

# **MarkVision Utilities for UNIX Networks**

*Advancing the Art of Printing*

## **For use with:**

AIX/6000 Systems

AT&T UNIX (NCR System 3000) Systems

HP-UX Systems

SCO UNIX Systems

Silicon Graphics IRIX Systems

SunOS Systems

Sun Solaris Systems

Sun Solaris x86 Systems

UnixWare Systems



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# Preface

This book tells you how to install, set up, and troubleshoot the Lexmark MarkVision Utilities for UNIX Networks. It contains:

- Introductory information including versions of UNIX operating systems and types of network adapters supported by the utilities
- Information about software contained in the MarkVision Utilities package, including the MarkVision server, client utilities, and BOOTP server
- Step-by-step instructions for installing the utilities
- Troubleshooting sections that include solutions to common networking problems and explanations of error messages
- Instructions for configuring internal and external network adapters
- Instructions for using BOOTP to set up network addresses

To complete these tasks successfully, you should have a working knowledge of your network's TCP/IP hardware and software. If you need more information about TCP/IP, refer to the chapter on TCP/IP in the *Network Printer Utility Guide* that you received with your adapter.

## Terms used in this book

In this book, the term:

- *Adapter* refers to the MarkNet and MarkNet XL internal adapters and the MarkNet XLe external adapter.
- *Network printer* refers to a printer with an adapter installed or attached.
- *MarkVision Utilities* and *utilities* refer to the set of utilities that you received with this guide.

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# Chapter 1 Introducing the MarkVision Utilities for UNIX Networks

## Introduction

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The MarkVision Utilities for UNIX Networks are designed to make network printing tasks easy. You can use the utilities for tasks such as creating print queues, checking printer status, and configuring network adapters.

Read this chapter to learn which versions of UNIX are supported by the utilities, which network adapters you can use with the utilities, and how the utilities work with TCP/IP networks.

## UNIX versions supported

---

The utilities support the UNIX operating systems and versions listed in Table 1. Make sure you're running on one of these systems before you install the utilities.

**Table 1: UNIX versions supported by the MarkVision Utilities**

Operating System	Hardware	UNIX Version
AIX 3.2.5	IBM RISC System/6000	AIX
AIX 4.1.x		
AT&T UNIX SVR4	NCR System 3000	System V
HP-UX 9.01, 9.05	Hewlett-Packard 9000/700 and 9000/800	System V
HP-UX 10.01		
IRIX 5.3	Silicon Graphics	System V
SCO (Release 3.2 v4.2)	Intel	System V
SCO V		
Sun Solaris x86 2.4		
Sun Solaris 2.3, 2.4	Sun SPARCstation	System V
SunOS 4.1.3, 4.1.4		BSD
UnixWare 2.0	Intel	System V

# Network adapters supported

---

The MarkVision Utilities for UNIX Networks are designed to work with Lexmark's MarkNet and MarkNet XL internal adapters and MarkNet XLe external adapter. The options available may vary depending on the kind of adapter and firmware level.

The MarkVision Utilities also work with most Hewlett-Packard JetDirect adapters that support TCP/IP. However, certain options may not be available due to the configuration of the JetDirect adapter.

The options available also depend on the configuration of the printer you are using. For example, to take full advantage of MarkVision, the printer must have bidirectional capabilities. And to use MarkVision's remote operator panel, the printer must be enabled for Network Printing Alliance (NPA) Protocol.

## Overview of the utilities

---

This is the second release of the MarkVision Utilities for UNIX Networks. (The first release was called MarkVision Utilities for TCP/IP Networks.)

The utilities you received with this book include:

- MarkVision server software
- MarkVision client utilities
- MarkVision screen fonts
- BOOTP server software (Sun Solaris and SunOS only)

## What's new to this release

Here's what's new in this release of MarkVision:

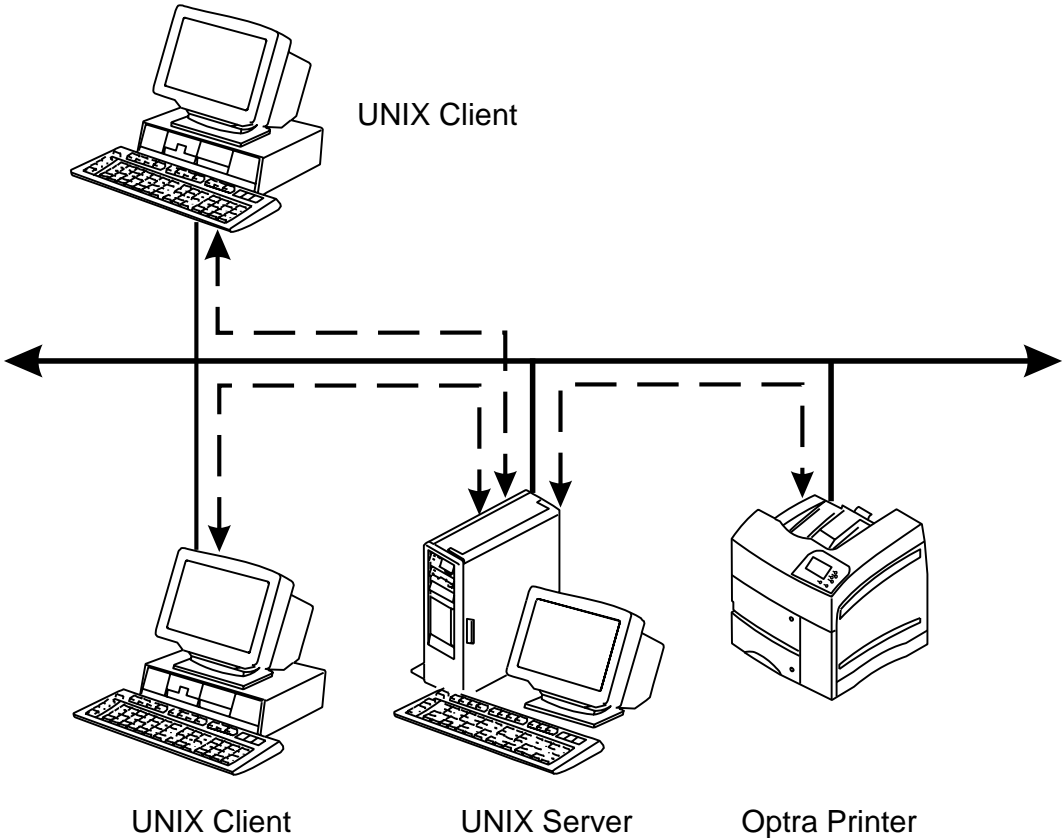
- Resource management functions have been added, allowing you to manage the disk and flash options in your printer from this utility.
- More printers are recognized by this utility than by the previous one, including Optra+, Optra C, Optra E, and Optra N.
- Quick setup supports more printers than the previous utility, including 4079 plus, Optra+, Optra C, Optra E, and Optra N.
- MarkVision can now notify users when print jobs are complete.
- The MarkVision server can accumulate print job statistics for: Optra, Optra+, Optra C, Optra N, and Color JetPrinter 4079 plus.
- The client package can be run from a Network File Server (NFS) computer.

# Utilities included

MarkVision for UNIX is divided into several installable packages:

- MarkVision server
- MarkVision client
- MarkVision screen fonts
- BOOTP server (Sun Solaris and SunOS only)

The following diagram shows how the MarkVision server works with the client utilities to allow communication between clients and TCP/IP-networked printers. The dotted lines show the flow of MarkVision data.



## MarkVision server

The MarkVision server software monitors and manages network-attached printers.

### Where to install it

Install the MarkVision server software on *only one* computer in each network domain or subnet. You must install this software for MarkVision to work.

When you install the MarkVision server, make a note of the computer's IP address or hostname. You'll need it when you install the client utilities.

If you wish, you may install the MarkVision client, font, and BOOTP utilities on the same computer that is running the MarkVision server software.

## MarkVision client

The MarkVision client utilities work with the MarkVision server to allow you to set up network print queues, monitor print status, and change adapter configurations.

### Where to install it

If your network is set up with a dedicated print server on it, you *must* install the client utilities there.

Then you must install the utilities so that they can be run from *all* network computers that you plan to use with the adapter. You may install the client utilities:

- locally on each client computer, or
- on a Network File Server (NFS) computer, so that they are accessible to client computers from there

If you choose, you can install the client utilities on the same computer with the MarkVision server, font, and BOOTP packages.

During installation of the client utilities, you'll be prompted for the MarkVision server's IP address or hostname. Make sure you enter the address or hostname of the computer on which you installed the MarkVision server software.

See the README file in `/usr/markvision/docs` for more information about the client utilities.



## What the client utilities include

Table 2 lists the commands included in the MarkVision client utilities package. This information is provided for people who use the utilities directly from the command line. If you use the MarkVision main menu or `lexprt` command to access the utilities, you probably won't need this information. For more information about the commands listed below, refer to the man pages.

For example, type `man updlexprt`, then press Enter.

**Table 2: MarkVision client utilities**

Command	Use this command to:	Syntax
<code>chlexdev</code> †	Change virtual device settings	<code>chlexdev [options]</code>
<code>chlexprt</code>	Change the value of specific adapter settings for TCP/IP-networked printers and adapters	<code>chlexprt [options] [printer hostname]</code>
<code>chlexque</code> †	Change print queue settings	<code>chlexque [options]</code>
<code>dsports</code> †	Display tag and value pairs for printer options	<code>dsports [options]</code>
<code>lexprt</code>	Open a menu for the MarkVision Utilities (non-AIX) or provide a fast path to SMIT (AIX)	<code>lexprt</code>
<code>lslexdev</code> †	Display virtual device settings	<code>lslexdev [options]</code>
<code>lslexprt</code>	Display the status of TCP/IP-networked printers	<code>lslexprt [options] [printer hostname]</code>
<code>lslexque</code> †	Display print queue settings	<code>lslexque [options]</code>
<code>markvision</code>	Monitor and change TCP/IP-networked printers and adapters	<code>markvision [options]</code>
<code>mklexdev</code> †	Create a virtual device	<code>mklexdev [options]</code>
<code>mklexque</code> †	Create a print queue	<code>mklexque [options]</code>
<code>multiupdlexprt</code>	Update the firmware in multiple MarkNet adapters	<code>multiupdlexprt [options]</code>
<code>mv_res</code>	Manage fonts and forms stored on the printer	<code>mv_res [options]</code>
<code>mv_qs</code>	Copy printer settings (Quick Setup)	<code>mv_qs [options]</code>
<code>pddadm</code> †	Utility for administering Printer Definition Databases	<code>pddadm</code>
<code>rmlexdev</code> †	Remove an existing virtual device	<code>rmlexdev [options]</code>
<code>rmlexque</code> †	Remove an existing print queue	<code>rmlexque [options]</code>
<code>trans_js</code>	Utility for translation of job statistics file	<code>trans_js [options]</code>
<code>updlexprt</code>	Update the firmware in MarkNet, MarkNet XL, and MarkNet XLe adapters	<code>updlexprt [options]</code>

†These utilities are provided in BSD and System V packages only.

## MarkVision font package

The MarkVision font package contains all the fonts you need to run the MarkVision client utilities. The fonts are packaged separately from the MarkVision client utilities for easy installation in various X server configurations.

### Where to install it

The MarkVision fonts are used by your X server software to correctly display the MarkVision screens. You must install the fonts on the same computer as your X server. If you are using a network font server, then the package must be installed on the computer with the font server.

If you are using an X server on a system other than UNIX (for example Windows 3.1, or OS/2) install the font package on a convenient UNIX computer and copy the fonts to your system. Check your X server documentation for instructions about adding fonts. See the file README.fonts in `<installdirectory>/lexmark/fonts` for more information.

### BOOTP server

The BOOTstrap Protocol (BOOTP) server provides information such as the IP address, netmask, and gateway to the MarkNet network adapter each time the adapter is turned on. In addition to the MarkVision server and client utilities, a BOOTP server is provided as a convenience for Sun Solaris x86 2.4, Sun Solaris SPARCstation 2.3 or 2.4 and SunOS 4.1.3 or 4.1.4. The use of BOOTP is optional, but you may choose to install this package to use BOOTP to set the IP address, netmask, and gateway.

If used, a copy of the BOOTP server package *must* be installed and running on *one* computer in each IP network domain or subnet that has MarkNet adapters. You can install this package on the same computer with the MarkVision server. See Appendix C for information about using BOOTP.

### If you have a Network File Server (NFS)

If you have a computer set up as a Network File Server (NFS) machine, you can install the MarkVision client utilities there and allow people to access the client utilities from the NFS computer. For more information, refer to the section Chapter “Setting up client computers to access the client utilities from a Network File Server” on page 33.

# Before you continue

---

Use the following steps to verify that your network is set up properly for use with the utilities.

## Step 1: Check adapter configurations

- Is the adapter running TCP/IP? To check, print a setup page. If you are using a MarkNet or MarkNet XL adapter, see Appendix A “Getting adapter information” on page 74. If you’re using a MarkNet XLe, see Appendix B “Getting adapter information” on page 80.
- If you’re using a Token-Ring adapter, is it configured for the correct network speed (4 Mbps or 16 Mbps)?
- Are the IP address, netmask, and gateway set? See “Step 3: Set the IP address, netmask, and gateway” on page 8 for more information.
- Have you set the printer hostname in the `/etc/hosts` file or on the name server?

## Step 2: Check adapter connections

### For MarkNet and MarkNet XL internal adapters:

- Is the adapter installed in the printer? Instructions for installing the adapter are shipped with the printer.
- Is the printer physically connected to the LAN with the appropriate Ethernet or Token-Ring cable?

Refer to your printer documentation if you need more information.

