

Unix - TCP/IP

This document explains how to configure and use the Print Server in the Unix TCP/IP environment.

Software Requirements

- TCP/IP protocol, FTP (Optional: - BOOTP, Rarp, Telnet)
- LPD printing system (for LPD printing)
- C Compiler (for PSfilter proprietary printing system only)

Print Server Device Configuration

Overview

Configuration of your Print Server can be done using FTP. Models supporting 100BaseT can also be configured using a Web browser.

Both of these methods require that the Print Server device have a valid IP Address before you can connect to the Print Server and complete the configuration.

So the first step is to assign a valid IP Address to the Print Server, as explained below.

Static IP Address Configuration

1. Examine the base of the Print Server to find the **Default Server Name** and **Hardware address**. These are shown on a sticker on the base of the unit.
2. Login to the UNIX host as root.
3. Add the Print Server to the /etc/hosts file by adding the following line to the file:

```
IP_Address NAME # comment
```

Where:

IP_Address is the IP address for the Print Server. In the next stage of configuration, you must enter the same IP Address into the Print Server's internal configuration file.

NAME is the Print Server's name. In the next stage of configuration, you must enter the same name into the Print Server's internal configuration file.

comment. Add the *Default Name* as a comment.

Example:

```
192.10.2.54 PS_Rm203 #Default name PS123456
```

In the example above, PS123456 is assigned the IP address 192.10.2.54 and the name "PS_Rm203".

4. Associate the hardware address with the IP address of the Print Server, by using the **arp** command as follows:

```
arp -s NAME 00:c0:02:xx:yy:zz
```

Where:

NAME is the name assigned to the device.

00:c0:02:xx:yy:zz is the hardware address of the Print Server, as shown on the sticker on the base of the device.

Example:

```
arp -s PS_Rm203 00:c0:02:12:34:56
```

5. Check the IP Address using the **ping** command:

```
ping NAME
```

You should receive a response. If you get a *Timeout* message, the above procedure has failed.

6. You can now connect to the Print Server and complete the configuration by using FTP. For 100BaseT models, you can also use your Web Browser. See the following sections in this document for details.

Note:

During configuration, ensure that you assign the same IP Address as you used for the arp table entry, and the same name you used in the Host file entry.

Dynamic IP Address Configuration

If you have already assigned a Static IP Address using the procedure above, ignore this section.

For those wishing to use Dynamic IP Addresses, the Print Server provides support for 3 different methods. If its IP Address is left at the default value of 0.0.0.0 it will try to obtain a dynamic IP Address by using the following methods in sequence:

- DHCP
- BOOTP
- RARP.

Using DHCP

Using DHCP is only possible if you have DHCP management software, which allows you to take advantage of this feature. Otherwise, the Print Server's IP Address will be unknown, and connection to it will be impossible. In this case, configure the Print Server for a static IP Address, as described above.

Using BOOTP

1. Perform steps 1 to 3 for assigning a static IP Address.
2. Add the following entry to the Boot Table `/etc/bootptab`:

```
NAME:ht=ether:vm=rfc1024:ha=PA:ip=IP:sm=SM:gw=GW
```

Where

NAME is the Print Server's name.

PA is the hardware address of the Print Server.

IP is the Print Server's IP Address.

SM is the Subnet Mask.

GW is the Gateway IP Address.

3. If it is not running, start the bootp daemon (the usual command is `bootpd`) and then reset the Print Server. It should then acquire an IP Address using bootp.

4. If the Print Server is not configured yet, you can now configure it using FTP or your Web Browser. Otherwise, check with the ping command:

`ping NAME`

You should receive a response. If you get a *Timeout* message, the above procedure has failed.

Using RARP

1. Perform steps 1 to 3 for assigning a static IP Address.
2. If the rarp daemon is not running, start it with the command:

`rarpd -a`

3. Add a line to the Ethernet Address table `/etc/ethers`

`00:c0:02:xx:yy:zz NAME`

Where

`00:c0:02:xx:yy:zz` is the hardware address of the Print Server.

`NAME` is the name of the Print Server.

4. Reset the Print Server. When it reboots, it should acquire an IP Address from rarp.
5. If the Print Server is not configured yet, you can now configure it using FTP or your Web Browser. Otherwise, check the Address with the ping command:

`ping NAME`

You should receive a response. If you get a *Timeout* message, the above procedure has failed.

Configuration Data

This section describes all the configuration settings, which are relevant in a Unix environment. (The number in braces indicates the line number, as displayed in the Configuration file. If using FTP, use the line number to locate the desired field.)

To set or change these values, use FTP or your Web browser, as described in the following sections.

TCP/IP Data

Device Name (0001 BOX_NAME)	The default name (Server Name) consists of 8 characters (letters and/or numbers). This can be changed. The new name MUST NOT exceed 19 characters, nor include any spaces.
IP Address (4000 IP_ADDR)	The Print Server is able to obtain an IP Address dynamically, or use a static IP Address assigned during configuration, as described above. Because of the support for dynamic IP Addresses, the Print Server ships with an IP Address of 0.0.0.0.
Gateway Address (4001 GATEWAY)	If your network segment has a router, enter the router address here. If there is no router, leave the address as 0.0.0.0.
Subnet Mask (4002 MASK)	If the Gateway Address above is 0.0.0.0, the Subnet Mask should also be left at 0.0.0.0.

