

SaveUtility/2: Installation Guide
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Chapter 1. Overview of SaveUtility/2

SaveUtility/2* is a Client-Server application that provides backup and recovery functions for workstations in a local area network (LAN).

SaveUtility/2 Components

SaveUtility/2 components are:

- Subscriber (client workstation)
- Librarian
- Administrator
- Archiver (backup server)
- Restorer
- Archive Device (mass storage media)

The Subscriber can be any workstation on a LAN: server, bridge, gateway, or end user. The other components can be viewed as part of the backup server and reside in the same system.

During installation, the functions of the backup server are installed first. All operational programs and data are stored on this system, called the SaveUtility/2 System.

Diskettes and files can be created at the SaveUtility/2 System that can be used to load:

- Subscribers on either OS/2 or DOS workstations
- Additional Archivers (backup servers)

The additional Archivers can be on the SaveUtility/2 System or, with additional SaveUtility/2 licenses, on other workstations. When additional Archivers are used they must all use the same type of Archive device and the same device support software. An Archiver supports a maximum of 250 Subscriber workstations under a single license.

SaveUtility/2 Publications

This publication describes how to install SaveUtility/2. For information on how to use SaveUtility/2 and how to create and modify SaveUtility/2 profiles, refer to the SaveUtility/2: Handbook. For an explanation of SaveUtility/2 messages, refer to SaveUtility/2: Messages.

Chapter 2. Hardware and Software Requirements

During installation, the functions of the backup server are installed first. All operational programs and data are stored on this system, called the SaveUtility/2 System.

Diskettes can be created at the SaveUtility/2 System that can be used to load:

- Additional Archivers
- Subscribers on either OS/2 or DOS workstations

The additional Archivers can be on the SaveUtility/2 System or, with additional SaveUtility/2 licenses, on other workstations. When additional Archivers are used they must all use the same type of Archive device and the same device support software. An Archiver supports a maximum of 250 Subscriber workstations under a single license.

This chapter describes the hardware and software requirements for:

“SaveUtility/2 System (First Backup Server)”

“Additional Archivers” on page 4

“Archive Devices” on page 5

“Subscribers” on page 6

SaveUtility/2 System (First Backup Server)

Prerequisite hardware: Minimum requirements are the same as those for OS/2 2.1 or higher plus this hardware:

- A 386 DX processor.
- 4 MB of free disk space to install the SaveUtility/2 code.
- 20 MB of free disk space for the SaveUtility/2 Archiver staging area.

Additional space may be required to optimize performance. Refer to “Allocating Space for the Archiver Staging Area” on page 7.

- At least one logical drive formatted with the High Performance File System. You will not be able to install SaveUtility/2 unless the installation program is able to find an HPFS formatted drive.
- Attachment to a local area network capable of supporting a LAN transport protocol, either:
 - IBM NETBIOS Version 3.0 or later
 - Novell** NetWare** Version 3.11, or later, with IPX/SPX
- Attachment to the chosen Archive Device, either:
 - “Tape Drives” on page 5
 - “Rewritable Magneto-Optical Drives” on page 5
 - “TCP/IP Host” on page 6

Prerequisite software:

- OS/2 Version 2.0 with Service Pak 6055 or higher.

If you installed OS/2 using the *full install* option, then the correct options are already configured. If you performed a *selective install*, check to be sure that the following options are installed:

- Procedures Language/2 REXX Support
- High Performance File System (HPFS) support
- Utilities (ATTRIB, FDISK, and so forth)

If you do not have all of the above options installed, you can add them to an existing system using the selective install icon in the System Setup folder. Upon completion of the selective install, you must reinstall any Service Paks.

- One of the following, configured to provide a LAN transport protocol support:
 - IBM NETBIOS Version 3.0 or later
 - Network Transport Services/2
 - Extended Services Communications Manager
 - LAN Services Requester
 - Novell NetWare Version 3.11, or later, with IPX/SPX
- Software to access the Archive Device, either:
 - “Tape Drives” on page 5
 - “Rewritable Magneto-Optical Drives” on page 5
 - “TCP/IP Host” on page 6

Additional Archivers

Requirements for additional Archivers are the same as for the first Archiver, the SaveUtility/2 System. The additional Archivers can be on the SaveUtility/2 System or, with additional SaveUtility/2 licenses, on other workstations. When additional Archivers are used they must all use the same type of Archive device and the same device support software. An Archiver can support a maximum of 250 Subscriber workstations under a single SaveUtility/2 license.

Archive Devices

For SaveUtility/2 to be able to store data for extended lengths of time, a mass storage device must be attached to the Archiver. The device support software for the mass storage device must support long file names because the Archiver creates file which have names that are 35 characters in length.

The following mass storage devices are supported:

- “Tape Drives”
- “Rewritable Magneto-Optical Drives”
- “TCP/IP Host” on page 6

Tape Drives

Prerequisite software, either:

- Sytos Plus** Version 1.37 or higher
- NovaBack** for OS/2

Prerequisite hardware: Any tape drive that is supported by the prerequisite software.

For example, the following SCSI tape drives:

- IBM 2.0G Tape drive (4mm DAT) with QFA and compression
- IBM 2.3G Tape drive (8mm)
- IBM 5.0G Tape drive (8mm) with QFA and compression

Rewritable Magneto-Optical Drives

Prerequisite software: High Performance Optical File System (HPOFS) must be enabled. For example: the HPOFS file system for the IBM 3431 5.25 inch Magneto-Optical Drive.

Prerequisite hardware: Any rewritable magneto-optical drive supported by OS/2 that provides HPOFS support. For example: IBM 3431 5.25 inch Magneto-Optical Drive with HPOFS support.

TCP/IP Host

Prerequisite software: TCP/IP for OS/2 Version 1.2.1 at the Archiver and a compatible TCP/IP product at the remote host.

The SaveUtility/2 Archiver creates files which have names that are 35 characters in length; therefore the receiving host file transfer protocol (FTP) must be able to accept file names of this length. TCP/IP for MVS, TCP/IP for AIX, and TCP/IP for OS/2 (used with the HPFS file system) support long file names. Other TCP/IP products, and other similar products, may also be capable of supporting long file names.

Note: TCP/IP for VM does not support long file names and is not supported by SaveUtility/2.

Prerequisite hardware: The same as for the corresponding TCP/IP software product.

Subscribers

Subscribers can run on either OS/2 or DOS. Refer to:

- “OS/2 Subscriber”
- “DOS Subscriber”

OS/2 Subscriber

The OS/2 Subscriber requires either OS/2 Extended Edition Version 1.3 or OS/2 2.0 or higher. Hardware requirements are the same as those for the operating system, plus the following:

- 1 MB of free disk space to install the SaveUtility/2 code.
- Attachment to the SaveUtility/2 System's local area network using the same LAN transport protocol.