### For MarkNet XLe external adapters:

- Is the adapter physically connected to the LAN with the appropriate Ethernet or Token-Ring cable?
- Is the network switch on the adapter set correctly for use with either a thin (10BASE2) or twisted pair (10BASE-T) cable?
- Is the printer properly connected to the adapter?

Refer to the *MarkNet XLe Setup and Service Guide* for more information.

## Step 3: Set the IP address, netmask, and gateway

If you haven't already set the IP address, netmask, and gateway for the adapter, do that now. There are many ways to set this information. If you're running a BOOTP server, you can use the TCP/IP BOOTstrap Protocol (BOOTP). See Appendix C beginning on page 85 for instructions.

- ❑ If you are using a MarkNet or MarkNet XL internal adapter, the simplest way to set the information is from the printer operator panel. See "Setting the IP address" on page 70 if you need help.
- ❑ If you are using a MarkNet XLe external adapter, you can use telnet and either the Address Resolution Protocol (ARP) or the Remote Address Resolution Protocol (RARP) to set this information. For help, refer to the *Network Printer Utility Guide* that you received with the adapter.
- ❑ You can also set the address, netmask, and gateway on your adapter in NetWare, AIX, OS/2, Windows NT or Windows 95 using MarkVison or the Network Printer Utility you received with your adapter. For more information, refer to the *Network Printer Utility Guide* you received with the adapter.

If the methods listed above won't work for your network, contact technical support or your point of purchase. Ask for a parallel cable converter and instructions for loading the address, netmask, and gateway.

## Step 4: Verify the server's IP address or hostname

When you install the client utilities, you'll be prompted to enter the server's IP address or hostname. This is the address or hostname of the computer on which you installed (or plan to install) the MarkVision server software. If possible, make a note of that address or hostname before you begin the installation process.

If you don't know the server's address or hostname now, or you need to change it later, follow the steps below after you install the client package:

**1 Type the following at the command prompt, then press Enter:**

```
vi /usr/markvision/etc/mv_server_hostname
```

**2 Add or change the IP address or hostname in the following line:**

```
mv_server_host=hostname
```

## What to do next

Now that you have an overall understanding of how the MarkVision Utilities work, it's time to install them and enjoy the ease of network printing with MarkVision.

**Before you continue**

**Before you continue**

# Chapter 2 Installing the utilities

## Before you install

---

This chapter explains how to install and use the MarkVision utilities on a variety of operating systems.

Do the following before you install the utilities:

- 1 Follow the steps under “Before you continue” on page 7 to check your network configurations and connections before you install the utilities.**
- 2 Read the “Overview of the utilities” on page 2 to learn about the MarkVision server, utilities, client utilities, and BOOTP server.**
- 3 Make sure you’re logged on with root user authority.**
- 4 Make sure that you have the following disk space available:**

These are the minimum recommended sizes for different UNIX systems. Please see the README.txt file in the root directory of the CD-ROM directory for last-minute information.

AIX (all levels)	10 MB in installation directory /usr/lpp
AT&T SVR4	14 MB in installation directory (default /opt/lexmark) 14 MB in /var/tmp or /tmp (space needed only during package installation)
HP-UX 9.01, 9.05	19 MB in installation directory /usr/local
HP-UX 10.01	17 MB in installation directory /opt/lexmark
IRIX 5.3	15 MB in installation directory (default /opt/lexmark)

SCO 3.2, SCO V	16 MB in installation directory (default /opt/lexmark) 16 MB in /var/tmp or /tmp (space needed only during package installation)
Solaris 2 (SPARC)	18 MB in installation directory (default /opt/lexmark) 18 MB in /var/tmp or /tmp (space needed only during package installation)
Solaris 2 (x86)	15 MB in installation directory (default /opt/lexmark) 15 MB in /var/tmp or /tmp (space needed only during package installation)
SunOs 4.1.3, 4.1.4	19 MB in installation directory (default /usr/local) 2 MB in /var (space needed for the installation utilities)
UNIXWARE 2.0	14 MB in installation directory (default /opt/lexmark) 14 MB in /var/tmp or /tmp (space needed only during package installation)

## 5 Set up a MarkVision administrative user group:

During the installation of the MarkVision client utilities you will be asked if you want to change the user group for the utilities. The default user group is either *bin* (System V and SunOS) or *printq* (AIX). All user IDs added to the user group will be allowed to access all of MarkVision's functional capabilities with administrative privileges.



# Installing the utilities

Make sure you're running a version of UNIX listed in the table below, then go to the page number listed for instructions.

Operating system	Hardware	Version	Go to page
AIX 3.2.5	IBM RISC System/6000	AIX	14
AIX 4.1.x			
AT&T UNIX SVR4	NCR System 3000	System V	16
Computers without a CD-ROM drive		AIX	34
		BSD	34
		System V	34
HP-UX 9.01, 9.05	Hewlett-Packard 9000/700 and 9000/800	System V	17
HP-UX 10.01			19
IRIX 5.3	Silicon Graphics MIPS	System V	21
SCO (Release 3.2 v4.2)	Intel	System V	24
SCO V		System V	24
Sun Solaris x86 2.4		System V	26
Sun Solaris 2.3, 2.4	Sun SPARCstation	System V	28
SunOS 4.1.3 and 4.1.4		BSD	30
UnixWare 2.0	Intel	System V	32

## Upgrading from a previous version

If you have a previous version of our utilities, you may upgrade. There are two previous versions: first, the Network Printer Utility for TCP/IP (available in March 1994); then, the MarkVision Utilities for TCP/IP Networks (available in June 1995).

- If you are upgrading from the Network Printer Utility for TCP/IP, simply install these new utilities. You don't have to delete any files or reconfigure your system.
- If you are upgrading from the MarkVision Utilities for TCP/IP Networks, remove the old package from the system. You do *not* need to remove print queues or queue devices. Simply use the `pkgrm` command (System V) or equivalent to remove the packages. You must upgrade both the MarkVision client and server utilities at the same time.

## AIX 3.2.5, 4.1.x

The MarkVision utilities install with printq group ownership. Any user who is a member of the printq group has administrator access to all of the functions in the utility. Users who are not in the printq group may use MarkVision to view and monitor printers but will not have access to printer administrative functions.

- 1 Be sure you read “Overview of the utilities” on page 2.**
- 2 Read “Before you install” on page 11.**
- 3 Mount the CD-ROM.**
  - a Make sure that the /cdrom directory exists. If necessary, create it using:**

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/cd0, the command is:**

```
mount -o ro -v cdrfs /dev/cd0 /cdrom
```

- 4 Type the following at the command prompt, then press Enter:**

```
smit install_latest
```

- 5 When prompted to enter the input device/directory for software, type one of the following, or choose it from the list of devices/directories:**

```
/cdrom/packages/aix3.2.5/markvision.pkg
```

```
/cdrom/packages/aix4.1/markvision.pkg
```

**Note:** If the *COMMIT software* option is set to YES, the package cannot be removed from the system. Therefore, *COMMIT software* should be set to NO.

**Note:** *SAVE replaced files* must be set to YES if *COMMIT software* is set to NO.

- 6 Choose *Do*.**
- 7 When prompted, choose the packages you want to install.**
  - *markvision* -- install the MarkVision server software and client utilities
  - *markvision.server* -- install the MarkVision server software only
  - *markvision.client* -- install the MarkVision client utilities only
  - *markvision.font* -- install the MarkVision font package

For more information, see “Overview of the utilities” on page 2.

- 8 Choose *Do* to begin installing the software.**

- 9** Follow the prompts and answer any questions that appear on the screen. You will receive a message when the installation is finished.
- 10** Repeat steps 4 through 9 to install another package.
- 11** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.

# AT&T SVR4

- 1 Be sure you read “Overview of the utilities” on page 2. This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.

- 3 Mount the CD-ROM.

- a Make sure that the /cdrom directory exists. If necessary, create it using:

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/dsk/c0t5d0s0, the command is:

```
mount -F cdfs -ol,m /dev/dsk/c0t5d0s0 /cdrom
```

- 4 Check the README.txt file in the CD-ROM root directory. This README file may contain last-minute information about installing the utilities that was not available when this guide was published.

- 5 Check to see if you have a directory named /install by typing the following at the command prompt:

```
ls -ld /install
```

If the directory does not exist, create it by typing the following:

```
mkdir /install
```

- 6 Type the following at the command prompt, then press Enter:

```
pkgadd -d /cdrom/att/mkvision.pkg
```

- 7 Follow the prompts and answer any questions that appear on the screen.

- To accept the defaults, press Enter.
- To answer yes/no questions, type *y*, *n*, or *?*, then press Enter.
- When a message appears telling you the installation was successful, type *q* to quit.

- 8 To install another package, repeat steps 6 and 7. If you’ve finished installing packages, type *q* to quit.

- 9 If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.

## HP-UX 9.01, 9.05

The following instructions use the update command to install the utilities on your computer. The update command copies files into directories and sets the owner groups and permissions. It also establishes symbolic links to different directories.

- 1 Be sure you read “Overview of the utilities” on page 2.** This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.**

- 3 Mount the CD-ROM.**

- a Make sure that the /cdrom directory exists. If necessary, create it using:**

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/dsk/c201d2s0, the command is:**

```
mount /dev/dsk/c201d2s0 /cdrom -o ro -t cdfs
```

- 4 Check the README.txt file in the CD-ROM root directory.** This README file may contain last-minute information about installing the utilities that was not available when this guide was published.
- 5 Type the following at the command prompt, then press Enter:**

```
/etc/update
```

The main menu appears with the *Change Source or Destination* option highlighted.

- 6 Press Enter to open the Change Source or Destination menu.** The *From Tape Drive to Local System* option is highlighted.
- 7 Press Enter to open the From Tape Drive to Local System menu.** In this menu, you can use the tab key to change fields.
- 8 Use the tab key to move to the Source: prompt.**
- 9 Type the following to specify the source for the update package:**

```
/cdrom/PACKAGES/HPUX9/MARKVISION.PKG;1
```

- 10 Press the F4 key to return to the main menu.**
- 11 Use the arrow keys to move to the *Select/View Partitions and Filesets* option, then press Enter.**
- 12 Choose *View Filesets*, then press F6.**

- 13** To install the entire MarkVision package, select it here by typing a *y* beside the *markvision* fileset, then skip to step 16. To install separate utilities, go on to step 14.
- 14** Choose *View Filesets*, then press F6.
- 15** Type a *y* beside each fileset you wish to load, then press F8.  
Select:
  - *markvision.client* -- to install the client utilities only
  - *markvision.server* -- to install the MarkVision server software only
  - *markvision.font* -- to install the font utilities only
- 16** Press F4 to start the installation. When a message appears asking you whether to load filesets, type *y* at the prompt.
- 17** Follow the directions on the screen to check for errors in the update log. If you find any errors, follow the directions on your screen or call your point of purchase.
- 18** Run this command:

```
/usr/local/lexmark/setup.hp
```

The default path for the command is `/usr/local/lexmark`.

*Note:* If the utilities were installed in a different directory, substitute this directory in the path.
- 19** View the README file (`/usr/markvision/docs/README.client`) for important information concerning the HP-UX command and the printing subsystem.
- 20** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.

# HP-UX 10.01

- 1** Be sure you read “Overview of the utilities” on page 2. This explains the different utilities and tells you where to install them on your network.
- 2** Read “Before you continue” on page 7 and “Before you install” on page 11.
- 3** Mount the CD-ROM.
  - a** Make sure that the /cdrom directory exists. If necessary, create it using:

```
mkdir /cdrom
```
  - b** Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/dsk/c0t5d0, the command is:

```
mount /dev/dsk/c0t5d0 /cdrom -o ro -F cdfs
```
- 4** Check the README.txt file in the CD-ROM root directory. This README file may contain last-minute information about installing the utilities that was not available when this guide was published.
- 5** Start the System Administration Manager by typing:

```
/usr/sbin/sam &
```
- 6** Select *Software Management*.
- 7** Select *Install Software to Local Host*. The SD Install - Software Selection window appears.
- 8** Normally, a window appears where you may specify the *Source Host Name*, *Source Depot Path*, and *Software View*. If this window did not appear, from the pull-down menus select *Actions*, then *Change Source* to get the window.
- 9** Set the *Source Host Name* by clicking on it and selecting it from the list. Normally this is the current host.
- 10** In the *Source Depot Path* field, specify the full path to the HP-UX 10 package file.

For example, if the file is in /cdrom and is called markvision.pkg, then specify:

```
/cdrom/PACKAGES/HPUX10/MARKVISION.PKG;1
```

- 11** Make sure the *Change Software View* is set at *All Bundles*. If it is not:
  - a Click on the *Change Software View* button.
  - b From the window that appears, select *All Bundles* for the *Software View*.
  - c Select *OK*.
- 12** Fill in the *Specify Source* screen, then select *OK*.
- 13** The Lexmark bundle then appears in the SD Install window. Double-click on the bundle to see the MarkVision Server and MarkVision Client products. Click on *MarkVision Client* to see the MarkVision Client package and the MarkVision Font package.
- 14** Select the utilities that you want to install (*Bundle, Products, or Packages*).
- 15** From the *Actions* pull-down menu, select *Mark for Install*. This puts a *Yes* beside the utilities you selected to install.
- 16** From the *Actions* pull-down menu, select *Install (Analysis)*.
- 17** When the *OK* button is available, select it. A Confirmation Window appears.
- 18** Select *Yes* to start the installation.

When you started the SAM process, if the \$HOME variable was not set for the user root, an error message appears. You can safely ignore the message and select *OK*.
- 19** During installation, select the *Logfile* button to view the installation log.