	If you have a router, enter the Subnet Mask for the segment to which the Print Server is attached.
TCP Session Retry Interval (4010 TCP_INT)	Set how long the Print Server should wait before retrying a TCP/IP connection, which is lost. Allowable values are from 0 to 255 seconds, with 2 as the default.
TCP Session Retry Count (4011 TCP_CNT)	Set how many attempts at reconnection will be made. After that, the TCP/IP session will be terminated. Allowable values are from 0 to 255, with 254 as the default.

Serial Port Setup (if exists)

Baud Rate (bps) (0030 BAUDRATE)	Depending on the model, allowable values will range from 300 to 38400, or 1200 to 460800.
Stop bits (0031 STOPBITS)	Allowable values are 1 or 2.
Parity (0032 PARITY)	Allowable values are NONE, ODD, EVEN.
Data bits (0033 DATABITS)	Allowable values are 7 or 8.
Handshake (0034 HANDSHAK)	Allowable values are NONE, HARDWARE, XON/XOFF, BOTH.

Logical Printers

Logical Printers can be used to create a “Virtual” printer. For example, a logical printer could be used to print Unix-format text files for a DOS printer, by converting Unix-style LF (Line Feeds) to DOS-style LF/CR (Line Feed, Carriage Return) pairs.

Each logical printer has 4 data fields as listed below.

Physical Port (0100 L1_PROUT)	Print Server Port to which the printer is attached. (P1 to P3 for parallel ports and SP for the serial port)
String Before Job (0101 L1_PREST)	The printer control string (in hex) to be sent to the printer before each print job.
String After Job (0102 L1_POSTR)	The printer control string (in hex) to be sent to the printer after each print job.
Convert LF to CR+LF (0103 L1_CHGLF)	If ON, LF (line feed) characters are changed to CR+LF (carriage return + line feed). If OFF, no conversion is done.



Note!

- The maximum size of a printer control string is 15 characters.
- Printer Control String must be entered in HEX.
- Models with 1 parallel port support 3 Logical Printers (L1, L2, L3), other models support 8 Logical Printers (L1..L8). The names of the Logical Printers cannot be changed.

For those using FTP for configuration, the Configuration File line numbers for the logical printers are as follows:

Logical Printer	Line Numbers
L1	0100 to 0103
L2	0120 to 0123
L3	0140 to 0143
L4	0160 to 0163
L5	0180 to 0183
L6	0200 to 0203
L7	0220 to 0223
L8	0240 to 0243

SNMP

The following data fields are available. To use SNMP, you will also need to import the appropriate MIB file into your SNMP management program. The MIB files are in the /MIB folder on the CD-ROM.

General Data	
SysContact (6000 CONTACT)	Text Field - Name of the contact person.
SysLocation (6001 LOCATION)	Text Field - Location of the contact person.
Management Station IP Address(s) (6011 M1_IP) (6021 M2_IP) (6031 M3_IP) (6041 M4_IP)	Up to 4 Management Stations can be entered.
Trap Receiving IP Address(s) (6111 T1_IP) (6121 T2_IP) (6131 T3_IP) (6141 T4_IP)	Up to 4 Trap Receiving Stations can be entered.
Management Station Settings	
Access Permission (6012 M1_ACCP) 6022 M2, 6032 M3, 6042 M4	Options are: Read Only Read/Write Not Accessible
Community String (6013 M1_CSR) 6023 M2, 6033 M3, 6043 M4	Leaving this blank will disable management by this station.
Trap Receiving Station Settings	
Community String (6113 T1_CSTR)	Leaving this blank will disable management by this station.

6123 T2, 6133 T3, 6143 T4	
Trap Enable (6114 T1_ENAB) 6124 T2, 6134 T3, 6144 T4	Use this option to Enable/Disable Trap Receiving by this station.
Trap Severity (6112 T1_S) 6122 T2, 6132 T3, 6142 T4	In this version, all traps are level 1. Levels 2 and 3 will be implemented in future versions.

Configuration using FTP

1. Assign an IP Address to the Print Server, as described previously.
2. Connect to the Print Server, using either the *NAME* used in the host file entry or the IP Address.
e.g.

```
ftp 203.70.212.45
```

3. You will be prompted for *Name*, as shown below:

```
Connected to 203.70.212.45
#220 Print Server Ready
Name (203.70.212.45:root):
```

Enter the name for this Print Server device. If you have not assigned a name, you must use the "Default Server Name" shown on the sticker on the base of the unit. This name consists of 8 letters and/or digits.

4. You will then be prompted for the password. If no password has been set, just press ENTER.
5. Copy the configuration file **CONFIG**, to your system, then quit.

```
ftp>get CONFIG
ftp>quit
```

6. Edit the CONFIG file to set any required parameters. Common settings are explained above. Refer to the *Configuration File Description* later in this document for full details of all settings.
7. Copy the CONFIG file back to the Print Server, reset (reboot), and quit:

```
ftp NAME
ftp>put CONFIG
ftp>get RESET
ftp>quit
```

Files visible on the Print Server

The following files will appear on the Print Server when it is acting as an FTP host.