DOS Subscriber

The DOS Subscriber requires DOS 4.0 or higher. Hardware requirements are the same as for the operating system plus the following:

- At least 640 KB memory. At least 2 MB memory if using a Graphical User Interface (GUI) add-on to DOS such as Windows**.
- Attachment to the SaveUtility/2 System's local area network using the same LAN transport protocol.

Chapter 3. Configuration Guidelines

This section gives you some guidelines about how to configure your hardware and software to support SaveUtility/2.

Allocating Space for the Archiver Staging Area

SaveUtility/2 requires a minimum of 20 MB of free disk space for the Archiver staging area. Allocating more space will improve performance. A staging area size of 60 MB would be adequate to support a small number of DOS Subscribers (less than 20) whose disk capacity does not exceed 60 MB. If you intend to support larger numbers of workstations, or workstations having more disk space, you should allocate more staging area space.

To optimize performance:

- Make sure the Archiver staging area space is not shared with dynamic system files such as the OS/2 swap file.
- Allocate enough staging area space to hold the backup files for a typical Subscriber. For example: If most of your Subscribers have 80 MB drives, allocate at least 80 MB of space to the staging area. If your Subscribers have large disk capacity (for example: 1 GB) you should allocate at least 400 MB of space to the staging area.
- If possible, dedicate an entire logical drive, or even an entire physical drive, to the staging area.

Allocating Space for Profiles and Logs

The disk space used by profiles and logs can grow considerably over time. The backup log file for an OS/2 Subscriber can easily grow to more than 2 MB. These logs are pruned automatically after a designated time interval, but it is important to allocate enough space to handle peak loads.

Allocating Space for Subscriber Backup Files

SaveUtility/2 requires less than 1 MB of disk space for the OS/2 Subscriber code and less than 500 KB for the DOS Subscriber code. Because OS/2 keeps several generations of certain files, OS/2 Subscribers will require 1 MB of additional space after SaveUtility/2 has been in use for awhile.

Chapter 4. Installing SaveUtility/2

You must first install all SaveUtility/2 programs at the first Archiver. The result is a complete SaveUtility/2 application consisting of:

- Librarian
- Administrator
- Archiver
- Restorer
- Subscriber
- Archive Device Support Routines

After you have installed the SaveUtility/2 System you can create subscriber diskettes or files that can be used to install Subscribers on either OS/2 or DOS.

This chapter contains the following sections.:

- “Installing SaveUtility/2 on the First Backup Server”
- “Installing Additional Archivers” on page 13
- “Installing OS/2 Subscribers” on page 15
- “Installing DOS Subscribers” on page 17

The installation of SaveUtility/2 builds directories and subdirectories that contain:

- Executable code for SaveUtility/2 programs:
 - Librarian
 - Administrator
 - Archiver
 - Restorer
 - Curator
 - Subscriber
- Control files, including:
 - Customization files
 - Profiles
 - Metaview files
- Log files and other system files

The installation also modifies path statements in CONFIG.SYS files to create a working system.

If, for any reason, you need to change the profiles, refer to SaveUtility/2: Handbook.

Installing SaveUtility/2 on the First Backup Server

The installation procedure leads you through a complete installation of SaveUtility/2 at the SaveUtility/2 System. This consists of the following components of SaveUtility/2: Librarian, Archiver, Restorer, Curator, Administrator, and one OS/2 Subscriber.

Before you install SaveUtility/2

- Make sure you have a logical drive formatted with HPFS and enough free space available to support the intended use. 4 MB is the minimum disk space required to the install software.
- Make sure your workstation has a correctly configured LAN adapter and is attached to a local area network that supports a LAN transport protocol, either: IBM NETBIOS or Novell IPX/SPX.
- Make sure that the Archive Device and its device support routines are installed, configured, and working to your satisfaction before installing SaveUtility/2. During installation of SaveUtility/2, you will be asked to enter the drive and path to this software in the form **d:\path**.
 - If you plan to use Sytos Plus, you must create the Sytos procedures described in “Sytos Plus” on page 19.
 - If you plan to use NovaBack for OS/2, you do not need to customize procedures or change profiles.
 - If you plan to use TCP/IP host, you must customize the Archiver profile as described in Chapter 6, “Customizing TCP/IP Host Support” on page 25.

To install SaveUtility/2 on the first backup server:

1. Put the SaveUtility/2 System Installation Diskette in your A: drive.
2. Select the **Drive A** icon on your desktop. If it is not there, look for it in the **Drives** folder.
3. Select the icon **INSTALL.CMD**.

4. When you see **SaveUtility/2 Installation Menu** followed by :

1. Install Librarian, Archiver, Restorer, Curator, and Subscriber.

2. Install an additional Archiver (and Subscriber if not already installed).

Type **1** to install the SaveUtility/2 System at the first backup server and press **Enter**.

5. When you see **Install SaveUtility/2 Librarian** followed by a list of HPFS drives, type the drive letter and press **Enter**.

6. When you see:

Enter 1 to five characters to name the SaveUtility/2 components,

type 1 to 5 characters to form part of the names for your SaveUtility/2 components, and press **Enter**.

SaveUtility/2 will append these characters to the names for the Librarian, Archiver, Restorer, and other components on the SaveUtility/2 System.

For example: If you type 'xxxxx' as the unique string, then your Librarian will be named Lxxxxx, your first Archiver Axxxxx01 and subsequent Archivers Axxxxx02, Axxxxx03, and so forth. The first Subscriber, installed at the SaveUtility/2 System, will be named Sxxxxx01. The first Subscriber installed on the second Archiver will be named Sxxxxx02. You can choose the names for other Subscribers.

7. When you see:

Choose which LAN protocol you will be using for SaveUtility/2:

1. IBM NETBIOS

2. NOVELL SPX

Type the number for the LAN protocol and press **Enter**.

8. When you see **SaveUtility/2 Librarian has been installed**, press **Enter** to continue.

9. When you see **Type Y to use the above default ...**, type **Y** to accept the default and press **Enter**.

10. This step only appears the first time you use the SaveUtility/2 install diskette. On reinstalls, you will not see it.

When you see: **The following list shows the Archive devices supported by SaveUtility/2:**

1. Sytos Plus version 1.37 or higher

2. Host Connection to remote TCP/IP

3. Rewritable Magneto-Optical Drive

4. NovaBack for OS.2 V2.02

Type the number of the archive device you intend to use and press **Enter**.

11. If you specified a device that requires software in addition to SaveUtility/2, you will be asked to supply the path to that software.

When you see **Type the path to access the archive software ...** type the drive and path in the form **d:\path** and press **Enter**.