*Caution: Make sure that there are no errors or warnings during installation.*
- 20** When installation is finished, select *Done*.
- 21** Select *File*, then *Exit* to return to the Software Management window.
- 22** Remember to run the */opt/lexmark/setup.hp* file (you may have put it in a different path). This file sets any required symbolic links and prompts you for information you should provide after installation.
- 23** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.



## IRIX 5.3 (Silicon Graphics)

- 1 Be sure you read “Overview of the utilities” on page 2. This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.
- 3 Mount the CD-ROM automatically or manually.
  - a Automatically (if mediad is running):

If your computer is configured to mount the CD under the /CDROM directory when you insert a CD, simply insert the CD now. It is automatically mounted. Use the mount command to verify that the /CDROM directory is in the list of the mounted file systems. Use the /CDROM directory when referencing the package files.

**Note:** If Software Manager automatically puts the *dist* directory name after the /CDROM directory, delete the word *dist* and replace it with the full path of the package, as in:

```
/CDROM/packages/irix/
```

- b Manually:

Make sure that the /cdrom directory exists. If necessary, create it using the following command:

```
mkdir /cdrom
```

Use the mount command to mount the CD-ROM. For example, if the SCSI device is /dev/scsi/sc0d710, type the following. (Please note that, in the string sc0d710, the l is a lowercase letter l.) For more information, see the *IRIX Software Installation Guide*.

```
mount -t iso9660 /dev/scsi/sc0d710 /cdrom
```

**Note:** If you prefer to mount the CD-ROM manually, make sure that mediad is not running. To stop mediad from running, run as root:

```
mediad -k
```

- 4 Check the README.txt file in the CD-ROM root directory. This README file may contain last-minute information about installing the utilities that was not available when this guide was published.
- 5 Start the Software Manager from the desktop or from the command line. To start Software Manager from the command line, type:

```
/usr/sbin/swmgr &
```

**6 In the *Available Software* field, type:**

```
<CD-ROM mount point>/packages/irix/
```

**7 Click on the *Customize Installation* button.****8 Wait for the Status window to display this message:**

```
Ready to select products for installation or removal
```

**9 Install the entire MarkVision product, or individual packages (sub-products).**

- To install the entire product, click on the square beside the product.
- To install individual packages (sub-products), click on the folder icon. Then select the packages that you want to install.

*Note:* Before you install, please note that this product must be installed in the directory /opt/lexmark. If this path is on a file system that has less than 15 megabytes of disk space, a red slice appears on the disk space graph. This tells you that extra space is needed for this package. To create extra space:

**a Decide which file system has the required space. For example, the file system /usr may have extra space.**

**b Create a directory with this file system as root. (You may give the directory any name you wish.) For example:**

```
cd /usr
mkdir lexmark
```

**c Create a symbolic link to the directory from /opt/lexmark, as in:**

```
ln -s /usr/lexmark /opt/lexmark
```

**d Return to the Software Manager window and select *Customize Installation*. This recalculates sizes. If the red graph still appears, restart Software Manager.**

**10 Select the *Start* button to begin installation.**

During installation, the Status window shows the percentage of the products or sub-products being installed. The Log window shows a running log of the commands performed.

**11 Select *OK* on the pop-up that appears when installation is finished.**

- 12** If you installed the full MarkVision product or the sub-product `markvision.client.MVclient`, run the following command as root:

```
cd /opt/lexmark  
./setup.irix
```

- 13** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.

## SCO Release 3.2 v4.2 and SCO V

- 1 Be sure you read “Overview of the utilities” on page 2. This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.

- 3 Mount the CD-ROM.

- a Make sure that the /cdrom directory exists. If necessary, create it using:

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/cd1, the command is:

```
mount -f HS,lower -r /dev/cd1 /cdrom
```

If you get an error that HS is an unknown filesystem format, you need to add the HS file system to the operating system with the following command:

```
mkdev high-sierra
```

Follow the instructions on the screen, and reboot the computer after the new kernel is made.

- 4 Check the README.txt file in the CD-ROM root directory. This README file may contain last-minute information about installing the utilities that was not available when this guide was published.
- 5 Check to see if you have a directory named /install by typing the following at the command prompt:

```
ls -ld /install
```

If the directory does not exist, create it by typing the following:

```
mkdir /install
```

- 6 Type the following at the command prompt, then press Enter:

```
pkgadd -d /cdrom/packages/sco/markvision.pkg
```

- 7 Follow the prompts and answer any questions that appear on the screen.
  - To accept the defaults, press Enter.
  - To answer yes/no questions, type *y*, *n*, or *?*, then press Enter.

When a message appears telling you the installation was successful, type *q* to quit.

- 8** To install another package, repeat steps 6 and 7. If you've finished installing packages, type *q* to quit.
- 9** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.

## Sun Solaris x86 2.4

The way you install the utilities depends on whether you are running Volume Manager.

To find out, type the following at the command prompt, then press Enter:

```
ps -ef | grep vold
```

If you get a response that indicates the vold process is running, Volume Manager is running. If there is no response, Volume Manager is not running.

- 1 Be sure you read “Overview of the utilities” on page 2.** This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.**
- 3 On a Solaris 2.4 computer you must set the environment variable NONABI\_SCRIPTS=TRUE.**

You can set this variable in KSH by:

```
export NONABI_SCRIPTS=TRUE
```

or in CSH by:

```
setenv NONABI_SCRIPTS TRUE
```

- 4 If you are running Volume Manager, do the following:**
  - a Type volcheck at the command prompt, then press Enter.**
  - b Type:**

```
pkgadd -d /cdrom/cdrom0/packages/solaris2.4_x86/markvision.pkg
```

- c Go to step 6.**

- 5 If you are not running Volume Manager:**
  - a Make sure that the /cdrom directory exists. If necessary, create it using mkdir /cdrom.**
  - b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/c0t6d0s2, the command is:**

```
mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom
```

- c Type the following at the command prompt:**

```
pkgadd -d /cdrom/packages/solaris2.4_x86/markvision.pkg
```

- 6 Check the README.txt file in the CD-ROM root directory.** This README file may contain last-minute information about installing the utilities that was not available when this guide was published.

**7** Follow the prompts and answer any questions that appear on the screen.

- To accept the defaults, press Enter.
- To answer yes/no questions, type *y*, *n*, or *?*, then press Enter.

When a message appears telling you the installation was successful, type *q* to quit.

**8** To install another package, repeat the previous steps. If you've finished installing packages, type *q* to quit.

**9** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with "Setting up client computers to access the client utilities from a Network File Server" on page 33. Otherwise, go to Chapter 3 "Using the utilities" on page 37.

## Sun Solaris SPARCstation 2.3, 2.4

The way you install the utilities on Sun Solaris SPARCstations depends on whether you are running Volume Manager.

To find out, type the following at the command prompt, then press Enter:

```
ps -ef | grep vold
```

If you get a response that indicates the vold process is running, Volume Manager is running. If there is no response, Volume Manager is not running.

- 1 Be sure you read “Overview of the utilities” on page 2.** This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.**
- 3 On a Solaris 2.4 computer you must set the environment variable NONABI\_SCRIPTS=TRUE.**

You can set this variable in KSH by:

```
export NONABI_SCRIPTS=TRUE
```

or in CSH by:

```
setenv NONABI_SCRIPTS TRUE
```

- 4 If you are running Volume Manager, do the following:**
  - a Type volcheck at the command prompt, then press Enter.**
  - b Type:**

```
pkgadd -d /cdrom/cdrom0/packages/solaris2.3_sparc/markvision.pkg
```

- c Go to step 6.**

- 5 If you are not running Volume Manager:**
  - a Make sure that the /cdrom directory exists. If necessary, create it using mkdir /cdrom.**
  - b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/c0t6d0s2, the command is:**

```
mount -f hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom
```

- c Type the following at the command prompt:**

```
pkgadd -d /cdrom/packages/solaris2.3_sparc/markvision.pkg
```

- 6 Check the README.txt file in the CD-ROM root directory.** This README file may contain last-minute information about installing the utilities that was not available when this guide was published.



**7** Follow the prompts and answer any questions that appear on the screen.

- To accept the defaults, press Enter.
- To answer yes/no questions, type *y*, *n*, or *?*, then press Enter.

When a message appears telling you the installation was successful, type *q* to quit.

**8** To install another package, repeat the previous steps. If you've finished installing packages, type *q* to quit.

**9** If you installed the client utilities on an NFS file server and need to set up the client computers, continue with "Setting up client computers to access the client utilities from a Network File Server" on page 33. Otherwise, go to Chapter 3 "Using the utilities" on page 37.

## SunOS 4.1.3, 4.1.4

- 1 Be sure you read “Overview of the utilities” on page 2.** This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.**

- 3 Mount the CD-ROM.**

- a Make sure that the /cdrom directory exists. If necessary, create it using:**

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/sr0, the command is:**

```
mount -o ro -t hsfs /dev/sr0 /cdrom
```

- 4 Check the README.txt file in the CD-ROM root directory.** This README file may contain last-minute information about installing the utilities that was not available when this guide was published.

- 5 Change directory to your CD-ROM directory. If your CD-ROM directory is /cdrom, type:**

```
# cd /cdrom
```

- 6 Change directory to the SunOS packages directory by typing:**

```
# cd packages/SunOS4.1.3
```

- 7 Run the installation script “install.markvision” by typing:**

```
# ./install.markvision
```

This installs the Lexmark installation utility in /var/lexpkg directory and creates symbolic links in /usr/bin for “lexpkgadd” and “lexpkgrm” executables. For more information on Lexmark installation utilities, refer to the man pages on lexpkgadd and lexpkgrm.

The “install.markvision” script will also start the “lexpkgadd” executable. A list of available packages will be shown for selection.

*Note:*

If for some reason the installation is interrupted during or before the “lexpkgadd” program is running you can always run it from the command line. Please ensure that you are in the package directory for SunOS4.1.3, as in:

```
<cdrom-directory>/packages/SunOS4.1.3
```

and as root type:

```
# /usr/bin/lexpkgadd
```

**8 Select the package you would like to install.** You can only select one package at a time. Once the package has been installed, you will be prompted to select any other package.

**9 Follow the instructions on the screen.**

An already installed package is shown with an asterisk (\*) in the first column. A partially installed package is shown with a (!) in the first column.

NOTE: If you interrupted the installation procedure and the package was partially installed, please DO NOT re-install the package over the partial one. First, remove the partially installed package using the `lexpkgm` utility, then re-install.

**10 If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.**

# UnixWare 2.0

- 1 Be sure you read “Overview of the utilities” on page 2.** This explains the different utilities and tells you where to install them on your network.
- 2 Read “Before you continue” on page 7 and “Before you install” on page 11.**

- 3 Mount the CD-ROM.**

- a Make sure that the /cdrom directory exists. If necessary, create it using:**

```
mkdir /cdrom
```

- b Use the mount command to mount the CD-ROM. For example, if the CD-ROM path is /dev/cdrom/c0b0t2l0, the command is:**

```
mount -o ro -f cdfs /dev/cdrom/c0b0t2l0 /cdrom
```

(Please note that, in the string c0b0t2l0, the character l is a lowercase letter L.)

- 4 Check to see if you have a directory named /install by typing the following at the command prompt:**

```
ls -ld /install
```

**If the directory does not exist, create it by typing the following:**

```
mkdir /install
```

- 5 Type the following at the command prompt, then press Enter:**

```
pkgadd -d /cdrom/packages/unixware/markvision.pkg
```

- 6 Follow the prompts and answer any questions that appear on the screen.**

- To accept the defaults, press Enter.
- To answer yes/no questions, type *y*, *n*, or *?*, then press Enter.

When a message appears telling you the installation was successful, type *q* to quit.

- 7 To install another package, repeat the previous steps. If you’ve finished installing packages, type *q* to quit.**

- 8 If you installed the client utilities on an NFS file server and need to set up the client computers, continue with “Setting up client computers to access the client utilities from a Network File Server” on page 33. Otherwise, go to Chapter 3 “Using the utilities” on page 37.**

# Setting up client computers to access the client utilities from a Network File Server

You may install the MarkVision client utilities on a Network File Server, then access those utilities from a client computer.

- 1 Install the MarkVision client utilities on the Network File Server. Follow the directions for the computer and operating system you're using. For help, see "Installing the utilities" on page 13.**
- 2 On each client computer that you want to access the utilities:**
  - a Make sure you're logged onto the client with root user authority.**
  - b Change to the directory where you installed the MarkVision client (for example, `cd /opt/lexmark/` or `cd /usr/local/lexmark/`).**

**Note:** This must be the same absolute path that you used on the NFS server.

- c From this directory, run the following command:**

```
./MVclient.link
```

Ignore any warning messages that you may get.

- d Type the following at the command prompt, then press Enter:**

```
vi /usr/markvision/etc/mv_server_hostname
```

- e Add the following line:**

```
mv_server_host=hostname
```

For more detail about what this process is doing, view the README.client file (located at `/usr/markvision/docs/README.client`).

## Computers without a CD-ROM drive

There are two ways to install the utilities on a computer with a CD-ROM drive:

- using Network File System
- using FTP

Both methods require you to have at least one computer with a CD-ROM drive that uses the same operating system as the computer without the CD-ROM drive.

### Using Network File System

#### 1 On the computer *with* the CD-ROM:

- a Mount the CD-ROM.** For help, see “Installing the utilities” on page 13. Find the operating system and computer that you’re using and follow the instructions in that section for mounting the CD-ROM.
- b Using NFS, export the CD-ROM filesystem.** If you need help, refer to your operating system’s documentation.

