PrintServer Software

Installation Guide

Part Number: AA–Q6V7B–TK

This guide explains how to install the PrintServer Software on UNIX systems.

Revision/Update Information:	This guide supersedes AA–Q6V7A–TK.
Operating System and Version:	AIX, Version 3.2 HP-UX, Version 9.05 IRIX, Version 5.2 SCO UNIX, Version 3.2.4 Solaris/SPARC, Version 2.3, 2.4 Solaris/Intel, Version 2.4 SunOS, Version 4.1.2 DEC OSF/1 (also known as Digital UNIX), Version 2.0, 3.0
Software Version:	PrintServer Software, Version 5.1

Digital Equipment Corporation
Maynard, Massachusetts

First Printing, March 1993
Revised, June, 1995

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This document was prepared using VAX DOCUMENT Version 2.1.

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Preface

Intended Audience

The *PrintServer Software Installation Guide* is for the user with system management responsibilities for one or more systems. This guide describes how to install the print client and supporting host software, as well as how to change the system startup files. You should be familiar with system management commands.

Document Structure

The guide contains the following chapters and appendix:

- Chapter 1 provides an overview of the PrintServer family and identifies preinstallation requirements.
- Chapter 2 explains how to load, install, and configure the software in the fastest possible manner for a typical system environment.
- Chapter 3 explains how to load and install the software for any system environment.
- Appendix A shows sample installation scripts.

Associated PrintServer Software Products

The following software products are associated with Digital's PrintServer family of printers:

PrintServer Software for:

HP-UX
IBM AIX
Microsoft Windows
NetWare
OpenVMS
OSF/1 AXP
SCO UNIX
Silicon Graphics IRIX
Solaris
SunOS
ULTRIX

Contact your Digital sales representative for product and ordering information.

Conventions

This guide uses the following conventions:

Convention	Meaning
UPPERCASE	UNIX differentiates between lowercase and uppercase characters. Enter uppercase characters only when specifically indicated by an example or syntax line.
Italics	Italics are used in examples to indicate that you should substitute a word or value.
[ ]	Brackets in command syntax lines indicate that the enclosed item is optional.
. . .	A horizontal ellipsis indicates that the preceding items can be repeated one or more times.
Bold	Boldface text indicates UNIX commands.
`UNIX keyword`	Monospaced (''typewriter style'') text indicates UNIX commands, file names, and utilities.
$LPSxxx	Placeholder for a directory path that you choose or specify during configuration activities.
Ctrl/*x*	In examples, indicates that you should press the Ctrl key while you simultaneously press another key, for example, Ctrl/C.
Return	This symbol indicates that you should press the Return key.

1

Preparing to Install PrintServer Software

This chapter describes the preparations and requirements for installing PrintServer Software.

1.1 Digital's PrintServer Systems

Digital's family of PrintServer printers consists of a group of compatible network printers that can be shared by a number of systems. The PrintServer printer is a node on an Ethernet network.

The PrintServer environment has two major software components:

1. **The print client** lets users convert ASCII and ANSI files to PostScript, apply page layout directives to print files, submit print requests, and track local accounting data from the PrintServer.
2. **The PrintServer supporting host software** provides services to the PrintServer printers through a supporting host node, which provides one or more of the following:
   - Boot services
   - Management and configuration services
   - Accounting services
   - Event logging services

   In a typical installation, a PrintServer system has one supporting host that provides booting and management services. If you define multiple supporting hosts for the PrintServer printer, the printer can have a backup supporting host, in case the primary supporting host is not available.

The PrintServer printer accepts connections from network hosts called print clients, from which users submit print jobs to the printer. The print client uses the TCP Internet protocol to establish links to the PrintServer printer.

Thus, the PrintServer printer can function as an Internet host on an Ethernet network. To accept connections from Internet clients, the PrintServer must be assigned an Internet host name and Internet address by the network manager.

1.2 Installing the Kit

To install PrintServer Software, follow the steps listed in Table 1–1.

Table 1–1 Steps for Installing the Software

Step	Procedure	Reference
1	Review installation requirements.	Chapter 1
2	Load the software.	Chapter 2
3	Run the **lpsinstall** script to configure the PrintServer environment and install the software.	Section 3.5

1.3 Prerequisite Hardware

Table 1–2 describes the hardware items needed to install PrintServer Software.

Table 1–2 Hardware Requirements

Item	Explanation
PrintServer printer	You may have one or more of the following types of PrintServer printers: PrintServer 17 PrintServer 17/600 PrintServer 20[1] turbo PrintServer 20 PrintServer 32 PrintServer 32 plus PrintServer 40 Plus[1]
Ethernet controller	The system configuration must include an Ethernet controller connected to a transceiver on the Ethernet. The supporting host must be on the same Ethernet network as the PrintServer printer.[2]
Input device	The system configuration must include an input device appropriate for the software distribution media: • QIC–24 cartridge • 3.5 inch floppy disk • CD–ROM • 4 mm DAT tape

[1] After installing the software, you may set up print clients to PrintServer 40 series printers, and you can also set up management clients for secondary booting services and accounting and/or event logging to base PrintServer 20 printers, but it is not possible to boot them using this software. See the *PrintServer Software Management Guide*.

[2] The PrintServer printer may be connected to a different Ethernet than its supporting host when the two Ethernets are connected by a local area network (LAN) bridge that does not filter boot requests.

1.4 Prerequisite Software

Your bill of materials (BOM) and bills report (BIL) specify the number and contents of your media. Be sure to verify the contents of your kit with this information. If your kit is damaged or parts are missing, contact your Digital representative.

Make sure the distribution kit includes the following:

- Media labeled ''**PrintServer Software, Version 5.1**''
- *PrintServer Software Installation Guide*
- *PrintServer Software Management Guide*
- *PrintServer Software User's Guide*

1.5 Release Notes

You can print or display the release notes after you install the software as described in either Chapter 2 or Chapter 3.

To read the release notes after loading the software, enter the following command from the directory used to load the software from the distribution media:

```
# more doc/RelNotes.doc
```

To print the release notes after installing the software and configuring a PrintServer printer and an associated print client, enter the command appropriate for your operating system.

- For AIX systems:

  ```
  #qprt -Pprintername $LPSDOC/RelNotes.ps
  ```

- For SunOS systems:

  ```
  #lpr -Pprintername $LPSDOC/RelNotes.ps
  ```

- For HP-UX, IRIX, Solaris, and SCO systems:

  ```
  #lp -dprintername $LPSDOC/RelNotes.ps
  ```

- For OSF/1 systems:

  ```
  # lpr -Pprintername $LPSDOC/RelNotes.ps
  ```

Replace `$LPSDOC` with the directory you specified for the software documentation during the installation procedure. For example, if you specified the directory as **/usr/local/lps**, you would replace `$LPSDOC` with **/usr/local/lps/doc**.

1.6 Installation Time

Loading the software and performing the installation takes approximately 30 minutes, depending on your type of media and your system configuration.

1.7 PrintServer Printer Internet Host Names

Internet host names must be defined for each PrintServer printer to be configured for use by this software. Each host name must be defined either in /etc/hosts or in a distributed nameserver database (such as NIS or bind), depending on whether you use a nameserver to manage the hosts database.

1.8 Account Privileges

To install PrintServer Software, you must be logged in as **root** or have superuser privileges enabled.

1.9 Disk Space Requirements

The amount of disk space used for the software depends on the platform you are using, where the software is installed, and whether you remove unused software components after the installation is completed.

The following table shows the disk space needed for various platforms:

Platform	Disk Space (in Megabytes)
AIX	19.5
OSF	24
SGI	18.6
Solaris	26
SunOS	30.5

2

Quick-Start Installation Instructions

This chapter describes how to perform a fast and simple installation and configuration for typical systems. If you wish to perform a custom installation, see Chapter 3.

If you encounter problems during any of these steps, refer to the other chapters in this guide to understand the problem and to determine the proper course of action.

The installation and configuration procedures allow you to customize your environment by installing the software components anywhere on your system, and tailoring the software to best suit your system management policies and style.

2.1 Assumptions and Requirements

Your system environment should meet the following requirements and assumptions:

- You must have a basic understanding of system management commands.
- The installation is for an English–speaking environment.
- The system where the software will be installed has an Internet host name of ‘‘bizzarro’’. Your system’s Internet host name will be displayed when you actually execute the commands.
- The system is not currently performing any type of remote boot for any other system on the network.
- The software will be installed in the same directory (`/usr/local/lps` for UNIX systems, `/usr/opt/LPS` for OSF/1 systems) where the software was loaded from the distribution medium.
- The commands to start up any management clients automatically will be written to your system’s startup procedure.
- The **man** page files for the software will be installed in the usual system directory tree (/usr/man).
- User–level programs will be installed in the /usr/bin directory for accessibility by the other users.
- A single PrintServer 17/600 printer with the host name ‘‘lps17’’ will be used with the software on the system, and this printer has never been booted.
- The system will boot the printer.
- Centralized accounting and event data will be logged by the system.
- A single printer queue called ‘‘ps1’’ will be used with the printer.
- Default values are acceptable for all configuration questions.

If your system environment differs from that described previously (other than the names given to the various components), refer to the remaining chapters in this guide for details on how to install and configure the software in a more customized manner.

2.2 Determining the Ethernet Hardware Address of the Printer

Make sure the printer is connected to the Ethernet network, and turn on the printer. When it has performed all of its internal power-up tests and is ready to be booted, it displays its Ethernet address on the operator panel. The top line should look something like this:

```
08-00-2b-0c-7e-8b
```

Write down the Ethernet address. You will need this when you configure your system to boot your printer.

2.3 Installing the Software on UNIX Systems, Except OSF/1

1. Log in as **root** or use the **su** command to become the superuser.
2. Define the Internet host name of the printer (lps17) in the **/etc/hosts** database file or the master NIS hosts database (if NIS is used on your system).
3. If the directory for loading the software does not already exist, create it now:

   ```
   # mkdir /usr/local/lps
   ```

4. Change your working directory to this directory:

   ```
   # cd /usr/local/lps
   ```

5. Load the software into this directory from the distribution medium (assuming you are using a tape drive):

   ```
   # tar xvf /dev/rmt0
   ```

   (Your tape device path may differ.)

6. Run the **lpsinstall** script to configure the PrintServer software environment and perform all installation tasks:

   ```
   # ./lpsinstall
   ```

7. During the execution of the **lpsinstall** script, answer **Y** to all questions, particularly the question about whether the displayed database values should be used. By default, **lpsinstall** does the following:
   - Uses the current directory as the installation directory
   - Enters the commands to automatically start up management clients into the system startup procedure
   - Installs **man** page files and user-level programs in the system directories.
8. When the installation completes, answer **Y** to immediately run the **lpssetup** script to configure the PrintServer printer and the associated management and print clients.

   ```
   Do you want to run the "lpssetup" script now ([y]|n)? y
   ```

Proceed to Section 2.5.

2.4 Installing the Software on an OSF/1 System

1. Log in as **root** or use the **su** command to become the superuser.
2. Define the Internet host name of the printer (lps17) in the **/etc/hosts** database file or the master NIS hosts database (if NIS is used on your system).
3. Mount the CD–ROM on the system.

   ```
   # mount -dr /dev/rz4c /mnt
   ```

4. Invoke the `setld` utility and specify the name of the directory where the CD–ROM is mounted. The following example assumes the default device of `/mnt`.