SaveUtility/2 does not check the path during installation. However, if you give an incorrect path, SaveUtility/2 will fail when it tries to backup files.

12. If you specified a device that has a logical drive letter, you will be asked to supply the drive letter. Type the drive letter and press **Enter**.

13. When you see **SaveUtility/2 Archiver has been installed**, press **Enter** to continue.
The following steps install the first Subscriber at this Archiver.
14. When you see **Reply Y if you want scheduled backup**, type **Y** and press **Enter**.
15. When you see **Select a day of the week to perform full backup**, type the day and press **Enter**.
16. When you see **Type Y to update CONFIG.SYS**, type **Y** and press **Enter**.
17. When you see **SaveUtility/2 Subscriber has been installed** press **Enter** to continue.
18. When you see **Press any key to exit from SaveUtility/2 installation.** press **Enter** to exit the installation program.
19. Remove the diskette from the A: drive.
20. Close any running programs and restart the system.
21. After the restart, you can use SaveUtility/2 at the first Archiver.

Installing Additional Archivers

If you have a large number of subscribers, you can install an additional Archiver, either on the SaveUtility/2 System, or, with additional licenses, on other workstations on the same LAN. An Archiver supports a maximum of 250 Subscriber workstations under a single license.

Before you install additional Archivers, make sure

- You have an additional SaveUtility/2 license for this Archiver if required. Refer to “Additional Archivers” on page 4. Each additional Archiver must use the same type of archive device as the first Archiver.
- Your Librarian is up and running. To invoke the Librarian, select the **Librarian** icon from the SaveUtility/2 folder on the desktop.
- You have a second logical drive formatted with HPFS. (You cannot install more than one Archiver on the same logical drive.)
- your second HPFS drive has enough free space available to support the intended use. 2 MB is the minimum disk space required to install the software.
- your workstation has a correctly configured LAN adapter and is attached to a local area network that supports a LAN transport protocol, either: IBM NETBIOS or Novell IPX/SPX.
- that the Archive device and its device support routines are installed, configured, and working to your satisfaction before installing SaveUtility/2. During installation of SaveUtility/2, you will be asked to enter the drive and path to this software in the form **d:\path**.
 - If you plan to use Sytos Plus, you must create the Sytos procedures described in “Sytos Plus” on page 19.
 - If you plan to use NovaBack for OS/2, you do not need to customize procedures or change profiles.
 - If you plan to use TCP/IP host, you must customize the Archiver profile as described in Chapter 6, “Customizing TCP/IP Host Support” on page 25.

To install SaveUtility/2 at an additional Archiver:

1. Put the SaveUtility/2 Installation Diskette in your A: drive.
2. Select the **Drive A** icon on your desktop. If it is not there, look for it in the **Drives** folder.
3. Select the icon **INSTALL.CMD**.
4. When you see **SaveUtility/2 Installation Menu** followed by :

1. Install Librarian, Archiver, Restorer, Curator, and Subscriber.

2. Install an additional Archiver (and Subscriber if not already installed).

Type **2** to install the additional Archiver and press **Enter**.

5. When you see **Type a drive letter...**, type the letter of any HPFS drive that does not already have an Archiver installed and press **Enter**.
6. When you see **Type Y to use the above default ...**, type **Y** to accept the default and press **Enter**.

Each additional Archiver must use the same type of device as the first Archiver.

- If you specified a device that requires software in addition to SaveUtility/2, you will be asked to supply the path to that software. Type the drive and path in the form **d:\path** and press **Enter**.

SaveUtility/2 does not check the path during installation. However, if you give an incorrect path, SaveUtility/2 will fail when it tries to backup files.

- If you specified a device that has a logical drive letter, you will be asked to supply the drive letter. Type the drive letter and press **Enter**.

7. When you see **Archiver has been installed**, press **Enter** to continue.

The following steps install the Subscriber at this Archiver workstation (if one is not already installed).

8. When you see **Reply Y if you want scheduled backup**, type **Y** and press **Enter**.
9. When you see **Select a day of the week to perform full backup**, type the day and press **Enter**.
10. When you see **Type Y to update CONFIG.SYS**, type **Y** and press **Enter**.
11. When you see **SaveUtility/2 Subscriber has been installed** press **Enter** to continue.
12. When you see **Press any key to exit from SaveUtility/2 installation.** press **Enter** to exit the installation program.
13. Remove the diskette from the A: drive.
14. Close any running programs and restart the system.
15. After the restart, you can use SaveUtility/2 at this Archiver.

Installing OS/2 Subscribers

Before you install SaveUtility/2 on an OS/2 Subscriber

- Go to your Librarian system and create a SaveUtility/2 Subscriber Install Diskette by selecting the **Create Subscriber Install Diskette** icon from the SaveUtility/2 folder on the desktop.

Note: As an alternative to installing all subscribers from diskette, you can create the diskette as documented and then copy its files to a file server so that users can install the SaveUtility/2 Subscriber from a redirected drive. This assumes that your users already have a LAN Client installed and are already defined and authorized to access the file Server. In this case, the OS/2 Subscriber install will be invoked from the LAN drive instead of the A: drive.

- Make sure your Librarian is up and running. To invoke the Librarian, select the **Librarian** icon from the SaveUtility/2 folder on the desktop.
- Make sure your workstation has a correctly configured LAN adapter and is attached to a local area network that supports a LAN transport protocol, either: IBM NETBIOS or Novell IPX/SPX.

To install SaveUtility/2 on an OS/2 Subscriber:

1. Put the Subscriber Install Diskette in your A: drive.
2. Select the **Drive A** icon on your desktop. If it is not there, look for it in the **Drives** folder.
3. Select the icon **INSTALL.CMD**.
4. When you see **Type a drive letter...** followed by a list of drives, type the drive letter and press **Enter**.
5. When you see **Type the name to be used for the Subscriber**, type in the name and press **Enter**.

The name must follow the same rules as DOS filenames and may not be a duplicate of any other name on the same LAN.
6. When you see **Reply Y if you want scheduled backup**, type **Y** and press **Enter**.
7. When you see **Select a day of the week to perform full backup**, type the day and press **Enter**.
8. When you see **Type your preferred name**, type your name and press **Enter**.
9. When you see **Type your phone number**, type your phone number and press **Enter**.
10. When you see **Type your job title or position**, type your job title and press **Enter**.
11. When you see **Type your location**, type your location and press **Enter**.
12. When you see **Type your building, floor and office number**, type your building, floor, and office number and press **Enter**.
13. When you see **Type your department name or number**, type your department name or number and press **Enter**.
14. When you see **Type Y to update CONFIG.SYS**, type **Y** and press **Enter**.
15. When you see **SaveUtility/2 Subscriber has been installed** press **Enter** to continue.