Filename	Purpose	Mode
CONFIG	Configuration file	Read/Write (get, put)
DEFAULTC	Reset device to default configuration	Read (get)
PSINF	Device information	Read (get)
PASSRESET	Clear password	Read (get)
RESET	Reset device	Read (get)
SETIP	Save current IP address	Read (get)

Supported FTP Commands

Only the following commands (usually case sensitive) are recognized by the Print Server. Where the command requires a parameter, the parameter is shown in *italic*.

dir

List files. (as shown in the previous table)

get FILENAME

Retrieve a file. The only files that can be retrieved are CONFIG and PSINF. Using GET with the other “files” will activate a command, as follows:

get DEFAULTC	Set the Print Server back to its default configuration.
get RESET	Reset the Print Server. This also terminates the current connection.
get PASSRESET	Clear password (no password).
get SETIP	Set the current IP address as a static IP address.



Do NOT use the SETIP command if the device has an IP Address assigned by a DHCP server. This will cause an Address conflict.

put CONFIG

Copy the file CONFIG to the device, overwriting the existing CONFIG file. Following this, you should issue a ***get RESET*** command to reboot the Print Server.

put PASSWORD

Copy the file PASSWORD to the Print Server, giving it a new password. Passwords can be up to 19 bytes in length.

put filename Ln

Copy the file *filename* to the printer connected to Logical Port *n*, where *n* is a Logical Port number. This will print the file.

quit

Terminate the current FTP session.

Configuration using a Web Browser

Print Server models supporting 100BaseT contain a HTTP Server, allowing configuration via a Web Browser, as follows:

1. Assign an IP Address to the Print Server, as described previously.
2. Connect to the Print Server by entering the Print Server's IP Address in your Browser's location field:
e.g.
`http://IP_Address`
3. Select and configure the following screens as necessary. Refer to the previous section (Configuration Data) for details of the available settings.
 - TCP/IP
 - SNMP (if required)
 - Logical Printers (if required)
 - The Serial Port (if it exists) can be configured by selecting *Printer Ports*, then clicking the *Configure Port* button.

Other Web Interface Screens

Configure Server

This screen allows you to change global settings on the Print Server.

Appletalk	NetBeui	NetWare	SNMP	TCP/IP
Configure Server	Server Status	Printer Ports	Logical Printers	Internet Printing

Configure Server

Print Server Name	AdminLaser
Password	*****
Verify	*****
Enable Protocols	<input checked="" type="checkbox"/> Appletalk <input checked="" type="checkbox"/> IPX/SPX <input checked="" type="checkbox"/> NetBEUI

Save Cancel

Figure 1: Configure Server Screen

Print Server Name	Change the default name if you wish. The new name must not contain any spaces or blanks.
Password	Enter the device password, and again in the <i>Verify</i> field. Once a password is entered, it is required in order to gain access and change the configuration.
Enable Protocols	Non-TCP/IP protocols may be disabled if they are not required on your LAN.

Server Status

This screen shows server system data and the current settings for all of the other screens. It is read-only; no data can be input on this screen.

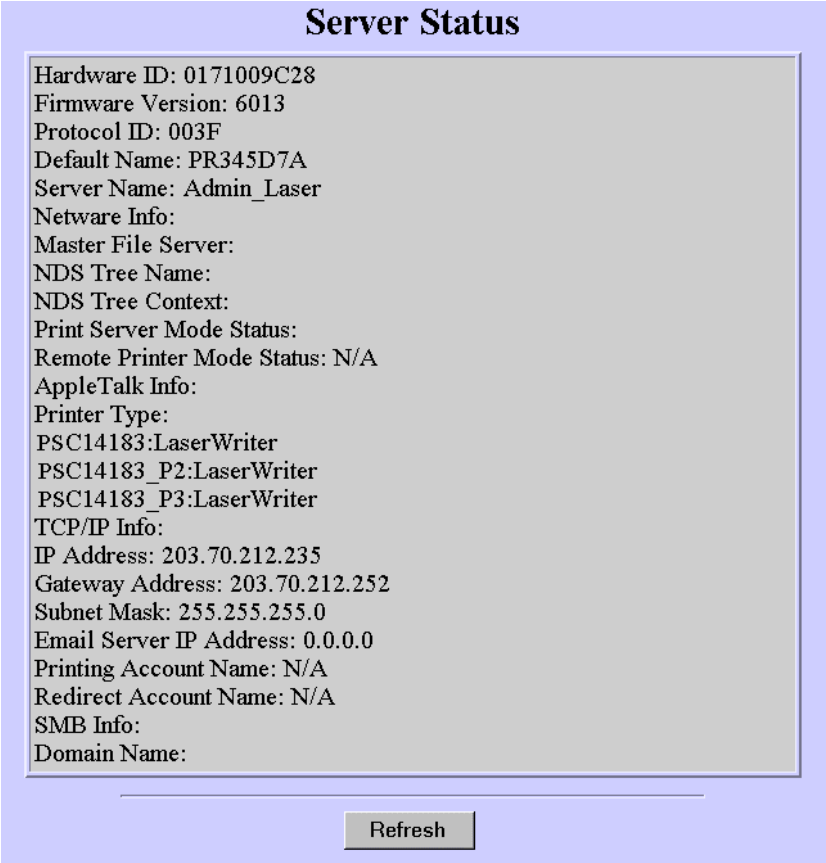


Figure 2: Server Status Screen

Printer Ports

This screen displays the current status of each port. The following example is for the 3 port model.