   ```
   # setld -l /mnt
   ```

5. Select option **1** from the menu presented to you to load the kit onto the disk in the directory `/usr/opt/LPS` for OSF/1 systems. Answer **Y** to the remaining `setld` questions.
6. Change your directory to `/usr/opt/LPS`.
7. Run the **lpsinstall** script to configure the PrintServer software environment and perform all installation tasks:

   ```
   # ./lpsinstall
   ```

8. During the execution of the **lpsinstall** script, answer **Y** to all questions, particularly the question about whether the displayed database values should be used. By default, **lpsinstall** does the following:
   - Uses the current directory as the installation directory
   - Enters the commands to automatically start up management clients into the system startup procedure
   - Installs **man** page files and user-level programs in the system directories.
9. When the installation completes, answer **Y** to immediately run the **lpssetup** script to configure the PrintServer printer and the associated management and print clients.

   ```
   Do you want to run the "lpssetup" script now ([y]|n)? y
   ```

Proceed to Section 2.5.

2.5 Adding a PrintServer Printer

1. At the Main Menu, enter **1** to configure the PrintServer printer, then enter **4** to add a new definition for the PrintServer printer.
2. Enter the name of the PrintServer printer (assume the name of the printer is the same as the assigned Internet host name for this example):

   ```
   What is the name of the new PrintServer printer? lps17
   ```

3. Enter the Internet host name for the printer:

   ```
   What is the Internet host name of the printer []? lps17
   ```

4. Enter the model of the printer (assume this is a PrintServer 17):

```
What model is this printer?
    Possible responses are:
        1) PrintServer17
        2) PrintServer20-family
        3) PrintServer32-family
        4) PrintServer40-family
Enter a number from the above list [2]: 1
```

5. You are now asked to accept default values for the remainder of the configuration variables. Because this system will boot this printer, answer **N** to modify the default configuration.

6. Select the method for configuring the PrintServer printer. Enter **2** to use the menu-oriented technique:

```
How do you want to configure the Management Client?
    Possible responses are:
        1) step-by-step
        2) menu-oriented
Enter a number from the above list [1]: 2
```

7. Because this system is booting this printer, you need to enter the Ethernet address of the printer. Enter **4** to modify the Ethernet address. Enter the hardware address in the form 08-00-2b-xx-xx-xx.

8. To enable other Internet subnets to communicate with the printer, set up an Internet gateway.

9. If you require DECnet access to the printer, enter the printer's assigned DECnet address by entering **5** from the menu, then enter the DECnet address when prompted. If you do not require DECnet access to the printer, you may skip this step.

10. Press Return when you are finished configuring this PrintServer printer and confirm the completion. A mail message containing the appropriate bootptab entry for this printer is mailed to you. Save this message for use later in this procedure.

11. Return to the Main Menu.

12. Proceed to Section 2.6.

2.6 Adding a Management Client

1. From the Main menu, enter **2** to enter the Manage Management Clients menu. Then enter **4** to add a new management client for the printer.

2. Assign a name to the management client. The name can be anything; we choose to give it the same name as the printer:

```
What is the name of the new Management Client? lps17
```

3. When you are prompted for the name of the PrintServer printer to be assigned to this client, press Return to accept the default, as you have only one printer defined, lps17:

```
Which PrintServer printer is to be assigned to this Client?
    Possible responses are:
        1) lps17
Enter a number from the above list [1]:  Return
```

4. You are now asked how you want to configure this management client. Enter **2** to use the menu-oriented technique:

```
How do you want to configure the Management Client?
    Possible responses are:
        1) step-by-step
        2) menu-oriented
Enter a number from the above list [1]: 2
```

5. Press Return when you are finished configuring this management client. Confirm the completion of the configuration.

6. Press Return to start the new management client automatically. If there are no errors, you receive a message that the management client has been successfully started:

```
Starting Management Client "lps17"...done.
```

7. Exit the **lpssetup** script.

8. Proceed to Section 2.7.

2.7 Booting the Printer

This section describes how to configure your system to perform the primary boot for the PrintServer printer. If you need more detailed information, consult the *PrintServer Software Management Guide*.

Note

This step is required *only* if you do not use the unified booting daemon (lpsbootd) provided with this software. By default, the installation procedure determines whether your system provides BOOTP or TFTP services, and configures the lpsbootd daemon to automatically provide those network services to boot PrintServer printers. If you use BOOTP, then you are familiar with the BOOTP database and its format; otherwise, the lpsbootd daemon takes care of these details for you.

Most of the following steps need only be performed once. Then your system is permanently set to boot when requested by a PrintServer printer. The only step you must perform more than once is creating new entries in the BOOTP database.

1. If you have an OSF/1 system, edit the system file **/etc/tftptab** and add the full path of the primary boot files as follows:

```
/tftpboot/lps17.sys
/tftpboot/lps.sys
```

2. If you do not already have a BOOTP database file (/etc/bootptab), then copy the example BOOTP database file into the proper system directory:

```
# cp doc/bootptab.ex /etc/bootptab
```

3. Add an entry similar to the following at the end of the new **/etc/bootptab** file for the PrintServer printer. You can use the entry that was mailed to you when you configured the printer or you can import a copy of the entry as stored in the $LPSDOC directory. The file name is the name of the printer you configured. For example, if $LPSDOC is /usr/local/lps/doc and ‘‘ps3’’

is the name of the configured printer, then the entry can be found in the /usr/local/lps/doc/ps3.bpt file.

The bootptab entry differs slightly for each operating system. Be sure to reference the mail message containing the suggested bootptab entry.

```
lps17:    ht=ethernet:  ha=08002b0c7e8b: ip=16.122.128.112:\
          hd=/tftpboot  bf=lps17.sys:
```

4. This step is for AIX systems *only*.

   Using SMIT, traverse the menu system as follows to get to where the **tftp** subserver is started:

   Processes & Subsystems
   Subservers
   Start a Subserver

   Move your cursor to the **tftp** line, and press Return. SMIT provides detailed instructions as you proceed.

5. This step applies to all systems *except* AIX.

   Edit the **/etc/inetd.conf** file to enable the TFTP daemon program to execute when required. A standard system has the required entry line already in place in **/etc/inetd.conf**; however, it is commented out. To enable the entry, remove the comment character ''#'' from the beginning of the line. Note that the tftp entry in **/etc/inetd.conf** varies slightly from system to system.

   - For HP-UX systems:

     ```
     tftp  dgram  udp  nowait  root  /etc/tftpd  tftpd
     ```

   - For SCO systems:

     ```
     tftp  dgram  udp  nowait  root  /etc/tftpd  tftpd
     ```

   - For IRIX systems:

     ```
     tftp  dgram  udp  nowait  root  /usr/etc/tftpd  tftpd -h /tftpboot
     ```

   - For Solaris systems:

     ```
     tftp  dgram  udp  wait  root  /usr/sbin/in.tftpd in.tftpd -s /tftpboot
     ```

   - For SunOS systems:

     ```
     tftp dgram udp wait root /usr/etc/in.tftpd in.tftpd -s /tftpboot
     ```

   - For OSF/1 systems:

     ```
     tftp   dgram   udp     wait    root    /usr/sbin/tftpd    tftpd /tftpboot
     ```

6. Enable the BOOTP daemon program to be executed when required. Add a line after the **tftp** entry in **/etc/inetd.conf**.

   Note

   As you start to type the following line into the file, note carefully that you *must* use a single **tab** character (instead of spaces) between each word on the line:

   - For AIX systems:

     ```
     bootp  dgram  udp  wait  root  /etc/bootpd  bootpd -d1
     ```

- For HP-UX systems:

  ```
  bootp  dgram  udp  wait  root  /etc/bootpd  bootpd -d1
  ```

- For SCO systems:

  ```
  bootp  dgram  udp  wait  root  /etc/bootpd  bootpd -d1
  ```

- For IRIX systems:

  ```
  bootp  dgram  udp  wait  root  /usr/etc/bootpd  bootpd -d
  ```

- For Solaris systems:

  Solaris systems do not provide a bootp daemon by default. Copy the bootpd provided with this kit to the directory used for similar programs as follows (replacing $LPSBIN with the name of the directory where the binary executable files were installed):

  ```
  # cp $LPSBIN/bootpd /usr/sbin
  ```

  The **bootp** line in the **etc/inet/inetd.conf** file must be entered as follows:

  ```
  bootp  dgram  udp  wait  root  /usr/sbin/bootpd  bootpd -d1
  ```

- For SunOS systems:

  SunOS systems do not provide a bootp daemon by default. Copy the bootpd provided with this kit to the directory used for similar programs as follows (replacing $LPSBIN with the name of the directory where the kit was installed).

  ```
  # cp $LPSBIN/bootpd /etc
  ```

  The **bootp** line in the **/etc/inetd.conf** file must be entered as follows:

  ```
  bootp  dgram  udp  wait  root  /etc/bootpd  bootpd -d1
  ```

- For OSF/1 systems:

  ```
  bootp  dgram   udp     wait    root    /usr/sbin/bootpd      bootpd -d1
  ```

7. This step is for AIX systems *only*.

   After you have exited **/etc/inetd.conf**, update the ODM database:

   ```
   # /usr/bin/inetimp
   ```

   Next, issue the following command to reread the InetServ database:

   ```
   # /usr/bin/refresh -s inetd
   ```

   You must now add an entry for the **print-srv** service, and, if they do not already exist, for the **bootp** and **bootpc** services.

   Using SMIT, traverse the menu system as follows to get to where the **/etc /services** file is modified:

   Communications Applications and Services
   TCP/IP
   Further Configuration
   Client Network Services
   Services

   From this point, follow SMIT's instructions to check to see if the required services are already enabled, and to add them if not. The services should be entered as follows:

```
bootp            67/udp          # BOOTP server
bootpc           68/udp          # BOOTP client
print-srv       170/tcp          # PrintServer printer
```

8. This step applies to all systems *except* AIX.

   Add entries for the **bootp** and **print-srv** services in the **/etc/services** file. Before editing this file, determine whether your system is using a local copy of the file, or if data provided by this file is being served via NIS from a remote master system.

   ### Determining If Your System Uses NIS

   If you are unsure as to whether your system is using NIS, enter the following command.

   ```
   # ypcat services
   ```

   If you see several (usually over 50) lines of text displayed, then your system is probably using NIS. If you see a message such as ''no such map in server's domain'', then either NIS is not being used on your system, or the **/etc /services** file is not installed for use with NIS on your network.

   If your system is being served by NIS, contact your administrator and have these service lines added to the master database.

   If you are not using NIS and must edit the **/etc/services** yourself, or you must have the NIS administrator edit the NIS **services** database, add the following lines:

   ```
   bootp            67/udp          # BOOTP server
   bootpc           68/udp          # BOOTP client
   print-srv       170/tcp          # PrintServer printer
   ```

   Note that you can use any number of spaces or tabs between the words in each line. It is customary to add these lines so that they are in proper numerical order within the file, but this is not absolutely necessary; you may add them anywhere in the file.

9. Inform the currently running **inetd** daemon to reread its configuration file and the updated services file to invoke the **bootp** and **tftp** daemons when required. To do this, first determine the process ID (number) of the **inetd** daemon:

   For all UNIX System V systems:

   ```
   # ps -ef | grep inetd | head -1
   ```

   For SunOS and OSF/1 systems:

   ```
   # ps -aux | grep inetd | head -1
   ```

   The first number in the line of output is the process ID of the **inetd** daemon. Use this number in the following command to send the daemon a ''kill'' signal, then restart inetd.