16. When you see **Press any key to exit from SaveUtility/2 installation.** press **Enter** to exit the installation program.
17. Remove the diskette from the A: drive.
18. Close any running programs and restart the system.
19. You can now use SaveUtility/2 at the OS/2 workstation.

Installing DOS Subscribers

Before you install SaveUtility/2 on a DOS Subscriber

- If you have not already done so, go to your Librarian system and create a SaveUtility/2 Subscriber Install Diskette by selecting the **Create Subscriber Install Diskette** icon on the desktop.
Note: Redirected LAN install is not supported for DOS workstations.
- Make sure your Librarian is up and running. To invoke the Librarian, select the **Librarian** icon from the SaveUtility/2 folder on the desktop.
- Make sure your workstation has a correctly configured LAN adapter and is attached to a local area network that supports a LAN transport protocol, either: IBM NETBIOS or Novell IPX/SPX.
- Make sure you have at least **512 bytes** of DOS environment space allocated. This is specified on the **SHELL=** statement in CONFIG.SYS, for example:

```
SHELL=C:\DOS\COMMAND.COM /E:512 /P
```
- Make sure you are **not** logged on to any Server on your LAN.
- Do not run SaveUtility/2 from a command prompt within a DOS Graphical User Interface add-on program such as Microsoft Windows. Many of these programs lock some of their files which prevents SaveUtility/2 from backing them up.
- Do not install SaveUtility/2 from the DOS shell. Do not use SHIFT+F9 to display a DOS prompt from the shell. Use FILE-EXIT to completely close the shell then install SaveUtility/2 from the resulting DOS prompt.

To install SaveUtility/2 on a DOS Subscriber:

1. Insert the Subscriber Install Diskette in your A: drive.
2. To install to your C: drive, Type **install** and press **Enter**.
Note: For drive combinations other than A: and C:, type
source_drive:install source_drive target_drive
where *source_drive* contains the install diskette and *target_drive* is where you want the product installed.
3. When you see **Type the name to be used for the Subscriber**, type the name and press **Enter**.
4. When you see **Select a day of the week to perform full backup**, type the day and press **Enter**.
5. When you see **SaveUtility/2 DOS Installation Complete** remove the diskette from the A: drive.
6. You can now use SaveUtility/2 at the DOS workstation.

Chapter 5. Customizing Tape Device Software

If you have chosen a tape drive as your Archive Device, you must customize the archive device support software, either:

- “NovaBack for OS/2”
- “Sytos Plus”

NovaBack for OS/2

NovaBack for OS/2 must be installed on a drive that is formatted with HPFS because SaveUtility/2 creates files with long file names. Refer to the NovaBack for OS/2 documentation for instructions on how to install NovaBack.

No customization is required for NovaBack.

Sytos Plus

Sytos Plus must be installed on a drive that is formatted with HPFS because SaveUtility/2 creates files with long file names for Sytos Plus to use. Refer to the Sytos Plus documentation for instructions on how to install Sytos Plus.

If Sytos Plus is being installed for the first time and is being used exclusively with SaveUtility/2 you may want to use a default volume name of **SaveUtility/2**. This is not required for successful operation of SaveUtility/2.

Defining Sytos Plus Procedures

Once you have installed Sytos Plus and correctly configured it to support the type of archive device you have chosen, you must define Sytos Plus procedures that will archive and restore data from and to SaveUtility/2 using a tape labelled for that purpose.

To define procedures for labelling a tape, refer to:

- “Defining the SAVEU2_WRITE Procedure” on page 20
- “Labelling a Sample Tape” on page 20
- “Defining the SAVEU2_READ Procedure” on page 21

To define procedures for archiving and restoring data, refer to:

- “Defining the SAVEU2_GET Procedure” on page 22
- “Defining the SAVEU2_PUT Procedure” on page 22

After you have defined these procedures you should run them to prove that you can save to and restore from the tape you have labelled.

Defining the SAVEU2_WRITE Procedure

1. Open the **Sytos Plus** folder.
2. Select the **Sytos Plus** icon.
3. From the action bar, select **Procedures**→**New**.
4. In the **New Procedure** window, select **Backup** and then select **OK**.
5. In the **Backup Procedure: Untitled** window, select the **Source Files** button.
6. In the **Source Files** window, select the **Selection Sheet** button.
7. In the **Selection Sheet** window, select the **Edit** button.
8. In the **Edit Selection Sheet Entry** window, type the name and path of the Volume Label file (VOLUME.LBL) into the field named **Pathname**, for example if your staging area is **d:\stage**, you should type **D:\STAGE\VOLUME.LBL**, then select **OK**.
9. In the **Selection Sheet** window, select **OK**.
10. In the **Source Files** window, select **OK**.
11. In the **Backup Procedure: Untitled** window, select the **Options** button.
12. In the **Backup Options** window, select the **Volume Options** button.
13. In the **Volume Options** window, select **Create a new Volume** and then select the **Volume Name** button.
14. In the **Volume Name and Description** window, type **SaveUtility/2** into the **Name** field and then select **OK**.
15. Ensure that the **Quick File Access** checkbox is checked and then select **OK**.
16. In the **Volume Options** window, select **OK**.
17. In the **Backup Options** window, select the **Backup Set Name** button.
18. In the **Backup Set Name** window, type **SAVEU2_VOLSER** into the **Name** field and then select **OK**.
19. In the **Backup Options** window, select **OK**.
20. From the action bar, select **Procedures**→**Save As**.
21. In the **Save a Procedure** window, type the name **SAVEU2_WRITE** and then select **OK**.

Labelling a Sample Tape

You must perform this label step in order to be able to create the SAVEU2_READ procedure below.

1. Ensure that the Librarian is running.
2. Ensure that the Archiver is not running.
3. Insert a tape into your tape drive.

Note: If this is a fresh tape and you are using a DAT drive such as the IBM 2.0GB tape drive, you must format the tape using Sytos.

4. Close Sytos Plus by selecting its system icon.

5. Open the SaveUtility/2 Archiver folder placed on the desktop by the SaveUtility/2 installation process.
6. Start the **Label Volume** procedure by selecting its icon.
7. Specify the volume number, volume name and optional information in response to the prompts, pressing **Enter** each time.
8. When the label procedure completes, restart Sytos Plus by double clicking on its icon in the Sytos Plus folder.