Printer Status

Parallel Port 1

Connected Printer	P1
Status	On-Line
Printing Information	Idle

Print Test Page

Parallel Port 2

Connected Printer	P2
Status	Offline
Printing Information	Idle

Print Test Page

Parallel Port 3

Connected Printer	P3
Status	Offline
Printing Information	Idle

Print Test Page

Refresh

Figure 3: Printer Port Status

Data	
Connected Printer	The model name of the printer connected to the port, if the printer name is known. (If the printer is not bi-directional, this information is unavailable.)
Status	The current status of the printer: <ul style="list-style-type: none">On-lineOff-lineOut of paper
Printing Information	This will show either <i>Idle</i> or <i>Printing</i> .
Buttons	
Print Test Page	This will print a test page from printer connected to the selected port. The test page will contain the current status information.
Configure Port (Serial Port only)	If your model has a serial port, clicking this button will allow you to configure the serial port.
Refresh	Update all information shown on screen.

Printing Methods

There are 4 printing methods to choose from:

- LPD
- Direct Socket Interface
- FTP
- PSfilter

Select whichever is the most convenient in your environment.

LPD

LPD is a standard print method for most UNIX systems. The benefit of this method is that it eliminates the need to install additional software on the host.

The problem is that in most cases the LPD protocol sends out the data file before the control file. The Print Server will print the data file immediately, ignoring any print options set in the control file. To solve this problem, use PSfilter instead.

Full details on LPD configuration are contained later in this document.

Direct Socket Interface

Direct Socket Interface (DSI) is a Unix-based method of providing a “direct” connection between a host computer and a printer. The host and the Print Server establish a TCP connection, using a special socket number. All data sent over this connection is treated as print data, and sent transparently to a logical printer defined on the Print Server.

Printing Using DSI

Logical printers must be configured on the Print Server as explained in *Logical Printers* earlier in this document. Your model may support 8 logical Printers. However, DSI on the Print Server supports only 3 Logical Printers.

Socket numbers are defined as follows:

Logical Printer No.	Socket No.
1	4010
2	4020
3	4030

PSfilter

PSfilter is a proprietary print method provided with the Print Server. The benefit of this method is that it provides many print options such as banner print, copies, and so on. To use PSfilter, a C compiler must be installed on every UNIX host so that the PSfilter source code can be compiled into executable code and installed on the UNIX host.

The PSfilter program is shipped in source code as *psfilter.c*. Detailed instructions for installing, configuring, and using PSfilter are provided in the following files. These files, along with PSfilter.c, are stored on the CD-ROM in the following directories:

\driver\lpti\lpsource (text format)

\driver\lpti\tar (tar format)

Operating System	Filename
SCO UNIX System V Release 3	SCO.TXT
HP UXIX on HP workstation	HP.TXT
Sun 5.x on Sun SPARC workstation	SUN5.TXT
Sun 4.x on Sun SPARC workstation	SUN4.TXT
AT&T UNIX SV Release 4	SVR4.TXT
DEC/OSF1	DECOSF1.TXT
IBM AIX	AIX.TXT
UNIXWare	UNIXWARE.TXT



Note!

If your system is not listed above, do not attempt to use the PSfilter method of printing.

FTP (File Transfer Protocol)

FTP is also a standard print method in most UNIX systems, **but it is NOT recommended** except as a test and back-up method of printing, because:

- Only one (1) FTP connection is possible.
- FTP does not implement a print queue. If the printer is busy, the print command will fail, creating an error situation.

To print using FTP

1. Connect to the Print Server, using its name (as in your Host file) or IP Address.
e.g.

```
ftp 203.70.212.45
```

2. You will be prompted for *Name*, as shown below:

```
Connected to 203.70.212.45
#220 Print Server Ready
Name (203.70.212.45:root):
```

Enter the name for this device. If you have not assigned a name, you must use the "Default name" (Server Name) shown on the sticker on the base of the unit. This name consists of 8 letters and/or digits.

3. You will then be prompted for the password. If no password has been set, just press ENTER.
4. Use the following syntax to print a file:

```
ftp>put FileName Ln
```

Where:

FileName is the file to be printed.

n is the number of the logical printer you wish to print to.

Example:

```
#ftp Marketing
ftp>put /etc/hosts L2
```

This example would print the file `/etc/hosts` to logical printer 2 on the Print Server named Marketing.

LPD Printing Configuration

LPD is a built-in printing protocol for most UNIX systems, and is also supported in Windows NT 3.5 or later.

LPD on IBM AIX 4.15

Before proceeding, ensure that the Print Server has been assigned an IP Address. To setup your AIX system for LPD printing, perform the following steps.

1. Add the Print Server to **/etc/hosts.lpd**, using the name you assigned to the Print Server.
2. Start the LPD daemon if it is not running, using the following command:

```
start src -s qdaemon
```
3. Start the system administration tool **smit** and select *Print Spooling*.
4. Create the required number of queues (one for each logical printer) by selecting:
 - Add a Print Queue
 - Remote (Printer attached to Remote Host)
 - Standard Processing
5. Use the following information:

Field	Entry
Name of queue to add	Use a single-word queue name, which indicates which printer is attached.
Hostname for remote server	Print Server name as used in /etc/hosts.lpd.
Name of queue on remote server	Logical printer number (L1..L3 or L1..L8) to service this queue.
Type of print spooler on remote server	Use default value. (AIX Version xxx)

6. Ensure that the logical printers are configured in the Print Server. Refer to the *Configuration Data* section earlier in this document.
7. Print using the following command:

```
lp -d printer_queue file_name
```

Where

printer_queue is one of the entries used in *Name of queue to add*.

file_name is the file you wish to print.