   ```
   # kill -1 number
   ```

   Replace ''*number*'' with the process ID number.

10. Your system is now ready to boot the printer. Turn on the printer. When all booting activities have completed, you see the word **Ready** on the printer's front panel.

Depending on the type of printer, booting can take from 5 to 15 minutes. If you believe the printer is not completing the boot procedure, refer to the *PrintServer Software Management Guide* troubleshooting information.

11. When the printer is ready to accept requests from print clients, configure a print client to begin print operations from your system to the printer. Proceed to Section 2.8.

2.8 Adding a Print Client

1. Run the **lpssetup** script and enter **3** at the Main menu to configure a new print client. Then enter **4** to add a new print client.
2. Provide a print client name ''ps1'', which will be the same name as the local print queue used to send print requests to the PrintServer printer. (Traditionally, UNIX refers to a print queue as a ''printer'').

   ```
   What is the name of the new Print Client? ps1
   ```

3. When you are prompted for the name of the PrintServer printer to be assigned to this client, press Return to accept the default, as you only have one printer defined, lps17.

   ```
   Which PrintServer printer is to be assigned to this Client?
       Possible responses are:
           1) lps17
   Enter a number from the above list [1]:
   ```

4. You are now asked how you want to configure this print client. Enter **2** to use the menu-oriented technique:

   ```
   How do you want to configure the Print Client?
       Possible responses are:
           1) step-by-step
           2) menu-oriented
   Enter a number from the above list [1]: 2
   ```

5. You are now presented with a list of configuration variables for the print client. Enter the number of the variable you want to modify. When you are finished configuring this print client, press Return.
6. If you have an OSF/1 system, you can view the printcap entry for this printer before it is added to the /etc/printcap file. Once you have reviewed this entry, the script updates /etc/printcap, creates all required queue-related files, and starts the queue.
7. If applicable for your system, you are now asked to confirm the shutdown of the LP spooling system. Answer **Y** as this is required to create the associated print queue to be used with the print client.
8. This step applies to all systems *except* SunOS.

   You are now asked whether you want to make the print queue associated with the print client the default print queue for the entire system. If this is the only printer on your system, respond with **Y**. Note that the default response is **N**.
9. You are now informed of the running status of the creation of the print queue. When it is completed, you see the current status of the print queue.
10. You are now asked whether you want to print a test page on the newly configured print queue. Accept the default response of *yes* by pressing Return.

11. Exit from the **lpssetup** script and return to the shell.

2.9 Removing Unnecessary Files (Optional)

To conserve disk space, remove all software components that have been copied to other system directories.

Note

These commands apply *only* if you have not deviated from the responses shown for each of the previous steps, and all the assumptions described at the beginning are true for your environment.

```
# rm -rf images
# rm -rf man
# rm -f servers/sys/panel.[dfgns]*
# rm -f servers/sys/cn1_panel.[dfgns]*
# rm -f lpsinstall lpsodb.GENERIC
# find . -name KITLIST -exec rm -f {} \;
```

3
Custom Installation Instructions

This chapter describes how to perform a custom installation of PrintServer Software. This step-by-step procedure prompts you for information, unlike the quick-start installation in Chapter 2.

The installation stages are as follows:

1. Loading the software from the distribution medium
2. Configuring the initial software environment
3. Installing the software components

The following conventions apply throughout the installation procedure:

- Press Return after every response or command you type.
- If an error occurs, the installation script displays an error message that usually explains how to correct the error.

3.1 Conventions for Specifying Directories

PrintServer Software allows you to install the software into any directory. You specify the paths of installation directories when you run the **lpsinstall** script.

This guide refers to directories using a ''logical directory names,'' which represent the paths of the specific directories. The naming convention is similar to that used for *shell environment variables*. For example:

$NAME

The dollar sign ($) represents the value of an environment variable, and **NAME** represents the environment variable name.

In this guide, the directory path for the management programs is **$LPSBIN**. Replace the **$LPSBIN** with the full path of the directory.

For example, the documentation instructs you to enter the following command:

```
# $LPSBIN/lpsad -M hudson
```

If **$LPSBIN** is the symbolic name for the `/usr/local/lps/bin` directory, you would enter the following command:

```
# /usr/local/lps/bin/lpsad -M hudson
```

This naming convention is not a shell variable reference. You must replace the symbolic name with the full directory path.

3.2 Preparing to Install the Software

Perform the following steps before beginning the installation procedure:

1. Make a backup copy of the software distribution medium.
2. Insert the backup copy of the medium into the appropriate input device.
3. Log in to the **root** account, or use the **su** command to become the ''super-user''.
4. Use the **df** command to make sure that you have enough disk space.
5. Identify the directory in which to load the software from the distribution medium. This directory is called the *LPS kit directory* and is referenced by the **$LPSKIT** logical directory name.

   The software can be loaded and installed in any directory; however, most users select the default kit directory, `/usr/local/lps` for UNIX systems or `/usr/opt/LPS` for OSF/1 systems.

   If the directory does not exist, create it. Once the directory exists, you are ready to load the software from the distribution medium.
6. Decide if you want to perform a ''generic'' installation or the more detailed ''custom'' installation. See the following sections for descriptions of the two types of installations.

3.2.1 What Is a Generic Installation?

A generic installation is the fastest and simplest way to install PrintServer Software. This type of installation uses configuration options and installation directory paths suitable for almost any system.

For a generic installation, the LPS root directory (**$LPSROOT**, the primary installation directory) is the same as the **$LPSKIT** directory (the directory used to load the software from the distribution medium). All installation directories containing PrintServer software components remain as subdirectories of the **$LPSROOT** directory.

In addition, the following system directories are also referenced by the generic installation:

- User-level programs are installed in **/usr/bin**, referenced by the **$LPSUSR** logical directory name.
- Daemon log files are written in either **/var/adm** or **/usr/adm** (depending on your system type), referenced by the **$LPSLOG** logical directory name.
- Accounting files are written in either **/var/adm** or **/usr/adm** (depending on your system type), referenced by the **$LPSACCT** logical directory name.
- On SunOS and OSF/1 systems only, print spool directories are created in **/var/spool**, referenced by the **$TOPQDIR** logical directory name.
- Network boot files reside in **/tftpboot**, referenced by the **$LPSBOOT** logical directory name.

Note

Unless you have specific requirements that prevent a generic installation, you are strongly encouraged to choose the generic installation.

3.2.2 What Is a Custom Installation?

A custom installation allows you to tailor one or more of the configuration options and installation directories before the software is installed. When you choose this type of installation, you are prompted to answer questions, which include tutorial information and default responses.

Performing a custom installation takes longer than a generic installation, but allows you to control the configuration of the PrintServer software on your system. Also, a custom installation allows you to understand the various configuration options.

3.3 Determining the Ethernet Hardware Address of the Printer

After installing the printer and connecting it to the Ethernet network, turn on the printer. When it is has performed all of its internal power-up tests and is ready to be booted, it displays its Ethernet address on the operator panel. The top line of the display should look something like this:

```
08-00-2b-0c-7e-8b
```

Copy down the Ethernet address. You will need this when you configure your system to boot your printer.

3.4 Loading the PrintServer Software from the Distribution Medium

Instructions for OSF/1 Systems:

Log in as ‘‘root’’, or use ‘‘su’’ to become the superuser. Mount the CD–ROM to a temporary directory on your system. For example:

```
# mount -dr /dev/rz4c /mnt
```

Invoke the `setld` utility, and specify the name of the directory where you mounted the CD–ROM. Press Return after every response or command you enter.

```
# setld -l /mnt
```

Note

The `setld` command uses the lowercase letter l, not the number 1.

Select option **1** from the menu presented to you to load the kit onto your system in the directory `/usr/opt/LPS`. Answer **y** to all remaining `setld` questions.

Once `setld` has completed loading the kit, change your directory to `/usr/opt/LPS`. This directory will be referred to as **$LPSKIT** in the remainder of this guide. You are now ready to run the **lpsinstall** script to configure and install the software.

Once all files have been extracted from the distribution medium and placed into the **$LPSKIT** directory, you are ready to run the **lpsinstall** script to configure and install the software.

Instructions for Other UNIX Systems:

When you load the software onto your system, you should be running as the superuser (**root**), and your current working directory should be the directory you have chosen as the **$LPSKIT** directory. The PrintServer Software is written on the distribution medium in **tar** format; you should extract all files from the distribution medium, placing them in the **$LPSKIT** directory.

For example, if you have chosen /usr/local/lps as the **$LPSKIT** directory, but have not yet created the directory, then you would execute the following commands to load the software from the distribution medium:

```
# mkdir /usr/local/lps
# cd /usr/local/lps
# tar xvf /dev/rmt0
```

If your system hardware configuration is different, consult the **mt** man page or other related system documentation to assist in determining the proper tape device name for use with the **tar** command.

Once all files have been extracted from the distribution medium and placed into the **$LPSKIT** directory, you are ready to run the **lpsinstall** script to configure and install the software.

3.5 Running the lpsinstall Script

The **lpsinstall** script is used to set the initial configuration of the PrintServer Software and to install all software components in the chosen installation directories. To run the **lpsinstall** script, remain in the **$LPSKIT** directory and enter the following command:

```
# ./lpsinstall
```

3.5.1 Upgrading from a Previous Version

When the script starts, it checks to see if a previous version of the software is already installed on the system. If a previous version is installed, then the script will automatically update all object definitions and copy the new kit files into the existing PrintServer directories.

Should the upgrade fail, you will receive a message telling you to de-install the kit manually. An **lpsdeinstall** script is included in the top-level kit directory to assist you with this. This script will remove all defined PrintServer objects (PrintServer printers, print clients, and management clients) as well as deleting the older version of the software from your system.

If the upgrade was successful and you do not need to add or modify any printers, management clients or print clients, you may exit the installation script.

If you are not booting any printers from this system, you have completed the upgrade.

If you are currently booting PrintServer printers from this system, the only remaining upgrade task is to update the primary boot files in the tftp home directory, referenced in this guide by the variable **$LPSBOOT**. This is typically the /tftpboot directory. Copy the new files from the **$LPSSERVERS** directory into the **$LPSBOOT** directory as shown in the following examples.

Example 3–1 Updating Primary Boot Files on UNIX Systems

```
# grep lpsboot /etc/lpsodb
        :lpsboot=/tftpboot:\
# grep lpsservers /etc/lpsodb
        :lpsservers=/usr/local/lps/servers:\
# cp /usr/local/lps/servers/lps.sys /tftpboot
# cp /usr/local/lps/servers/lps17.sys /tftpboot
```

Example 3–2 Updating Primary Boot Files on OSF/1 Systems

```
# grep lpsboot /etc/lpsodb
       :lpsboot=/tftpboot:\
# grep lpsservers /etc/lpsodb
       :lpsservers=/usr/opt/LPS/servers:\
# cp /usr/opt/LPS/servers/lps.sys /tftpboot
# cp /usr/opt/LPS/servers/lps17.sys /tftpboot
```

OSF/1 Systems

If you are updating your software from a pre-V5.0 version of the PrintServer Software, the file names for the load files have changed. Update /etc/bootptab and /etc/tftptab to include the new file names.

For This Printer . . .	Old File Name	New File Name
PrintServer 20 series and PrintServer 32 series	lps_printserver.sys	lps.sys
PrintServer 17 series	lps_printserver17.sys	lps17.sys

3.5.2 Installing for the First Time

When the script starts, it notifies you that it is setting up and validating the environment. You are then asked to confirm whether the installation procedure should continue; to continue the procedure, enter **y**.

