changes to the message program are made with the RECVMSG
command in the \APPS directory. The command is used just
like a DOS command. You enter it at a DOS prompt (e.g., D:)
along with the new parameters. For example, the following
command stops your workstation from beeping when it receives
a message:

D>RECVMSG /BEEP=OFF

Once you know how to use the command and decide on a
configuration for your workstation, enter the command and the
appropriate parameters in your AUTOEXEC.BAT file on your
startup disk. This way the message program is automatically
configured whenever you turn on or reset your workstation.

To display the default values of the message program, enter
RECVMSG command at any DOS prompt. In response, the
screen in Figure 5-3 is displayed:

```
3+Recvmsg 1.3 - Copyright(c)  3Com Corporation  1987.  All rights reserved

Current command line settings are:

                /KEY={ALT}{LEFT_SHIFT}R
                /TONE=750
                /ROW=21
                /PRI=9
                /AUTO=ON
                /BEEP=ON
                /CLEAR=OFF
                /CLEARTIME=10

Hot key (/KEY) values may be any combination of:
                Ctrl Key  {CTRL}          Left Shift Key    {LEFT_SHIFT}
                Alt Key   {ALT}           Right Shift Key   {RIGHT_SHIFT}
Plus any key (A, B, ... or Z)


Other allowed values:

                /PRI  0 to 9         /TONE      0 to 10000
                /ROW  0 to 21        /CLEARTIME  0 to 255 (seconds)
```

Figure 5-3. RECVMSG Parameter Display

The top half of the screen contains the current parameter
settings. The bottom half displays possible values. Table 5-4
explains each parameter.

Table 5-4. RECVMSG Command Parameters

Parameters	Functions
/KEY	Designates the hot key combination. Used with the /AUTO parameter. If /AUTO is OFF, received messages remain hidden until you press the hot key, which displays the message window. Defines the hot key combination. The default is **[Alt]+[Left Shift]+[R]**. ([Left Shift] refers to the [Shift] key on the left side of the keyboard.) Possible combinations include: [Alt] or [Ctrl]+[Left Shift] or [Right Shift] + [A], [B],... or [Z]
/TONE	Sets beep tone signalling arrival of a message. /TONE range: 0 (low sound) to 10000. If the /BEEP parameter is OFF, this has no affect. Default is 750.
/ROW	Specifies the row on the screen where the first line of the message window is displayed. /ROW range: from 0 (top of screen) to 21 (bottom of screen). Default is 21.
/PRI	Filters your messages by priority level. /PRI range: 0 to 9. For example, if you set this parameter to 5, only those messages with a priority of 0 to 5 are displayed on your screen. All others are rejected. If you set it to 0, only those with a

	priority of 0 are displayed. You cannot prevent messages with a priority level of 0 from being displayed. Default is 9, meaning all messages are displayed.
/AUTO	Determines whether a message is displayed automatically or manually. The /AUTO parameter can be ON or OFF. If ON, a received message is instantly and automatically displayed. If OFF, the message remains hidden until the user displays it by pressing the hot key. Default is ON.
/BEEP	Turns the workstation beep ON and OFF. If /BEEP parameter is ON, the workstation beeps when it receives a message. If OFF, the workstation will not beep. Default is ON.
/CLEAR	Establishes how a message is cleared from the screen. This parameter can be ON or OFF. If ON, the message disappears by itself after a set time, determined by the /CLEARTIME parameter. If OFF, the user must clear the message with the [Esc] key.
/CLEARTIME	Specifies the amount of time a message remains on screen. This is used with the /CLEAR parameter. If /CLEAR is ON, this parameter determines the number of seconds a message remains on the screen. /CLEARTIME range: 0 to 255 seconds. Default is 10 seconds.

> **NOTE:** We do not recommend that you turn the /AUTO
> parameter OFF, because you may miss vital network
> messages.

RECVMSG Command Examples

1. Preventing the workstation from beeping when it receives a
    message:

    ```
    D>RECVMSG /BEEP=OFF
    ```

2. Displaying the messages at the top rather than the bottom
    of the screen:

    ```
    D>RECVMSG /ROW=1
    ```

3. Turning off the workstation beep and clearing the messages
    automatically after 20 seconds:

    ```
    D>RECVMSG /BEEP=OFF /CLEAR=ON /CLEARTIME=20
    ```

4. Ignoring all messages except those with a priority of 0
    through 3:

    ```
    D>RECVMSG /PRI=3
    ```

5. Changing the hot key combination to [Ctrl]+[Right
    Shift]+[Z]:

    ```
    D>RECVMSG /KEY={CTRL}{RIGHT_SHIFT}Z
    ```

Removing and Moving Services

The remove feature of 3+ services allows you to move a service from one server to another. You may wish to do this in the following situations:

► A server runs out of space. Moving a service to another server can make more space available to remaining services.

► A server is added to the network. You may therefore decide to move one or more of the existing services to it.

► A server is being replaced with a different machine. For example, if you upgrade from a PC to an AT server, you will need to deinstall and move the services.

The remove portion of the 3INSTALL program (this is called deinstall for anything other than a 3Server386) removes all files for the selected service that have an extension of .EXE. It also resets the copy protection feature on the service's installation diskette.

If your installation is new and no information is yet stored on the server, deinstallation is simply a matter of shutting down the server, running the 3INS program (or 3INSTALL for anything other than a 3Server386), and selecting the remove (or deinstall) menu item.

However, if you have been using a service and now need to deinstall it, be sure to save valuable information and move it with the service.

▶ NOTE: Whenever you change the services installed on a
server, certain parameters should be adjusted or tuned
to compensate for the change. For more information on
the parameters if you have a 3Server386, see the *3+
Network Tuning Guide.* Otherwise, refer to the *3+
Installation and Configuration Guide.*

General guidelines for deinstalling each service are provided
below.

The 3+Share File and Print Service

▶ Shut down the server being deinstalled. Follow the
procedures in "Shutting Down Network Services" later in
this chapter.

▶ Back up all home directories on the server being deinstalled.

▶ Back up the SHRLIST file in the \3PLUS directory.

▶ Delete all home directories.

▶ Deinstall the 3+Share File and Print service.

▶ Install the 3+Share File and Print service on the new server.

▶ Restore the backed up home directories to the new server.

▶ Restore the backed up SHRLIST file to the \3PLUS
directory.

▶ Use the 3N MOD SERVER command to modify the services
installed on both the old and the new server.

▶ Use the 3N MOD USER command to modify each user's
Share server location.

The 3+Name Service

▶ Shut down the server being deinstalled. Follow the procedures in "Shutting Down Network Services" later in this chapter.

> **CAUTION:** While the 3+Name service is out of operation, users will not be able to access any services on the network.

▶ Back up the \3PLUS\3NAME directory on the server being deinstalled.
▶ Deinstall the 3+Name service.
▶ Install the 3+Name service on the new server.
▶ Restore the backed up \3PLUS\3NAME directory to the new server.

The 3+Mail Service

▶ Use the 3N MOD command to delete each user's 3+Mail server location.
▶ Shut down the server being deinstalled. Follow the procedures in "Shutting Down Network Services" later in this chapter.
▶ Back up the \3PLUS\3MAIL directory using 3COPY, DOS BACKUP, or 3+Backup.

> **CAUTION:** The 3+Mail service uses some zero-length files and empty subdirectories. The DOS COPY command will not back up these files and subdirectories correctly. To assure that a correct copy of the \3PLUS\3MAIL directory is made, use 3COPY, DOS BACKUP, or 3+Backup only.

▶ Delete all files and subdirectories in \3PLUS\3MAIL.
▶ Deinstall the 3+Mail service.
▶ Install the 3+Mail service on the new server.
▶ Restore the backed up \3PLUS\3MAIL directory to the new server.
▶ Use the 3N MOD SERVER command to modify the services installed on both the old and the new server.
▶ Use the 3N MOD command to modify each user's 3+Mail server location.

The 3+Remote or 3+Route Service

▶ Run the OPT program and generate a configuration report if you have a 3Server386, and refer to the *3+ Network Tuning Guide* for more information. Otherwise, run the 3INSTALL program and generate a configuration report. Each time you generate such a report a file is created in the \3PLUS\3CONFIG directory. The file is given the name CONFDUMP.*nnn* where *nnn* is a three-digit number beginning with 000. That is, each time you generate a report, a new CONFDUMP file is created with a consecutively numbered extension (e.g., CONFDUMP.000, CONFDUMP.001, CONFDUMP.002).
▶ Locate the newest CONFDUMP by using the DOS command DIR \3PLUS\3CONFIG\CONFDUMP.*. Make a note of the extension number of that newest file.
▶ Print the file.
▶ Shut down the server being deinstalled. Follow the procedures in "Shutting Down Network Services" later in this chapter.
▶ Deinstall the 3+Remote or 3+Route service.
▶ Move any asynchronous adapters, modems, and/or network adapters to the new server, as necessary.
▶ Install the 3+Remote or 3+Route service on the new server.
▶ Reconfigure the 3+Remote or 3+Route service, using the file you printed earlier as a guideline.
▶ Use the 3N MOD SERVER command to modify the services installed on both the old and the new server.