Defining the SAVEU2_READ Procedure

1. Open the **Sytos Plus** folder.
2. Select the **Sytos Plus** icon.
3. From the action bar, select **Procedures**→**New**.
4. In the **New Procedure** window, select **Restore** and then select **OK**.
5. In the **Restore Procedure: Untitled** window, select the **Restore from** button.
6. In the **Backup Device** window, select the **Backup Sets** button.
7. In the **Backup Sets: SaveUtility/2** window, select **OK**. This will cause the **SAVEU2_VOLSER** backup set which was placed on the tape by the previous **Archiver label** operation to be selected.
8. In the **Backup Device** window, select **OK**.
9. In the **Restore Procedure: Untitled** window, select the **Source Files** button.
10. In the **Source Files** window, select the **Selection Sheet** button.
11. In the **Selection Sheet** window, select the **Edit** button.
12. In the **Edit Selection Sheet Entry** window, type the name and path of the Volume Label file (VOLUME.LBL) into the field named **Pathname**, for example if your staging area is **d:\stage**, you should type **D:\STAGE\VOLUME.LBL**, then select **OK**.
13. In the **Selection Sheet** window, select **OK**.
14. In the **Source Files** window, select **OK**.
15. In the **Restore Procedure: Untitled** window, select the **Options** button.
16. In the **Restore Options** window, select the **Overwrite Existing Files** button.
17. In the **Overwrite Existing Files** window, select **Overwrite Existing Files** and then select **OK**.
18. In the **Restore Options** window, select **OK**.
19. From the action bar, select **Procedures**→**Save As**.
20. In the **Save a Procedure** window, type the name **SAVEU2_READ** and then select **OK**.

Defining the SAVEU2_PUT Procedure

1. From the action bar, select **Procedures**→**New**.
2. In the **New Procedure** window, select **Backup** and then select **OK**.
3. In the **Backup Procedure: Untitled** window, select the **Source Files** button.
4. In the **Source Files** window, select the **Selection Sheet** button.
5. In the **Selection Sheet** window, select the **Edit** button.
6. In the **Edit Selection Sheet Entry** window, type the name of the staging area followed by a backslash and an asterisk (*) in the field named **Pathname**, for example **D:\STAGE***, then select the **Include Subdirectories** check box, then select **OK**.
7. In the **Selection Sheet** window, select **OK**.
8. In the **Source Files** window, select **OK**.
9. In the **Backup Procedure: Untitled** window, select the **Options** button.
10. In the **Backup Options** window, select the **Volume Options** button.
11. In the **Volume Options** window, select **Append to existing volume** and then select **OK**.
12. In the **Backup Options** window, select **OK**.
13. From the action bar, select **Procedures**→**Save As**.
14. In the **Save a Procedure** window, type the name **SAVEU2_PUT** and then select **OK**.

Defining the SAVEU2_GET Procedure

1. From the action bar, select **Procedures**→**New**.
2. In the **New Procedure** window, select **Restore** and then select **OK**.
3. In the **Restore Procedure: Untitled** window, select the **Source Files** button.
4. In the **Source Files** window, select the **Selection Sheet** button.
5. In the **Selection Sheet** window, select the **Edit** button.
6. In the **Edit Selection Sheet Entry** window, type the name and path of the Volume Label file (VOLUME.LBL) into the field named **Pathname**, for example if your staging area is **d:\stage**, you should type **D:\STAGE\VOLUME.LBL**, then select **OK**.
7. In the **Selection Sheet** window, select **OK**.
8. In the **Source Files** window, select **OK**.
9. In the **Restore Procedure: Untitled** window, select the **Options** button.
10. In the **Restore Options** window, select the **Overwrite Existing Files** button.
11. In the **Overwrite Existing Files** window, select **Overwrite Existing Files** and then select **OK**.
12. In the **Restore Options** window, select **OK**.

13. From the action bar, select **Procedures**→**Save As**.
14. In the **Save a Procedure** window, type the name **SAVEU2_GET** and then select **OK**.
15. Close Sytos Plus.

Chapter 6. Customizing TCP/IP Host Support

You must perform all the steps in this chapter in order to customize TCP/IP for use by SaveUtility/2. Refer to the TCP/IP documentation for full instructions on how to install TCP/IP on the SaveUtility/2 Archiver and the host TCP/IP system.

TCP/IP must support long file names

SaveUtility/2 uses the File Transfer Protocol (FTP) component of TCP/IP to transmit files to the TCP/IP host. The SaveUtility/2 Archiver creates files which have names that are 35 characters in length; therefore the receiving host FTP must be able to accept file names of this length.

TCP/IP for MVS, TCP/IP for AIX, and TCP/IP for OS/2 (used with the HPFS file system) support long file names. Other TCP/IP products may also support long file names.

Note: TCP/IP for VM cannot accept file names in this format and is not supported by SaveUtility/2.

Installing TCP/IP

You need to install the TCP/IP base product to use the SaveUtility/2 TCP/IP support. Install TCP/IP with the **ICAT** command according to the TCP/IP documentation.

Checking Host Communications

To check communications with the remote TCP/IP host, issue the OS/2 TCP/IP PING command supplied with TCP/IP for OS/2. If the PING succeeds, then you have a connection to your remote host and you can proceed to customize the Archiver Profile.

Customizing the SaveUtility/2 Archiver Profile for TCP/IP

See the SaveUtility/2: Handbook for full details of the various TCP/IP parameters which can be set in the Archiver Profile. You must set the following two values:

```
TCP_HOST
TCP_HOSTID
```

The TCP/IP file transfer protocol (FTP) requires you to enter a password at session establishment time, so you will also need to set the **PSWD_CHECK** value to **YES** in the Archiver Profile. If you set **PSWD_CHECK** to **YES**, you will be prompted for the host password each time you start the Archiver or the Restorer. By default the **PSWD_CHECK** value is set to **NO**. If you leave this value at its default setting of **NO**, the TCP/IP Archive device will prompt the operator for the password each time it is invoked by the Archiver or Restorer.

Overriding the TCP/IP Password

You may override the password required for the host TCP/IP by setting the environment variable **SU2_PSWD** in the CONFIG.SYS of the Archiver workstation and leaving the **PSWD_CHECK** variable in the Archiver profile set to **NO**. Add a new line to CONFIG.SYS in the following format:

```
SET SU2_PSWD=ABCDEF
```

where ABCDEF is the password you wish to pass to the host TCP/IP.

Security risk

Overriding the TCP/IP password may create a security risk. It is provided as an option and is **not enabled** by default. The risk may be acceptable if the Archiver workstation is in a secure area such as a locked or badge-access room. **Do not override** the password if you have any concerns about securing host access or if your security guidelines prohibit overriding passwords.

Chapter 7. A Walk Through SaveUtility/2.

This chapter presents an example of a user's first exposure to SaveUtility/2. The example begins at the end of the installation process and steps through simple backup and restore procedures for both OS/2 and DOS workstations. It does not cover all possible variations on those procedures (see SaveUtility/2: Handbook for details) but it does give you a chance to become familiar with SaveUtility/2 and verify that SaveUtility/2 is running correctly.