Note

You can abort the installation procedure at any time by pressing the ‘‘interrupt’’ key defined for your terminal type. On many systems the ‘‘interrupt’’ key is assigned to Ctrl/C.

You are prompted to begin the configuration of the initial LPS Object Database (**LPSODB**). The **LPSODB** is maintained in the file **/etc/lpsodb** and contains the definitions for all PrintServer Software components, such as printers, management clients, and print clients. It also maintains the definition the ‘‘LPS Environment’’, the set of configuration values common to the PrintServer Software environment as a whole.

The following examples show the configuration for UNIX and OSF/1 systems.

Example 3–3, for UNIX systems, shows that the software is installed in the **/usr/local/lps** directory.
Example 3–4, for OSF/1 systems, shows that the software is installed in the **/usr/opt/LPS** directory.

Example 3–3 Configuration Values for UNIX Systems

```
Press RETURN to view the generic database values...

Current values of the LPS Environment configuration variables
for PrintServer Software, 5.1 on punky:

  DIRECTORIES:
    LPS kit (LPSKIT):              /usr/local/lps
    LPS root (LPSROOT):            /usr/local/lps
    LPS system programs (LPSBIN):  /usr/local/lps/bin
    LPS library files (LPSLIB):    /usr/local/lps/lib
    LPS documentation (LPSDOC):    /usr/local/lps/doc
    Image files (LPSIMAGES):       /usr/local/lps/images
    LPS user programs (LPSUSR):    /usr/bin
    Temporary files (LPSTMP):      /tmp
    Error/log files (LPSLOG):      /var/adm
    Accounting files (LPSACCT):    /var/adm
    Network boot files (LPSBOOT):  /tftpboot

  PRINT CLIENT OPTIONS:
    Enable ANSI translation:       No
    Default page width:            80
    Default page length:           66
    Enable offset stacking:        Yes
    Enable banner page printing:   Yes
    Banner input tray:             default
    Enable banner images:          No
    Banner image file suffix:      ".eps"
    Supervisor connection name:    "OSname-connect"
    Problem notification method:   mail
    Accounting units:              job

  GENERAL CLIENT/SERVER OPTIONS:
    Booting options:               bootp
    Enable accounting:             Yes
    Enable logging:                Yes
    Default logging level:         1
    Default debug level:           2
    Default file I/O buffer size:  16384

  ELECTRONIC MAIL:
    Administrative mail address:   root
    Mail addressing style:         RFC822
    Mail program:                  /usr/bin/mail
    Mail command line options:     "-i -n"

Do you wish to use these configuration variable values (n)?
```

Example 3–4 Configuration Values for OSF/1 Systems

```
Press RETURN to view the generic database values...

Current values of the LPS Environment configuration variables
for PrintServer Software, 5.1 on punky:

  DIRECTORIES:
    LPS kit (LPSKIT):              /usr/opt/LPS
    LPS root (LPSROOT):            /usr/opt/LPS
    LPS system programs (LPSBIN):  /usr/opt/LPS/bin
    LPS library files (LPSLIB):    /usr/opt/LPS/lib
    LPS documentation (LPSDOC):    /usr/opt/LPS/doc
    Image files (LPSIMAGES):       /usr/opt/LPS/images
    LPS user programs (LPSUSR):    /usr/bin
    Temporary files (LPSTMP):      /tmp
    Error/log files (LPSLOG):      /var/adm
    Accounting files (LPSACCT):    /var/adm
    Network boot files (LPSBOOT):  /tftpboot

  PRINT CLIENT OPTIONS:
    Enable ANSI translation:       No
    Default page width:            80
    Default page length:           66
    Enable offset stacking:        Yes
    Enable banner page printing:   Yes
    Banner input tray:             default
    Enable banner images:          No
    Banner image file suffix:      ".eps"
    Supervisor connection name:    "IPLPS-connect"
    Problem notification method:   mail
    Accounting units:              job

  GENERAL CLIENT/SERVER OPTIONS:
    Booting options:               bootp
    Enable accounting:             Yes
    Enable logging:                Yes
    Default logging level:         1
    Default debug level:           2
    Default file I/O buffer size:  16384

  ELECTRONIC MAIL:
    Administrative mail address:   root
    Mail addressing style:         RFC822
    Mail program:                  /usr/ucb/Mail
    Mail command line options:     "-i -n"

Do you wish to use these configuration variable values (n)?
```

3.5.2.1 When to Accept the Configuration Values

You can use the configuration values set by the script, or define your own.

- **If you accept the configuration values,** then you perform a generic installation (which is recommended for most systems). The system writes the initial contents of the **LPSODB** file, **/etc/lpsodb**, and prompts you to install the kit components.
- **If you do not accept the configuration values,** then you perform a custom installation. The system prompts you to specify the configuration of the initial contents of LPS Object Database and the LPS environment.

  ```
  Do you wish to use these configuration variable values ([y]|n)? n

  Press RETURN to begin defining the initial LPS Object Database...
  ```

3.6 Performing a Custom Installation

If you chose a custom installation, you enter new values for the initial configuration. All questions include default values.

The questions prompt you to enter values for three major areas of configuration:

- Paths for various directories, some of which are specific to the PrintServer Software, and some that are used either for users or system daemons
- Default values for PrintServer printer and client definitions
- Electronic mail support

The examples in the following sections assume that the software was loaded into the **/usr/local/lps** directory for UNIX systems or **/usr/opt/LPS** directory for OSF/1 systems. If you load the software in a different directory, the default responses are different.

3.6.1 Specifying the LPS Root Directory ($LPSROOT)

The LPS root directory is the top-level directory of a tree containing most of the PrintServer Software components.

If the specified directory does not exist, it will be automatically created with the necessary protections (''modes'') when the software is installed.

The criteria for selecting this directory path vary from site to site, depending on whether your system acts as a file server for other systems.

A common choice is to place the LPS root directory in the file system that contains most of the system-level executable and configuration files. Some users specify **/usr/local/lps** for UNIX systems; **/usr/opt/LPS** for OSF/1 systems.

The default response is the current working directory (**$LPSKIT**).

`LPS root directory [/usr/local/lps]?` (for UNIX systems)

`LPS root directory [/usr/opt/LPS]?` (for OSF/1 systems)

3.6.2 Specifying the System Program Directory ($LPSBIN)

Most LPS programs are system-level programs intended to be run as background ''daemon'' processes enabled with certain privileges. As such, your users do not need to know (or perhaps should not know) where these program files reside.

The logical name for the directory that contains the system programs is ''**$LPSBIN**''.

`LPS system programs directory [/usr/local/lps/bin]?` (for UNIX systems)

`LPS system programs directory [/usr/opt/LPS/bin]?` (for OSF/1 systems)

The default sets the **$LPSBIN** directory as a subdirectory of the **$LPSROOT** directory.

3.6.3 Specifying the User Program Directory ($LPSUSR)

PrintServer Software includes programs for unprivileged users, such as the **lpspr** print utility and the **lpsrc** remote console utility. See the *PrintServer Software User's Guide* for more information on the use of these programs.

The user programs should reside in a widely known and accessible system directory, typically one that is part of a typical user's **PATH** variable. Many system managers place these programs in **/usr/local/lps/bin** for UNIX systems and **/usr/opt/LPS/bin** for OSF/1 systems.

Using the default directory allows users to access the programs through the **PATH** variable.

If you do choose a different directory, announce the location of this directory so users can easily access these programs.

Note

To facilitate the network sharing of LPS programs (both system and user programs), the installation procedure copies the user programs into the **$LPSUSR** directory and the **$LPSBIN** directory.

3.6.4 Specifying the Library Files Directory ($LPSLIB)

Some LPS programs require auxiliary files (usually PostScript files) for proper operation. The directory used to contain these files does not increase in size during operation of the PrintServer Software.

```
LPS library files directory [/usr/local/lps/lib]?
```
(for UNIX systems)

```
LPS library files directory [/usr/opt/LPS/lib]?
```
(for OSF/1 systems)

The default creates **$LPSLIB** as a subdirectory of the **$LPSROOT** directory.

3.6.5 Specifying the Documentation Files Directory ($LPSDOC)

Several text and PostScript documentation files describing various aspects of the PrintServer system are included in the PrintServer Software. Most of this documentation is for system managers and others who manage the software. However, some user-level documentation is included to distribute to your user community.

```
LPS documentation files directory [/usr/local/lps/doc]?
```
(for UNIX systems)

```
LPS documentation files directory [/usr/opt/LPS/doc]?
```
(for OSF/1 systems)

The default sets the **$LPSDOC** directory as a subdirectory of the **$LPSROOT** directory.

3.6.6 Specifying the Error Log Files Directory ($LPSLOG)

PrintServer clients usually record error and/or informational messages into an assigned log file as the client executes.

In case the messages take up significant disk space, define this directory in a file system that does not impact your system operation. For many systems, such a file system is usually associated with the **/var/adm** directory, or a subdirectory within **/var/adm**.

```
Error/log files directory [/var/adm]?
```

The default value is a system directory commonly used for these purposes.

3.6.7 Specifying the Accounting Files Directory ($LPSACCT)

This directory is for collecting accounting information received from print and/or management clients.

The suggestions and restrictions for this directory are the same as for the **$LPSLOG** directory described previously.

```
Accounting files directory [/var/adm]?
```

The default is a system directory commonly used for these purposes.

3.6.8 Specifying the Temporary Files Directory ($LPSTMP)

Some PrintServer Software programs and scripts have temporary ''scratch'' disk requirements. The maximum space requirements are usually 5 KB or less.

The directory normally used is the standard system temporary directory, **/tmp**. While you can use any directory in any file system, this directory *must* be readable and writable by *all* users on the system. Furthermore, the directory must always be available for access; that is, the file system in which the directory exists must always be mounted during operation of the PrintServer Software.

```
Temporary files directory [/tmp]?
```

3.6.9 Specifying the Image Files Directory ($LPSIMAGES)

This directory stores the images that can be displayed on the banner sheet. Refer to Section 3.6.18 for more details on how to display images on the banner sheet.

`Image files directory [/usr/local/lps/images]?` (for UNIX systems)

`Image files directory [/usr/opt/LPS/images]?` (for OSF/1 systems)

The default creates the **$LPSIMAGES** directory as a subdirectory of the **$LPSROOT** directory.

3.6.10 Specifying the Network Boot Files Directory ($LPSBOOT)

This directory contains the initial system image files required by PrintServer printers when they are first booted (powered up and initialized).

Information about the use of this directory in configuring your system to boot PrintServer printers is in the *PrintServer Software Management Guide*.

If your system does not boot one or more PrintServer printers, accept the default response. If your system boots one or more printers, then choose the default value, anyway.

```
Network boot files directory [/tftpboot]?
```

3.6.11 Specifying the Top-Level Spool Directory ($TOPQDIR)

This section applies to SunOS and OSF/1 systems only.

Every print queue (also referred to as a printer) requires a separate and unique *spool directory*. A spool directory contains print request definition files and the associated spooled printer data files. These spool directories usually exist within a top-level directory to facilitate disk space management, because print spooling can easily fill up a file system if not properly managed.

When a print client is defined, an associated print queue is also defined; therefore, a spool directory for the print queue must also be created.

The top-level spool directory (**$TOPQDIR**) is the used by the PrintServer Software scripts to create new spool directories when a new print queue is created.

