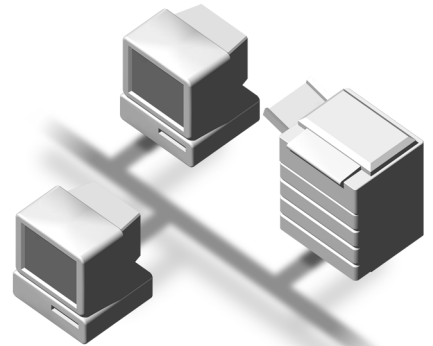




UNIX Supplement



Read this manual carefully before you use this product and keep it handy for future reference.

For safety, please follow the instructions in this manual.

Introduction

To get maximum versatility from this machine all operators should carefully read and follow the instructions in this manual. Please keep this manual in a handy place near the machine.

Please read the Safety Information in the "Printer Reference" before using this machine. It contains important information related to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS.

Important

Parts of this manual are subject to change without prior notice. In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

Further Information

Please consult your authorized reseller concerning additional UNIX support.

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Manuals for This Printer

The following manuals describe the operational procedures and maintenance of this machine.

To enhance safe and efficient operation of this printer, all users should read and follow the instructions carefully.

❖ **Quick Installation Guide**

Describes how to install the printer.

❖ **Setup Guide**

Provides information about setting up the printer and its options. This manual is provided as a printed manual, and also as a PDF file on the CD-ROM labeled "Operating Instructions".

❖ **Printer Reference**

Provides information about using the printer and its options. This manual provided as a PDF file on the CD-ROM labeled "Operating Instructions".

❖ **Network Interface Board Operating Instructions**

Provides information about setting up and using the printer in a network environment. This manual provided as a PDF file on the CD-ROM labeled "Operating Instructions".

❖ **PostScript 3 Operating Instructions Supplement**

Describes the menus and features for the PostScript 3 printer driver. This manual provided as a PDF file on the CD-ROM labeled "Operating Instructions".

❖ **UNIX Supplement (this manual)**

Provides information about setting up and using the printer in a UNIX environment. This manual provided as a PDF file on the CD-ROM labeled "Operating Instructions".

Note

- ❑ There are two CD-ROMs that come with this printer. One is labeled "Operating Instructions" and the other is "Drivers and Utilities".

How to Read This Manual

Symbols

In this manual, the following symbols are used:

WARNING:

This symbol indicates a potentially hazardous situation which, if instructions are not followed, could result in death or serious injury.

CAUTION:

This symbol indicates a potentially hazardous situation which, if instructions are not followed, may result in minor or moderate injury or damage to property.

* The statements above are notes for your safety.

Important

If this instruction is not followed, paper might be misfed, originals might be damaged, or data might be lost. Be sure to read this.

Preparation

This symbol indicates the prior knowledge or preparations required before operating.

Note

This symbol indicates precautions for operation, or actions to take after misoperation.

Limitation

This symbol indicates numerical limits, functions that cannot be used together, or conditions in which a particular function cannot be used.

Reference

This symbol indicates a reference.

[]

Keys that appear on the machine's panel display.

Keys and buttons that appear on the computer's display.

【 】

Keys built into the machine's operation panel.

Keys on the computer's keyboard.

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1. UNIX Configuration

This section explains how to set up a network printer and check the print status using UNIX.

Limitation

- To print from a UNIX workstation, use the file that the printer supports.

Using the Installation Shell Script

The installation shell script helps with the setup process. The installation shell script automates some of the tasks in configuring `/etc/hosts`, `/etc/printcap`, and in creating the spool directory for BSD UNIX, and in running `lpadmin` command for System V UNIX.

Preparation

The installation shell script can be used on the following three kinds of the workstations. Do not use this installation shell script with other types of workstations.

- Solaris 2.5.1, 2.6, 7, 8
- HP-UX 8.x, 9.x, 10.x, 11.0
- Red Hat Linux 6.2

When you use NIS (Network Information Service) or DNS, you should configure the server before running this installation shell script.

For more information about the configuration utility of your OS, see the manual that came with the utility.

Assigning the IP Address

Preparation

Configure the printer to use the TCP/IP protocol.