#### 2 On the computer *without* the CD-ROM:

- a Using NFS, mount the CD-ROM on /cdrom.**
- b See “Installing the utilities” on page 13. Find the section that pertains to your computer and operating system. Follow those instructions to install the utilities. Ignore the part that tells you how to mount the CD-ROM.**

### Using ftp (all computers except SunOS 4.1.x)

If you are using SunOS 4.1.x, go to “Using ftp (SunOS 4.1.x only)” on page 35.

- 1 On the computer *with* the CD-ROM, mount the CD-ROM. For help, see “Installing the utilities” on page 13. Find the operating system and computer that you’re using and follow the instructions in that section for mounting the CD-ROM.**
- 2 On the computer *without* the CD-ROM:**
  - a Change directory to /tmp. Make sure you have 10 megabytes of disk space available.**

- b** Type the following, where `os_type` is the operating system you're using, such as `sco`.

Please note that the path for AT&T computers is `cd/cdrom/att`.

```
ftp hostname
bin
cd /cdrom/packages/os_type
get markvision.pkg
quit
```

- c** See “Installing the utilities” on page 13. Find the section that pertains to your computer and operating system. Follow those instructions to install the utilities. Ignore the part that tells you how to mount the CD-ROM.

When you normally type this filename:

```
/cdrom/packages/os_type/markvision.pkg
```

Replace it with:

```
/tmp/markvision.pkg
```

## Using ftp (SunOS 4.1.x only)

- 1** On the computer *with* the CD-ROM, mount the CD-ROM. For help, see “Installing the utilities” on page 13. Find the operating system and computer that you're using and follow the instructions in that section for mounting the CD-ROM.
- 2** On the computer *without* the CD-ROM:
  - a** Change directory to `/tmp`. Make sure you have 20 megabytes of disk space available.
  - b** Make a directory called `markvision` by typing:

```
mkdir markvision
```

- c** Type:

```
ftp hostname
bin
cd /cdrom/packages/sunos4.1.3
get markvision.pkg.tar
quit
```

- d** Extract the contents of the tar file by typing:

```
tar -xvf markvision.pkg.tar
```

- e** Go to “SunOS 4.1.3, 4.1.4” on page 30. Follow the instructions to install the utilities. Ignore the part that tells you how to mount the CD-ROM.





# Chapter 3 Using the utilities

Follow these steps to set up your computer for MarkVision and to gain a basic understanding of MarkVision function.

Before you begin this section, check the README files that were installed with your utilities. These files, located in `/usr/markvision/docs`, may contain information that was not available when this guide was published. There are several files: one for the client utilities, one for the server utilities, one for job statistics, and so forth.

## Step 1: Start the utility

---

You can use the MarkVision Utilities for UNIX Networks on a graphical interface, a character interface, or directly from the command line.

### From a graphical user interface

If your computer has graphics capabilities, you can use the utilities on a graphical user interface such as OSF/Motif. To use the utilities on a graphical interface, you must set the display variable equal to your computer hostname.

#### 1 Set the display variable:

- **Korn and Bourne shell users type the following:**

```
DISPLAY=hostname:0.0
export DISPLAY
```

- **C shell users type the following:**

```
setenv DISPLAY hostname:0.0
```

#### 2 Type `markvision` on the command line, then press Enter.

## From a character interface

You can also use the utilities on a character-based screen. Make sure the display and terminal variables are set correctly for use with a character interface.

### 1 Set the display variable:

- **Korn and Borne shell users type the following:**

```
unset DISPLAY
```

- **C shell users type the following:**

```
unsetenv DISPLAY
```

### 2 Set the terminal variable:

- **Korn and Borne shell users type the following:**

```
TERM=terminal
```

```
export TERM
```

- **C shell users type the following:**

```
setenv TERM terminal
```

**Where terminal is the terminal type, such as vt100, xterm, or ansi.**

### 3 Type `markvision` on the command line, then press Enter.

## From the command line

You may also use the utilities directly from the command line. Simply type the utility name and any options, then press Enter. See Table 2, “MarkVision client utilities,” on page 5 for a list of the utilities. For additional information, refer to the man pages.

## Step 2: Add printers

---

When you first start MarkVision, it appears as an empty screen. You must add the printers that you want MarkVision to monitor to the window . When you add the printers, you create a status list.

- 1 From the menu bar at the top of the screen, select *Edit*.**
- 2 Select *Add Printer*.**
- 3 Enter the printer's hostname or IP address. If your printer is attached to the second port of a MarkNet XLe, then the hostname or address must be followed by : 2 for example:**

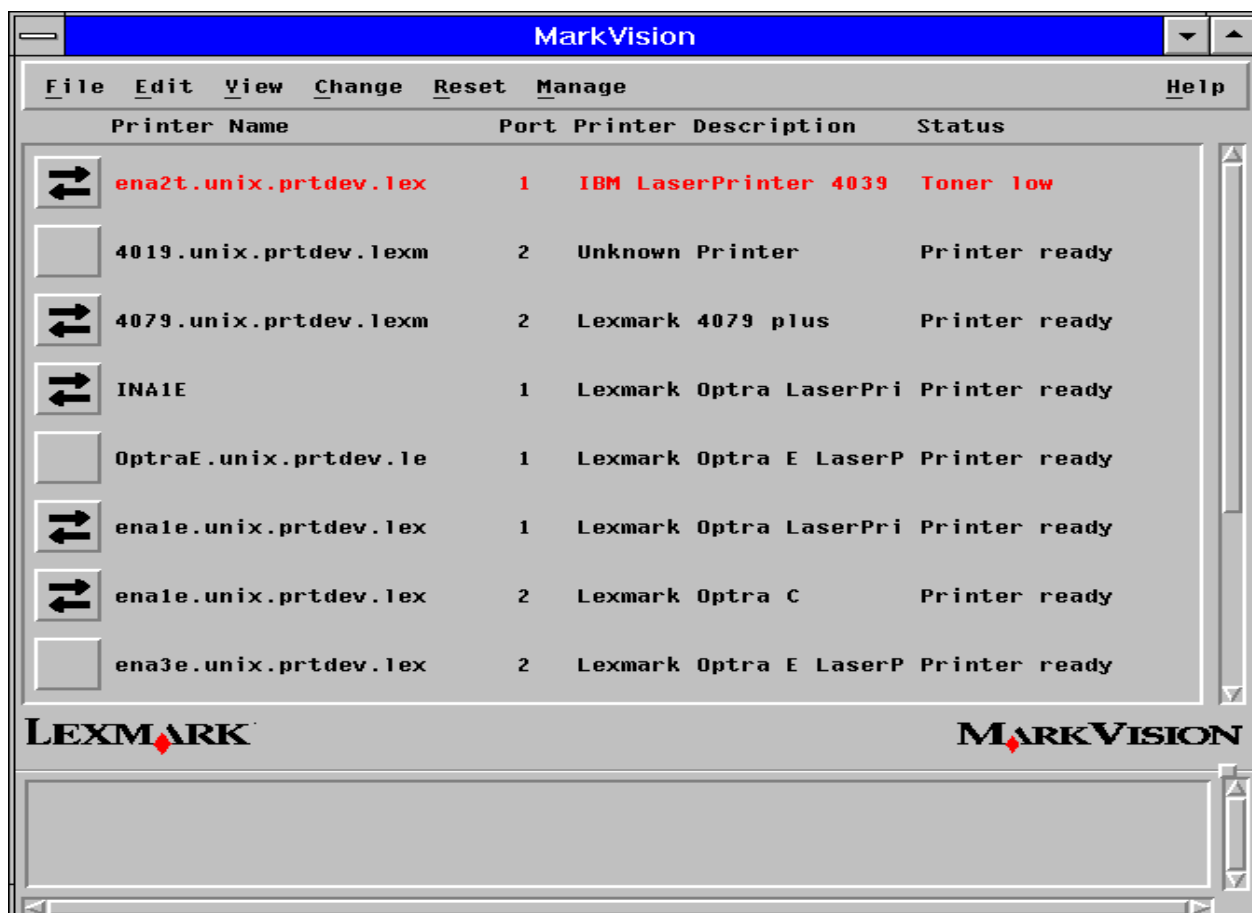
`157.184.217.121:2` or `printer_hostname:2`

- 4 Enter the adapter's SNMP community name if it is different than the default name "public".**
- 5 Press *OK*.**

The printer is added to the status list.

When you finish adding printers, the screen looks similar to this:

Step 2: Add printers



## Step 3: Monitor printers

---

From MarkVision you can see the printer's status and you can use the printer operator panel without ever having to walk to the printer.

### Selecting printers to be monitored

When MarkVision client first starts, it displays in the status list of all printers you have added to the MarkVision server, using the *Add Printers* option. You can select which printers you want to monitor.

- 1** From the menu bar, select *View*.
- 2** Select *Printers*.
- 3** From the list of printers displayed, highlight the printers you wish to monitor.

*Note:* To highlight more than one printer, press Ctrl and the left mouse button for each printer.

- 4** Press *OK*.

## Using the operator panel

MarkVision's remote operator panel feature allows you to view and change printer settings from your screen.

This feature is available *only* on network-attached printers that support the Network Printing Alliance (NPA) Protocol, such as the IBM LaserPrinter 4039 plus and the Lexmark Optra printer family.

If the printer you're using supports NPA, make sure it is also enabled for NPA. You can check this on the printer operator panel or by printing a setup page.

An icon next to each printer name on the MarkVision screen indicates whether you can use the remote operator panel for that printer.



indicates a non-NPA printer that does not use Simple Network Management Protocol (SNMP). You cannot access the remote operator panel for this printer.

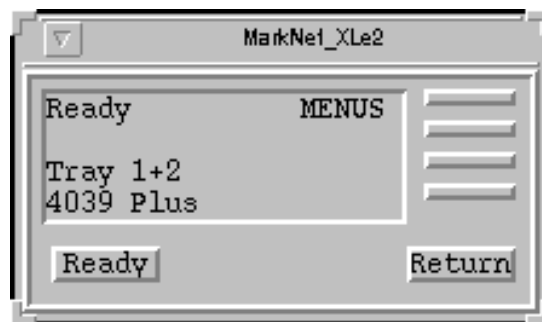


indicates a non-NPA printer that uses Simple Network Management Protocol (SNMP). You can view the remote operator panel for this printer, but you cannot change any settings.



indicates an NPA printer. You can view and change settings from the remote operator panel.

Click on the icon to open the remote operator panel. If you're using a graphical interface, you'll see a display similar to the one below.



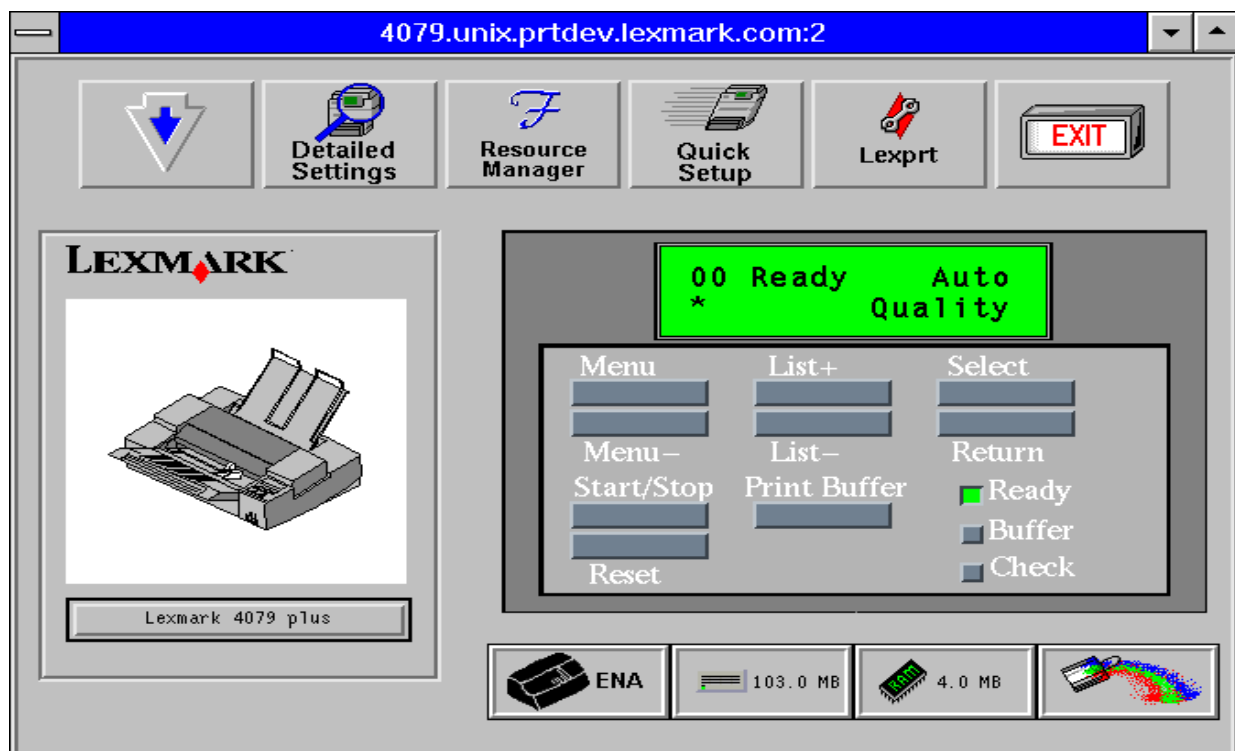
Any changes you make on this operator panel are reflected on the printer's physical operator panel.

## Seeing a picture of the printer

In addition to viewing the remote operator panel for a printer, you can also use MarkVision to see a picture of the printer that shows the current status. For example, if the printer cover is open, MarkVision shows a picture of the printer with its cover open. As soon as you close the cover on the printer, the picture changes to reflect your action.