Place this top-level directory on a file system separate from other system and user directories, to avoid filling a user file system with spooled print files.

```
Top-level spool directory [/var/spool]?
```

3.6.12 Enabling ANSI Translation

This option enables the ‘‘automatic’’ use of the ANSI translator instead of the simple ASCII translator.

When you convert a print file to PostScript, you invoke a translator process. Usually a simple ASCII translator is used, which is integrated with several of the other printing options, such as the ‘‘Default Page Width’’ option.

If you have ANSI print data generated by an application, the ASCII translator cannot convert the ANSI codes into the equivalent PostScript code. For such situations, the ANSI translator must be used instead.

You can override the default ASCII translator and force the use of the ANSI translator by specifying the ANSI datatype in the print command. For SunOS and OSF/1 systems, use the PrintServer Software ‘‘lpspr’’ program with the ‘‘-D ansi’’ option. For other systems that have the ‘‘lp’’ command, specify ‘‘datatype=ansi’’ using the ‘‘-o’’ option.

Enable automatic ANSI translation if you have an application that automatically submits ANSI print data directly to a print queue. Otherwise, use the ASCII translator, which provides more features and executes faster than the ANSI translator.

3.6.13 Specifying the Default Page Width

Whenever an ASCII file is printed, the print client must first convert the file to PostScript before being sent to a PrintServer printer. If the print request does not specify the width of the page (that is, the length in character columns of the longest text line in a file), then this value is used.

The entered value must be between 30 and 200. The default value is 80-character columns per line.

```
Default number of characters per line (30-200) [80] ?
```

3.6.14 Specifying the Default Page Length

When a print client must convert an ASCII file to PostScript, the maximum length of a page must be known. If the print request does not specify the page length (that is, the maximum number of text lines for a single page), then this value is used.

The entered value must be between 20 and 150. The default value is 66 lines per page.

```
Default number of lines per page (20-150) [66] ?
```

3.6.15 Enabling Offset Stacking

Some PrintServer printers can ‘‘offset stack’’ the output of print jobs. This mechanism results in the pages of one print job being stacked slightly left or right of the previous print job, making it easier to discern where one print job ends and another one starts.

```
Enable offset stacking for print jobs ([y]|n)?
```

3.6.16 Enabling Banner Sheets

A banner sheet (sometimes called a ‘‘header page’’ or ‘‘flag page’’) is normally printed before the first sheet of the print job.

A banner sheet allows users and operations personnel to easily tell where one print job stops and another begins. However, sometimes a PrintServer printer is used by only a few users located near the printer. In this case, banner sheets may be considered a waste of paper, and this option should be disabled.

```
Enable printing of banner sheets ([y]|n)?
```

Note

If you disable banner sheets, you will not be asked any of the following questions relating to banner sheets. If you later configure a print client and enable banner sheets for that print client, then the other questions relating to banner sheets will be presented during the configuration.

3.6.17 Specifying the Banner Sheet Input Tray

This question is asked only if you enabled banner sheets.

Usually the paper used for a banner sheet is drawn from the default input tray. It is often desirable to have banner sheets drawn from a different input tray so that colored paper may be used, thereby making it easier to separate print jobs in the output trays.

In choosing the banner sheet input tray, you are presented with a number of choices that reflect the input tray types found on most types of PrintServer printers.

```
Banner sheet input tray?
    Possible responses are:
        1) top
        2) middle
        3) bottom
        4) default
Enter a number from the above list [4]:
```

3.6.18 Displaying Images on Banner Sheets

This question is asked only if you enabled banner sheets.

On the banner sheet, you can display an image that is associated with the user who submitted the print job. The image file must contain Encapsulated PostScript (EPS). You may need to adjust the banner sheet definition file (**$LPSLIB/bannerPage.psh**) to place the image on the banner page.

```
Display user images on banner sheets (y|[n])?
```

3.6.19 Specifying the File Suffix for Banner Images

This question is asked only if you enabled images on banner sheets.

This option allows you to set the default suffix (sometimes called a file ‘‘extension’’ in some operating systems) for the image files. You must specify a suffix.

```
File suffix for banner image files [".eps"]?
```

Displaying Images on the Banner Sheet

The **$LPSIMAGES** directory includes an image file (**jkm.eps**) for a banner sheet. To print the banner sheet with the image, use the following procedure:

1. Define a print client, enable banner sheets and images, and select the default user image file suffix.
2. Change your working directory to the **$LPSIMAGES** directory, and replace the ‘‘**jkm**’’ file name with the name of a user account (for example, ‘‘**root**’’), or create a link to the file using the name of an existing account (for example, ‘‘**root.eps**’’).
3. Print a file while running under the existing account. The following examples show how to print the images:

   For UNIX systems:

   ```
   # cd /usr/local/lps/images
   # ln -s jkm.eps root.eps
   # lp -dprintername /etc/hosts
   ```

   For OSF/1 systems:

   ```
   # cd /usr/opt/LPS/images
   # ln -s jkm.eps root.eps
   # lpr -Pprintername /etc/hosts
   ```

3.6.20 Specifying a Print Client Supervisor Name

When a print client connects to a PrintServer printer, it identifies itself with a name indicating the type of incoming connection. By default, this name contains a prefix that mirrors the name of the local operating system. This name can be helpful when identifying or analyzing incoming PrintServer printer connections.

```
Print Client supervisor name ["IPLPS-connect"]?
```

The default indicates that incoming connections use TCP/IP communications protocols.

3.6.21 Specifying the Booting Options

During the installation procedure, the scripts determine whether your system is currently servicing BOOTP and/or TFTP requests. If either of these services is not being serviced, the software configuration is defined so that the ‘‘lpsbootd’’ daemon is enabled to handle either or both of those requests. The options are listed in Table 3–1.

Table 3–1 Booting Options

Option	Description
bootp	Service BOOTP requests
tftp	Service TFTP requests
bootp-and-tftp	Service both BOOTP and TFTP requests
none	Do not run the lpsbootd daemon

3.6.22 Enabling Accounting

This section applies only to those systems that generate print client accounting data, such as AIX and SunOS.

A print client can be configured so that accounting information is written to a file.

```
Enable accounting ([y]|n)?
```

3.6.23 Specifying Accounting Units

This question is asked only if you have enabled accounting.

You can gather accounting information on a *per-job* or *per-file* basis.

For OSF/1 and SunOS systems, by default, a small accounting record is appended to an accounting data file for each file printed in each print job (per-file accounting). You can reduce the number of accounting records (at the expense of less detailed print file statistics) by selecting the *per-job* accounting type. On AIX systems, accounting information is appended to a accounting data file for each print job (per-job accounting).

```
Default print request accounting type?
    Possible responses include:
        1) file
        2) job
Enter a number from the above list [2]:
```

3.6.24 Enabling Logging

Most PrintServer Software programs allow you to log events and error conditions to an associated log file.

```
Enable logging ([y]|n)?
```

3.6.25 Setting the Logging Level

This question is asked only if you have enabled logging.

When logging is enabled, the amount of logging information recorded in the associated logging file is based on the ‘‘logging level’’ defined for the client. Logging levels range from 0 as the minimum level and 9 as the maximum level.

If you set the logging level to a high number, the log file becomes more verbose and uses more disk space. To obtain pertinent event information but still conserve disk space, use a logging level of 1.

To troubleshoot, increase the logging level to a value between 2 and 5 to better analyze the sequence of events during program operation.

```
General logging level (0-9, [1])?
```

The default value represents a reasonable compromise between the logging of useful events and conservation of disk space.

3.6.26 Specifying the Debugging Level

This question is asked only if you have enabled logging.

The debugging level is similar to the logging level. The debugging level ranges from 0 as the minimum level to 9 as the maximum level.

If you set the debugging level to a high number, the log file becomes more verbose and uses more disk space. To obtain minimal event information, use a debugging level of 2. To obtain extensive debugging information, use a debugging level of 5 or more.

```
Debug level (0-9, [0])?
```

The default value represents a reasonable compromise between the logging of useful debug events and conservation of disk space.

3.6.27 Specifying the Size of the File Buffer

Depending on your system configuration, you may want to set the buffer size when processing files. Large buffers usually increase file system performance. Small buffers generally result in smaller process sizes, which can be advantageous for small, memory-constrained system configurations.

```
File buffer size (in bytes)?
    Possible responses include:
        1) 2048
        2) 4096
        3) 8192
        4) 16384
        5) 32768
        6) 65536
Enter a number from the above list [4]:
```

The default value represents a reasonable compromise between file system performance and system resource usage.

3.6.28 Specifying How to Notify the System Manager of Errors (Not Available on SunOS or OSF/1)

You can enable the software to alert the system manager when when a print client encounters a failure condition. You can choose which method to use for alerting the system manager to such problems:

- Send an electronic mail message
- Enter a description of the problem into the log file

If the logging level is set high enough, problems are recorded in the logging file.

```
Problem notification method?
    Possible responses are:
        1) mail
        2) log
Enter a number from the above list [1]:
```

3.6.29 Setting Up an Administrative Mail Account

If the software cannot send mail to the user who submitted a print job that has an error, the software sends the mail to a known user account. PrintServer Software also uses the mail address to send summary and reminder messages.

This user account must be a valid *local* account, not an account on another system.

To use an account on another system, specify a local account and set that account to forward the mail to the account on the other system. (Create a **.forward** file in the home directory of the specified local account. Include the full mail address for the user on the other system.) See **mail(1)** for more information on this ''auto-forwarding'' capability.

The software verifies that the specified account exists on this system. If your system uses a network nameserver (for example, **NIS** or **bind**), then the software validates the account in that information domain.

Note

The installation determines if the local system is using NIS. If a nonstandard form of NIS is being used, or if the NIS support programs exist in nonstandard directories, then the account validation mechanism may not work correctly.

The default user account is the user configuring the PrintServer Software. This value is usually set to the **root** account. Since sending mail to **root** is often considered inappropriate, you can specify an alternate account (such as your own personal account) to receive such messages.

```
Account to receive LPS mail messages [root]?
```

3.6.30 Specifying the Type of Mail Addresses

The forms of electronic mail addresses supported are:

- **RFC822**—Domain-based addressing, the standard Internet convention based on users and domains, for example: user@host
- **UNIX**—Native UNIX convention, now considered somewhat obsolete, for example: host!user
- **DECnet**—Digital Equipment Corporation network implementation, for example: host::user

RFC822 is generally considered to be the best, all-around form of mail addressing. Support for this form is fairly widespread.

The UNIX form of addressing should work on UNIX-based systems, but is generally considered to be an inferior form of mail addressing when compared to RFC822 or DECnet.

To use DECnet addressing, you must either have DECnet installed on your system, or have mail support for this type of addressing.

If you are not familiar with the various forms of mail addressing, select the default response.

```
Mail addressing type?
    Possible responses include:
        1) RFC822
        2) UNIX
        3) DECnet
Enter a number from the above list [1]:
```

3.6.31 Setting the Mail Program Path

Any mail program can send messages to users. However, mail support within the PrintServer Software requires the basic command-line interface provided by the standard mail program.

Specifying a mail program other than the default program may require substantial and difficult testing to ensure compatibility with the PrintServer programs.

Unless you have specific requirements or constraints, choose the default response.

```
Mail program [/usr/bin/mail]?
```

The software tests whether the mail program can be used on your system by sending a short message to the administrative mail account.

3.6.32 Selecting Mail Program Command Line Options

You need certain command line options to use the mail program with PrintServer Software programs and scripts. If you specified a nondefault mail program, you must specify the *exact* command line options for that mail program.