- Confirm that the TCP/IP protocol on the printer is set to be active. (The factory default is active.)
- Assign an IP address to the printer and configure the other settings required for using the TCP/IP protocol.

Reference

For more information about how to make above settings, see the Setup Guide that comes with the printer.

Confirming the IP address

Follow the procedure below to confirm that the IP address has been configured correctly.

- Following procedure uses sample IP address: 192.168.15.16.

1 Enter the following:

```
# ping 192.168.15.16
```

If the address has been configured correctly, the following message appears.

```
192.168.15.16 is alive
```

If the address has been configured incorrectly, the following message appears.

```
no answer from 192.168.15.16
```

Note

- When you use NIS, the IP address and host name are written to `/etc/hosts` on the master server. When you use DNS, the information is written to a data file on the name server. After writing the host name and IP address to the file, confirm the configuration by pinging the host name.

```
# ping host_name
```

- If the host name is registered with an IP address, the server can access the printer using its host name instead of its IP address.

Executing the Installation Shell Script

After having configured the printer IP address, follow the procedure below to execute the installation shell script and set up the workstation printing environment.

Preparation

Before executing the installation shell script, the IP address, the host name and the printer name must be required.

Following procedures use sample IP address: 192.168.15.16, sample host name: `nphost` and sample printer name: `np`.

Note

- Use `ftp` to get the installation shell script from the printer.

1 Log on to the workstation as root.

Note

- If you do not log on as root, the installation shell script will not run.

2 Get the installation shell script from the printer.

- ① Move to the directory you want to copy the installation shell script to.
- ② Use ftp to connect to the printer with the IP address that you just configured.

```
# ftp 192.168.15.16
Connected to 192.168.15.16
220 printer FTP server ready.
name (192.168.15.16:root:)
```

- ③ When a user name is requested, ignore and press the **[RETURN]** key.

```
331 Password required for root.
Password:
```

- ④ When a password is requested, ignore and press the **[RETURN]** key.

```
230 User root logged in.
ftp>
```

- ⑤ Type the following to get the installation shell script.

```
ftp> get install
```

- ⑥ Close the ftp session.

```
ftp> bye
221 Goodbye.
#
```

3 Run the installation shell script.

```
# sh ./install
```

 **Note**

- Insert a period and slash before the current directory.

4 Enter a number to select the workstation OS that you are using.

```
Network printer install shell
Copyright RICOH CO.,LTD. 1994-2000
Select your workstation OS type.
1. SunOS 4.x.x
2. Solaris 2.x, Solaris 7-8 (SunOS5.x)
3. HP-UX 8.x,9.x,10.x,11.x
4. UnixWare
5. Linux
6. other
```

```
Enter <1-6>:
```

```
2
```

 **Note**

- SunOS and UnixWare appear on the screen, but they are not supported. Use Solaris, HP-UX or Linux.
- If you select "6", the installation shell script exits.

5 Enter the IP address of the printer.

```
Enter Printer host IP address <xxx.xxx.xxx.xxx> [return=skip]:
192.168.15.16
```

 **Note**

- The IP address will be added to the /etc/hosts file.
- If the host name of the printer has already been configured, ignore and press the **[RETURN]** key. Nothing is added to the /etc/hosts file.

6 Enter the host name of the printer.

```
Enter Printer host name : nphost
```

 **Note**

- The host name will be added to the /etc/hosts file.
- If no IP address was entered in step **5**, nothing is added to the /etc/hosts file.

7 Configure the printer name.

```
Enter logical printer name [default nphost_prn]
```

If you want to use the default name, press the **[RETURN]** key. If you want to change this name, enter a new name.

 **Note**

- The host name entered in step **6** followed by “_prn” appears in “default”.

8 Set the print option.

```
Enter remote printer name [default lp]:
```

- Press the **[RETURN]** key, print with PCL or PostScript is enabled.
- If you enter “text”, text printing is enabled.
If you enter “text”, printing with PCL and PostScript is unavailable.

```
Enter remote printer name [default lp]:text
```

 **Limitation**

- You can enter up to 14 characters for HP-UX 11.0, 256 for Solaris 8, and 51 for Red Hat Linux 6.2.