Shutting Down Network Services

You will need to shut down the services on a server if you:

► Reinstall any of the network software
► Install a new network service on the server
► Add or reconfigure a printer
► Add or reconfigure a modem
► Want to turn off the server's power
► Have changed parameters using the 3INSTALL program
► Want to deinstall a service.

CAUTION: Never turn off a server's power without first shutting down the network software. Always be sure to shut down the 3+ Name service last. If these procedures are not followed, valuable data may be lost.

NOTE: To start network operations again after a shutdown, you must restart each server, beginning with the 3+Name service.

◼◼◼3+ Mail Service Shutdown

Use the 3M SHUTDOWN command to shut down the 3+Mail
service.

1. Log in as the administrator.

    A>LOGIN admin ◂─┘
    Login 1.3-Copyright (c) 3Com
    Corporation 1987. All rights reserved.

    Password? **PASS** ◂─┘

    Admin:HQ:3Com logged in.

    A>

2. Link the APPS directory to D: and make D: the default
    drive.

    A>3F LINK d: \\sys\apps ◂─┘
    D: linked to \\Finance:HQ:3Com\Apps.

    A>**d:** ◂─┘
    D>

3. Type the 3M SHUTDOWN command and respond **Y** (yes) to
    the verification prompt.

    D>3M SHUTDOWN ◂─┘
    Preparing to shutdown mail service on
    Corporate:HQ:3Com.
    Are you sure [Y/N]? **y** ◂─┘
    Mail service shutdown.
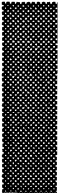
► **NOTE:** The 3M SHUTDOWN command causes the 3+Mail
service to halt on the default server. If you wish to
halt 3+Mail service on a different server, you must
first use the 3M SERVER= command to specify the
server name. See Chapter 6 for details on using the 3M
SERVER= command.

■ 3+File and 3+Print Service Shutdown

The 3+File and 3+Print services on a server can both be
shut down using either the 3F SHUTDOWN or 3P
SHUTDOWN commands. Either command shuts down both
the File and Print services for a given server. If you do
not specify a server name, the File and Print services are
shut down for your default file server.

Both the 3F SHUTDOWN and 3P SHUTDOWN commands have
a /NEW option (**Disallow New Links?** is the prompt). This
option prevents users from linking to directories and
printers on a server. The /NEW option only prevents future
links, it does not shut down the services. Use the /NEW
option to prevent new links when shutdown is anticipated,
and users already logged in to the network are finishing up
and preparing to log out.

To shut down the 3+File and 3+Print services on a server:

1. Log in as the administrator.

   A>LOGIN admin ◄─┘
   Login 1.3-Copyright (c) 3Com
   Corporation 1987. All rights reserved.

   Password? **pass** ◄─┘

   Admin:HQ:3Com logged in.

2. Link the APPS directory to D: and make D: the default
   drive.

   A>3F LINK d: \\sys\apps ◄─┘
   D: linked to \\Finance:HQ:3Com\APPS.

   A>**d:** ◄─┘
   D>

3. Type the 3F or 3P SHUTDOWN command and, when
   prompted, respond **Y** (yes) to disallow new links.

   D>3P SHUTDOWN ? ◄─┘
   Server Name? **finance** ◄─┘
   Disallow new 3F and 3P links [Y/N]? **Y** ◄─┘
   Disallow new 3F and 3P links to
   \\Finance:HQ:3Com [Y/N]? **Y** ◄─┘
   Shutdown services [Y/N]? **N** ◄─┘
   New links to \\Finance:HQ:3Com disallowed.
   D>

4. Inform any users who are still linked to and working on the
   server that you are preparing to shut down the services.
   When they have finished saving their files and logged out,
   continue with Step 5.

5. Type the 3F or 3P SHUTDOWN command and, when
   prompted, respond **Y** (yes) to shut down the services.

   ```
   D>3F SHUTDOWN ? ◄┘
   Server Name? finance ◄┘
   Disallow new 3F and 3P links [Y/N]? n ◄┘
   Shutdown services [Y/N]? y ◄┘
   Shutdown file and Print Service
   on \\Finance:HQ:3Com [Y/N]? y ◄┘
   \\Finance:HQ:3Com shutdown.
   D>
   ```

> **NOTE:** Before turning off the server's power, wait a
> few minutes. This allows the server ample time to
> finish closing all files.

The 3+File and 3+Print services have now been shut down.
Before turning off the server, make sure to shut down any other
network software.

■■■Name Service Shutdown
The 3N SHUTDOWN command is used to shut down the
3+Name service and thus network operations. You should
shut down the Name service only after shutting down the
3+File and 3+Print services on the network. Once network
operations have been shut down, you must restart each
server to start network operations again.

To shut down the 3+Name service and network operations:

1. Inform all network users that the network is shutting down
   so that they have time to finish their work and log out.

2. Make sure you have shut down the network's 3+File and
3+Print services.

3. Log in as the administrator.

A>LOGIN admin ◄──┘
Login 1.3-Copyright(c)3Com
Corporation 1987. All rights reserved

Password? **pass** ◄──┘

Admin:HQ:3Com logged in.

4. Insert the *3+Share User Software* diskette in drive A:.

▶ **NOTE:** You cannot link to the APPS directory to
access the 3N command file because the 3+File service
has been shut down.

---

5. Type the 3N SHUTDOWN command.

A>3N SHUTDOWN ? ◄──┘
Shutdown the Name Service [Y/N]? **y** ◄──┘
The Name Service is shutdown.

The network is now completely shut down. You may turn off
power to the server or servers without endangering any of the
data. All servers must be restarted, beginning with the 3+Name
service server, before network operations can be resumed.

▶ **NOTE:** Before moving the server, check the
manufacturer's instructions. To protect data, some hard
disks require special care before moving.

Chapter 6: 3+Backup

3+Backup allows you to back up and restore files on any
network server running 3+ software. Backing up files on a
regular basis is crucial to effective network management and
assures that, in the event of a disk failure or reformat, you can
restore your work to the disk. 3+Backup allows you to:

► Back up files to cartridge tapes and restore one or more of
   those files later.

► Back up all files or only those that have changed since the
   last backup.

► Start backups manually or create a schedule on your system
   that automatically starts 3+Backup.

► Restore files at the server, disk, directory, and file levels.

► Start backup and restore operations from any personal
   computer on the network.

► Create a log that displays the contents of a tape.

To perform a backup, you need to have streamer tapes on hand. The section titled "Working with Tapes" describes what tapes you should purchase and how to prepare them for backup.

▶ **NOTE:** Wait at least two minutes after booting the server before you perform a backup, restore, or tape directory.

3+Backup is a selection on the 3+Menus Main menu. You operate it using the 3+Menus interface. The procedures in this chapter presume that you know how to operate the menus, fill in the forms, and use lists. If you are unfamiliar with these processes, refer to the *3+Menus Reference Guide*.

You can also operate 3+Backup with commands. 3+Backup commands are described in Chapter 7: Command Reference.

Types of Servers
There are three types of servers involved in backup and restore operations: source, destination, and backup. The distinctions between the three are important for understanding the information you see on the screen and for performing a backup correctly.

The **source** server has the files you want to back up or restore from. The **backup** server contains the tape unit. The tape unit may be in an expansion unit, the source server, or another server depending on your hardware configuration. If your tape unit is located in the source server, you will enter the same name for both the source and destination servers.

The **destination** server only applies for a restore and is the
server to which you want to restore the files. This may or may
not be the same as the backup or source server, as described
above.

```
        Backup  from  source  server:  NEPTUNE:SPD:3COM
```

**SOURCE
SERVER**

BACKUP

**DESTINATION
SERVER**

```
      Backup  tape  unit  is  on  server:  VENUS:SPD:3COM
```

```
      Backup  tape  unit  is  on  server:  VENUS:SPD:3COM
```

**BACKUP
SERVER**

RESTORE

**DESTINATION
SERVER**

```
     Restore  to  destination  server:  NEPTUNE:SPD:3COM
```
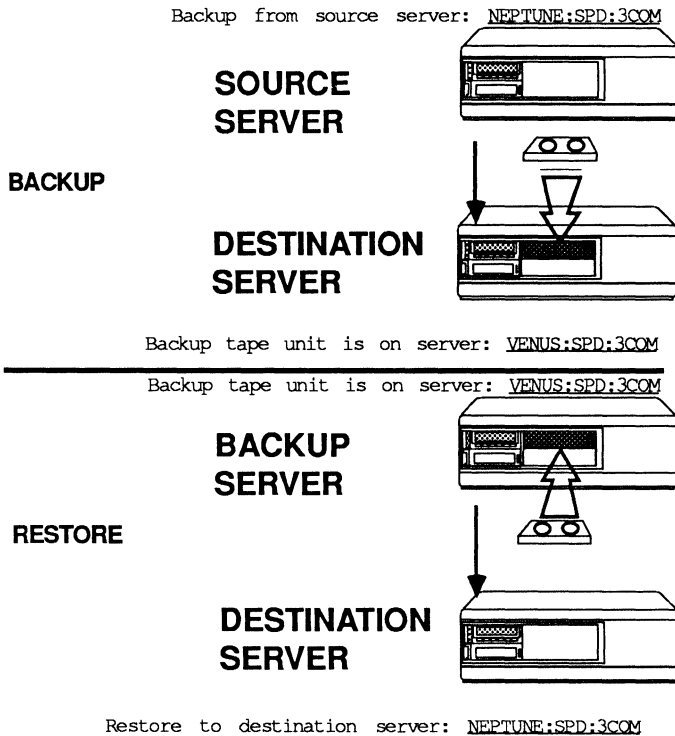
Figure 6-1. Types of Servers

Modes of Operation

There are two basic modes in which you can operate 3+Backup:
on-line and off-line. In **on-line** mode the network services on
the server you are backing up or restoring are still operating,
although it is best if no one is using the server when you are
performing a backup or restore.