LPD on System V

Before beginning LPD Setup, ensure that an IP Address has been assigned to the Print Server. Keep the following points in mind:

- The **remote host name** is the name of the Print Server.
- The **remote printer name** is the print queue name for the Logical Printer. Logical printers also need to be configured on the Print Server itself. (See *Configuration Data* earlier in this document.)
- If your UNIX asks for the LPD type, be sure to identify the service type as BSD. The Print Server's LPD protocol meets BSD system standards.
- In the sample commands shown, *printer_name* is the name of the Print Queue serviced by the Print Server, and *Spooler_directory* is the name of the directory, which is used to spool the print jobs.

Procedure

Action	Sample Command
Stop Print Services	/usr/lib/lpshut
Add a System Printer	/usr/lib/lpadmin -p <i>printer_name</i> -v /dev/null
Restart the Print Services	/usr/lib/lpsched
Enable printing to the new printer device	enable <i>printer_name</i>
Start accepting jobs for the new printer device	accept <i>printer_name</i>
Create a spooling directory	mkdir /usr/spool/ <i>Spooler_directory</i>
Make spooling daemon the owner of this directory	chown daemon /usr/spool/ <i>Spooler_directory</i>
Create read/write permissions	chmod 775 /usr/spool/ <i>Spooler_directory</i>
Give permissions to LPD processes.	chgrp daemon /usr/spool/ <i>Spooler_directory</i>
Add remote printer(s)	See following section

Adding Remote Printers

A remote printer is added by inserting the following line in the /etc/printcap file.



The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
Printer_name|Remote_Printer_Alias:\
[ TAB ] :lp=: \
[ TAB ] :rm=PS_NAME:\
[ TAB ] :rp=Logical_Printer_name:\
[ TAB ] :sd=Spooler_directory:\
[ TAB ] :mx#0:
```


Where:

Printer_name is the Print Queue name used to store jobs for the corresponding logical printer.
PS_NAME is the Print Server name defined in /etc/hosts.
Logical_Printer_name is the logical printer name on the Print Server. (L1..L3 or L1..L8, depending on your model)
Spooler_directory is the directory you created in Step 6.

Example:

```
Marketing|RP1_PS123456:\
[ TAB ] :lp=:\
[ TAB ] :rm=PS_Rm203:\
[ TAB ] :rp=L1:\
[ TAB ] :sd=/usr/spool/Marketing:\
[ TAB ] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

LPD on Linux

If using the command line, the procedure is the same as for System V. (above)

On recent Linux distributions, you can use the graphical X-windows interface instead of the command line. The procedure is described below, but may vary according to your version of Linux and X-windows shell.

- 1. Start your X-windows shell.
- 2. Select *Control Panel*, then *Printer Configuration*.
- 3. Select *Add*. For the printer type, select *Remote Unix (lpd) Queue*.
- 4. Use the following data to complete the resulting dialog.

Field	Data
Name	Enter a name for this printer
Spool Directory	/var/spool/lpd/name_of_printer
File Limit	0 (no limit)
Remote Host	Name or IP Address of Print Server e.g. SC3000014 Note: host file entry is required to use the name instead of IP Address
Remote Queue	Ln Where n is the Logical Printer number e.g. L1

- 5. Save this data, and exit the Printer Configuration. Configuration is now completed, and the printer is now available for use.

LPD on BSD

Before continuing, ensure that an IP Address has been assigned to the Print Server. Remember the following:

- The **remote host name** is the name of the Print Server.
- The **remote printer name** is the logical printer (L1..L3, or L1..L8) on the Print Server.
- If asked for the LPD type, enter the service type as BSD.
- In the sample commands shown, *printer_name* is the Print Queue serviced by the logical printer on the Print Server, and *Spooler_dir* is the name of the directory, which is used to spool the print jobs.

Procedure

Action	Sample Command
Create a spooling directory	<code>mkdir /usr/spool/Spooler_dir</code>
Set spooling daemon as owner of this directory	<code>chown daemon /usr/spool/Spooler_dir</code>
Create read/write permissions	<code>chmod 775 /usr/spool/Spooler_dir</code>
Give permissions to LPD processes	<code>chgrp daemon /usr/spool/Spooler_dir</code>
Add remote printer(s)	See below
Start lpc print mechanism	<code>lpc start printer_name</code>

Adding Remote Printers

A remote printer is added by inserting the following line in the `/etc/printcap` file.



The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
Printer_name|Remote_Printer_Alias:\
[ TAB] :lp=: \
[ TAB] :rm=PS_NAME:\
[ TAB] :rp=Logical_Printer_name:\
[ TAB] :sd=Spooler_directory:\
[ TAB] :mx#0:
```

Where:

Printer_name is the Print Queue name used to store jobs for the corresponding logical printer.

PS_NAME is the Print Server name defined in `/etc/hosts`.

Logical_Printer_name is the logical printer name on the Print Server. (L1..L3 or L1..L8, depending on your model)

Spooler_directory is the directory you created in Step 6.

Example:

```
Marketing|RP1_PS123456:\
[TAB] :lp=:\
[TAB] :rm=PS_Rm203:\
[TAB] :rp=L1:\
[TAB] :sd=/usr/spool/Marketing:\
[TAB] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

Printing using LPD

For LPD printing instructions, refer to your UNIX manual. The following example is for a BSD system:

```
lpr -P printer_name filename
```

Where:

printer_name is the name of the Print Queue defined on the Unix host.

filename is the name of the file you wish to print.