Unless you have specific requirements or constraints, choose the default response.

```
Mail program command line options ["-i -n"]?
```

The software tests whether the mail program can be used with the chosen command line options by sending a short message to the administrative mail account.

3.7 Confirming the Initial LPS Object Database Values

Once you have responded to the configuration questions, you can examine all the configuration values. You are asked to confirm whether these values should be written as the initial contents of the LPS Object Database, as shown in Example 3–5 and Example 3–6.

Example 3–5 Confirming LPS Object Database Values for UNIX Systems

```
All initial LPS Object Database configuration variables have been set.

Press RETURN to view the final database values...

Current values of the LPS Environment configuration variables
for PrintServer Software, 5.1 on punky:

  DIRECTORIES:
    LPS kit (LPSKIT):              /usr/local/lps
    LPS root (LPSROOT):            /usr/local/lps
    LPS system programs (LPSBIN):  /usr/local/lps/bin
    LPS library files (LPSLIB):    /usr/local/lps/lib
    LPS documentation (LPSDOC):    /usr/local/lps/doc
    Image files (LPSIMAGES):       /usr/local/lps/images
    LPS user programs (LPSUSR):    /usr/bin
    Temporary files (LPSTMP):      /tmp
    Error/log files (LPSLOG):      /var/adm
    Accounting files (LPSACCT):    /var/adm
    Network boot files (LPSBOOT):  /tftpboot

  PRINT CLIENT OPTIONS:
    Enable ANSI translation:       No
    Default page width:            80
    Default page length:           66
    Enable offset stacking:        Yes
    Enable banner page printing:   Yes
    Banner input tray:             default
    Enable banner images:          No
    Banner image file suffix:      ".eps"
    Supervisor connection name:    "IPLPS-connect"
    Alert notification method:     mail
    Accounting units:              job

  GENERAL CLIENT/SERVER OPTIONS:
    Enable accounting:             Yes
    Enable logging:                Yes
    Default logging level:         1
    Default debug level:           2
    Default file I/O buffer size:  16384

  ELECTRONIC MAIL:
    Administrative mail address:   root
    Mail addressing style:         RFC822
    Mail program:                  /usr/bin/mail
    Mail command line options:     "-i -n"

If these values are acceptable, then the LPS Object Database file will now
be written.  If you find these values are not acceptable, then you must
rerun this script to change the values.

Are these configuration values acceptable ([y]|n)?
```

Example 3–6 Confirming LPS Object Database Values for OSF/1 Systems

```
All initial LPS Object Database configuration variables have been set.

Press RETURN to view the final database values...

Current values of the LPS Environment configuration variables
for PrintServer Software, 5.1 on punky:

  DIRECTORIES:
    LPS kit (LPSKIT):              /usr/opt/LPS
    LPS root (LPSROOT):            /usr/opt/LPS
    LPS system programs (LPSBIN):  /usr/opt/LPS/bin
    LPS library files (LPSLIB):    /usr/opt/LPS/lib
    LPS documentation (LPSDOC):    /usr/opt/LPS/doc
    Image files (LPSIMAGES):       /usr/opt/LPS/images
    LPS user programs (LPSUSR):    /usr/bin
    Temporary files (LPSTMP):      /tmp
    Error/log files (LPSLOG):      /var/adm
    Accounting files (LPSACCT):    /var/adm
    Network boot files (LPSBOOT):  /tftpboot

  PRINT CLIENT OPTIONS:
    Enable ANSI translation:       No
    Default page width:            80
    Default page length:           66
    Enable offset stacking:        Yes
    Enable banner page printing:   Yes
    Banner input tray:             default
    Enable banner images:          No
    Banner image file suffix:      ".eps"
    Supervisor connection name:    "IPLPS-connect"
    Alert notification method:     mail
    Accounting units:              job

  GENERAL CLIENT/SERVER OPTIONS:
    Enable accounting:             Yes
    Enable logging:                Yes
    Default logging level:         1
    Default debug level:           2
    Default file I/O buffer size:  16384

  ELECTRONIC MAIL:
    Administrative mail address:   root
    Mail addressing style:         RFC822
    Mail program:                  /usr/ucb/Mail
    Mail command line options:     "-i -n"

If these values are acceptable, then the LPS Object Database file will now
be written.  If you find these values are not acceptable, then you must
rerun this script to change the values.

Are these configuration values acceptable ([y]|n)?
```

Press Return to save those values in the LPS Object Database file:

```
Creating the LPS Object Database file (/etc/lpsodb)...

The initialization of the LPS Object Database is complete.
```

After you confirm the initial LPS Object Database values, the installation script installs all kit components in the proper directories and sets the file permissions and ownerships.

3.8 Enabling Automatic Startup for Management Clients

To automatically start management clients at system boot time, you need to include lines to the system's startup procedure.

You can enable the the scripts to automatically add the commands or mail you the commands so you can add them at a later time.

3.9 Installing Online Manual Page Files

For the man page files, you have the choice of:

- Not installing the files at all
- Installing the files in the standard system directory tree
- Installing the files in any file system location of your choice

If you choose to install the man page files, then the script will inform you of the progress of the installation as each man file is installed in the proper directory.

Once all files have been installed (or if you decline to install the man page files), you receive a confirmation request:

```
Press RETURN to complete the installation...
```

The installation script mails a message to the administrative account explaining the results of the configuration of the LPS Object Database and the location of the online man pages, if you elected to install them.

3.10 Completing the Installation

You are prompted to run the **lpssetup** script to begin the definition of PrintServer printers, management clients, and print clients.

```
Installation of the PrintServer Software, V5.1 is complete.

You may now use the "lpssetup" script to configure Printserver printers,
Print Clients and Management Clients.  You should not run this script again
unless you suffer some sort of catastrophic disk failure, or one or more of
the supporting files is in some way inoperable.

Do you want to run the "lpssetup" script now ([y]|n)?
```

If you answer **n**, you will be returned to the shell:

```
lpsinstall script completed.

#
```

This concludes the installation procedure for the PrintServer Software. Refer to the *PrintServer Software Management Guide* for information about configuring all other aspects of the software.

A

Example of Running lpsinstall

The following examples show a ‘‘quick-start’’ installation of the PrintServer Software, as described in Chapter 2.

Section A.1 is the UNIX example.

Section A.2 is the OSF example.

A.1 Generic UNIX Installation

```
#
# whoami
root
#
# cd /usr/local
#
# mkdir lps
#
# cd lps
#
# tar xvf /dev/rmt0
x ./KITLIST, 178 bytes, 1 tape blocks
x ./lpsinstall, 25505 bytes, 50 tape blocks
x ./lpsodb.GENERIC, 1708 bytes, 4 tape blocks
x ./lpsdeinstall, 13925 bytes, 28 tape blocks
x ./lpssetup, 8845 bytes, 18 tape blocks
x ./Alist.ENV, 631 bytes, 2 tape blocks
x ./Alist.MC, 120 bytes, 1 tape blocks
x ./Alist.PC, 308 bytes, 1 tape blocks
x ./Alist.PS, 140 bytes, 1 tape blocks
x ./Vlist.ENV.COM, 678 bytes, 2 tape blocks
x ./Vlist.MC, 88 bytes, 1 tape blocks
x ./Vlist.PS.c, 139 bytes, 1 tape blocks
x ./Vlist.PS.o, 108 bytes, 1 tape blocks
x ./doc, 0 bytes, 0 tape blocks
x ./doc/KITLIST, 129 bytes, 1 tape blocks
x ./doc/RFC1048.doc, 15024 bytes, 30 tape blocks
x ./doc/spd.doc, 0 bytes, 0 tape blocks
x ./doc/spd.ps, 0 bytes, 0 tape blocks
x ./doc/usercard.ps, 39500 bytes, 78 tape blocks

   .
   .
   .
[Many other lines from the tar command not shown here]
```

```
x ./bin/Solaris_2.4_SPARC/lpspac, 39468 bytes, 78 tape blocks
x ./bin/Solaris_2.4_SPARC/lpspr, 247408 bytes, 484 tape blocks
x ./bin/Solaris_2.4_SPARC/lpsrc, 173624 bytes, 340 tape blocks
x ./bin/Solaris_2.4_SPARC/resetpath, 10216 bytes, 20 tape blocks
x ./bin/Solaris_2.4_SPARC/savefile, 20260 bytes, 40 tape blocks
x ./bin/Solaris_2.4_SPARC/sysvpc, 455820 bytes, 891 tape blocks
x ./bin/Solaris_2.4_SPARC/testhost, 27232 bytes, 54 tape blocks
x ./bin/Solaris_2.4_SPARC/xlpsrc, 605288 bytes, 1183 tape blocks
x ./bin/Solaris_2.4_SPARC/testserv, 14128 bytes, 28 tape blocks
x ./bin/Solaris_2.4_SPARC/vfcommname, 10592 bytes, 21 tape blocks
x ./bin/Solaris_2.4_SPARC/vfipaddr, 11032 bytes, 22 tape blocks
x ./bin/Solaris_2.4_SPARC/xlpsprint, 332724 bytes, 650 tape blocks
x ./Vlist.ENV.SV3, 127 bytes, 1 tape blocks
x ./Vlist.PC.SV3, 229 bytes, 1 tape blocks
x ./manpages.map, 257 bytes, 1 tape blocks
x ./KITINFO, 213 bytes, 1 tape blocks
#
# pwd
/usr/local/lps
```