Setup with the installation shell script is finished. If you enter the IP address in step **5**, the following message appears.

```
hosts file is modified
```

9 Make a test print to confirm that the settings are correct.

```
# lpr -Pnp file_name
```

```
# lp -d np file_name
```

For more information about lpr and lp, see P.10 “Printing Method”.

Deleting the printer

To print using the `lp` or `lpr` command, the option specified when the Installation Shell Script is executed is used. Change the option in accordance with the workstation you are using.

❖ BSD UNIX workstation, Linux

Delete the printer entry from `/etc/printcap`, then execute the installation shell script again. Select options during the setup process.

Or, search the printer entry from `/etc/printcap`, change its `rp` capability to option setting.

❖ Solaris, HP-UX

Delete the printer entry, and then execute the installation shell script again. Select options during the setup process. To delete the printer entry, follow the procedure below.

① Stop the scheduler.

```
# /usr/sbin/lpshut
```

② Delete the printer.

```
# /usr/sbin/lpadmin -x printer_name
```

③ Restart the scheduler.

```
# /usr/lib/lpsched
```

Setup

The printing environment is set up automatically when the installation shell script is executed.

This section describes the set up contents when the installation shell script is executed under Red Hat Linux, Solaris and HP-UX.

Linux

❖ Adding the IP address and host name to the `/etc/hosts` file

The following line is added to the `/etc/hosts` file.

```
192.168.15.16 nphost # Network Printer
```

- **192.168.15.16** is the IP address, **nphost** is the host name, from **#** to the end of the line is a comment.

Note

- The `/etc/hosts` file contains a list of the IP addresses and their host names of all of the hosts communicating on the network. Each entry is delimited with a space or a tab, and each line is separated with a return.
- If you do not use NIS or DNS, you must manually enter the IP address and host name of each workstation using the network printer in the `/etc/hosts` file.

❖ Adding an entry to the /etc/printcap file

The following entry is added to the /etc/printcap file.

This is the configuration for printing with the lpr command. In order to use the lpr command to print, you need to edit the /etc/hosts file, add an entry for the network printer to the /etc/printcap file and create a spool directory.

```
##PRINTTOOL3## REMOTE
np|Network Printer:\
    :rm=nphost:\
    :rp=lp:\
    :sd=/var/spool/lpd/npd:\
    :lf=/var/log/npd-errs:\
    :sh:\
    :mx#0:
```

Note

- The /etc/printcap file is used to register the name and attributes of a printer. You must make an entry for the network printer in the /etc/printcap file of all workstations using the network printer.
- Each entry is separated with colons into several fields. The syntax is to begin each entry with a colon, the entry, and then end the entry with a colon, a back slash, and then a return.
- The first line of the field is the name of the printer. You use this name when logging on to a network printer from a workstation. You can define several different names by separating each name with the “|” character.
- The second, and the following lines, contain the printer's attributes. Attributes of the printer are represented by two character names referred to as capabilities. For more information about capabilities, see the following table.

Capability	Explanation	Value Required for the Network Printer.
lp	Device name of the printer	Nothing.
rm	Host name of the printer	The host name that was registered with the /etc/hosts file.
rp	Optional specification	Select options for printing. For printing with PCL or PostScript, select “lp”. For text printing, select “text”.
sd	Path name of the spool directory.	Path name of the spool directory that is to be created.
lf	Path name of the log file.	Path name of log file. For example /var/log/lpd-errs.
mx	Maximum file size which the directory can copy. When set to 0, the size is unlimited. If nothing is entered, the size is set to 1024 k.	Nothing or something suitable.

❖ Making the spool directory

Create a spool directory under `/var/spool/lpd`. The name of spool directory should be the name of the printer followed by a “d”.

Note

- ❑ The spool directory is used to control the data used for a print job. For example, when a print job is created, a temporary copy of the file data used for printing is created in the spool directory. All workstations accessing the network printer need to have a spool directory for the network printer.
- ❑ A spool directory should be made for every network printer entry listed in the `/etc/printcap` file.
- ❑ The spool directory should normally be made under `/var/spool/lpd` and the name should match that listed under the `sd` capability in `/etc/printcap`. Change the owner and group of the directory to `root` and `lp`. The following examples show how to make a `/var/spool/lpd/npd` spool directory.

```
# cd /var/spool/lpd
# mkdir npd
# chown root np
# chgrp lp np
```

❖ Making the log file

Error messages are logged to a file created in the `/var/log` directory. The log file name is the printer name followed by “d-errs”.