Example:

```
lpr -P Marketing /etc/hosts
```

In the above example, the /etc/hosts file is sent to the printer queue Marketing. It will then be sent to the logical printer associated with this queue.

Telnet

Telnet can be used to monitor the status of the printers attached to the Print Server.

Operation

Establish a connection to the Print Server, by starting your Telnet program and providing the IP Address of the Print Server. (No port number is required.)

e.g.

```
telnet 203.70.212.45
```

The Print Server will respond with "Welcome to Print Server".

From the resulting prompt, 3 commands are possible:

- **Help:** show brief help
- **Monitor:** show printer status
- **Exit:** terminate the telnet session

Monitoring

The "Monitor" command will show the status of the printer, on each port, as shown in the following example.

```
(P1)STATE: Idle
TYPE: Parallel
PRINTER STATUS: Out Of Paper

(P2)STATE: Printing
TYPE: Parallel
PRINTER STATUS: On-Line
BYTES SERVICED:      75264
OCCUPIED BY: LPD

(P3)STATE: Idle
TYPE: Parallel
PRINTER STATUS: Offline
```

The display is updated once per second.

Configuration File Description

The following table details the Print Server's CONFIG file. This information is provided for users who use FTP for configuration, and thus need to edit the CONFIG file directly.

Notes:

- In the table, shaded lines indicate settings, which do not exist in all models.
- The CONFIG file will vary with the firmware version installed in your Print Server, so may not exactly match this description.
- In later models, some field sizes have been enlarged. The table shows both original and the larger size in the format *original/larger*. If your model has a Firmware Version greater than 6100, it uses the larger size. Otherwise, it uses the smaller size. (The FTP command, "get PSINF", can retrieve the status information, including the Firmware Version.)

Data in the Table

The information in each column is as follows:

Default Line

The line as obtained from the device. Each line has the following structure:

Line_number Token:Parameter

Where

Line_number is a system parameter and MUST NOT be changed.

Token is a readable identifier for the line.

Parameter is the current setting. A colon (:) separates the **Token** from the *Parameter*.

Allowable Values

This column lists the values, which may be used for the *Parameter*. The following terms are used:

- Text[*n*], where *n* is a number, indicates a text field with a maximum length of *n* characters. If 2 numbers are shown (in the form *smaller/larger*), this indicates that in later models the field size has been enlarged.
- Numeric[0..*n*], where *n* is a number, indicates the acceptable range of values for a numeric field.
- *Access Code*, where the allowable values are:
 - Read Only
 - Read/Write
 - Not Accessible

Description

Explanation of the purpose of the parameter:

Default Line	Allowable Values	Description
0001 BOX_NAME:xxxxxxx	Text [19/48]	Device name
0011 IPXSPX_P:Enable	Enable, Disable	NetWare protocol
0012 TCPIP_P :Enable	Enable, Disable	TCP/IP protocol
0013 APTALK_P:Enable	Enable, Disable	AppleTalk protocol
0014 NETB_P:Enable	Enable, Disable	NetBEUI protocol
0030 BAUDRATE:38400	1200, 2400, 4800, 9600, 19200, 38400 (default)	Serial Port Baud Rate Firmware versions over 6100 also support 115200 and 460800
0031 STOPBITS:1	1, 2	Serial Port Stop Bits
0032 PARITY :None	None, Odd, Even	Serial Port Parity
0033 DATABITS:8	7, 8	Serial Port Data Bits
0034 HANDSHAK:HARDWARE	Hardware, ON/XOFF, None, Both	Serial Port Flow Control
0040 P1_NAME:	Text [19]	Printer Name for port 1
0041 P2_NAME:	Text [19]	Printer Name for port 2
0042 P3_NAME:	Text [19]	Printer Name for port 3
0043 SP_NAME:	Text [19]	Printer Name for serial port
0100 L1_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 1
0101 L1_PREST:	Text [15] (hex)	Pre-string LP 1
0102 L1_POSTR:	Text [15] (hex)	Post-string LP 1
0103 L1_CHGLF:No	Yes, No	Convert LF to LF/CR
0120 L2_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 2
0121 L2_PREST:	Text [15] (hex)	Pre-string LP 2
0122 L2_POSTR:	Text [15] (hex)	Post-string LP 2