To view a picture of the printer, double-click on the printer name on the MarkVision main menu, or choose *Printer Graphic* from the View menu and select the desired printer from the list.

The screen will look similar to this:



Many printer management functions may be accessed directly from the printer graphical view:

- ***Lock op-panel/Unlock op-panel*** -- Lock/unlock the printer's operator panel.
- ***Reset Printer*** -- Reset the printer. For printers attached via external network adapters this resets only the printer.
- ***Reset Adapter*** -- Reset the network adapter. For external adapters this resets only the adapter.
- ***Detail Settings*** -- Access detailed information about the printer and the adapter. Can be used to change settings on the network adapter.
- ***Resource Manager*** -- Manage fonts and forms stored on flash or disk option.
- ***Quick Setup*** -- Allows printer settings to be copied from one printer to another.
- ***Lxprt*** -- Create and manage virtual devices and print queues.

This feature is available only on a graphical interface such as OSF/Motif.

## Step 4: Manage printers

---

In addition to monitoring printers, you can manage printers from MarkVision. You can:

- create virtual devices
- create print queues, including setting up MarkVision to notify people when print jobs are finished
- manage printer resources such as disk and flash options
- set up printers
- configure MarkVision to collect print job statistics
- view or change adapter settings (if the printer is connected to a MarkNet adapter)



## Creating a virtual device

To attach a printer to your UNIX workstation, MarkVision uses the concept of virtual device. A virtual device is a set of characteristics that you define to imitate a real device, such as a printer. After you've created a virtual device, you can create print queues and assign them to the device.

The following information tells you how to create a virtual device for all systems except AIX. If you are using AIX, see "Configuring Queues and Devices: AIX only" on page 49.

You can create a virtual device from either:

- the MarkVision or `lexprt` graphical menu
- the command line

You must create a virtual device before you can create a print queue.

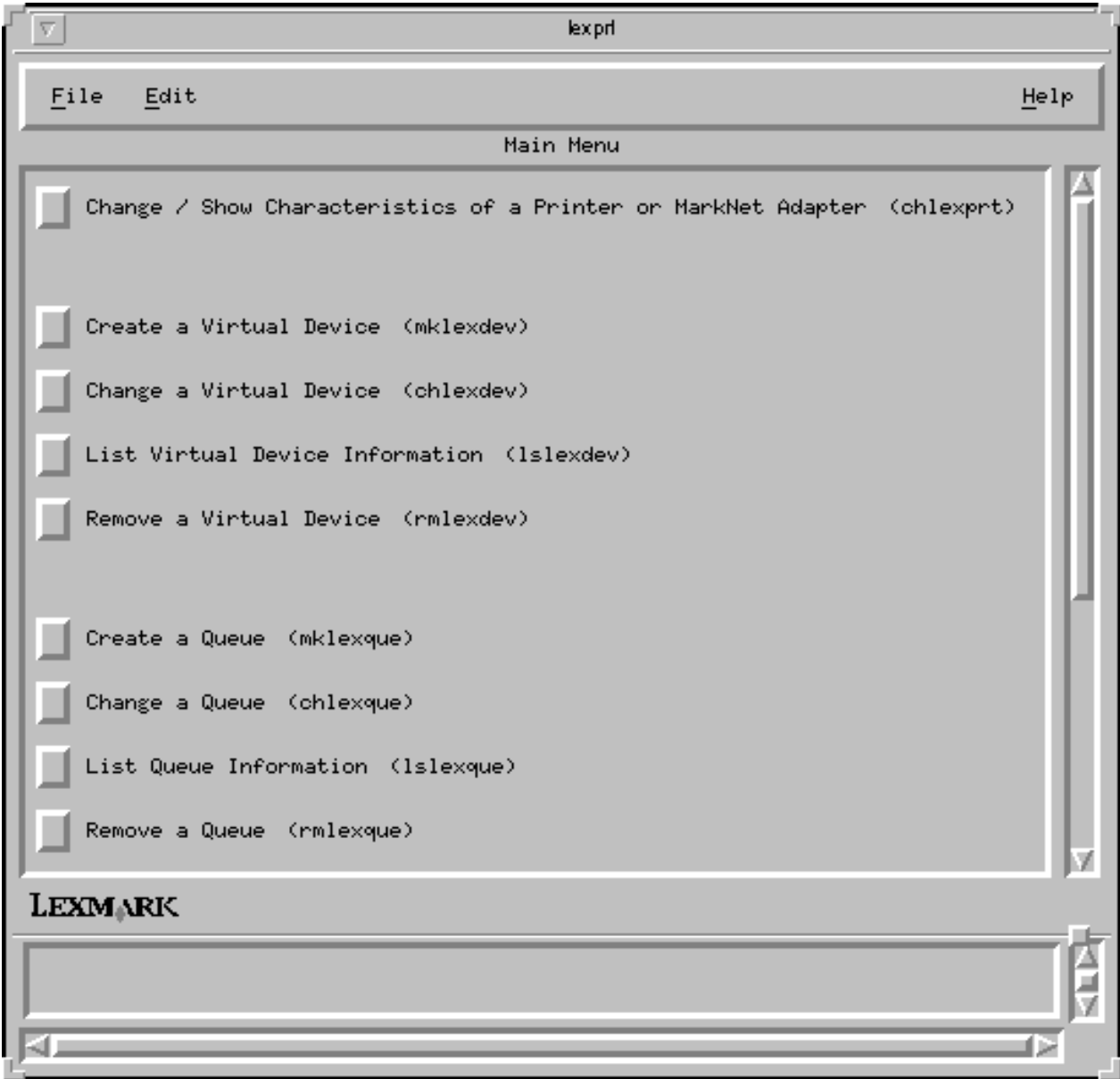
### From the MarkVision or `lexprt` menu: all systems except AIX

#### 1 Do one of the following:

- **From a graphical interface, click on *Manage*, then select *Queues/Devices* on the MarkVision main menu.**
- **From a character-based interface, type `lexprt` on the command line, then press Enter.**

The lexprt menu looks similar to this:

Step 4: Manage printers



- 2 Choose *Create a Virtual Device*.
- 3 Enter a device name.
- 4 Choose a transport option from the following list:
  - *Serial*
  - *Parallel*
  - *Network*
  - *Network connection with end-of-job notification*

*Note:* To have users notified when print jobs are complete, select *Network connection with End-of-Job Notification*.

- 5 Answer the questions on the remaining screens.

## From the command line: all systems except AIX

You can also create a virtual device from the command line.

To do this, type the following on the command line, then press Enter:

```
mklexdev [options]
```

For information about options, type `man mklexdev` to view the man page for this command.

## Creating a print queue

You must create a print queue using the MarkVision utilities. Print queues allow you to send jobs with different settings to the same printer without changing the settings on the printer.

The MarkVision utilities provide an easy menu-oriented way to create print queues on your UNIX system. Additionally, the utilities provide access to many of the features and functions of the printer that are not available on the standard UNIX print spool. For example, features such as printer resolution and duplex may be controlled at the print queue.

The following sections explain how to create a print queue from either:

- The MarkVision or lexprt menu
- The command line

### **IMPORTANT:**

Before you create a print queue, you must create a virtual device to which you can assign the queue. See “Creating a virtual device” on page 45 for more information.

## From the MarkVision or lexprt menu: all systems except AIX

- 1 Do one of the following:
  - From a graphical interface, click on *Manage*. Then select *Queues/Devices* on the MarkVision main menu.
  - From a character-based interface, type `lexprt` on the command line, then press Enter.
- 2 Choose *Create a Queue*.
- 3 Enter a queue name.
- 4 Choose a virtual device for the print queue. You must create a virtual device before you can create a print queue. See “Creating a virtual device” on page 45 for more information.
- 5 Choose a printer type from the list of printers provided. Make sure you choose the printer type that matches the physical printer that is attached to the virtual device.
- 6 Answer the questions on the remaining screens to choose print queue characteristics such as datastream and paper size.

## From the command line

You can also create a print queue from the command line.

To do this, type the following on the command line, then press Enter:

```
mklexque [options]
```

For information about options, type `man mklexque` to view the man page for this command.

# Configuring Queues and Devices: AIX only

This section tells you how to configure queues and devices for AIX from MarkVision's graphical interface or from a character-based interface.

## For AIX 3.2.5

- 1** From the MarkVision main status screen, click on *Manage*.
- 2** Click on *Queues/Devices*. The AIX administrative utility SMIT is started.
- 3** Click on *Manage TCP/IP Network Attached Printers*.
- 4** Click on *Add a TCP/IP Attached Virtual Printer*.
- 5** Follow the instructions on the screen. Both the print queue and virtual printer will be created.

### *Note:*

End-of-job notification may be selected on the print queue configuration screen and MarkVision will mail a notice to each user upon completion of the print job.

## From a character-based interface

From the command line enter `smit` and select *Spooler (Print Jobs)* and follow steps 3 through 5 above.

## For AIX 4.1

- 1 From the MarkVision main status screen, click on *Manage*.
- 2 Click on *Queues/Devices*. The AIX administrative utility SMIT is started.
- 3 Click on *Add a Print Queue*.
- 4 Select *MarkNetXL* or *MarkNetXLe* depending on your network adapter type.
- 5 Follow the instructions on the screen. Both the print queue and virtual printer will be created.

*Note:*

End-of-job notification may be selected on the print queue configuration screen and MarkVision will mail notice to each user upon completion of their print job.

## From a character-based interface

From the command line enter `smi t` and select *print spooling*, then follow steps 3 through 5 above.

## Setting up printers quickly

MarkVision allows you to copy a printer's setup. This is useful if you have several identical printers on a network and want to set them up with the same settings.

## Uploading the setup from the printer

- 1 Use the remote operator panel to set up the first printer.
- 2 From the MarkVision main status screen, click on *Manage*, then click on *Printer Setup*.
- 3 Select *Upload setup file from printer*.
- 4 Highlight the printer to upload the setup from.
- 5 Select the filename to store the setup file on your system. If the file is new, enter the filename in the selection box.
- 6 Click on *Upload*.

The setup from the selected printer is uploaded to your system.

## Downloading the setup to other printers

- 1 From the MarkVision main status screen, click on *Manage*, then click on *Printer Setup*.
- 2 Select *Download setup file to printer*.
- 3 Highlight the printer(s) to download the setup to. If you are sending a file to more than one printer, all printers you select must be the same type (for example, Optra N printers).
- 4 Select the filename on your system containing the setup you've previously uploaded. Click on the filename to highlight it.
- 5 Click on *Download*.

The setup is downloaded to the selected printer. Repeat these steps for each type of printer you wish to set up.

## From the character mode interface

- 1 Type *mv\_qs* on the command line and press Enter.
- 2 Type the item number of the printer you want to work with, then press Enter.
- 3 Type *1* to download the setup file to the printer or *2* to upload the setup file from the printer and press Enter.
- 4 Type the full directory path and filename of the setup file, then press Enter.

Repeat these steps for each printer you wish to set up.

## Managing fonts and forms stored in the printer

You can manage fonts and forms (macros) stored in the printer. For example, if your printer has a disk or flash option you can download fonts and macros from MarkVision to be stored in non-volatile disk or flash memory as well as the printer's RAM memory.

### From the graphical interface

- 1** From the MarkVision main status screen, click on *Manage*, then click on *Resources*.
- 2** Select the printer, or type the hostname of the printer, that you want to work with. Then press Enter.
- 3** Select whether the device to be managed is *flash* or *disk*.
- 4** Highlight the desired file on the device.
- 5** Select the action you want to perform by clicking on the appropriate action button.

*Note:* Depending on the printer and features installed, some actions may not be available. For example, the copy function is not available unless the printer has both a flash and disk option installed.

### ***Example: downloading fonts and macros to the printer***

#### From the Resource Manager screen

- 1** Click on *Download*.
- 2** Select the file to be downloaded.
- 3** Select the type of file you are downloading.

*Note:* If you are downloading a font or PCL macro, you must enter an ID.

- 4** Select the download destination: *RAM*, *Disk*, or *Flash*.

*Note:* Both fonts and macros may be downloaded to the printer's RAM memory as well as to disk or flash memory.

- 5** Select **Add** to add the file to the list of Selected Files.
- 6** Repeat steps 2 through 5 above for each file you want to download.
- 7** Select the printer(s) that you want to receive the files.



- 8 Click on *Download*.
- 9 When prompted, enter a name for the log file and click *OK* to start the download process. The files are downloaded to the printer.

## From the character mode interface

- 1 Type `mv_res` on the command line and press Enter.
- 2 Type the number of the printer you want to work with, then press Enter.
- 3 Type the item number for the file or select *i* to select the device or *d* to download a file, then press Enter.

### *Example: downloading a font to the printer*

- 1 Type `d` at the `mv_res` command prompt, then press Enter.
- 2 Type `1` to download a font, then press Enter.
- 3 Type the full directory path and file name for the font, then press Enter.
- 4 Type the item number for the destination (RAM, Disk, Flash), then press Enter.

Repeat these steps for each font you want to download.

## Configuring MarkVision to collect print job statistics

MarkVision can be configured to collect print job statistics for each printer. This function is supported for the Optra, Optra+, Optra C, and Optra N printers. The collection of print job statistics is performed by the MarkVision server for all printers defined to the server that support the function.

The MarkVision server collects print job statistics by default. To disable this function, and to learn more about the server's print job statistics function, see `README.job_stats` and `README.markvision.cf` in `/usr/markvision/docs`.

## Viewing or changing adapter settings

To view or change the settings on the MarkNet network adapter, from the MarkVision main status screen:

- 1 Click on *Change*.
- 2 Click on *Adapter settings*.
- 3 Click on the button beside the adapter you want to select.
- 4 Once you've completed all changes to the adapter's configuration, click on *Set entries* to have the changes take effect.