Solaris

❖ Adding the IP address and host name to the `/etc/hosts` file

The following line is added to the `/etc/hosts` file.

```
192.168.15.16  nphost  # Network Printer
```

- **192.168.15.16** is the IP address, **nphost** is the host name, from **#** to the end of the line is a comment.

Note

- ❑ The `/etc/hosts` file contains a list of the IP addresses and their host names of all of the hosts communicating on the network. Each entry is delimited with a space or a tab, and each line is separated with a return.
- ❑ If you do not use NIS or DNS, you must manually enter the IP address and host name of each workstation using the network printer in the `/etc/hosts` file.

❖ Registering the printer

The installation shell script registers the printer as a remote printer.

- ① If your workstation is Solaris 2.5.1, register the print server and print client to the print service.

```
# lpsystem -t bsd -R 0 -y "Network Printer" nphost
```

- ② Register the printer as a remote printer.

```
# lpadmin -p np -s nphost!option -T dump -I any
```

- **np** is the printer name, **nphost** is the host name. **options** is "lp" or "text". For printing with PCL or PostScript, enter "lp". For text printing, enter "text".

- ③ If your workstation is Solaris 2.5.1, set the print job enable to be accepted by print queue.

```
/usr/lib/accept np
```

- ④ If your workstation is Solaris 2.5.1, set the print job enable to print.

```
/usr/lib/enable np
```

HP-UX

❖ Adding the IP address and host name to the /etc/hosts file

The following line is added to the /etc/hosts file.

```
192.168.15.16 np # Network Printer
```

- **192.168.15.16** is the IP address, **np** is the host name, from # to the end of the line is a comment.

Note

- The /etc/hosts file contains a list of the IP addresses and their host names of all of the hosts communicating on the network. Each entry is delimited with a space or a tab, and each line is separated with a return.
- If you do not use NIS or DNS, you must manually enter the IP address and host name of each workstation using the network printer in the /etc/hosts file.

❖ Registering the printer

The installation shell script registers the printer as a remote printer following the procedure below.

- ① Stop the scheduler.

```
/usr/lib/lpshut
```

- ② Register the printer.

```
/usr/lib/lpadmin -Pnp -v/dev/null -mrmmodel  
-ormnphost -oroption -ob3
```

- **np** is the printer name, **nphost** is the host name. **options** is "lp" or "text". For printing with PCL or PostScript, enter "lp". For text printing, enter "text".

- ③ Set the printer so that the print job is listed in the print queue.

```
/usr/lib/accept np
```

- ④ Set the printer to perform the print job.

```
/usr/lib/enable np
```

- ⑤ Restart the scheduler.

```
/usr/lib/lpsched
```

Printing Method

1

Printing with lpr, lp

Depending on the type of the workstation being used, execute one of the following commands:

❖ BSD UNIX workstation

```
% lpr -Pprinter_name file_name [file_name...]
```

For example:

printer name is np, file names are file1 and file2

```
% lpr -Pnp file1 file2
```

❖ Solaris, HP-UX

```
% lp -d printer_name file_name [file_name...]
```

For example:

printer name is np, file names are file1 and file2

```
% lp -d np file1 file2
```

Note

- "printer_name" is the name that was entered when executing the installation shell script.
- You can use wild cards (* or ?) for the file name.
- The message "print session full" appears when the maximum number of print requests has been reached ^{*1}. You should try to print again when the number of requests becomes less than five. You can confirm the number of print requests using telnet. For more information about using telnet, see the Network Interface Board Operating Instructions provided as a PDF file on the CD-ROM labeled "Operating Instructions".

^{*1} The maximum number of print session differ depending on printer's total memory size. When the printer has standard memory (32MB), one print session is available. When the printer has optional memory (total 96MB), the maximum number of print session is five.

Printing with rsh, rcp, ftp

You can also print using the rsh, rcp and ftp commands.

Note

- Print using the format that the printer can support.
- The message “print session full” appears when the maximum number of print requests has been reached ^{*1}. You should try to print again when the number of requests becomes less than five. You can confirm the number of print requests using telnet. For more information about using telnet, see Network Interface Board Operating Instructions provided as a PDF file on the CD-ROM labeled “Operating Instructions”.