A.2 Generic OSF Installation

```
Script started on Tue Jun 06 08:11:53 1995
# setld -l /usr/SETLD

The subsets listed below are optional:

     There may be more optional subsets than can be presented on a single
     screen. If this is the case, you can choose subsets screen by screen
     or all at once on the last screen. All of the choices you make will
     be collected for your confirmation before any subsets are installed.

     1) PrintServer Software for OSF/1 AXP

Or you may choose one of the following options:

     2) ALL of the above
     3) CANCEL selections and redisplay menus
     4) EXIT without installing any subsets

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): 1

You are installing the following optional subsets:

        PrintServer Software for OSF/1 AXP

Is this correct? (y/n): y

Checking file system space required to install selected subsets:

File system space checked OK.

PrintServer Software for OSF/1 AXP
   Copying from /usr/SETLD (disk)
        Working....Tue Jun  6 08:13:26 EDT 1995
   Verifying
        Working....Tue Jun  6 08:14:18 EDT 1995

Configuring "PrintServer Software for OSF/1 AXP" (LPSBASE510)

# ./lpsinstall

PrintServer Software Installation  (lpsinstall)

Just a moment while the local environment is examined...

Installation of the PrintServer Software for OSF/1, V5.1

    Environment:
        Operating system name:    OSF1
        Operating system version: V3.0
        Operating system type:    OSF1
        Hardware platform type:   ALPHA
        Printing system model:    BSD

Press RETURN to continue...

Multiple versions of the PrintServer Software for OSF/1, V5.1
are available with this software kit.  Please choose one of the following
versions based on your local system configuration.  If your operating
system version does not match one of those listed below, then please
choose the version that is most recent to the operating system version
currently running on your system.

You are currently running OSF1 version V3.0 on clumsy.mro.dec.com.
```

```
Which version do you want to install?
    Possible responses are:
 1) OSF1_V2.0
 2) OSF1_V3.0
Enter a number from the above list [2]:

Checking to ensure all kit components are present...

This script initializes the LPS Object Database and installs all
components of the PrintServer Software for OSF/1, V5.1 kit
on your system.

You will be given the opportunity to either select the default GENERIC
installation, or specify custom values for each installation
configuration variable.

Selecting the GENERIC installation is the fastest way to get the kit
up and running.  This installation assumes that you want to leave all
kit components in the directories where they were copied from the
distribution media.  Other runtime configuration variables will be set
to values that are typical for a wide range of system configurations
and policies.

Selecting a custom installation allows you to decide where various kit
directories should reside, and set one or more of the many
configuration variables.

Before you are asked to select an installation type, you will be shown
the values of all configuration variables for the GENERIC
installation.  After examining the values, decide whether the current
values are acceptable, or whether you need to change one or more of
the variable values.

NOTE:  If a previous version of the software already exists on your
       system, then the software will be automatically updated with
       this newer version.

You may abort the installation procedure at any time by pressing
your terminal's "interrupt" key (usually the CTRL/C key).

Do you want to continue with the installation ([y]|n)?

Press RETURN to begin configuring the LPS Object Database...

Determining subnet mask for "clumsy.mro.dec.com" interface...done.

Where should the PrintServer Software be installed?

The PrintServer Software can be installed into a directory tree
different from the directory used to load the software distribution
kit.  The root of this installation directory tree is referred to as
the "LPS root directory", or simply the "LPSROOT" directory.

The LPSROOT directory may be located in a filesystem that is not
expected to significantly increase in size over time.  Note, however,
that subsequent configurations of Print Servers and Management Clients
may require the creation of certain configuration files, so the
filesystem containing the LPSROOT directory should not be defined
within a read-only filesystem.

If the directory specified for LPSROOT does not exist, it will be
created after you have completely initialized the LPS Object Database.

The LPSROOT directory can be the same as the directory used to load
the PrintServer Software for OSF/1, V5.1 kit from the distribution media if you
are not loading
from CD-ROM.  This load directory is commonly referred to as the
"LPSKIT" directory.  At the moment, the LPSKIT directory is defined
as your current working directory (/usr/opt/LPS).

LPS root directory [/usr/opt/LPS]?
```

```
The initial state of the LPS Object Database can be configured in a
GENERIC manner using definitions suitable for your type of system.
The database variables displayed below are grouped by functional area.

These variables represent the initial values for the LPS Environment
and are used to assist in later configurations of Print Client,
Management Client and Print Server printer components.  When these
components are configured, you will be given the opportunity to
override the any default values taken from the LPS Environment.

You can choose to either accept these Environment definitions and
configure a standard, GENERIC installation, or you can individually
define each of the initial configuration variables.  If you are unsure
about your site's specific needs, it is STRONGLY RECOMMENDED that you
choose the GENERIC configuration for your system.  A GENERIC
configuration will facilitate technical support should you encounter
problems in getting your system running.

Press RETURN to view the generic database values...

Current values of the LPS Environment configuration variables
for PrintServer Software for OSF/1, V5.1 on clumsy.mro.dec.com:

  DIRECTORIES:
    LPS kit (LPSKIT):              /usr/opt/LPS
    LPS root (LPSROOT):            /usr/opt/LPS
    LPS system programs (LPSBIN):  /usr/opt/LPS/bin
    LPS library files (LPSLIB):    /usr/opt/LPS/lib
    LPS documentation (LPSDOC):    /usr/opt/LPS/doc
    Image files (LPSIMAGES):       /usr/opt/LPS/images
    LPS user programs (LPSUSR):    /usr/bin
    Temporary files (LPSTMP):      /tmp
    Error/log files (LPSLOG):      /var/adm
    Accounting files (LPSACCT):    /var/adm
    Network boot files (LPSBOOT):  /tftpboot
    Spool directories (TOPQDIR):   /var/spool

  PRINT CLIENT OPTIONS:
    Enable ANSI translation:       No
    Default page width:            80
    Default page length:           66
    Enable offset stacking:        Yes
    Enable banner page printing:   Yes
    Banner input tray:             default
    Enable banner images:          No
    Banner image file suffix:      .eps
    Supervisor connection name:    OSF1-connect
    Accounting units:              job

  GENERAL CLIENT/SERVER OPTIONS:
    Booting options:               bootp-and-tftp
    Enable accounting:             Yes
    Enable logging:                Yes
    Default logging level:         1
    Default debug level:           0
    Default file I/O buffer size:  16384

  ELECTRONIC MAIL:
    Administrative mail address:   root
    Mail addressing style:         RFC822
    Mail program:                  /usr/bin/Mail
    Mail command line options:     -i -n

Do you wish to use these configuration variable values ([y]|n)?

Creating the LPS Object Database file (/etc/lpsodb)...

    [Creating the LPS Environment object definition]

The initialization of the LPS Object Database is complete.
```

```
Press RETURN to begin installation of all kit components...

Installing the PrintServer Software for OSF/1, V5.1 ...


Initializing the LPS root directory "/usr/opt/LPS" ...
    [Using the kit directory...no files will actually be copied]

Installing key LPS programs and scripts in /etc ...
    Files:  lpsodblist lpssetup

Checking to ensure certain critical directories exist...
  ... /tmp

Initializing support directories and installing files:

  /usr/opt/LPS/doc (documentation files): [exists]
    [source and destination directories are the same]

  /usr/opt/LPS/man (man page files): [exists]
    [source and destination directories are the same]

  /usr/opt/LPS/images (Special image files): [exists]
    [source and destination directories are the same]

  /usr/opt/LPS/lib (library files): [exists]
    [source and destination directories are the same]

  /var/adm (log files): [exists]

  /var/adm (accounting files): [exists]

  /usr/opt/LPS/scripts (administrative scripts): [exists]
    [source and destination directories are the same]

  /usr/bin (user programs): [exists]
  Installed XLpsprint in /usr/lib/X11/app-defaults
  Installed XLpsrc in /usr/lib/X11/app-defaults
  Installed XLpsprism in /usr/lib/X11/app-defaults

  /usr/opt/LPS/bin (system programs): [exists]

  /usr/opt/LPS/servers (printer configuration files): [exists]
    [source and destination directories are the same]

  /usr/opt/LPS/servers/cat (Remote Console help files): [exists]
    [source and destination directories are the same]

  /usr/opt/LPS/servers/sys (printer system files): [exists]
    [source and destination directories are the same]

  /tftpboot (printer boot files): [exists]

Press RETURN to continue...

Checking for automatic startup of Management Clients at boot time...

Creating a working copy of the startup file in
'/tmp/lpsinstall.29942/newstart.32742'...
Updating system startup file '/sbin/init.d/LPSstartup'...

The installation of the LPS startup commands was successful.

Press RETURN to continue...

Installing online manual page files in /usr/man ...

Press RETURN to complete the installation...

Installation of the PrintServer Software for OSF/1, V5.1 is complete.

You may now use the "lpssetup" script to configure PrintServer
printers, Print Clients and Management Clients.  You should not run
this script again unless you suffer some sort of catastrophic disk
failure, or one or more of the supporting files is in some way
inoperable.
```

```
Do you want to run the "lpssetup" script now ([y]|n)?

PrintServer System Setup Facilities  (lpssetup)

One moment please...

Do you want extra help information displayed ([y]|n)?

PrintServer System Setup Facilities Main Menu

    1) Manage PrintServer Printers
    2) Manage Management Clients
    3) Manage Print Clients
    4) Exit

Enter a menu number from the above list [4]: 1

Manage PrintServer Printers   (lpsmps)

This script performs various management tasks for PrintServer printers,
allowing you to list all currently defined printer definitions, add new
printer definitions modify existing definitions, or remove existing
definitions.

    1) LIST    the names of all defined PrintServer printers
    2) SHOW    the configuration of a defined PrintServer printer
    3) EXAMINE the log file of a PrintServer printer

    4) ADD     a new PrintServer printer definition
    5) MODIFY  an existing PrintServer printer definition
    6) REMOVE  an existing PrintServer printer definition

    7) Return to Main Menu

Enter one of the above menu numbers [7]: 4

Add a new PrintServer Printer...

What is the name of the new PrintServer printer? bull05

What is the internet host name of the printer? bull05.mro1.dec.com
[That name exists in your system host database]

What model is this printer?
    Possible responses are:
 1) PrintServer17-family
 2) PrintServer20-family
 3) PrintServer32-family
 4) PrintServer40-family
Enter a number from the above list [1]: 2

At this point, all configuration information required by other PrintServer
objects, such as Management Clients and Print Clients, has been entered.
Default values for the remainder of the configuration variables have been
provided for you.

You can now choose to accept these default values, or you can go on
and supply printer-specific configuration attributes, such as access
restrictions and the printer password.

NOTE:  If this printer is to be booted by this system, then be sure to
       to set the Ethernet address, and if necessary, the DECnet address.

Do you want to examine the current configuration ([y]|n)?

One moment please...

    Current configuration for PrintServer printer bull05:
```

```
   1) Internet hostname:         bull05.mro1.dec.com
   2) Model name or identifier:  LPS20
   3) Description of object:     PrintServer 20 Printer
   4) Ethernet Address:
   5) DECNET Address:
   6) Defaults file:             /usr/opt/LPS/servers/GENERIC.dft
   7) PCL defaults file:         /usr/opt/LPS/servers/GENERIC.pdf
   8) Resources file:            /usr/opt/LPS/servers/GENERIC.res
   9) Setup file:                /usr/opt/LPS/servers/GENERIC.sup
  10) System parameters file:    /usr/opt/LPS/servers/GENERIC.spf
  11) Password:                  LPS
  12) Enable accounting:         on
  13) Enable event logging:      on
  14) Front panel language:      English
  15) Gateway address:
  16) Deny internet addresses:
  17) Allow internet addresses:
  18) Deny DECnet addresses:
  19) Allow DECnet addresses:
  20) Enable SNMP:               on
  21) Location:
  22) Contact:
  23) Enable SNMP traps:         off
  24) SNMP communities:

        public  0.0.0.0  read

  25) SNMP trap destinations:

          <none specified>

Accept defaults for the remaining configuration questions (y|n)? n

How do you want to configure the PrintServer printer?
    Possible responses are:
 1) step-by-step
 2) menu-oriented
Enter a number from the above list [1]: 2