*Note:* Some changes will require the adapter to be reset to take effect. MarkVision will prompt you before proceeding with the reset.

## Viewing or resetting the printer's page counter

To view the printer's page counters or reset the user page counter, from the MarkVision main status screen:

- 1 Click on *Change*.
- 2 Click on *Printer settings*.
- 3 Click on the button beside the printer you want to select.
- 4 Click on *Page counters*.

The page counters for the printer are displayed. You can display page counts in three ways: the number of pages over the life of the printer; the number of pages since power on; and a user-resettable counter.

### To reset the user page counter

- 1 Click on page counter button and select *reset counter*.
- 2 Click on *Set entries*.

The user page counter will be reset.

# Chapter 4 Troubleshooting

## Introduction

---

Read this section for help diagnosing network printing problems. Use the following list as a reference for troubleshooting information.

- If you receive an error message on your screen while printing, see “Error messages” on page 59.
- If you receive an error message on the printer operator panel, see “Operator panel messages” on page 76 for a list and explanations of messages.
- If you receive a network-related message or you think your adapter is not working properly, see Appendix A if you are using an internal adapter, or Appendix B if you’re using an external adapter.

If you encounter a problem that requires service, you should determine the adapter firmware level and the version of the utilities *before* you call for service.

To determine the version of the utilities, type the following lines. Press Enter after each line.

```
cd /usr/markvision/bin
what -s markvision
```

To determine the adapter firmware level, you can use either of the following commands:

- `lslexprt -v -h host:port`
- `finger info@hostname`

# Diagnosing problems

The following table lists common network printing problems and solutions.

**Table 3: Common UNIX network printing problems**

Symptom	Solution
MarkVision seems unable to find the network printer.	<ol style="list-style-type: none"><li>1 Make sure the printer is turned On (I) and is ready.</li><li>2 Make sure the LAN cable is plugged into both the adapter and into the LAN and is working properly.</li><li>3 If you are using a MarkNet or MarkNet XL adapter:<ul style="list-style-type: none"><li>• Make sure the adapter is properly installed and enabled. To check, print a setup page for the printer. See “Getting adapter information” on page 74 for instructions. The adapter should appear in the list of attachments on the setup page.</li><li>• If a network-related message appears on the operator panel, go to “Operator panel messages” on page 76.</li><li>• Make sure the Internet Protocol (IP) on the adapter is activated. The protocol must be active for the adapter and the utility to work. You can do this from the printer operator panel. See “Operator panel messages” on page 76 for instructions.</li></ul></li><li>4 If you’re using a MarkNet XLe adapter:<ul style="list-style-type: none"><li>• Check the adapter lights. See “Using status lights” on page 83 for details.</li><li>• Print a setup page from the adapter. See “Getting adapter information” on page 80.</li></ul></li><li>5 Make sure the SNMP community name you supplied to MarkVision is the same as the one set in the adapter.</li><li>6 PING the adapter.<ul style="list-style-type: none"><li>• If PING works, send the finger command. Finger should return the correct information. If it does not, check the IP address, netmask, and gateway to be sure they are correct.</li><li>• If PING does not work, check the setup page you printed to be sure IP is enabled.</li><li>• If IP is enabled, check the IP address, netmask, and gateway to be sure they are correct.</li><li>• Make sure that bridges and routers are functioning correctly.</li><li>• Verify all the physical connections among the adapter, the printer, and the network.</li></ul></li><li>7 Turn the printer and adapter off and back on. You should turn the printer back on first so that when you turn on the adapter, it can determine whether the printer is enabled for NPA.</li></ol>

**Table 3: Common UNIX network printing problems** (*cont.'d*)

Symptom	Solution
The server does not appear to be sending jobs to the network printer you specified. Jobs are in the queue and appear to be waiting for a long time.	<p>The printer is probably busy receiving jobs from other servers or from other links. If you are using a MarkNet XL or MarkNet XLe adapter, you will probably receive a <b>Check the Printer</b> message when this situation occurs.</p> <ol style="list-style-type: none"> <li>1 Use MarkVision to check printer status.</li> <li>2 Use <code>lexprt</code> to check the print queue status. If you are using AIX, you will need to type <code>'enq -A'</code>.</li> <li>3 Check the printer to make sure it is working properly.</li> </ol>
The hostname does not resolve	Update the name server or the <code>/etc/hosts</code> file to make sure it contains the TCP/IP hostname for the printer.
Print jobs disappear from the print queue but have not printed	<p>The print job is probably in the buffer in the adapter or in the printer. The job will be printed as soon as the printer is available.</p> <ol style="list-style-type: none"> <li>1 Make sure you are sending print jobs to the correct printer address.</li> <li>2 Use MarkVision or <code>lslexprt</code> to check printer status.</li> <li>3 Check the printer to make sure it is working properly.</li> </ol>
Status messages appear to be lost or delayed	<p>The print job has been sent from the print queue to the printer. While printing the job, the printer has run out of paper or has a similar error. Someone else might have received the error message. Error messages are sent to the user whose job is being transferred to the printer. This user might not be the same person who submitted the job that caused the error.</p> <p>Use MarkVision or <code>lslexprt</code> to check printer status.</p>
The remote operator panel does not work	<ol style="list-style-type: none"> <li>1 Verify that the printer you are using supports NPA Protocol.</li> <li>2 Verify that the printer is enabled for NPA. <ul style="list-style-type: none"> <li>• If you're using a MarkNet or MarkNet XL, see "Enabling NPA Protocol" on page 73 for instructions.</li> <li>• If you're using a MarkNet XLe, see "Enabling NPA Protocol" on page 73.</li> </ul> </li> <li>3 Check the adapter firmware level. Some early levels do not support the remote operator panel feature. To do this, type the following at the command prompt: <pre>lslexprt -v -h host:port</pre> </li> </ol>

**Table 3: Common UNIX network printing problems** (*cont.'d*)

Symptom	Solution
<p>The printer is not receiving print jobs</p> <p>The print queue is down</p> <p>The following message appears on your screen: <b>Connection to printer was lost</b></p>	<ol style="list-style-type: none"> <li><b>1</b> Make sure the printer is turned On (I) and is ready.</li> <li><b>2</b> Make sure the LAN cable is plugged into both the adapter and into the LAN and is working properly</li> <li><b>3</b> If you are using a MarkNet or MarkNet XL adapter: <ul style="list-style-type: none"> <li>• Make sure the adapter is properly installed and enabled. To check, print a setup page for the printer. See “Getting adapter information” on page 74 for instructions). The adapter should appear in the list of attachments on the setup page.</li> <li>• If a network-related message appears on the operator panel, go to “Operator panel messages” on page 76.</li> <li>• Make sure the Internet Protocol (IP) on the adapter is activated. The protocol must be active for the adapter and the utility to work. You can do this from the printer operator panel. See “Choosing a protocol” on page 68 for instructions.</li> </ul> </li> <li><b>4</b> If you’re using a MarkNet XLe adapter: <ul style="list-style-type: none"> <li>• Check the adapter lights. See “Using status lights” on page 83 for details.</li> <li>• Print a setup page from the adapter. See “Getting adapter information” on page 80.</li> </ul> </li> <li><b>5</b> PING the adapter. <ul style="list-style-type: none"> <li>• If PING works, send the finger command. Finger should return the correct information. If it does not, check the IP address, netmask, and gateway to be sure they are correct.</li> <li>• If PING does not work, check the setup page you printed to be sure IP is enabled.</li> <li>• If IP is enabled, check the IP address, netmask, and gateway to be sure they are correct.</li> <li>• Check to be sure that bridges and routers are functioning correctly.</li> <li>• Make sure that all the physical connections among the adapter, the printer, and the network are working.</li> </ul> </li> <li><b>6</b> Use MarkVision or lslexprt to see if the server can contact the printer.</li> <li><b>7</b> Compare the IP address of the adapter to the address stored for the network printer in the name server or /etc/hosts file. If the addresses do not match, then edit the /etc/hosts file or update the name server to correct the address.</li> <li><b>8</b> Print a setup page from the adapter. For instructions on printing a setup page: <ul style="list-style-type: none"> <li>• For a MarkNet or MarkNet XL internal adapter, see “Printing a setup page” on page 74.</li> <li>• For a MarkNet XLe external adapter, see “Printing a setup page” on page 81.</li> </ul> <p>If the page prints, then the connection between the adapter and the printer is working correctly. If the page does not print, check all the physical connections.</p> </li> <li><b>9</b> Make sure you bring the print queue back up after you correct the problem.</li> </ol>

# Error messages

If an error occurs while you are printing, a message similar to the one shown below may appear on your screen.

```
Message from queue name: date
Printer Intervention Required: hostname or IP address
Printer Condition: IR condition message from printer
```

Table 4 lists error messages you might encounter.

In most cases, the print job is still in the queue. After you have corrected the error, bring the print queue up. If necessary, resubmit the print job.

**Table 4: Error messages**

Message	Cause	Action
<b>Connection to printer was lost</b>	The printer connection timed out due to a delay while sending data.	See “The printer is not receiving print jobs” on page 58 for solutions to this problem.
<b>Could not init server</b>	The server is already running.	The server is already running.
<b>Could not resolve hostname</b>	An unknown printer or host name was specified. Print data will be flushed.	<ol style="list-style-type: none"> <li><b>1</b> If you are using AIX, edit the stanza in /etc/qconfig to add the hostname.</li> <li><b>2</b> Add the hostname to either NIS, DNS, or the /etc/hosts file.</li> <li><b>3</b> Resubmit the print job.</li> </ol>
<b>Hostname is unreachable</b>	An incorrect or faulty network connection exists.	<ol style="list-style-type: none"> <li><b>1</b> If you are using AIX, edit the stanza in /etc/qconfig to add the hostname.</li> <li><b>2</b> Notify the network administrator of the problem.</li> <li><b>3</b> When the problem is resolved, resubmit the print job.</li> </ol>
<b>Lost connection to MarkVision server on host hostname</b>	Your computer has lost network connection with the server.	Make sure the MarkVision server is running on the IP address or hostname specified on the client. See “Step 4: Verify the server’s IP address or hostname” on page 8 if you need help.

**Table 4: Error messages** (cont.'d)

Message	Cause	Action
<b>Printer Intervention Required!</b> <b>Busy</b> <b>Change Paper</b> <b>Clear</b> <b>Cover Open</b> <b>Disk Failure</b> <b>Job Error</b> <b>Load Paper</b> <b>Offline</b> <b>Output Full</b> <b>Paper Jam</b> <b>Port Timeout</b> <b>Printer Error</b> <b>Service Printer</b> <b>Toner Low</b>	While printing a job, a number of things can happen at the printer. If something happens, MarkVision sends a message to let you know what happened so that you can correct the situation and continue printing. Most of the messages are self-explanatory.	Check the printer operator panel for additional information about the error.  In most cases, the print job resumes automatically when you fix the situation at the printer.
<b>The MarkVision Daemon must be executed with root permissions</b>	The server must be run as root.	Log on as a root user.
<b>Unable to connect to MarkVision server on host hostname</b>	Your computer cannot connect to the specified hostname.	Make sure the MarkVision server is running on the IP address or hostname specified on the client. See “Step 4: Verify the server’s IP address or hostname” on page 8 if you need help.



# Additional information

---

Each utility described in this book is also explained in a man page. To view a man page, type `man utility name` at the command prompt, then press Enter.

You can also click on the **Help** button or press F1 if you need help using the utilities.

Refer to the README files located in `/usr/markvision/docs` for updated information. There are several readme files: one for the client utilities, one for the server utilities, one for job statistics, and so forth.

If you need more information about adapters, refer to the *Network Printer Utility Guide* that you received with your adapter.

For additional help with setup or operation of the utilities or the printer, contact technical support or your point of purchase.



# Appendix **A**

# Using the MarkNet or MarkNet XL internal adapter

## Introduction

---

If you're using a MarkNet or MarkNet XL internal network adapter, use this appendix if you need help configuring your adapter or troubleshooting adapter problems.

Use the table below to find more information.

<b>For information about...</b>	<b>See page...</b>
Choosing the type of connection (Ethernet or Token-Ring)	64
Choosing a network protocol	68
Setting the IP address	70
Setting the IP netmask	71
Setting the IP gateway	72
Enabling Network Protocol Alliance (NPA) Protocol	73
Printing a setup page	74
Operator panel messages	76
Adapter service	78

# Choosing the network type

---

Use the instructions below to choose a network type (Token-Ring or Ethernet).

- 1 Turn the printer power On (I).**
- 2 Use the printer operator panel to select *Network Card*.**

**Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.** The printer displays a set of items for either Token-Ring or Ethernet, depending on which type of card is installed.