In **off-line** mode, the server is still physically connected to the
network but all the services on the backup server are shut
down, and therefore the server is not operational. Since the
server is not available on the network in off-line mode,
performing a backup or restore is much faster than when the
server is on-line.

These two modes of operation are reflected in the menus. The
full complement of menu selections and form fields is shown
when you perform an on-line backup or restore. For off-line,
some selections are not necessary or not operational. For
instance, you cannot change the default server in off-line mode
because there is only one server operational -- the one on
which you are performing the backup. The illustrations of menu
selections and form fields are the on-line versions. The tables
that describe them point out which are not available or are
different for off-line.

▶ NOTE: A backup tape you create using either on-line or
off-line mode can be used for either an on-line or
off-line restore.

Using 3+Backup

In addition to starting 3+Backup from the Main menu, as described earlier, you can also start from the DOS prompt. To start the on-line version and display the menus from the DOS prompt, enter 3BMEN; to start the off-line version enter 3BMENDOS.

Backup Features

3+Backup provides some major features to make backing up and restoring files easy, versatile, and reliable. The major features are described below.

Partition Backup

You can back up the contents of one, or a range of partitions on your server's hard disk. Whenever you back up a partition, all of the directories and subdirectories in the selected partition are backed up.

Automatic and Manual Backup

You can choose to operate backup manually or automatically. To set up automatic operation, you must set up a special schedule file as described later. You can also perform a manual backup.

In off-line mode, because the server is off the network, you cannot perform an automatic backup.

Full and Incremental Backup

When you make a full backup, you back up all the files that are on the server at the time. An incremental backup, on the other hand, backs up only the files that have changed from the last time you made a backup.
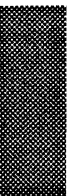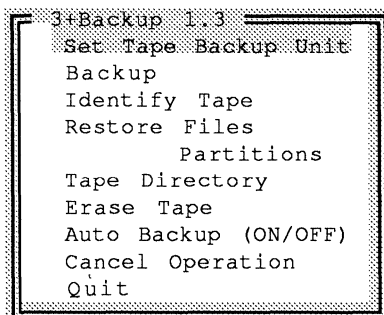
Append Tape

If the amount of data you are backing up is small, you may
want to put more than one backup on a tape. This is called
appending to a tape.

The 3+Backup Main Menu

The 3+Backup Main menu shows all the backup selections. Each
menu selection displays a form when you choose it. You operate
this menu in the same manner as all other 3+Menus. For details
on operating 3+Menus see the *3+Menus Reference Guide*.

```
 3+Backup  1.3
   Set Tape Backup Unit
   Backup
   Identify  Tape
   Restore  Files
            Partitions
   Tape  Directory
   Erase  Tape
   Auto  Backup  (ON/OFF)
   Cancel  Operation
   Quit
```

Table 6-1. The Backup Main Menu Selections

Selection	Description
Set Tape Backup Unit	Sets backup server name. *Not present in off-line mode.*
Backup	Defines parameters for backup.
Identify Tape	Displays information about the tape.
Restore Files	Sets parameters for restoring files.
Restore Partitions	Defines parameters for restoring partitions.
Tape Directory	Creates a file containing a list of the tape contents.
Erase Tape	Erases the tape.
Auto Backup (ON/OFF)	Enables or disables automatic backup. You must have an AUTOTIMS file before using this selection (described later). *Not present in off-line mode.*
Cancel Operation	Cancels any operation in progress. Not present in off-line mode. To cancel an operation in off-line mode, press [Ctrl]+[Break].
Quit	Exits this menu and returns you to the 3+ Main menu. In off-line mode, returns you to the DOS prompt.

Status Displays

A status display is always shown at the bottom of the screen, below the 3+Backup Main menu. The Backup, Restore Files, Restore Partitions, Tape Directory, and Erase Tape menu selections each show a status display when that particular operation is in progress.

After you choose the selection from the 3+Backup Main menu, fill in the form, and execute your selection, the 3+Backup Main menu is redisplayed and an appropriate status display replaces the Default Status at the bottom of the screen. The status display gives information about the operation that is in progress. Since some form fields are not shown in the off-line menus, their status is not reported. These differences are noted in the tables that follow.

Current Default Values

The default status display titled "Current Default Values," that displays when no operation is in progress is described in Table 2. In off-line mode the title of the status display is "Current Status." Other forms and their corresponding status displays are described later.

```
      ┌─ Current Default Values ──┐①
      │ Backup tape unit is on server:
      │ Venus:SPD:3Com
      │ No Activity                          Auto:  Off
      └─
          ②                                      ③
```
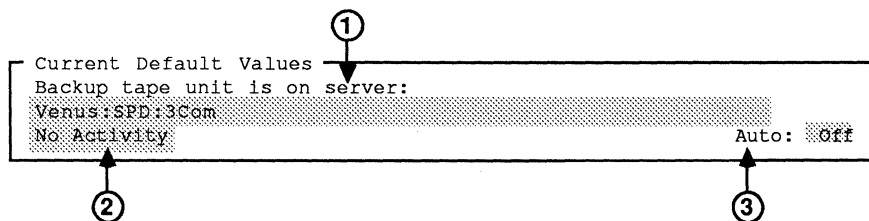
Table 6-2. The Default Status Display Information

Item	Description
1. Backup tape unit is on server:	Three-part name of the backup server. Can be the name of the source server. Use the Set Tape Backup Unit selection to change.
2. No Activity	Describes that no operation is in progress.
3. Auto: On/Off	The status of your automatic backup choice on the given backup server. This information does not display in off-line mode because an automatic backup is *not available in off-line mode.*

Keys to Use

At the top of the screen is a list of keys you can use on all of the menus and forms:

[Return]   To accept the information you have entered.

[UP ARROW] or
[DOWN ARROW]   To make a selection from a list.

[Esc]   To close the form.

3+Menus Parameters for Backup Menus

You can specify five 3+Menus parameters when you start the
3+Backup menus. Use the parameters on the command line, add
them to your PROFILE.SYS file, or add them to the menu item
definition in 3+Menus. These parameters, ATTRIBUTES,
BANNER, DISPLAYTYPE, TAPESERVER, and ZOOM, are
described in Appendix A: The PROFILE.SYS File. The
TAPESERVER parameter is especially useful because it allows
you to specify the backup server name. For information on
3+Menus refer to the *3+Menus Reference Guide*.

Messages

During the operation of 3+Backup, messages are generated and
displayed in three ways: on the LCD of the backup server, to
the log file, and on the screen.

LCD messages are brief. For example, when you need to change
a tape, the message is "Change the tape." Detailed messages
about the operation are stored in various log files. Alert,
information, and status messages are displayed on the screen.
See the *3+ Messages* guide for a description of all messages.

Managing Backup

You will be most successful with your backups and restores if
you manage them carefully. This includes determining when to
back up, keeping a notebook listing when you back up, and
making a schedule for your backups.

Determining When to Back Up

You should do your backups on a routine basis. To determine
when to back up files, consider the following questions about
the files on your servers:

- ▶ How critical is the information in these files?
- ▶ How often do these files change?
- ▶ When are the files not in use?

The answers to these questions will help you determine how often to back up your files and at what time. For example, if you have files that contain critical information that changes daily between the hours of 9 a.m. and 5 p.m., you may want to back up these files incrementally every day, and do a full backup of the server once a week.

The key to successful backups is to establish a routine. If you establish a routine, you will remember it, the users will remember it, and you will be sure to have everything ready when you are ready to back up.

You should try to perform a backup only when users are not using their files. Therefore, you should back up before or after normal working hours. If you choose to back up before normal working hours, be sure that you schedule enough time to complete the backup before the users log into the network.

CAUTION: If you attempt to back up files when they are in use, the backup copy of the file may not be accurate. Do not back up files that are in use, or allow users to use files that are being backed up.

NOTE: Be sure to periodically back up the files in the \3PLUS\3NAME directory using 3+Backup. If the 3+Name server fails, you can keep your network operational by installing the 3+Name software on a new server and restoring the latest backup of these files to the new server.

How Long Backup Takes

A backup takes from 1 to 5 minutes per megabyte of information, depending upon the server type, tape drive type, and mode of operation.