This example assumes you have:

- Installed a full system (Librarian, Restorer, Archiver) on a suitably configured workstation
- Installed a tape drive as your archiver device.
- Installed and configured software for the tape drive.
- Formatted a tape.
- Labelled the formatted tape.
- Inserted the tape in the drive.
- Installed at least one OS/2 or DOS Subscriber on the same LAN as the Librarian.

For the sake of this example, it would be ideal to have all machines close enough for you to watch all screens as you do the exercise.

- Closed down and restarted the Subscriber workstations after the necessary updates to CONFIG.SYS.

Getting Started

At the workstation on which you installed the Librarian, the OS/2 desktop contains three new folders:

- **SaveUtility/2**
- **Archiver**
- **Backup/Restore**

Open each of them to see their expanded icon views, much like the example shown in Figure 1.

On a Subscriber's OS/2 desktop, there is only one folder: **Backup/Restore**. The contents of that folder are the same as the contents of the **Backup/Restore** folder on the Librarian's workstation.

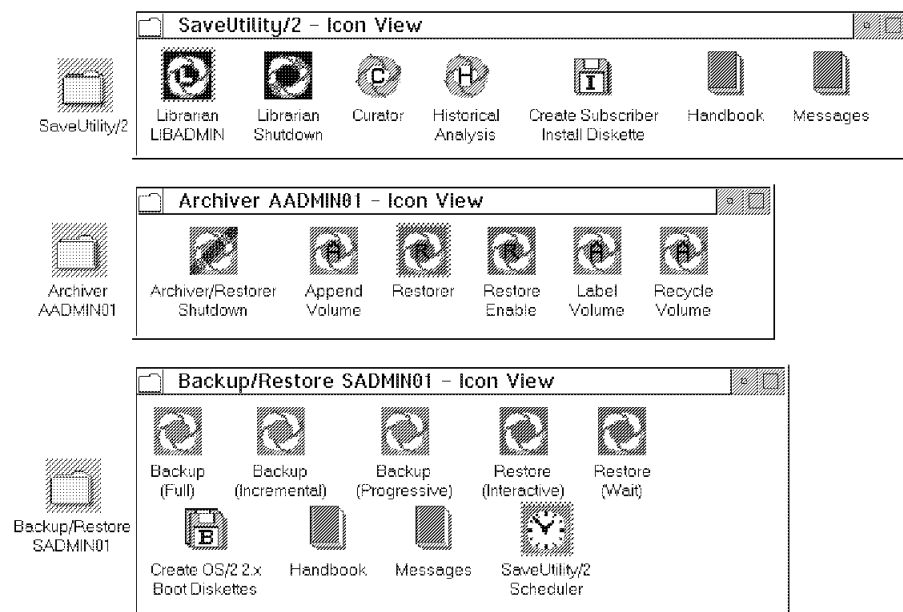


Figure 1. Folders on the Librarian's OS/2 Desktop.

Start the Librarian

Nothing runs without the Librarian. At the Librarian's workstation select the **Librarian** icon in the **SaveUtility/2** folder. The Librarian starts and runs as a minimized icon. If you want to see what goes on in the Librarian, restore the icon and keep the resulting window on your desktop while you do the following exercises.

Start the Archiver

To backup and restore data, you need not only the Librarian, but also the Archiver. The Archiver can run solely as an Archiver, solely as a Restorer, or as both. This exercise assumes it runs as both.

When the Archiver is running as an Archiver (as opposed to running solely as a Restorer), you have the option of writing over data already on a tape (**Recycle Volume** icon) or adding to data already on a tape (**Append Volume** icon). Because this exercise

assumes you are a new user taking your first backup to a fresh tape, it makes no difference which option you choose, so we arbitrarily chose to append.

To start the Archiver as both Archiver and Restorer with the append option:

1. Go to the desktop on the Librarian's workstation.
2. Select the **Append Volume** icon in the **Archiver** folder. When the Archiver starts, it places two windows on the desktop: **Append Volume** and **SU2ASR**. The **Append Volume** window contains the Archiver running in **Listen** state: it is running, but dormant until it receives a request for action. The **SU2ASR** window contains diagnostic messages that are of no interest unless something goes wrong. You can keep either or both of these windows open on the desktop or minimized as icons. For this exercise, minimize **SU2ASR** and keep the **Append Volume** window open.
3. Select the **Restore Enable** icon in the **Archiver** folder. The Archiver opens a **Restore Enable** window on the desktop. Like the **SU2ASR** window, the **Restore Enable** window contains diagnostic messages of no interest unless an error occurs. For this exercise, minimize this window to an icon.

Perform a FULL OS/2 backup

If you have not installed an OS/2 Subscriber, skip this section and go straight to “Perform a Full DOS Backup” on page 35

Otherwise:

1. Go to the OS/2 Subscriber's workstation.
2. Select the **Backup (Full)**¹ icon in the **Backup/Restore** folder.
3. A **Backup (Full)** window appears on your desktop and SaveUtility/2 begins moving backup data to a staging area. In the window, backup progress is marked by a series of messages and a bar graph. When all data has gone to the staging area, the window closes.
4. Back on the Librarian's workstation, the Archiver has been in listen mode since you started it in step 2. Periodically, (the default is every 5 minutes), it checks to see if there is data in the staging area. Therefore, depending on what point in that 5-minute interval your backup ends, you have to wait up to five minutes before the data in the staging area is moved to tape and your backup is truly complete.
5. Once the Archiver has completed moving the files to the tape, it returns to a **Listen** state.

Do Some Work (Whistle a Happy Tune)

Now simulate some work activity on the Subscriber that you just backed up. Because we do not want to risk corrupting any of your important work files for the sake of this exercise, we will copy some files from the operating system to a temporary directory. You can experiment harmlessly with those files and then delete the whole package at the end of the exercise.

¹ If this is the first time this workstation has been backed up with SaveUtility/2, SaveUtility/2 will take a full backup no matter which icon you select.

1. Open an OS/2 window on the Subscriber's workstation.
2. Type **attrib c:\os2*.exe** and press **Enter**.

Notice that none of the EXE files in the OS2 subdirectory have the Archive bit set. This bit was reset by the full backup you just completed.

3. Type the following commands to create copies of some of the EXE files in the OS2 subdirectory. Copy all EXE files whose name begins with the letter **S** to a temporary subdirectory.

```
cd \  
md temp  
cd temp  
copy c:\os2\s*.exe  
attrib *.*
```

This step represents some harmless "work" such as a typical Subscriber might do in a day. Notice that the **attrib *.*** command shows that all the files in your new subdirectory have the archive bit set. There should be about 8 files, a total of about 200K bytes.