- 3 Set the appropriate items. For a list of items, see:**
  - “Token-Ring network menu items” on page 65.
  - “Ethernet network menu items” on page 67.
- 4 Press Ready to return to the Ready status message, or Return to go back to the previous menu.**

## Token-Ring network menu items

Menu Item	Values	Description
<b>Token-Ring Speed</b>	16 Mbps 4 Mbps	This menu item allows you to set the speed of the Token-Ring adapter. Choose either <b>4 Mbps</b> or <b>16 Mbps</b> to match your network's speed.
<b>View Card Status</b>	Disabled Enabled	<p>This menu item allows you to see at a glance whether the adapter is enabled or disabled.</p> <p>There are two reasons why the adapter may be disabled:</p> <ul style="list-style-type: none"> <li>• If you disabled the adapter when the <b>No Network Connection</b> message appeared.</li> <li>• If you disabled the adapter when the <b>Incorrect Token-Ring Speed</b> message appeared.</li> </ul> <p>Make sure the adapter cable is attached to the LAN, and the correct Token-Ring speed is set. If you need help, see your printer documentation.</p> <p>If you want to enable the adapter, turn the printer power Off (O) and then On (I) again. The adapter will be reset as enabled.</p>
<b>End-of-Job Time-out</b>	1 to 255 (to disable, set to 0)	<p>This menu item allows you to set the value for the end-of-job time-out. This value is the amount of time (in seconds) that the adapter waits for data from the file or print server before it considers the job complete. The default value is 90 seconds.</p> <p>When the end-of-job time-out has elapsed, the adapter releases the printer so other print jobs can be started. These other print jobs can be from another protocol, interface, or server (for example, the LexLink protocol, the parallel interface, or another print server).</p> <p>Therefore, this function provides a safety net. If a server fails to send a complete print job, the adapter waits the specified time and then moves on to the next job.</p>
<b>View Network Address</b>	12-digit hexadecimal address	This menu item displays the UAA and the LAA on separate lines on the operator panel. You cannot change the addresses from here.

Menu Item	Values	Description
<b>Connection Message</b>	On Off	This menu item allows you to prevent the <b>No Network Connection</b> message from being displayed.  You may want to set the message to <i>Off</i> if you remove the printer from a LAN. If the <b>No Network Connection</b> message is <i>On</i> and the printer is not connected to a LAN, the message appears every time you turn on the printer.
<b>Broadcast Type</b>	All Route Broadcast Single Route Broadcast	This menu item affects broadcasts across bridges. If you select <b>All Route Broadcast</b> , broadcasts cross all bridges, every time they are sent. If you select <b>Single Route Broadcast</b> , bridges are crossed only once (on the local network). Single Route Broadcast limits traffic on your network.
<b>Return Type</b>	All Route Return Single Route Return	Single Route Return, the default, means that packets return through the network the same way they were sent. We recommend that you accept this default because there is almost no reason to change it. If you need help with this option, please contact our help desk.
<b>Separator Page (MarkNet XL only)</b>	Tray 1 Tray 2 Tray 3 None	If you want separator (banner) pages to print, choose the tray from which you want the paper to be selected.

## Ethernet network menu items

Menu Item	Values	Description
<b>View Card Status</b>	Disabled Enabled	<p>This menu item allows you to see at a glance whether the adapter is enabled or disabled.</p> <p>The adapter may be disabled because you disabled it when the <b>No Network Connection</b> message appeared.</p> <p>Make sure the adapter's cable is attached to the LAN. Make sure that the correct Token-Ring speed is set. If you need help, see your printer documentation if you're using an internal adapter.</p> <p>If you want to enable the adapter, turn the printer power Off (O) and then On (I) again. The adapter is reset as enabled.</p>
<b>End-of-Job Time-out</b>	1 to 255 (to disable, set to 0)	<p>This menu item allows you to set the value for the end-of-job time-out. This value is the amount of time (in seconds) that the adapter waits for data from the file or print server before it considers the job complete. The default value is 90 seconds.</p> <p>When the end-of-job time-out has elapsed, the adapter releases the printer so other print jobs can be started. These other print jobs can be from another protocol, interface, or server (for example, the NetWare protocol, the parallel interface, or another print server).</p> <p>Therefore, this function provides a safety net. If a server fails to send a complete print job, the adapter waits for the specified time and then moves on to the next job.</p>
<b>View Network Address</b>	12-digit hexadecimal address	This menu item displays the UAA and the LAA on separate lines on the operator panel. You cannot change the addresses from here.
<b>Connection Message</b>	On Off	<p>This menu item allows you to prevent the <b>No Network Connection</b> message from being displayed.</p> <p>You may want to set the message to Off if you remove the printer from a LAN. If the <b>No Network Connection</b> message is On and the printer is not connected to a LAN, the message appears every time you turn on the printer.</p>
<b>Separator Page (MarkNet XL only)</b>	Tray 1 Tray 2 Tray 3 None	If you want separator (banner) pages to print, choose the tray from which you want the paper to be selected.

# Choosing a protocol

---

Follow the steps below to choose a network protocol.

- 1 Turn the printer power On (I).**
- 2 Use the printer operator panel to select one of the protocols listed below, depending on the type of network and system you're using.**

Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.

Protocol	Network/system	For more information..
IP	TCP/IP	See "Internet Protocol menu items" on page 69.
LexLink	AIX, OS/2, Windows NT	Refer to the <i>Network Printer Utility Guide</i> that came with your adapter.
NetWare	Novell NetWare networks	Refer to the <i>Network Printer Utility Guide</i> that came with your adapter.
AppleTalk	AppleTalk	Refer to the <i>Network Printer Utility Guide</i> that came with your adapter.

- 3 Press Ready to return to the Ready status message, or Return to go back to the previous menu.**

***IMPORTANT:***

If you are not using a particular protocol, you can turn off that protocol to conserve resources. This may also increase throughput on the adapter.



## Internet Protocol menu items

Menu Item	Values	Description
<b>Activate Protocol</b>	Yes No	<p>The adapter is shipped with all protocols active. The MarkVision Utilities use the IP protocol. OS/2, AIX, and Windows NT utilities use the LexLink protocol. The Novell NetWare utility uses the NetWare protocol.</p> <p>Choose <b>Yes</b> to activate the IP protocol. The IP protocol must be active so the adapter will receive data and send it to the printer's buffer. If the IP protocol is not active, the adapter will not receive data from the network, and the printer will not appear on the MarkVision screen.</p> <p>If you are operating a multi-protocol LAN, leave all protocols active.</p> <p>Each protocol consumes adapter resources. If you choose <b>No</b> to turn a protocol off, that resource is released until you activate the protocol again. Therefore, to increase throughput on the adapter, you may want to turn unused protocols off. For example, if you are not using the Novell NetWare protocol, you may want to set the NetWare protocol to <b>No</b>.</p>
<b>Enable BOOTP</b>	Yes No	<p>You can set <b>BOOTP</b> on or off.</p> <p>You should set Enable BOOTP to <b>No</b> if you have set the IP address, netmask, and/or gateway on the operator panel and you want that information to always apply to this adapter.</p> <p>You should choose <b>Yes</b> if you want the adapter to find its BOOTP server to get its IP address, netmask, and/or gateway.</p>
<b>Set IP Address</b>	IP Address	<p>If you set the IP address from the operator panel, be sure to set Enable BOOTP to <b>No</b>. If Enable BOOTP is set to <b>Yes</b> and you turn the printer off, the adapter will search for a BOOTP server and will use the address stored in that file rather than this address.</p> <p>The default IP address is:       0 . 0 . 0 . 0</p>
<b>Set IP Netmask</b>	IP Netmask	<p>If you set the IP netmask from the operator panel, be sure to set Enable BOOTP to <b>No</b>. If Enable BOOTP is set to <b>Yes</b> and you turn the printer off, the adapter will search for a BOOTP server and will use the netmask stored in that file rather than this one.</p> <p>The default IP netmask is:       255 . 255 . 255 . 0</p>
<b>Set IP Gateway</b>	IP Gateway	<p>Using this menu item, you can set the IP gateway directly at the printer operator panel. When you do, be sure to set Enable BOOTP to <b>No</b>. If Enable BOOTP is set to <b>Yes</b> and you turn the printer off, the adapter will search for a BOOTP server and will use the gateway stored in that file rather than this one.</p> <p>The default IP gateway is a partial address, derived from the IP address and netmask that are set.</p>

# Setting the IP address

---

If you already know the printer's IP address, you can set it from the operator panel.

**IMPORTANT:**

This process sets the address at this printer only and does not update any BOOTP records you have in your server.

- 1 Turn the printer power On (I).**
- 2 Use the printer operator panel to select *IP Protocol*.**  
Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.
- 3 Choose *Enable BOOTP*.**
- 4 Choose *No*.**
- 5 Choose *More*.**
- 6 Choose *Set IP Address* to display the following screen:**

```
IP Address:      ->
                +
000.000.000.000  -
                Save
```

- 7 Use the arrow button to place the cursor beneath the part of the IP address that you want to set. Then use the plus (+) and minus (-) keys to set the address.**
- 8 Choose *Save*.**
- 9 Press *Ready* to return to the Ready status message, or *Return* to go back to the previous menu.**
- 10 Set up the printer hostname (network name) in the computer. To do so, simply define the printer's IP name and address in the /etc/hosts file or on the name server.**

This address must match the IP address you set on the operator panel. You may want to use a hostname that is meaningful in your environment (for example, a name that identifies the printer's location).

# Setting the IP netmask

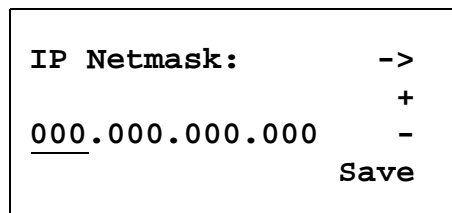
---

If you already know the printer's IP netmask, you can set it from the operator panel.

**IMPORTANT:**

This process sets the netmask at this printer only and does not update any BOOTP records you have in your server.

- 1 Turn the printer power On (I).
- 2 Use the printer operator panel to select *IP Protocol*.  
Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.
- 3 Choose *Enable BOOTP*.
- 4 Choose *No*.
- 5 Choose *More*.
- 6 Choose *Set IP Netmask* to display the following screen:



- 7 Use the arrow button to place the cursor beneath the part of the IP netmask that you want to set. Then use the plus (+) and minus (-) keys to set the address.
- 8 Choose *Save*.
- 9 Press *Ready* to return to the Ready status message, or *Return* to go back to the previous menu.

# Setting the IP gateway

---

If you already know the printer's IP gateway, you can set it from the operator panel.

**IMPORTANT:**

This process sets the gateway at this printer only and does not update any BOOTP records you have in your server.

- 1 Turn the printer power On (I).**
- 2 Use the printer operator panel to select *IP Protocol*.**  
**Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.**
- 3 Choose *Enable BOOTP*.**
- 4 Choose *No*.**
- 5 Choose *More*.**
- 6 Choose *More*.**
- 7 Choose *Set IP Gateway* to display the following screen:**

IP Gateway:	->
	+
<u>000.000.000.000</u>	-
	Save

- 8 Use the arrow button to place the cursor beneath the part of the IP gateway that you want to set. Then use the plus (+) and minus (-) keys to set the address.**

(If there is no router or gateway on your network, use 000.000.000.000.)

- 9 Choose *Save*.**
- 10 Press *Ready* to return to the Ready status message, or *Return* to go back to the previous menu.**

# Enabling NPA Protocol

---

To use the remote operator panel for a printer, the printer must be:

- Network Printing Alliance (NPA) Protocol-compliant
- Attached to the network using an adapter
- Enabled for NPA

If you receive a `Status Not Available` message when you try to use the remote operator panel, make sure the printer is enabled for NPA Protocol.

You can change the NPA setting from the printer operator panel. Follow the steps below.

- 1 Turn the printer power On (I).**
- 2 Use the printer operator panel to select *NPA Mode*.**

**Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.**

- 3 Choose *On*.**
- 4 Press *Ready* to return to the `Ready` status message, or *Return* to go back to the previous menu.**

# Getting adapter information

---

You can get detailed information about a network adapter by either:

- Using the MarkVision Utilities
- Printing a setup page

Continue reading to learn about both methods.

## Using the MarkVision Utilities

The MarkVision Utilities provide an easy way to check your network adapter's current settings. Follow the steps below.

- 1** Open the MarkVision main menu.
- 2** Click on *View* to open the View pull-down menu.
- 3** Choose *Adapter Settings*.
- 4** Choose an adapter from the list provided.

If you are logged on as a root user or have group permission, you can also use the MarkVision Utilities to change adapter settings. To do this, choose *Adapter Settings* under the Change menu.

## Printing a setup page

The printer setup page lists the adapter's current settings. Follow the steps below to print a setup page. A sample is shown on page 75.

- 1** Turn the printer power On (I).
- 2** Use the printer operator panel to select *Print Setup Page*.

Consult your printer documentation to learn the menu path for your specific printer, or scroll through the operator panel menus until you find it.

- 3** Press *Ready* to return to the Ready status message, or *Return* to go back to the previous menu.

# Sample setup page

This is a sample setup page for a MarkNet XL internal adapter:

## Ethernet

**Integrated Network Option Settings:**

**Network Card**

Card Status:	Enabled
End-of-Job Timeout:	90
Network Address- (UAA):	10005A900BF7
- (LAA):	000000000000
Connection Message:	On
Printer Type:	Lexmark Optra LaserPrinter
Network Card Type:	Ethernet 10BASE2
Network Card Part Number:	1329988
Network Card EC:	531878A
Firmware Revision:	7.48.1

**LexLink Protocol**

Protocol Active:	Yes
Nickname:	10005A900BF7

**NetWare\* Protocol**


Protocol Active:	Yes
Login Name:	!LEX900BF7
NetWare Mode:	PSERVER

**AppleTalk\* Protocol**

Protocol Active:	Yes
AppleTalk Name:	David S. Printer
AppleTalk Type:	LaserWriter
AppleTalk Zone:	Tim T. Zone
AppleTalk Address:	101.3

**IP Protocol**

Protocol Active:	Yes
BOOTP Enabled:	Yes
IP Address:	9.51.8.52
IP Netmask:	255.255.255.128
IP Gateway:	9.51.8.30
BOOTP Server:	9.51.8.2

  
Make Your Mark

Lexmark is a trademark of Lexmark International, Inc.  
\*NetWare is a registered trademark of Novell, Inc.  
\*AppleTalk is a trademark of Apple Computer, Inc.