Keeping a Backup Notebook

A backup notebook is a useful tool for organizing and managing backups on your network. In a backup notebook you can:

► Define the partitions that need incremental or full backup.

► Define the day(s) on which you will make incremental and full backups.

► Note when files are available for backup.

► Design a backup schedule.

► Note the number of tapes you will need for each server (about 60MB storage space per tape for a 3Server3, 120 to 150 MB for a 3Server386).

► Note the person assigned to do the backups.

► Maintain a schedule for cleaning the drive heads.

► Keep a log of backups and restores done for each server.

Having a backup notebook is very useful when you must restore files. By keeping a notebook, you can tell when you made the latest backup. Should there be a disk failure when you are restoring all the files, you will know how much data you will have to reconstruct once the network is up and running again. A sample notebook page is shown in Figure 6-2.

Server Name: _____ Backup Person: _____

Incremental Backups

Partition   Size   Day   Type
_____   _____   _____   _____
_____   _____   _____   _____
_____   _____   _____   _____

Full Backups

Frequency: _____
Day: _____
Type: _____
Number of tapes needed: _____

Hours files are available: _____

Tape head cleaning: _____

Log

Full   Incremental   Notes
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Figure 6-2 A Sample Backup Notebook Page

Backup Screens

There are ten selections on the 3+Backup Main menu, all of
which display a form, and some of which provide a status
display. The forms and their coordinating status displays are
described in the following pages.

Set Tape Backup Unit

On the Set Tape Backup Unit form, you enter the name of the
server whose tape backup unit you want to use. The current
server name is then displayed on the Current Default Values
status display below the 3+Backup Main menu. **This menu
selection is not present in off-line mode.**

```
 3+Backup  1.3                        ①
   Set Tape Backup Unit

   Backup tape unit is on server:
   Venus:SPD:3Com

   Tape  Directory
   Erase  Tape
   Auto Backup (ON/OFF)
   Cancel  Operation
   Quit
```

Table 6-3. Set Tape Backup Unit Form Fields

Field	Description
1. Backup tape unit is on server:	Three-part name of the server containing the tape backup unit.

Backup

On the Backup form, you define the parameters for your backup, and the kind of backup you want to perform.

```
  ┌─ 3+Backup 1.3 ─────────┐  ①
  │  ┌ Backup═══════════════════════════════════════
  │  │
② │  │  Back up from source server:
  │  │  Venus:SPD:3Com
  │  │
  │  │  First partition:        *
③ │  │  Last   partition:       *
  │  │
  │  │  Use * to indicate all partitions (back up the entire server)
  │  │
④ │  │  Incremental or Full backup?     Full backup
  │  │  Append to the end of the tape?  N
  │  │
⑤
```

Table 6-4. Backup Form Fields

Fields	Description
1. Back up from source server:	Three-part name of the server which contains the files to be backed up. Use Set Tape Backup Unit to change this. In off-line mode, the name of the server you are operating off-line is shown here.
2. First partition:	First partition to be backed up, such as C:. Use * for this and the following field to specify all partitions.
3. Last partition:	Last partition to be backed up, for instance C: for the same partition, or D: for two partitions. Use * for this and the previous field to specify all partitions.
4. Incremental or Full backup?	Specifies whether you want an incremental or a full backup. *Not present in off-line mode.*
5. Append to the end of the tape?	Specifies whether or not you want the backup files appended to the end of the tape. *Not present in off-line mode.*


```
         (1)
    ┌────────────────────────────────────────────┐
 (2)│ Backup Status                               │
    │ Backup tape unit is on server:              │
    │ VENUS:SPD:3Com                              │
    │ Source:        NEPTUNE:SPD:3Com             │
 (3)│ Started by:    Roger Phelps:SPD:3Com        │
    │ On: 7/19/87   At: 6:35p      Full backup    │
    │ First partition: C  Last: F  MB Backed up: 5 Auto:Off │
 (4)│                                             │
    └────────────────────────────────────────────┘
      (7)      (5)(8)      (6)    (9)    (10)
```

Table 6-5. Backup Status Display Information

Item	Description
1. Backup tape unit is on server:	Three-part name of the server containing the tape unit. You change this information using the Set Tape Backup Unit selection.
2. Source:	Three-part name of the server containing the source files.
3. Started by:	Three-part name of user starting backup. The name AUTO is displayed for an automatic backup.
4. On:	Date the backup was started.
5. At:	Time the backup was started.
6. Full backup Incremental backup	Whether the backup is full or incremental. Only a full backup is available in off-line mode, and therefore this always says "Full backup."
7. First partition:	First partition backed up. A * in this and the following field indicates all partitions.
8. Last:	Last partition being backed up.
9. MB backed up:	Number of megabytes backed up. The number changes as the backup progresses.
10. Auto: Off/On:	Whether automatic backup is enabled. Not displayed in off-line mode since automatic backup is *not available in off-line mode.*

Identify Tape

You identify a tape to confirm that you are using the correct tape for a backup or restore. This selection has a status display only. The fields are described in Table 6-6.

```
  3+Backup 1.3 ─────────────┐  (1)        (2)
     Identify  Tape          │

     Tape  sequence  number: 1
     Tape  contains  contents  from  source  server:
     Venus:SPD:3Com

     The  backup  was:   Full  backup
     Date:               7-25-87
     Time:               7:35p
     Class  of  backup:  System

     Press  [Enter]  or  [Ctrl]+[Enter]  to  continue
```

Table 6-6. Identify Tape Status Display Information

Item	Description
1. Tape sequence number:	Identifies the tape in sequence if more than one tape was necessary for the backup.
2. Tape contains contents from source server:	Source server from which the files were backed up.
3. The backup was:	Whether the backup was full or incremental.
4. Date:	Date when the backup was made.
5. Time:	Time when the backup was made.
6. Class of backup:	This usually displays "System." It may display "User" if this tape was created by a user with an earlier version of 3+Backup.

Restore Files

You can restore selected files to a server and place them in a location you select. This location can be a different server, partition, and directory than the location from which the backup tape was made. Note that you can also restore entire partitions or groups of partitions using the Restore Partitions selection.

```
    ┌ 3+Backup 1.3 ──────────┐          ①
    │ ══Restore══Files═══════════════════════════════
 ②  │  Restore from source server:
    │  Venus:SPD:3Com
    │
 ③  │  From partition:      C
    │  Directory:           _____
 ④  │  Files:               _____
    │
    │  Leave the Files field blank to restore sub-directories
    │
 ⑤  │  Restore to destination server:
    │  Neptune:SPD:3Com
    │
 ⑥  │  Restore files to partition:      C
    │  Directory:           _____
    │
 ⑦  │  Restore no later than date: _____  time:____
    │  format (ignore seconds): │ 12-13-87 │         7:30a
    └───────────────────────────────────────────────
                              ⑧                  ⑨
```

Table 6-7. Restore Files Form Fields

Field	Description
1. Restore from source server:	Three-part name of server from which the files are being restored. Default is the server containing the tape unit.
2. From partition:	Partition on the backup tape from which to restore the files. The default is C:.
3. Directory:	Directory in that partition where the files are located.
4. Files:	Specific files to be restored. If you leave this blank, everything in the specified directory is restored, including all subdirectories and files. If you type *.*, only the files in that directory are restored. You can also use wildcard characters to define which files you want restored.
5. Restore to destination server:	Three-part name of the server to which you want to restore the files. In off-line mode the name of the server that you are using is automatically displayed here.
6. Restore files to partition:	Partition to which you want to restore the files.
7. Directory:	Directory where you want the files restored.
8. Restore no later than date:	Only files backed before this date will be restored. The date is necessary if more than one copy of the file is present on the tape you are using for the restore.
9. time:	The time is necessary only if two backups were made on the same day and contain different information.

Restore Files Status

Backup tape unit is on server:
NEPTUNE:SPD:3Com
Source: NEPTUNE:SPD:3Com
Partition/path: C:
Destination: NEPTUNE:SPD:3Com
Partition/path: F:
Started by: Mark Adams:SPD:3Com
On: 8/31/87   At: 8:28p
Files done: 5   MB processed: 7   Auto: On
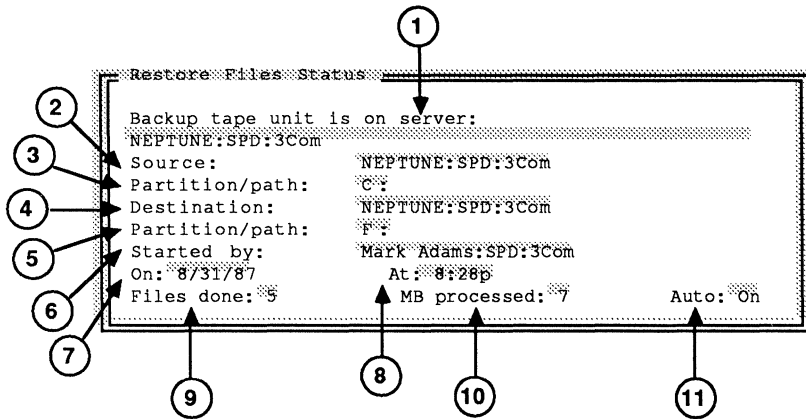
Table 6-8. Restore Files Status Display Information

Item	Description
1. Backup tape unit is on server:	Three-part name of the server containing the tape unit. You can change this information using the Set Tape Backup Unit selection.
2. Source:	Three-part name of the server whose files are being restored.
3. Partition/path:	Beginning partition and path of the files being restored from the tape.
4. Destination:	Three-part name of the server where the files are to be restored. In off-line mode this server name and the tape unit server name will be the same.
5. Partition/path:	Beginning partition and path for the restore destination.
6. Started by:	Three-part name of the person who started the restore operation. *Not available in off-line mode.*
7. On:	Date when the restore was started.
8. At:	Time when the restore was started.
9. Files done:	Number of files that have been restored. Do not confuse with "MB processed."
10. MB processed:	Number of megabytes read from the tape thus far and not necessarily yet restored. This number changes as the restoration progresses.
11. Auto: On/off:	Whether or not your backup server has its automatic backup feature enabled. *Not displayed in off-line mode.* An automatic backup is not available in off-line mode.