Perform an incremental backup

Still at the Subscriber's workstation:

1. Select the **Backup (Incremental)** icon in the **Backup/Restore** folder.
2. An OS/2 window titled **Backup (Incremental)** opens on the desktop. As with the full backup, this window contains messages and a bar graph that mark the progress of the backup. Unlike the full backup, however, the incremental backup is quite small (backing up only the newly-copied files) and completes in a fraction of the time.
3. When the backup is done, the window closes.
4. If you do nothing at this point, the Archiver will wait out its designated time then move the data from the staging area to the tape.

Rather than allow that, let's look at a way to force the Archiver to act immediately.

At the Librarian's workstation, select the **Archiver/Restorer Shutdown** icon in the **Archiver** folder. The Archiver begins to shut itself down, but will not do so while data remains in the staging area. It therefore checks the staging area and immediately (regardless of time left on the wait interval) moves any data from the staging area to tape before shutting itself down.

Accidentally lose some files

In this section you simulate losing some files that you thereafter need to restore. You are going to lose the EXE files whose names begin with **SY**.

On the Subscriber's workstation:

1. Return to the OS/2 window you used earlier.
2. Make sure the **temp** subdirectory you created earlier is still the current directory.
3. Type **dir** and press **Enter**.
4. Make a note of the date, time and file size of the three files whose names start with **SY**.

5. Type the following commands:

```
attrib *.*  
erase sy*.exe  
dir
```

The **attrib** command shows that the archive bits of the files were reset by the incremental backup you just performed.

The **dir** command shows that you have deleted three files from your temporary sub-directory. Five files remain.

6. Before you had SaveUtility/2, this is the moment when you would have exclaimed **OH NO!!** if these files had been really important. In those days, you might have been unable to restore these lost files unless you had a personal backup to tape or diskette or host.

Initiate a Restore Request for the Lost OS/2 Files

1. Because you shut down the Archiver at the end of “Perform an incremental backup” on page 30, you have to restart it for this step. At the Librarian's workstation select the **Append Volume** icon in the **Archiver** folder then select the **Restore Enable** icon, also in the **Archiver** folder.
2. At the Subscriber's workstation select the **Restore (Interactive)** icon in the **Backup/Restore** folder.
3. You will see a display like Figure 2.

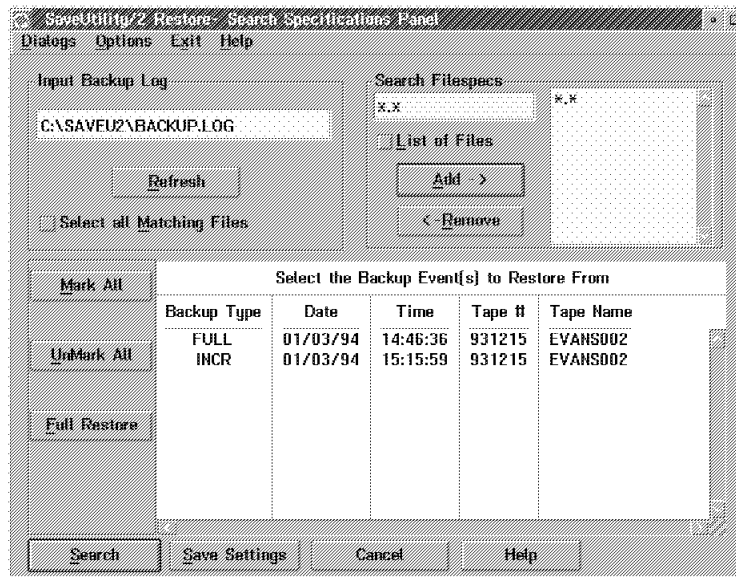


Figure 2. Subscriber Restore Request Initial Screen

4. Select the backup event you want to restore from. In this case, the incremental one. Press **Enter**

5. You will see a screen like the one in Figure 3 on page 33.

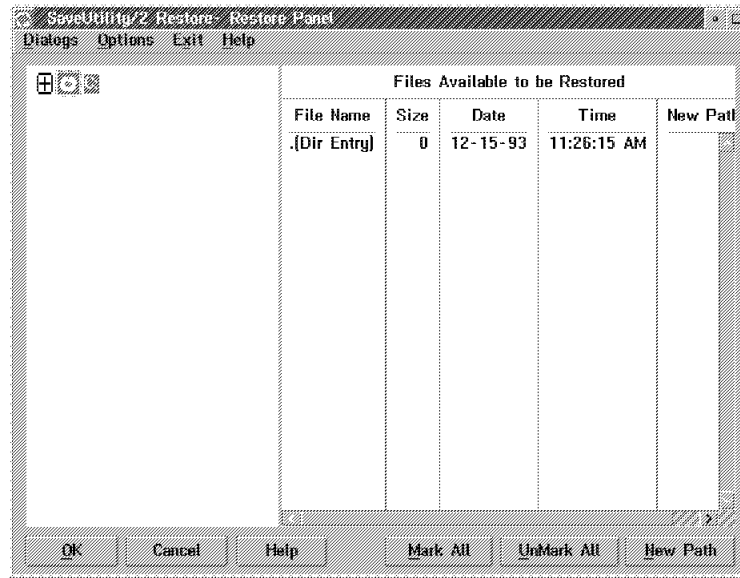


Figure 3. Subscriber Restore Request Second Screen

The directory tree on the left shows only the root directory. Expand the root to show the subdirectories as shown in Figure 4 on page 33

6. From the display of subdirectories, select the one containing the files you want to restore: c:\temp.

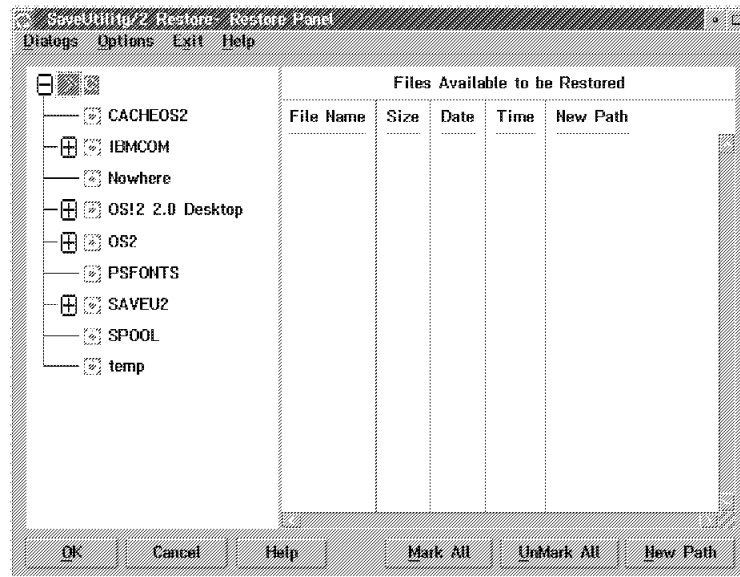


Figure 4. Subscriber Restore Request Third Screen

- From the files shown in Figure 5 on page 34, select the ones you want to restore and select the **OK** button at the bottom of the screen.