^{*1} The maximum number of print session differs depending on printer's total memory size. When the printer has standard memory (32MB), one print session is available. When the printer has optional memory (total 96MB), the maximum number of print sessions available is five.

rsh

```
% rsh host_name print < file_name [file_name...]
```

For example:

host name is nphost, file names are file1 and file2

```
% rsh nphost print < file1 file2
```

Note

- “host_name” is the name entered when executing the installation shell script.
- If you use a HP-UX, use the remsh command instead of rsh.

rcp

◆ To specify the file and print it

```
% rcp file_name [file_name...] host_name:
```

For example:

host name is nphost, file names are file1 and file2

```
% rcp file1 file2 nphost
```

◆ To print all of the files in a directory

```
% rcp -r directory_name host_name:
```

For example:

host name is nphost, directory name is directory1

```
% rcp -r directory1 nphost
```

Note

- “host_name” is the name entered when executing the installation shell script.
- You can use wild cards (* or ?) for the file name.

ftp

Depending on the number of files to be printed, use the put or mput commands.

 **Limitation**

- File names cannot contain “=” or “,”.

 **To print one file**

```
ftp> put file_name
```

 **To print several files**

```
ftp> mput file_name [file_name...]
```

 **Note**

- You can use wild cards (* or ?) for the file name with the mput command.

The following procedure shows an example of how to print a file using ftp.

1 Start ftp using the IP address or host name of the printer.

```
% ftp IP_address
```

 **Note**

- “host_name” is the name entered when executing the installation shell script.

2 Enter the user name. Ignore the password, and then press the **[RETURN]** key.

```
Name:
```

```
Password:
```

3 Set the file transfer mode to binary.

```
ftp> bin
```

 **Note**

- If the file transfer mode is not set to binary, the image might not be printed correctly.

4 Print the file. **Note**

- For example, to print one file named file1:

```
ftp> put file1
```

- For example, to print two files named file1 and file2:

```
ftp> mput file1 file2
```

5 Exit ftp.

```
ftp> bye
```

Printer Status

You can use the following commands to have information and the printer status displayed or copied to a file.

Use the `lpq` or `lp` command to display the status of the printer or information about print jobs.

Use the `rsh`, `rcp` or `ftp` commands to get more detailed information from the printer.

Viewing the Printer Status with `lpq` and `lpstat`

❖ BSD UNIX workstation, Linux

```
% lpq -Pprinter_name
For example: Printer name is np
% lpq -Pnp
```

❖ System V UNIX, Solaris, HP-UX

```
% lpstat -o printer_name
For example: Printer name is np
% lpstat -o np
```

Viewing the Printer Status with `rsh` and `ftp`

Use the `rsh` or `ftp` command to display the status of printer or information about print jobs using specified parameters.

You can use these commands for BSD and System V UNIX.

Note

❑ If your workstation is HP-UX, use the `remsh` command instead of the `rsh`.

```
% rsh host_name parameter
```

```
% ftp host_name
User user_name
password:
ftp> get parameter -
```

 **Note**

- ❑ For the user name and password input nothing, and then press the **[RETURN]** key.

Parameters that can be used with rsh, rcp and ftp:

Parameter	Information returned	Reference
status	Status of the printer. Information about print jobs.	Network Interface Board Operating Instructions provided as a PDF file on the CD-ROM labeled "Operating Instructions"
info	Information about the paper tray, output tray and printer language of the printer.	Printer Reference provided as a PDF file on the CD-ROM labeled "Operating Instructions".
prnlog	Record of the last 16 jobs printed.	Network Interface Board Operating Instructions provided as a PDF file on the CD-ROM labeled "Operating Instructions".
syslog	Record of messages about the Network Interface Board.	

Copying Information to a File

Use the rcp or ftp command to copy information about the specified parameters to a file.

You can use these commands for BSD and System V UNIX.

 **Note**

- ❑ The same parameters are used as those above.

```
% rcp host_name:parameter file_name
```

```
% ftp host_name
User: user_name
password:
ftp> get parameter file_name
```

 **Note**

- ❑ For the user name and password input nothing, and then press the **[RETURN]** key.

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