Restore Partitions

You use this selection to restore entire partitions of files. To restore selected files and/or directories, use Restore Files.

```
┌─ 3+Backup 1.3 ─────────┐                    ①
│   Restore  Partitions                              │
│                                                    │
│   Restore from source server:                      │
│   VENUS:SPD:3Com                                   │
│                                                    │
②  Starting from partition:        *                │
③  Ending  with  partition:        *                │
│   Use '*' to indicate a full restore for the server│
│                                                    │
④  Restore to destination server:                   │
│   NEPTUNE:SPD:3Com                                 │
│                                                    │
⑤  Restore starting at partition:  *                │
│   Use a '*' to restore at the same partition used for backup│
│                                                    │
⑥  Restore no later than date: _____   time:_____│
│   Format (do not use seconds):  12-31-87      7:30a│
└────────────────────────────────────────────────────┘
                                         ⑦
```

Table 6-9. Restore Partitions Form Fields

Field	Description
1. Restore from source server:	Three-part name of the server whose files are being restored from the tape. Default is the server containing the tape unit.
2. Starting from partition:	First partition to be restored, such as C:. Use * for this and the following field to specify all partitions.
3. Ending with partition:	Last partition you want restored, for instance C:. Use * for this and the previous field to specify all partitions.
4. Restore to destination server:	Three-part name of server where you want to restore files. In off-line mode the name of the server you are restoring is displayed here and you cannot change it.
5. Restore starting at partition:	First server partition where you want the files restored. Partitions are restored consecutively beginning with this one.
6. Restore no later than date:	Only files backed up before this date will be restored. The date is necessary only if more than one copy of the file is present on the tape you are using for the restore.
7. time:	The time is necessary only if two backups were made on the same day and contain different information.

①

Restore Partitions Status

Backup tape unit is on server:
NEPTUNE:SPD:3Com
Source: NEPTUNE:SPD:3Com
From partition: C: through partition: F:
Destination: NEPTUNE:SPD:3Com
Starting at partition: C:
Started by: Mark Adams:SPD:3Com
On: 8/31/87   At: 8:29p
Files done: 10   MB processed: 12   Auto: Off

② ③ ⑤ ⑥ ⑦ ⑧ ④ ⑩ ⑨ ⑪ ⑫
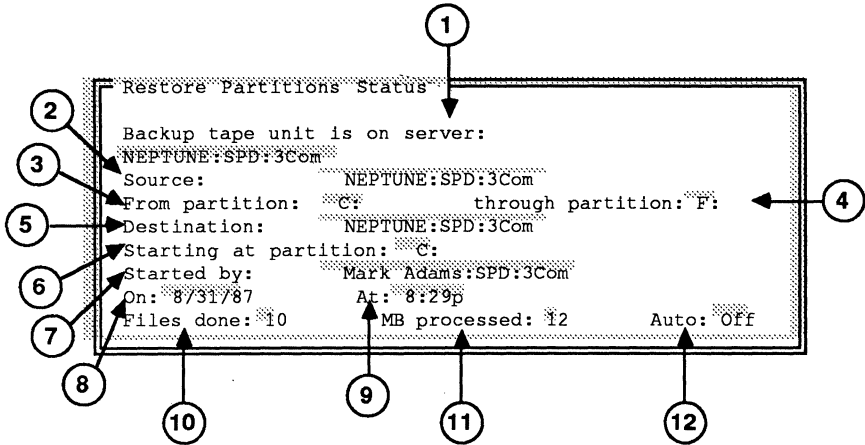
Table 6-10. Restore Partitions Status Display Information

Item		Description
1.	Backup tape unit is on server:	Three-part name of the server containing the tape unit. You can change this information using the Set Tape Backup Unit selection.
2.	Source:	Three-part name of the server whose files are on the tape being restored.
3.	From partition:	First partition being restored from the tape.
4.	through partition:	Last partition being restored from tape.
5.	Destination:	Three-part name of the server to which the files are being restored. In off-line mode this information is always the same as "Backup tape unit is on server:"
6.	Starting at partition:	First partition on the server to which the files are being restored.
7.	Started by:	Three-part name of the person starting the restore operation.
8.	On:	Date the restore was started.
9.	At:	Time the restore was started.
10.	Files done:	Number of files restored.
11.	MB processed:	Number of megabytes read thus far from the tape and not necessarily restored. Number changes as the restoration progresses.
12.	Auto: On/off	Whether or not your backup server has its automatic backup feature enabled. *Not displayed in off-line mode.* An automatic backup is not available in off-line mode.

Tape Directory

The tape directory selection creates a log file containing a list
of the directories and files on a tape. Use this selection to
review the contents of the tape for your backup or restore.
See the section titled "Log Files" for information on viewing the
resulting log file.

```
 ┌─ 3+Backup  1.3 ─────────────┐
 │┌─Tape Directory ══════════════════════════════════╗
 ││                                                   ║
 ││  A full directory of the tape will                ║
 ││  be written to the log file.   This               ║
 ││  can be a lengthy operation.                      ║
 ││                                                   ║
 ││  Are you sure you want the directory?   Y         ║
 │└───────────────────────────────────▲──────────╔════════╗
 │  Cancel Operation                   │          ║ >Yes   ║
 │  Quit                              (1)         ║  No     ║
 └───────────────────────────────────────────────╚════════╝
```
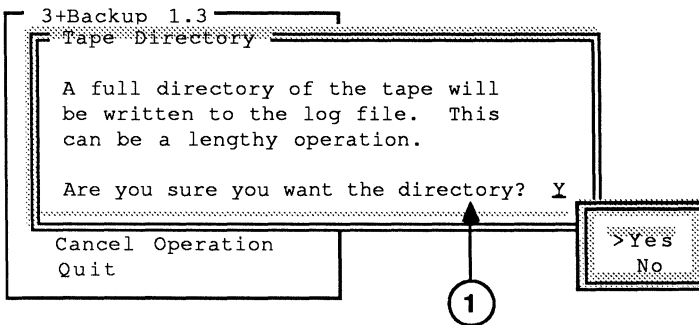
Table 6-11. Tape Directory Form Field

Field	Description
1. Are you sure you want the directory?	A request for a verification to proceed to make the tape directory, which takes up to 4 megabytes per minute.

```
Tape Directory Status
  Backup tape unit is on server:
  VENUS:SPD: 3Com
  Started by:    Mark Adams:SPD:3Com
  On: 7/19/87   At: 8:43p   MB logged: 0   Auto: Off
```
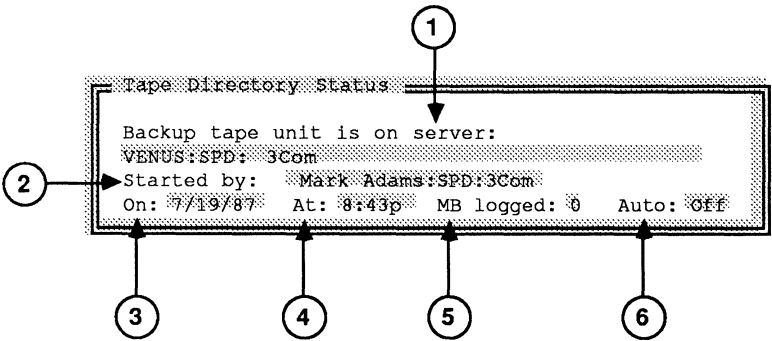
Table 6-12. Tape Directory Status Display Information

Item	Description
1. Backup tape unit is on server:	Three-part name of the server containing the tape unit. You can change this information using the Set Tape Backup Unit selection.
2. Started by:	Three-part name of the person starting the tape directory operation.
3. On:	Date the tape directory was started.
4. At:	Time the tape directory was started.
5. MB logged:	Number of megabytes processed for the tape directory. Number changes as the directory listing progresses.
6. Auto: On/off	Whether or not your backup server has its automatic backup feature enabled. *Not displayed on off-line mode.* An automatic backup is not available in off-line mode.