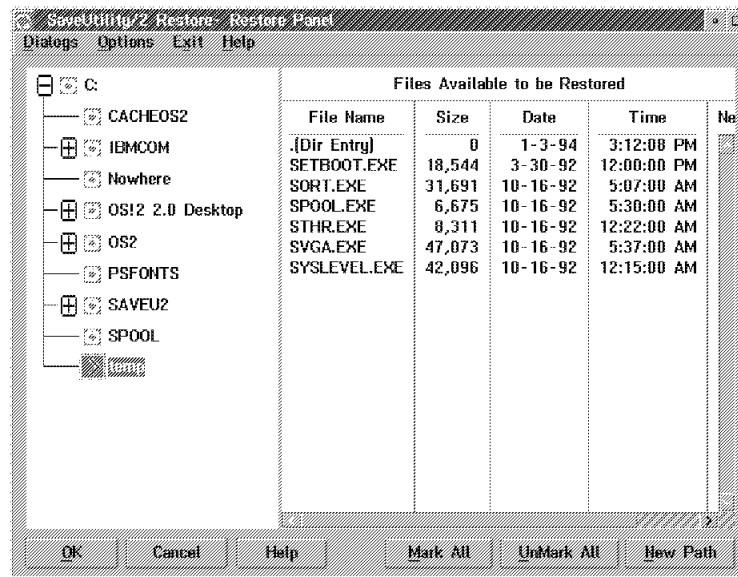


Figure 5. Subscriber Restore Request Fourth Screen

What was restored?

At the Subscriber's workstation:

- Go to the OS/2 window you used earlier.
- Make sure the **temp** subdirectory you created earlier is still the current directory.
- Type **dir** and press **Enter**
- You will see that the three files you deleted earlier are now back. Note that they have the same date, time and file size as the files you deleted.

Perform a Full DOS Backup

Type the following commands at the DOS prompt of an installed DOS Subscriber:

```
cd \saveu2
su2back full
```

Do some work (whistle a happy tune)

When the backup completes (shown by the progress indicator) and the DOS prompt returns, type the following commands to simulate doing some work that changes the contents of the disk. The following commands create a subdirectory called temp and copy into it files from the DOS subdirectory.

```
cd \
md temp
cd temp
copy c:\dos\s*.exe (the DOS subdirectory name may vary)
```

Perform an incremental backup

Now that the disk has changed, do an incremental backup to capture the changes.

```
cd \saveu2
su2back incr
```

Accidentally lose some files

Now you have a full backup and an incremental backup. Suppose that you now "lose" some files, simulated by the following erase command:

```
erase c:\temp\s*.exe
```

This deletes four files from the temporary subdirectory (assuming you are running DOS 5.0).

Initiate a Restore Request for the Lost DOS Files

Restoring files on a DOS workstation is a two part exercise where part one is done on the DOS workstation and part two is done on an OS/2 workstation.

For part one, type **su2rreq** and press **Enter** to put the DOS workstation into **Listen** mode where it will wait for the restored files.

For part two, go to any OS/2 workstation on the same LAN (in this case, either the Librarian's workstation or the Subscriber's workstation) and initiate a restore *on behalf of* (OBO) the DOS workstation.

Sometimes you cannot initiate a restore on the workstation that needs it. For instance, a DOS workstation cannot initiate its own restore or an OS/2 workstation that needs a full system restore cannot initiate its own restore. In such cases, you must initiate the restore from some other OS/2 workstation on behalf of the target workstation.

To restore on behalf of your practice DOS workstation:

1. From the prompt on the DOS workstation, enter the command **su2rreq**. This puts the workstation in a listen state to wait for the restored file.

2. Go to an OS/2 workstation that is already installed as a Subscriber's workstation. This can be any Subscriber's workstation in the LAN, including the one containing the Librarian.
3. Open an OS/2 window. Make the drive where the SaveUtility/2 Subscriber is installed the current drive. Change to the subdirectory containing the Subscriber. If you installed with the SaveUtility/2 defaults, this is **saveu2**.

4. Type the following commands:

```
cd \saveu2  
su2rreq c:\temp\s*.exe /obo dossub /Auto
```

where:

c:\temp\s*.exe specifies the exact set of files to be restored. You could also omit this parameter and the **/Auto** parameter and SaveUtility/2 would present the interactive restore screens shown in "Initiate a Restore Request for the Lost OS/2 Files" on page 32. You could then specify the files to be restored by selecting them from the interactive display.

dossub is the name of the DOS Subscriber that needs the data restored.

/Auto Bypasses the interactive restore screens.

5. Return to the Subscriber
6. Make sure the **temp** subdirectory you created earlier is still the current directory.
7. Type **dir** and press **Enter**
8. You will see that the EXE files you deleted earlier are now back.

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Processing Options

Runtime values:

```

Document fileid ..... V2INSTL SCRIPT
Document type ..... USERDOC
Document style ..... DEFAULT
Profile ..... EDFPRF40
Service Level ..... 0023
SCRIPT/VS Release ..... 4.0.0
Date ..... 94.03.29
Time ..... 14:35:34
Device ..... PSA
Number of Passes ..... 4
Index ..... YES
SYSVAR D ..... Y
SYSVAR X ..... Y

```

Formatting values used:

```

Annotation ..... NO
Cross reference listing ..... YES
Cross reference head prefix only ..... NO
Dialog ..... LABEL
Duplex ..... YES
DVCF conditions file ..... (none)
DVCF value 1 ..... (none)
DVCF value 2 ..... (none)
DVCF value 3 ..... (none)
DVCF value 4 ..... (none)
DVCF value 5 ..... (none)
DVCF value 6 ..... (none)
DVCF value 7 ..... (none)

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DVCF value 8	(none)
DVCF value 9	(none)
Explode	NO
Figure list on new page	YES
Figure/table number separation	YES
Folio-by-chapter	NO
Head 0 body text	(none)
Head 1 body text	Chapter
Head 1 appendix text	Appendix
Hyphenation	YES
Justification	NO
Language	ENGL
Keyboard	395
Layout	OFF
Leader dots	NO
Master index	(none)
Partial TOC (maximum level)	4
Partial TOC (new page after)	INLINE
Print example id's	NO
Print cross reference page numbers	YES
Process value	(none)
Punctuation move characters
Read cross-reference file	(none)
Running heading/footering rule	NONE
Show index entries	NO
Table of Contents (maximum level)	3
Table list on new page	YES
Title page (draft) alignment	RIGHT
Write cross-reference file	(none)

Imbed Trace