    Current configuration for PrintServer printer bull05:

   1) Internet hostname:         bull05.mro1.dec.com
   2) Model name or identifier:  LPS20
   3) Description of object:     PrintServer 20 Printer
   4) Ethernet Address:
   5) DECNET Address:
   6) Defaults file:             /usr/opt/LPS/servers/GENERIC.dft
   7) PCL defaults file:         /usr/opt/LPS/servers/GENERIC.pdf
   8) Resources file:            /usr/opt/LPS/servers/GENERIC.res
   9) Setup file:                /usr/opt/LPS/servers/GENERIC.sup
  10) System parameters file:    /usr/opt/LPS/servers/GENERIC.spf
  11) Password:                  LPS
  12) Enable accounting:         on
  13) Enable event logging:      on
  14) Front panel language:      English
  15) Gateway address:
  16) Deny internet addresses:
  17) Allow internet addresses:
  18) Deny DECnet addresses:
  19) Allow DECnet addresses:
  20) Enable SNMP:               on
  21) Location:
  22) Contact:
  23) Enable SNMP traps:         off
  24) SNMP communities:

        public  0.0.0.0  read

  25) SNMP trap destinations:
```

```
          <none specified>

Enter the number of the variable to modify from the above list,
or enter 'r' to redisplay, or enter RETURN to finish: 4

What is the Ethernet address of the printer?

In order to boot the printer after it has been powered up, your
system needs to know the Ethernet address of the printer.  By
knowing the printer's Ethernet address, your system is able to
recognize and respond to the network boot request messages sent
by the printer.

If you do not know the printer's Ethernet address, you can find out by
examining the printer's front panel shortly after powering on the printer.
Once a printer has been powered up and has run through its internal
diagnostics, the Ethernet address is displayed on the front panel.
Record this information and enter it here.

The format used to specify an Ethernet address is:  xx-xx-xx-xx-xx-xx

That is, six pairs of hexadecimal digits separated by hyphen ("-")
characters.

In example of a valid Ethernet address is: 08-00-2b-0c-7e-8b

NOTE:  If you are not planning to boot this printer from this system,
then you may simply press RETURN at the prompt.

For more information about Ethernet addresses, please refer to the
Management Guide.

Ethernet address: 08-00-2b-0c-83-3b

    Current configuration for PrintServer printer bull05:

   1) Internet hostname:         bull05.mro1.dec.com
   2) Model name or identifier:  LPS20
   3) Description of object:     PrintServer 20 Printer
   4) Ethernet Address:          08-00-2b-0c-83-3b
   5) DECNET Address:
   6) Defaults file:             /usr/opt/LPS/servers/GENERIC.dft
   7) PCL defaults file:         /usr/opt/LPS/servers/GENERIC.pdf
   8) Resources file:            /usr/opt/LPS/servers/GENERIC.res
   9) Setup file:                /usr/opt/LPS/servers/GENERIC.sup
  10) System parameters file:    /usr/opt/LPS/servers/GENERIC.spf
  11) Password:                  LPS
  12) Enable accounting:         on
  13) Enable event logging:      on
  14) Front panel language:      English
  15) Gateway address:
  16) Deny internet addresses:
  17) Allow internet addresses:
  18) Deny DECnet addresses:
  19) Allow DECnet addresses:
  20) Enable SNMP:               on
  21) Location:
  22) Contact:
  23) Enable SNMP traps:         off
  24) SNMP communities:

        public  0.0.0.0  read

  25) SNMP trap destinations:

          <none specified>

Enter the number of the variable to modify from the above list,
or enter 'r' to redisplay, or enter RETURN to finish: 5

What is the DECnet address of the printer?
```

```
If you want the printer to provide access by DECnet nodes, then
the printer must be told of its DECnet address when the printer
is loaded by a Management Client running on your system.

The format used to specify an DECnet address is:  a.n

That is, two integer numbers separated by a period.  The first number
is the "area" address, which can be a value between 0 and 63.  The
second number is the "node" number, which can be a value between
1 and 1023.

For example, a valid DECnet address is:  27.856

Your network administrator should be able to help you determine the
proper DECnet address for your printer.

If DECnet is not running on your local area network, or you do not
wish to allow access by DECnet nodes on your local area network,
then simply press RETURN when prompted for the DECnet address.

For more information about DECnet addresses, please refer to the
Management Guide.

DECnet address: 7.449

    Current configuration for PrintServer printer bull05:

   1) Internet hostname:         bull05.mro1.dec.com
   2) Model name or identifier:  LPS20
   3) Description of object:     PrintServer 20 Printer
   4) Ethernet Address:          08-00-2b-0c-83-3b
   5) DECNET Address:            7.449
   6) Defaults file:             /usr/opt/LPS/servers/GENERIC.dft
   7) PCL defaults file:         /usr/opt/LPS/servers/GENERIC.pdf
   8) Resources file:            /usr/opt/LPS/servers/GENERIC.res
   9) Setup file:                /usr/opt/LPS/servers/GENERIC.sup
  10) System parameters file:    /usr/opt/LPS/servers/GENERIC.spf
  11) Password:                  LPS
  12) Enable accounting:         on
  13) Enable event logging:      on
  14) Front panel language:      English
  15) Gateway address:
  16) Deny internet addresses:
  17) Allow internet addresses:
  18) Deny DECnet addresses:
  19) Allow DECnet addresses:
  20) Enable SNMP:               on
  21) Location:
  22) Contact:
  23) Enable SNMP traps:         off
  24) SNMP communities:

        public  0.0.0.0  read

  25) SNMP trap destinations:

          <none specified>

Enter the number of the variable to modify from the above list,
or enter 'r' to redisplay, or enter RETURN to finish: 15

What should the printer use for an internet gateway address, if needed?

The gateway specifies the default internet route when the printer is used
in a multiple TCP/IP network environment.  If the network does not have
gateways or the gateway is automatic, you can simply press RETURN to leave
this value blank.

You may enter either the host name of the gateway, or the internet address
of the gateway.  Either way, the name or address must be registered in this
system's hosts table.
```

```
The format of an internet address is:

            nnn.nnn.nnn.nnn

Where each "nnn" is a number between 0 and 255.

Your network administrator can help you determine whether you need
to specify a gateway address, and what the address should be.

Internet gateway address: 16.34.144.251

    Current configuration for PrintServer printer bull05:

   1) Internet hostname:         bull05.mro1.dec.com
   2) Model name or identifier:  LPS20
   3) Description of object:     PrintServer 20 Printer
   4) Ethernet Address:          08-00-2b-0c-83-3b
   5) DECNET Address:            7.449
   6) Defaults file:             /usr/opt/LPS/servers/GENERIC.dft
   7) PCL defaults file:         /usr/opt/LPS/servers/GENERIC.pdf
   8) Resources file:            /usr/opt/LPS/servers/GENERIC.res
   9) Setup file:                /usr/opt/LPS/servers/GENERIC.sup
  10) System parameters file:    /usr/opt/LPS/servers/GENERIC.spf
  11) Password:                  LPS
  12) Enable accounting:         on
  13) Enable event logging:      on
  14) Front panel language:      English
  15) Gateway address:           16.34.144.251
  16) Deny internet addresses:
  17) Allow internet addresses:
  18) Deny DECnet addresses:
  19) Allow DECnet addresses:
  20) Enable SNMP:               on
  21) Location:
  22) Contact:
  23) Enable SNMP traps:         off
  24) SNMP communities:

        public  0.0.0.0  read

  25) SNMP trap destinations:

          <none specified>

Enter the number of the variable to modify from the above list,
or enter 'r' to redisplay, or enter RETURN to finish:

Are you finished configuring PrintServer printer bull05 (y|n)? y

Creating configuration file:  /usr/opt/LPS/servers/bull05.cfg

    [Creating the PrintServer printer object definition]

Adding the definition for PrintServer printer bull05 in /etc/lpsodb ...
    [Current database copied to /tmp/lpssetup.29942/oldodb.94]
    [Working copy of database created in /tmp/lpssetup.29942/newodb.598]
    [Formal definition created]
    [New copy of the database created]
    [New object definition appended to database copy]

    [New copy of database written over current copy]

Definition of PrintServer printer bull05 has been added to /etc/lpsodb

[Emergency backup of /etc/lpsodb created in /usr/opt/LPS/lpsodb.BAK]


    [Constructing the /etc/bootptab entry]

Press RETURN to return to the Manage PrintServer Printers Menu...

Manage PrintServer Printers Menu
```

```
    1) LIST    the names of all defined PrintServer printers
    2) SHOW    the configuration of a defined PrintServer printer
    3) EXAMINE the log file of a PrintServer printer

    4) ADD     a new PrintServer printer definition
    5) MODIFY  an existing PrintServer printer definition
    6) REMOVE  an existing PrintServer printer definition

    7) Return to Main Menu

Enter one of the above menu numbers [7]:

PrintServer System Setup Facilities Main Menu

    1) Manage PrintServer Printers
    2) Manage Management Clients
    3) Manage Print Clients
    4) Exit

Enter a menu number from the above list [4]: 2

Manage Management Clients   (lpsmmc)

This script performs various management tasks for Management Clients,
allowing you to list all currently defined Clients, add new Clients,
modify existing Clients, remove existing Clients, or control Clients.

    1) LIST    the names of all defined Management Clients
    2) SHOW    the configuration of a defined Management Client
    3) EXAMINE the log file of a Management Client

    4) ADD     a new Management Client definition
    5) MODIFY  an existing Management Client definition
    6) REMOVE  an existing Management Client definition

    7) START   an existing Management Client
    8) RESTART a running Management Client
    9) STOP    a running Management Client

   10) STOP    a running lpsbootd daemon
   11) START   a lpsbootd daemon
   12) EXAMINE the lpsbootd log file
   13) CHANGE  booting options for lpsbootd daemon

   14) Return to Main Menu

Enter one of the above menu numbers [14]: 4

Add a new Management Client...

What is the name of the new Management Client? bull05

Which PrintServer printer is to be assigned to this Client?

Each Management Client is associated with a single, defined PrintServer
printer.  The printer must already be defined in the database before you
can assign it to a Client.

Which PrintServer printer is to be assigned to this Client?
    Possible responses are:
 1) bull05
Enter a number from the above list [1]:

At this point, all configuration information required by the Management
Client has been entered.  Default values for the remainder of the
configuration variables have been provided for you.

You can now choose to accept these default values, or you can go on
and supply specific configuration attributes for this Management Client,
such as log and accounting files, logging and debugging levels.

Do you want to examine the current configuration ([y]|n)?

One moment please...
```

```
    Current configuration for Management Client bull05:

   1) Print Server name:             bull05
   2) Description of object:         Management Client for Print Server bull05
   3) Offer Configuration Services:  Yes
   4) Offer Accounting Services:     Yes
   5) Accounting file:               /var/adm/bull05.cact
   6) Offer Event Logging Services:  Yes
   7) Log file:                      /var/adm/bull05.elog
   8) Logging level:                 1
   9) Debugging level:               0

Accept defaults for the remaining configuration questions (y|n)? y

    [Creating the Management Client object definition]

Adding the definition for Management Client bull05 in /etc/lpsodb ...
    [Current database copied to /tmp/lpssetup.29942/oldodb.603]
    [Working copy of database created in /tmp/lpssetup.29942/newodb.461]
    [Formal definition created]
    [New copy of the database created]
    [New object definition appended to database copy]

    [New copy of database written over current copy]

Definition of Management Client bull05 has been added to /etc/lpsodb

[Emergency backup of /etc/lpsodb created in /usr/opt/LPS/lpsodb.BAK]

Do you want to start the Management Client now ([y]|n)?
Starting Management Client "bull05"...done.

Checking for automatic startup of Management Clients at boot time...

All required LPS startup commands are already installed.

The Management Client "bull05" should now be ready for use with the
PrintServer printer "bull05" on clumsy.mro.dec.com.

Press RETURN to return to the Manage Management Clients Menu...

Manage Management Clients Menu

    1) LIST    the names of all defined Management Clients
    2) SHOW    the configuration of a defined Management Client
    3) EXAMINE the log file of a Management Client

    4) ADD     a new Management Client definition
    5) MODIFY  an existing Management Client definition
    6) REMOVE  an existing Management Client definition

    7) START   an existing Management Client
    8) RESTART a running Management Client
    9) STOP    a running Management Client

   10) STOP    a running lpsbootd daemon
   11) START   a lpsbootd daemon
   12) EXAMINE the lpsbootd log file
   13) CHANGE  booting options for lpsbootd daemon

   14) Return to Main Menu

Enter one of the above menu numbers [14]:

PrintServer System Setup Facilities Main Menu

    1) Manage PrintServer Printers
    2) Manage Management Clients
    3) Manage Print Clients
    4) Exit

Enter a menu number from the above list [4]:
```

```
# exit
script done on Tue Jun 06 08:28:29 1995
```

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