0123 L2_CHGLF:No	Yes, No	Convert LF to LF/CR
0140 L3_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 3
0141 L3_PREST:	Text [15] (hex)	Pre-string LP 3
0142 L3_POSTR:	Text [15] (hex)	Post-string LP 3
0143 L3_CHGLF:No	Yes, No	Convert LF to LF/CR
0160 L4_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 4
0161 L4_PREST:	Text [15] (hex)	Pre-string LP 4
0162 L4_POSTR:	Text [15] (hex)	Post-string LP 4
0163 L4_CHGLF:No	Yes, No	Convert LF to LF/CR
0180 L5_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 5
0181 L5_PREST:	Text [15] (hex)	Pre-string LP 5
0182 L5_POSTR:	Text [15] (hex)	Post-string LP 5
0183 L5_CHGLF:No	Yes, No	Convert LF to LF/CR
0200 L6_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 6
0201 L6_PREST:	Text [15] (hex)	Pre-string LP 6
0202 L6_POSTR:	Text [15] (hex)	Post-string LP 6
0203 L6_CHGLF:No	Yes, No	Convert LF to LF/CR
0220 L7_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 7
0221 L7_PREST:	Text [15] (hex)	Pre-string LP 7
0222 L7_POSTR:	Text [15] (hex)	Post-string LP 7
0223 L7_CHGLF:No	Yes, No	Convert LF to LF/CR
0240 L8_PROUT:P1	P1, P2, P3 (if exist)	Port used by Logical Printer 8
0241 L8_PREST:	Text [15] (hex)	Pre-string LP 8
0242 L8_POSTR:	Text [15] (hex)	Post-string LP 8
0243 L8_CHGLF:No	Yes, No	Convert LF to LF/CR
0511 LPT1TYPE:Enable	Enable/Disable	Enable/Disable ECP mode for parallel port 1 If disabled, use compatibility mode.
0512 LPT2TYPE:Enable	Enable/Disable	Enable/Disable ECP mode for parallel port 2 If disabled, use compatibility mode.

0513 LPT3TYPE:Enable	Enable/Disable	Enable/Disable ECP mode for parallel port 3 If disabled, use compatibility mode.
2000 NOP_MODE:PS	PS, RP	NetWare mode Print Server (PS)or Remote Printer (RP)
2001 NFREthII:Enable	Enable, Disable	Ethernet II frame type
2002 NFR802.2:Enable	Enable, Disable	802.2 frame type
2003 NFR802.3:Enable	Enable, Disable	802.3 frame type
2004 NFRSNAP :Enable	Enable, Disable	SNAP frame type
2101 NFS_NAME:	Text [20/48]	Master file server
2102 N_NOTIFY:No	Yes, No	Notification by node address
2103 N_FREQ :1	Numeric [0..255]	Polling queue interval
2110 NDS_TREE:	Text [39/48]	NDS Tree Name
2111 NCONTEXT:	Text [235/255]	NDS context
2501 NR_NAME1:	Text [19/48]	NetWare Print Server for parallel port 1
2502 NR_NAME2:	Text [19/48]	NetWare Print Server for parallel port 2
2503 NR_NAME3:	Text [19/48]	NetWare Print Server for serial port
2504 NR_NAME4:	Text [19/48]	NetWare Print Server for parallel port 3
3000 AP_ZONE:*	Text [19/32]	AppleTalk zone
3001 AP_TYPE1: LaserWriter	Text [19/32]	Printer type for parallel port 1
3002 AP_TYPE2: LaserWriter	Text [19/32]	Printer type for parallel port 2
3003 AP_TYPE3: LaserWriter	Text [19/32]	Printer type for serial port
3004 AP_TYPE2: LaserWriter	Text [19/32]	Printer type for parallel port 3
3101 AP_PCOMM1:No	Yes, No	ASCII (No) or Binary (Yes) communication for parallel port 1
3102 AP_PCOMM2:No	Yes, No	ASCII (No) or Binary (Yes) communication for parallel port 2

3103 AP_PCOMM3:No	Yes, No	ASCII (No) or Binary (Yes) communication for serial port
3104 AP_PCOMM4:No	Yes, No	ASCII (No) or Binary (Yes) communication for parallel port 3
4000 IP_ADDR:0.0.0.0	IP Address	Device IP Address
4001 GATEWAY:0.0.0.0	IP Address	Gateway
4002 MASK :0.0.0.0	IP Mask	Subnet mask
4010 TCP_INT:2	Numeric [0..255]	Delay before reconnection attempt
4011 TCP_CNT:254	Numeric [0..255]	No of reconnection attempts
4020 DHCP_MODE: Enable	Enable, Disable	Enable/Disable DHCP function
4021 BOOTP_MODE: Enable	Enable, Disable	Enable/Disable BOOTP function
4022 RARP_MODE: Enable	Enable, Disable	Enable/Disable RARP function

Note: Rows 4100 to 4109 refer to the proprietary Internet Printing system.

4100 MAIL_IP:0.0.0.0	IP Address	Mail A/C IP Address
4101 MAIL_ACC:	Text [19]	Mail A/C Name
4102 MAIL_PAS:*****	Text [19]	Mail A/C Password
4103 MAIL_INT:0	Numeric [0..64K]	Check Mail Interval
4104 MAIL_BAN:No	Yes, No	Mail Banner Page
4105 MAIL_RED:	Text [19]	Mail A/C name for redirection
4106 MAIL_POR:P1	P1..P3 (if exist) L1..L8 (if exist)	Printer port (physical or logical) for Internet (Mail) Printing
4107 MAIL_EVR:No	Yes, No	Print every E mail
4108 MAIL_NOT:No	Yes, No	Notify mail printed
4109 MAIL_MOD:	Text [19]	Mail Printer model
5000 SMBGNAME:	Text [19]	NetBEUI group (domain) name
5001 SMBDROP:No	Yes, No	Abort print job if error
5002 SMBDELAY:0	Numeric [0..255]	Delay time
6000 CONTACT:	Text [31]	SNMP person