Erase Tape

When you erase a tape, you remove everything from it. 3Com recommends that you erase a new tape to make sure it has the correct tension for the tape drive. Also, if you are recycling an existing tape, you may want to erase it. Remember that you cannot undo a tape erasure.

The Erase Tape form shows you some brief information about what the tape contains and whether there are 3+ files on it, so that you can confirm the erasure.

Table 6-13. Erase Tape Form Fields

Field	Description
1. Tape sequence number:	If you needed more than one tape for a backup, each tape was automatially assigned a tape sequence number. That number is displayed here.
2. Tape contains contents from source server:	Three-part name of the server on which the tape was made.
3. The backup was:	Whether the backup was full or incremental.
4. Date:	Date when the tape was made.
5. Time:	Time when the tape was made.
6. Class of backup:	This usually displays "System." It may display "User" if this tape was created by a user with an earlier version of 3+Backup.
7. Are you sure you want to erase this tape?	Based on the information on this screen, you must decide whether you want to erase this tape. Choose Y or N from the list.

```
                               ( 1 )
                                 │
                                 ▼
  ┌─Erase Tape Status───────────────────────────────┐
  │                                                  │
  │   Backup tape unit is on server:                 │
  │   VENUS:SPD:3Com                                  │
(2)▶  Started by:  Mark Adams:SPD:3Com               │
  │   On: 7/19/87  At: 6:37p              Auto:  On   │
  │                                                  │
  └──────────────────────────────────────────────────┘
        │              │                      │
      ( 3 )          ( 4 )                  ( 5 )
```
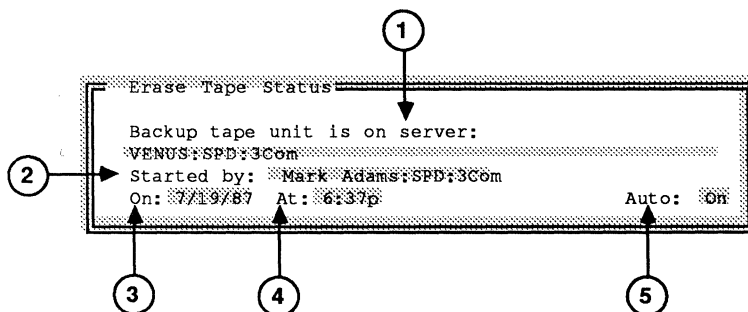
Table 6-14. Erase Tape Status Display Information

Item	Description
1. Backup tape unit is on server:	Three-part name of the server containing the tape unit. You can change this information using the Set Tape Backup Unit selection.
2. Started by:	Person starting the tape erasure.
3. On:	Date when the tape erasure was started.
4. At:	Time when the tape erasure was started.
5. Auto: On/off	Whether or not your backup server has its automatic backup feature enabled. *Not displayed in off-line mode.* An automatic backup is not available in off-line mode.

Auto Backup On/Off

On this screen you turn automatic backup on or off. You must have an AUTOTIMS file in place for the automatic backup to proceed as scheduled. The process for creating an AUTOTIMS file is described in detail later. Note that automatic backup is not available in off-line mode.

Once you have an AUTOTIMS file, you can use the Auto Backup selection to temporarily turn off the automatic backup to make an adjustment for holidays. Or, you may want to switch to manual backup permanently.

```
                                                   (1)
    ┌─ 3+Backup  1.3 ──────┐              │
    ┌─Auto  Backup══════════│════════════▼════════════════┐
    │                                                       │
    │  Set automatic backup for the tape unit on server:    │
    │  VENUS:SPD:3Com                                        │
 (2)┤► Set automatic backup:    Off                          │
    │                                                       │
    │  Press [ESC] to leave the setting unchanged.          │  ┌──────┐
    │                                                       │  │  On  │
    ├──────────────────────────────────────────────────────┘  │ ►Off │
    │  Quit                │                                   └──────┘
    └──────────────────────┘
```
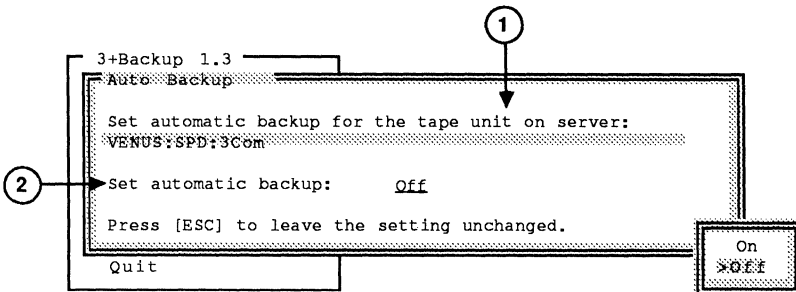
Table 6-15. Automatic Backup Form Fields

Field	Description
1. Set automatic backup for the tape unit on server:	Three-part name of the server containing the tape backup unit. You can change this information with the Set Tape Backup Unit selection.
2. Set automatic backup:	Whether or not you want automatic backup on or off. Make your selection from the list.

▶ **NOTE:** This selection does not produce a separate status display. Rather, the status currently displayed shows whether automatic backup is on or off.

Cancel

You can cancel the backup, restore, and tape directory operations using this selection on the 3+Backup Main menu.

When you cancel a backup or restore operation in progress, the current operation is terminated only after the backup or restore of the current file is completed. However, if you cancel again before the backup or restore of the file is completed, then the backup or restore is halted immediately without regard to the state of the file.

▶ **NOTE:** This selection is not available in off-line mode. Press **[Ctrl]+[Break]** instead.
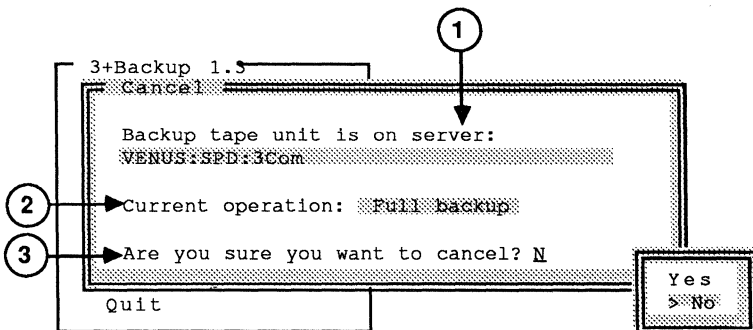
Table 6-16. Cancel Form Fields

Field	Description
1. Backup tape unit is on server:	Three-part name of the server containing the backup tape unit.
2. Current operation:	Operation currently in progress that you cancel by accepting this form.
3. Are you sure you want to cancel?	You must confirm the operation cancellation. Choose Yes or No from the list.

Log Files

The Backup, Restore, and Tape Directory menu selections automatically produce a log file for each operation. These log files are stored in the \3plus\3backup directory on drive C: of the backup server. Each begins with a summary of the operation. In addition, a chronological status log of 3+Backup operations is automatically produced for backups and restores. The names of these files are: BACK_LOG, REST_LOG, STAT_LOG, and TAPE_LOG. The table below shows which process produces which log file.

Table 6-17. Backup Processes and Log Files

Process	Log Produced
1. Backup	BACK_LOG
2. Restore	REST_LOG
3. Backups and restores	STAT_LOG
4. Tape Directory	TAPE_LOG

NOTE: All log files are ASCII files. You can view, print, move, copy, or delete them using DOS commands, or you can use a text editor that is capable of handling large files. No facilities are available to do this through the 3+Backup menus.

Log File Numbering

To prevent the accumulation of many log files that will take up space on your backup server, 3+Backup automatically limits the number of BACK_LOG and REST_LOG files.

A maximum of five BACK_LOG and REST_LOG files are saved. The most recent one is numbered "1" (e.g., BACK_LOG.1) and the oldest one is numbered "5" (e.g., BACK_LOG.5). Whenever a new log is created, the present number 1 is renumbered 2, and the new file becomes number 1. All other log files are renumbered accordingly, and the old number 5 is discarded.

The BACK_LOG File

The BACK_LOG file contains information about the server on which the backup was performed, the date and time of the backup, any tape changes requested, the type of backup (full or incremental), and a list of the directory and file names.