6001 LOCATION:	Text [31]	Contact location
6011 M1_IP:0.0.0.0	IP Address	Management station 1
6012 M1_ACCP:Not Accessible	<i>Access Code</i>	Access rights
6013 M1_CSTR:	Text [7]	Community String
6021 M2_IP:0.0.0.0	IP Address	Management station 2
6022 M2_ACCP: Not Accessible	<i>Access Code</i>	Access rights
6023 M2_CSTR:	Text [7]	Community String
6031 M3_IP:0.0.0.0	IP Address	Management station 3
6032 M3_ACCP: Not Accessible	<i>Access Code</i>	Access rights
6033 M3_CSTR:	Text [7]	Community String
6041 M4_IP:0.0.0.0	IP Address	Management station 4
6042 M4_ACCP: Not Accessible	<i>Access Code</i>	Access rights
6043 M4_CSTR:	Text [7]	Community String
6111 T1_IP:0.0.0.0	IP Address	Trap 1 Address
6112 T1_S:0	Numeric [0..2]	Severity Level
6113 T1_CSTR:	Text [7]	Community String
6114 T1_ENAB:Disable	Enable, Disable	Trap receive station 1
6121 T2_IP:0.0.0.0	IP Address	Trap 2 Address
6122 T2_S:0	Numeric[0.2]	Severity Level
6123 T2_CSTR:	Text [7]	Community String
6124 T2_ENAB:Disable	Enable, Disable	Trap receive station 2
6131 T3_IP:0.0.0.0	IP Address	Trap 3 Address
6132 T3_S:0	Numeric[0.2]	Severity Level
6133 T3_CSTR:	Text [7]	Community String
6134 T3_ENAB:Disable	Enable, Disable	Trap receive station 3
6141 T4_IP:0.0.0.0	IP Address	Trap 4 Address
6142 T4_S:0	Numeric[0.2]	Severity Level
6143 T4_CSTR:	Text [7]	Community String
6144 T4_ENAB:Disable	Enable, Disable	Trap receive station 4

Troubleshooting

Problem No. 1	Print Server device is not recognized.
Solution No. 1	<p>Check the following:</p> <ul style="list-style-type: none"> • There are no routers between the Print Server and the UNIX host during IP address assignment. • There are no NetWare File Servers that do not have TCP/IP support between the Print Server and the UNIX host. • The network cable to be used by Print Server is intact. Connect the cable to another network device and test it. • You have used the correct hardware address, as shown on a sticker on the base of the device. • Use the ping command to see if the Print Server is a valid device on the network.
Problem No. 2	The standard interface program on SUN 5.2 cannot be used with Psfilter.
Solution No. 2	Use dumb_int.sh, which is the interface program shipped with Print Server.
Problem No. 3	When the interface program detects that the printer device is not a printer, a printer error message appears on the screen.
Solution No. 3	Mark out all stty commands in the interface script.
Problem No. 4	The .psopts file format is not accepted by BSD UNIX.
Solution No. 4	If the prefix string and suffix string must contain control words or are too long, use headfile or tailfile instead of prefix string or suffix string.
Problem No. 5	The Print Server's IP address is forgotten and it needs to be installed in a new environment.
Solution No. 5	<p>Follow the steps below to set the Print Server configuration back to the factory default settings:</p> <ol style="list-style-type: none"> 1. Enter the command: <pre>arp -s yyy.yyy.yyy.yyy 00:c0:02:xx:xx:xx</pre> <p>Where: yyy.yyy.yyy.yyy is the new IP address assigned to the Print Server. 00:c0:02:xx:xx:xx is the hardware address, as shown on a sticker on the base of the Print Server.</p> <p>Note: Windows NT uses "-" instead of ":" in the hardware address.</p> 2. Enter the commands: <pre>ftp yyy.yyy.yyy.yyy ftp>get DEFAULTC</pre>

	<pre>ftp>quit</pre> <p>This will reset the configuration to the factory defaults. (including setting the IP address back to 0.0.0.0)</p> <p>3. Reconfigure as for a new device.</p>
Problem No. 6	Printing by FTP, I receive an error message: <i>Invalid print queue</i> <i>Print queue not ready</i>
Solution No. 6	<ul style="list-style-type: none"> • Check that the printer is ready. • Check that Logical printer(s) are defined on the Print Server. With FTP, you can print ONLY to a logical printer. • Reset the Print Server.
Problem No. 7	I can't print using LPD.
Solution No. 7	<p>Try printing with FTP. If this works, the problem is the LPD daemon on your UNIX host. Reconfigure the remote printer and the LPD daemon. Check the following points:</p> <ul style="list-style-type: none"> • The remote host name is the name of the Print Server. • The remote printer name is the logical printer name on the Print Server (e.g. L1). • If your UNIX asks for the LPD type, be sure to identify the service type as BSD.
Problem No. 8	I can't print using Psfilter.
Solution No. 8	<p>Run Psfilter directly with the command:</p> <pre>Psfilter -D P_name -v <file_name&</pre> <p>Where:</p> <p>P_name is the Print Server's name file_name is the file you wish to print</p> <p>If this fails, check for an error log file (e.g. P SErrLog XXXXX) in the /tmp directory. If there is not an error log file, recompile PSfilter.</p> <p>Also, check the Troubleshooting section of the Psfilter .TXT file for your system.</p>
Problem No. 9	The "String Before Job" and/or "String After Job" settings in the Logical Printers don't work properly.
Solution No. 9	<ul style="list-style-type: none"> • Check the length of the control strings. No string can exceed 15 characters. • Check that the control strings are in HEX.