This information is useful in the event that a backup does not complete successfully. Looking at the log, you can determine what happened and why.

```
*******************************
Backup completed successfully
1MB written to tape

Starting full backup of \\ARIES:SPD:3COM\E:
19-Sept-87, 11:10

Directory:    E:\

SCREENS      M2      EXE  LINKSET  EXE  MPS     SYS
MCI     ERS  LOGBOOK DAT  MAIL     MFI  DEMO
MAIL    BAK  MAIL    DI   DOMAINS  MNI  FOLDER DIR
MYFILES      MYFILES BA   LETTERS  DAT
.....

DIRECTORY:    E:\WP
.....

Operation completed:      19-Sept-87, 11:12
```

Figure 6-3. A Partial BACK_LOG

The REST_LOG File

The REST_LOG contains the same information as the BACK_LOG except that the log is identified by the restore operation that was performed. As with the BACK_LOG, the REST_LOG contains information that is helpful if a restore is unsuccessful.

```
******************************
Restore completed successfully
242 files restored

Starting restore of \\ARIES:SPD:3COM\E:
2-Oct-87, 14:49

Directory:    E:\

SCREENS      M2         EXE  LINKSET  EXE  MPS     SYS
MCI      ERS  LOGBOOK  DAT  MAIL     MFI  DEMO
MAIL     BAK  MAIL     DIR  DOMAINS  MNI  FOLDER DIR
MYFILES       MYFILES  BAK  LETTERS  DAT
. . . .

DIRECTORY:    E:\WP
. . . .

End of recorded data

Operation completed:  2-Oct-87, 14:57
```

Figure 6-4. A Partial REST_LOG

The STAT_LOG File

The STAT_LOG is a chronological log of the backups and restores performed on each server. As with all log files, it is saved on the backup server, not the source or destination server. There is one concise entry in the log for each operation that is added to the end of the file.

The STAT_LOG file is limited to 16K, to save disk space. If it grows larger, the first 25 (oldest) entries are discarded to make space for new entries.

```
|*******************************
Operation performed  BACKUP  Completion status: Successful
Time operation started: 21-Jul-87, 12:58
2 MBs of data backed up.
|*******************************
Operation performed: BACKUP  Completion status: Successful
Time operation started: 24-Jul-87, 18:11
7 MBs of data backed up.
|*******************************
Operation performed: BACKUP  Completion status: Successful
Time operation started:  3-Aug-87,  9:24
3 MBs of data backed up.
|*******************************
Operation performed: RESTORE Completion status: Successful
Time operation started:  4-Aug-87,  7:13
3 MBs of data restored
|*******************************
. . . .
```

Figure 6-5. A Partial STAT_LOG

The TAPE_LOG File

The Tape Directory menu selection creates the TAPE_LOG file.
The log contains a list of all the directories and files on the
tape, and records the time when the directory process started
and completed. Unlike the other log files, this one is not
renumbered and saved. Therefore, if you want to keep a
TAPE_LOG you must rename it before you start another Tape
Directory operation.

```
*******************************
Full DIR completed successfully
57 MB read from tape

Full DIR of tape contents
Directory created:  2-Oct-87, 14:49

Data from backup of \\ARIES:SPD:3COM\E:
30-Sept-87, 13:44

Directory:    E:\

SCREENS      M2      EXE   LINKSET  EXE   MPS      SYS
MCI      ERS  LOGBOOK DAT  MAIL      MFI  DEMO
MAIL     BAK  MAIL     DIR  DOMAINS  MNI  FOLDER   DIR
MYFILES       MYFILES BAK  LETTERS  DAT
. . . .

DIRECTORY:    E:\WP
. . . .

End of recorded data

Operation completed:  2-Oct-87, 14:57
```

Figure 6-6. A Partial TAPE_LOG

Viewing a Log File

There is no menu selection for viewing any log files. Each log file is an ASCII file that you can edit using standard DOS commands or a text editor. The procedure below describes how to locate and view any log file.

1. Link a drive to the backup server and the \3plus directory.

   A:\>3f link e:\\venus:spd:3com\3plus

2. Change to the \3backup directory on drive C.

   A:\>c:
   C:\>cd \3backup

3. List the contents of the directory.

   Notice the listing of logs.

4. Use a text editor or DOS command to view or print the log file you want.

You may also want to rename the file if you want to prevent it from being deleted the next time you make a log file.

Backup

To ensure a smooth and accurate backup, follow the guidelines below. Specific procedures are described later.

► Decide what kind of backup you want to do (on-line, off-line, automatic or manual)

► Check the default status display and see if it is set up for the type of backup you want to do

► Have tapes ready

CAUTION: Each time you use the 3+Backup selection, the tape you insert in the drive is automatically erased before the backup begins. Be sure to use the Identify Tape selection, as described in the procedures that follow, to make sure you are using the correct tape before you begin the backup.

On-Line Backup

Your first decision before doing an on-line backup is whether you want to perform the backup automatically or manually. A manual backup requires that you be present to start the backup. When you set up backup to occur automatically, you must still schedule your time to insert and remove the tape, but otherwise it runs without your attention.

Even though your automatic backup schedule is created, you can turn off the automatic backup feature and operate the backup manually, without taking the server off-line. Your automatic backup schedule is still available and can be turned on again.

Automatic Backup

Automatic backup keeps you on schedule and backs up only the files you want backed up, without having you manually enter that information each time. You may want to arrange files in partitions so the backup will complete even if unattended, and therefore no tape change will be needed.

Creating an Automatic Backup Schedule

You must create a schedule to perform an automatic backup. If you have been doing manual backups and now want to switch to automatic, you can use your manual backup schedule as the material from which to create an automatic backup schedule. You should already have information in your backup notebook about the current backup schedule which you now want to automate.

On drive C: of the server's hard disk in the \3plus\3backup directory, is a file called AUTOTIMS.3CM. This file is a template that you can edit to create a schedule that meets your needs.

In the sample AUTOTIMS file, each line contains the following information:

► Day of the week

► Time to start the backup

► The three-part name of the source server. Note that if you have multiple source servers, you create *one* AUTOTIMS file and specify all the servers in that one file. You must specify the three-part name of each server.

This information produces a full backup for the server on the day and time that you specified.

In addition, you may specify the following items for each day, time, and server:

► The partitions you want backed up. If you do not specify a partition or range of partitions, all the partitions are backed up.

▶ Type of backup (full or incremental); if you do not type /i for incremental, a full backup is assumed.

▶ Whether or not to append the current backup after the last record on the tape; type /a to append the backup.

Note that the last two items, type of backup and append option, can appear in any order but must appear after the definition of the day, time, three-part server name, and partitions.

██ Customizing the AUTOTIMS File

Following is a procedure for altering the AUTOTIMS file. Before you begin, make sure that the \3plus directory is shared and has read/write/create access.

1. Link to the \3plus directory.

   A:\>3F link g: \\venus:spd\3plus

2. At the DOS prompt, change to the drive to which the \3plus directory is linked.

   In this example, the \3plus directory was linked to drive G:.

   A:\>G:

3. At the DOS prompt, change to the \3backup subdirectory.

   G:\>cd \3backup

4. Edit the AUTOTIMS file.

   Use any editor that will edit an ASCII file. Using the backup schedule you designed, specify the information described above.

5. Save the file.

■ Setting Up the Automatic Backup

Once you have your automatic backup schedule in place, you need to set up the automatic backup as the default mode of operation.

1. Select Auto Backup (ON/OFF).

   The Auto Backup form is displayed.

2. Fill in the form.

   Be sure to change the field "Set Automatic Backup" to On.

   To turn on the auto backup for a different server, use the Set Tape Backup Unit selection to designate the other backup server.

3. Press **[Return]** to save the change.

   You are returned to the 3+Backup Main menu. Note that the "Auto" field in the status display has changed to On.

Running an Automatic Backup

Once you have created a schedule, 3+Backup performs the backups according to your schedule. You just need to make sure that you insert the correct tape in each backup server before the backup, and remove it, label the tape, and log it after the backup.

▓▓▓Performing a Manual Backup

When you operate a manual backup, you interact directly with the server and run the menus, supplying specific information each time you want to back up any server on your network.

1. Check the Current Default Values screen.

    If the information is correct, proceed to the next step. If you need to change it, use Set Tape Backup Unit to make the changes.

2. Insert the tape you want to use.

3. Select Identify Tape or Erase Tape.

    Make sure you have the correct tape. You can skip this step if you are sure that you have the correct tape.

    If you are using a new tape, select Erase Tape and erase the tape.

4. Select Backup.

    The Backup form is displayed.

5. Fill in the form with the correct information for your backup.

    When you are finished with the form, the backup begins. The status is displayed and you can view the progress of the backup. When it is finished, the message "Backup complete" appears on your screen.

You may want to view the contents of the tape(s) you made. Refer to "The BACK_LOG" and "Viewing a Log File" earlier in this chapter for information.

▉▉▉Performing an Off-Line Backup

There are several major advantages to performing a backup in off-line mode:

► Since the server is off-line, no one can be using the files. Therefore, there is no danger of backing up partial files.

► Off-line backup runs faster. The off-line backup speed is four times faster than on-line.

1. Shut down all the services if the server is on-line.

   Be sure to notify the users that the server is being shut down, or do your off-line backup during non-working hours.

2. Go to the server and set the thumbwheel switch. On a 3Server3, set the switch to 4. On a 3Server386, set the switch to 1 for Ethernet or 2 for token ring.

3. Reboot the server.

   The Ethernet address of your server displays on the LCD. If you do not know the address, make a note of it because you will be asked to confirm it.

4. Insert 3+ *System Software diskette #1* in your local drive.

   This contains the 3C program which you use to bring up the server off-line.

5.   Enter **3c start** and press **[Return]**.

      On the netstation screen you will see a message asking you
      to confirm the Ethernet address.

6.   Enter **Y** to confirm the address, if it is correct.

      There is a pause while the server reboots.

      An A>> prompt is displayed.

7.   Insert the *3+Backup #2 diskette* in either drive A: or B:.

8.   If you inserted the diskette in any drive other than A:, type
      the drive ID.

      The prompt is displayed for your default drive.

9.   Enter **3BMENDOS** and press **[Return]** to start 3+Backup
      off-line.

      The 3+Backup Main menu is displayed. Notice that the
      selections are similar to those you see when you do an
      on-line backup.

10. Select Identify Tape.

      If you are sure you are using the correct tape you can skip
      this step.

11. Select Backup.

    Fill in the pertinent information. The backup starts as soon
    as you exit this screen and the backup status screen
    displays.

    You receive a confirmation message when the backup is
    complete.

    You may want to view the contents of the tape(s) you made.
    Refer to "The BACK_LOG" and "Viewing a Log File" for
    information.

12. Bring the server back on-line.

Restore

Restoring files on your server is an important process and one
that you usually do for two reasons:

▶   A user has lost some files and needs them restored.

▶   Your server hard disk has been reformatted and the files
    need to be restored.

In addition, you can use a current, full backup tape from one
server, and restore it to a new server, to have two servers with
the same files and file structure. Later, you can remove files
you do not need (such as a duplicate copy of the Name service)
from the new server.

The function of the restore is to copy the files you specify back into the location you specify on the hard disk. Exercise great caution when you do this. For example, make sure that you use the tape with the correct files and restore them to the correct location on the hard disk. Otherwise, you may write over files that are in use, do not need to be restored, or belong to someone else.

■■■Performing an On-Line Restore

1. Check the Current Default Values status display.

   If the information is correct, proceed to the next step. If you need to change it, use Set Tape Backup Unit to make the changes.

2. Insert the tape you want to use.

3. Select Identify Tape.

   Make sure you have the correct tape. You can skip this step if you are sure that you have the correct tape.

   Once you have restored these files to the server you cannot regain the files that existed on the server in that location.

4. Select Restore Files or Restore Partitions.

   A form is displayed.

5. Fill in the form with information that specifies what files or partitions you want to restore.

   The status display shows you how the restore is progressing.

If the restore was not successful for some reason, view the REST_LOG to determine what happened. See "The REST_LOG" for more information.

■■■Performing an Off-Line Restore

An advantage of off-line restore is that it runs up to four times faster than an on-line restore and you have full control and exclusive access to the server.

An off-line restore is especially helpful when you need to restore to a blank server. You do not have to re-load the software and bring up the server before you perform a restore.

1. Shut down all the services if the server is on-line.

    Be sure to notify the users that the server is being shut down, or do your off-line restore during non-working hours.

2. Go to the server and set the thumbwheel switch. On a 3Server3, set the switch to 4. On a 3Server386, set the switch to 1 for Ethernet or 2 for token ring.

3. Reboot the server.

    The Ethernet address of your server displays on the LCD. If you do not know the address, make a note of it because you will be asked to confirm it.

4. Insert the *3+ System Software diskette #1* into your local drive.

    This diskette contains the 3C program, which you use to bring up the server off-line.

5.　Enter **3c start** and press **[Return]**.

On the netstation screen you will see a message asking you to confirm the Ethernet address.

6.　Enter **Y** to confirm the address, if it is correct.

There is a pause while the server reboots.

An A>> prompt is displayed.

7.　Insert the *3+Backup #2 diskette* in either drive A: or B:.

8.　If you inserted the diskette in any drive other than A:, type the drive ID.

The prompt is displayed for your default drive.

9.　Enter **3BMENDOS** and press **[Return]** to start 3+Backup off-line.

The 3+Backup Main menu is displayed. Notice that the selections are similar to those you see when you do an on-line backup.

10.　Select Identify Tape.

If you are sure you are using the correct tape you can skip this step.

11. Select Restore Files or Restore Partitions.

    Fill in the pertinent information. The restore starts as
    soon as you exit this screen and the backup status screen
    displays.

    You receive a confirmation message when the backup is
    complete.

    You may want to view the contents of the tape(s) you made.
    Refer to "The REST_LOG" and "Viewing a Tape Log" for
    information.

12. Bring the server back on-line.

Working with Tapes
How you prepare, care for, and work with the cartridge tapes
you use in your tape drive is crucial to the overall success of a
backup program. If you mishandle tapes or do not take proper
care of the tape drive, you may lose data from the tapes and
end up with an incomplete backup or restore.

Recommended Tapes
The type of tape recommended for use in the tape drive on your
server depends upon the server you have.

3Server3
The recommended tapes for use on a 3Server3 backup unit are
CERTIFIED DEI600L or 3M DC300XLL cartridge tapes. These
tapes have a capacity of 60 megabytes. You can also use the 45
megabyte version of these tapes, or other vendors' cartridges
that meet the specifications of 10,000 flux transitions per inch
(ftpi).

3Server386

The tape drive in a 3Server386 is a Tandberg QIC-150, capable of storing 150 megabytes of data on a single cartridge. 3Com supports 150mb and 120mb cartridges on this tape drive. The type of tape you use depends upon whether you want to use it as a 150 or 120mb drive, as follows:

▶ To use the tape drive as a 150mb drive, you must use the 3M brand DC-600 XTD tape cartridge.

▶ To use the tape drive as a 120mb drive, you may use a 3M DC-600A, DEI Series II Gold, or 3M DC600-XTD cartridge. In addition, you must add the following line to the CONFIG.SYS file:

device = tape.sys /120

Before You Use a New Tape

Erase a new tape twice before you use it. It takes about three minutes for each erasure. Erasing a tape is important for two reasons:

▶ Erasing removes any oxide particles that are on the tape surface.

▶ Erasing adjusts the tape tension so that the tape can be written to and read consistently by the tape drive.

For best results, erase all new tapes at one time and then clean the tape head.

Handling and Storing Tapes

Protect your tape cartridges from dust, fingerprints, and any
contact that can contaminate the magnetic coating or otherwise
damage the tape.

Follow these precautionary measures to protect your tapes:

► Do not expose tape cartridges to dirt, moisture, or extreme
temperatures.

► When not in use, store tape cartridges in a place that meets
the manufacturer's temperature and humidity specifications.

► Never place cartridges near devices that generate strong
magnetic fields, including electric motors, transformers, CRT
displays, and disk drives.

► Do not open the tape hatch on the cartridge to expose the
tape. When the cartridge is not being read, the hatch
should remain closed to protect the tape from dust, damage,
and fingerprints. Immediately discard a tape cartridge if it
breaks or becomes chipped or cracked.

CAUTION: Do not use a damaged cartridge; it can
damage the tape drive.

Keeping backups of the data and programs that are on the
network servers is a good business practice. Store the backup
tapes in a safe place. One of the best storage locations for
your backups is a fireproof vault in a secure, off-site location.

Loading and Unloading Tapes

The procedure you use to load or unload a tape depends upon the server you have, as described below.

3Server3

To load a tape cartridge, push it all the way into the slot in the front panel until it is fully engaged. The side of the cartridge with the tape hatch must face the left side of the tape unit. When a cartridge is inserted, it automatically rewinds and advances to the starting point.

To unload a tape cartridge, push it into the slot until it disengages; then remove it gently from the slot.

3Server386

To load a tape cartridge, first press the release button at the top right corner of the drive door and pull the door open. Next, load the tape with tape hatch to the right of the tape unit. Press the tape inward until it stops, then close the drive door. The tape unit automatically rewinds the tape and advances it to the starting point.

To unload a cartridge, press the release button at the top right corner of the drive door and pull the door open. Remove the tape.

▶ **NOTE:** Keep the drive door closed except when loading or unloading a tape.

CAUTION: Do not remove a cartridge that is being accessed by a server. If you remove a cartridge that is being written to, the tape will contain incomplete information. If you remove a cartridge that is being read, the destination server will contain incomplete information.

Cleaning the Tape Heads

For best performance of the tape backup unit, clean the tape heads after approximately every eight hours of use. It is especially important to follow a regular routine; thus it is best to include the cleaning of tape heads in your backup schedule.

We recommend that you use the following cleaning kit on both a 3Server3 and a 3Server386:

The Tandberg Data TDC Cleaning Cartridge Kit which is available from:

Siemens Information Systems,Inc.
5655 Lindero Canyon Rd.
Westlake Village, CA 91362
(818) 706-8872

The Siemens staff can tell you if there is a distributor in your area. You can also order extra pads and cleaner from your distributor.

Index

For your convenience, references to *3+* commands have been
listed by command name.

Page references in bold type refer to sections of the manual
where command information and parameters are summarized.
Also, for purposes of alphabetizing the entries, the *3* or *3+* that
precede entry names have been ignored.

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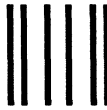If you noticed errors, please list page number(s)._____
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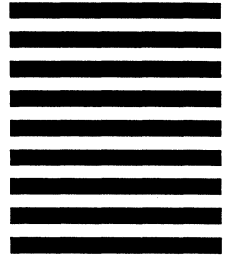
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