Getting adapter information

# Operator panel messages

MarkNet and MarkNet XL adapter-related messages appear on the operator panel. These messages begin with a number, followed by a colon and a second number.

For example, in the following message 70 refers to the type of problem. The number 1 after the colon tells you which adapter is having the problem.

```
70:1 Set Token-Ring Speed
```

If you're using the Optra LaserPrinter, **1** refers to the lower adapter, and **2** refers to the upper adapter.

Message	Cause	Solution
◆◆◆◆◆◆◆◆ ◆◆◆◆◆◆◆◆ ◆◆◆◆◆◆◆◆ ◆◆◆◆◆◆◆◆ ◆◆◆◆◆◆◆◆ ◆◆◆◆◆◆◆◆	The small power supply card that you received with the adapter has not been installed in the printer.	Install the small power supply card into the printer. Instructions for installing it are included in your printer documentation.  If you still receive this message after installation, refer to your printer documentation.
70:x Set Token-Ring Speed	The Token-Ring speed of your network has not been set.	Choose <b>4 Mbps</b> or <b>16 Mbps</b> , whichever matches the speed of your network. Then press Ready to return to the Ready status message.
71:x No Network Connection	The connection to the network appears to have been broken.	Complete the following steps: <b>1</b> Make sure the cable between the adapter and the LAN is connected. <b>2</b> Make sure the adapter is installed properly. To find out, print a setup page (see page 74 for instructions). The adapter should appear in the list of attachments on the setup page. <b>3</b> Choose <b>Retry</b> to try to re-establish the hardware connection, or press <b>Disable</b> to disable the adapter.  To enable the adapter, turn the printer power Off ( <b>O</b> ), then On ( <b>I</b> ) again. The adapter is reset as enabled.  If you remove this printer from a LAN but leave the adapter installed, this message appears every time you turn on the printer. For information about turning the Connection Message off, see "Token-Ring network menu items" on page 65 or "Ethernet network menu items" on page 67.



Message	Cause	Solution
<b>72:x Incorrect Token-Ring Speed</b>	The Token-Ring speed that you set from the operator panel does not match the speed on the network.	Press the button on the printer operator panel that shows the correct speed, or press <b>Disable</b> to disable the adapter.
<b>73:x Warning: Gateway Specified Is Unreachable</b>	Given the adapter's IP address and netmask, the gateway that you chose cannot be reached.	Change the IP address, netmask, and/or gateway.
<b>79:x DO NOT POWER OFF! Updating Code On Network Card</b>	Using the Network Card Flash utility, someone is reprogramming the adapter by loading code onto the card's flash memory.	Make sure the printer stays on. If you turn off the printer while code is being loaded onto the adapter, the card will be made useless. Wait for the message to be removed before you do anything else with the printer.
<b>976:x Service Network Card</b>		Turn your printer off, then on again. If the error recurs, contact your point of purchase. You may need new microcode (software) or a new adapter.
<b>977:x Service Network Card</b>	The adapter is not communicating properly with the printer.	Contact your technical support person for help.

# Adapter service

---

Do the following if you suspect your adapter needs service:

- 1 Try printing a setup page from the adapter.**
- 2 If you received an operator panel message, make a note of it and the error number. See “Operator panel messages” on page 76 for instructions.**
- 3 Determine the adapter firmware level by typing the following on the command line:**  

```
lslexprt -v -h host:port
```
- 4 Determine the version of the MarkVision Utilities by typing the following on the command line:**  

```
what -s markvision
```
- 5 Don't send print jobs to a non-existent adapter.** Doing so will cause print jobs to hang.
- 6 Delete or hold all queues before removing the adapter from the LAN.**
- 7 Contact your point of purchase.** The adapter contains no replaceable parts and may need to be returned.

If you are using a third party adapter, contact your point of purchase or the adapter manufacturer.

# Appendix **B** Using the MarkNet XLe external adapter

## Introduction

---

If you are using a MarkNet XLe external adapter, read this appendix for information about configuring the adapter and troubleshooting adapter problems. For more information, refer to the *MarkNet XLe Setup and Service Guide* that you received with the adapter.

## Enabling NPA Protocol

---

To use the remote operator panel for a printer, the printer must be:

- Network Printing Alliance (NPA) Protocol-compliant
- Attached to the network using an adapter
- Enabled for NPA

If you receive a `Status Not Available` message when you try to use the remote operator panel, follow the steps below to make sure **NPA Protocol** is enabled.

**IMPORTANT:**

You must either be logged on as a root user or have MarkVision group permission (printq group on AIX) to change NPA settings. If you are not able to change the settings, you can still view them by choosing **Adapter Settings** under the View menu.

Follow the steps below to change the **NPA Protocol** setting for a MarkNet XLe port.

- 1 Type `markvision` on the command line to open the MarkVision menu.**
- 2 Click on *Change* to open the Change pull-down menu.**
- 3 Choose *Adapter Settings*.**
- 4 Choose an adapter from the list provided.**

The current NPA setting appears among the list of adapter settings.

## Getting adapter information

---

You can get detailed information about a network adapter by either:

- Using the MarkVision Utilities
- Printing a setup page

Continue reading to learn about both methods.

## Using the MarkVision Utilities

The MarkVision Utilities provide an easy way to check your network adapter's current settings. Follow the steps below.

- 1 Open the MarkVision main menu.**
- 2 Click on *View* to open the View pull-down menu.**
- 3 Choose *Adapter Settings*.**
- 4 Choose an adapter from the list provided.**

**Note:**

If you are logged on as a root user or have group permission, you can also use the MarkVision Utilities to change adapter settings. To do this, open the Change menu and choose *Adapter Settings*.

## Printing a setup page

Follow the steps below to print a setup page. A sample setup page is shown on page 82.

***IMPORTANT:***

If the printer you are using prints Postscript only, the setup page will not print. In this case, use the MarkVision Utilities to view current adapter settings.

- 1 Remove the adapter switch cover.**
- 2 Press the Test button until its light comes on, then release it.** The adapter sends the setup page to the printer.
- 3 Replace the adapter switch cover.**

```

*****
Lexmark* MarkNet* XLe 202 Setup Page
Printed from Parallel Port 2
*****

Network Card
Network Card Type: Ethernet
End-of-Job Timeout: 90
Network Address -(UAA): 10005A906787
Network Address -(LAA): 000000000000
Network Card Part Number: 1418651
Network Card EC: MN_XL_R
Firmware Revision: 00.03.01

Parallel Port 1
NPAP Active: Yes
NPAP Mode: Auto
Port Type: Enhanced
Busy Timeout: 90
Printer Type: IBM LaserPrinter 4039 plus

Parallel Port 2
NPAP Active: Yes
NPAP Mode: Auto
Port Type: Enhanced
Busy Timeout: 90
Printer Type: IBM LaserPrinter 4039 plus

LexLink Protocol
Protocol Active: Yes
Nickname: 10005A906787

NetWare* Protocol
Protocol Active: Yes
Login Name: !LEX906787
NetWare Mode: PSERVER

IP Protocol
Protocol Active: Yes
BOOTP & RARP Enabled: Yes
IP Address: 9.51.8.213
IP Netmask: 255.255.255.128
IP Gateway: 9.51.8.132
BOOTP Server: 0.0.0.0

```

# Using status lights

The four lights on the MarkNet XLe adapter change to indicate printer status. Use the table below to help diagnose your printer's condition.

Power	Status	Test	Data	Description/Action
on	on	off	off	Ready (Idle)
on	on	off	blinking	Processing. Normal operation. Data is either being received from a host or sent to a printer.
on	off	on	off	Testing. The <i>first</i> light pattern indicates that you have pressed the Test button.
on	on	off	blinking	The <i>second</i> light pattern indicates that a setup page is being sent from the adapter to the printer.
on	on	off	blinking	Updating flash code. The <i>first</i> light pattern indicates that the flash code is being downloaded to the adapter.
on	blinking	blinking	blinking	The <i>second</i> light pattern occurs while the adapter is updating the flash code. <b>Make sure the adapter remains plugged in.</b>  After the adapter goes through its normal start-up tests, it returns to its Ready state.
on	blinking	off	on	Network error. Check all connections to the network. For example, make sure the cables to the network are connected, and the correct Token-Ring speed is set.
on	blinking	off	off	Software error. Push the Reset button to reset the adapter. Then try to re-send the print job. If this error persists, call for service.
on	blinking	on	off	Serial error. Check the serial port settings. For help, see the MarkNet XLe Setup and Service Guide. Then push the Reset button to reset the adapter.
on	blinking	on	on	Flash error. Push the Reset button to reset the adapter. If the error persists, call for service.

# Adapter service

---

Do the following if you suspect your adapter needs service:

- 1 Try printing a setup page from the adapter.**
- 2 Make a note of the light pattern on the adapter panel. See “Using status lights” on page 83 for instructions.**
- 3 Determine the adapter firmware level by typing the following on the command line:**  

```
lslexprt -v printer hostname
```
- 4 Determine the version of the MarkVision Utilities by typing the following on the command line:**  

```
what -s /usr/markvision/bin/markvision
```
- 5 Don't send print jobs to a non-existent adapter.** Doing so will cause print jobs to hang.
- 6 Delete or hold all queues before removing the adapter from the LAN.**
- 7 Contact your point of purchase.**

If you are using a third party adapter, contact your point of purchase or the adapter manufacturer.



# Appendix **C** Using BOOTP to set the IP address, netmask, and gateway

## Using BOOTP

---

To use the BOOTstrap Protocol (BOOTP) to configure your adapter, you must have the BOOTP server installed and running on your network.

Most UNIX versions use their own BOOTP server. If you are running Sun Solaris x86 2.4, Sun Solaris SPARCstation 2.3 or 2.4, and SunOS 4.1.3. You'll need to install the BOOTP server package provided with these utilities.

Follow the steps in this appendix to set the IP address, netmask, and gateway for the network adapter.

- 1 Find the hardware address of the adapter by looking at the adapter label or printing a setup page.**
- 2 Set up the BOOTP server.**

**To set up the BOOTP server, edit the BOOTP file on the host computer running the BOOTP server.** The file is usually located in `/etc/bootptab`.

The BOOTP file contains information such as the hostname and the IP address. For example, a bootptab record in AIX running on a Token-Ring adapter might look similar to this:

```
jdlprt:\  
ht=tr:\  
ha=10005A101348:\  
ip=9.51.8.212:\  
sm=255.255.255.128:\  
gw=9.51.8.132
```

**where:**

<code>jdlprt</code>	is the hostname.
<code>ht=tr</code>	is the hardware type (Token-Ring)

```
ha=10005A101348      is the hardware address.  
ip=9.51.8.212       is the IP address.  
sm=255.255.255.128 is the IP netmask.  
gw=9.51.8.132      is the IP gateway.
```

Please note that the second line in this example represents a Token-Ring adapter (ht=tr). If you are using Ethernet, please use ht=ether.

If you need help editing the BOOTP file, view the BOOTP man page by typing `man bootp` or `man bootptab` at the command prompt. If that doesn't work, consult your system documentation.

### **3 Make sure BOOTP is enabled.**

If you're using a MarkNet or MarkNet XL internal adapter, make sure the Enable BOOTP setting in the Internet Protocol menu is *Yes*. See "Ethernet network menu items" on page 67 if you need more information.

### **4 Set up the printer hostname.**

If you haven't already, you'll need to define the printer name and IP address in the `/etc/hosts` file or on the name server.

This IP address and hostname must match those you set earlier in the BOOTP file. You may want to use a hostname that is meaningful in your environment (for example, a name that identifies the printer's location).

# Glossary

## A

**adapter.** See *external network adapter* and *internal network adapter*.

**AIX.** IBM's version of the UNIX operating system. The RISC System/6000, among others, runs on the AIX operating system.

## B

**bits per second (bps).** In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

**BOOTstrap Protocol (BOOTP).** A TCP/IP protocol that enables a workstation to find its IP address.

**bps.** See *bits per second*.

## C

**client utilities.** Network printing software contained in the MarkVision Utilities. You should install these utilities on each client computer in the network.

## D

**domain.** A division within a large network.

## E

**ENA.** See *external network adapter*.

**Ethernet.** A network with a bus topology that uses carrier sense multiple access with collision detection (CSMA/CD). An Ethernet network may be installed using any of three cabling systems:

- 10BASE-T Ethernet network uses telephone twisted-pair.
- 10BASE2 Ethernet network uses RG-58 coaxial cable (also referred to as Cheapernet or Thinnet).
- 10BASE5 Ethernet uses AUI cable.

**external network adapter (ENA).** Hardware used to connect printers to a LAN using either a Token-Ring or Ethernet cable (for example, the MarkNet XLe adapter).

## F

**finger.** A TCP command that normally displays user information on a host computer. When used with the IBM Integrated Network Option, finger displays the status of the printer and the current print job.

**file transfer protocol (ftp).** A TCP/IP protocol that transfers files from one computer to another. It is usually implemented in application programs. This is considered a better way to send files than TFTP (Trivial File Transfer Protocol) because it uses TCP rather than UDP.

**firmware.** Software that resides in the adapter.

**flash memory.** A type of ROM (read-only memory) used in MarkNet, MarkNet XL, and MarkNet XLe adapters. Flash memory can be erased electronically and reprogrammed without being removed from the printer.

**ftp.** See *file transfer protocol*.

## G

**gateway.** The connection device between the LAN and other equipment such as computers.

## H

**hostname.** Name used to identify a network printer or computer.

## I

**INA.** See *internal network adapter*.

**internal network adapter (INA).** Hardware installed inside a printer to connect the printer to the LAN (for example, the MarkNet XL adapter).

**Internet Protocol (IP).** A standard protocol that specifies how packets are passed through networks. It identifies the format of the packet and describes how they should be delivered in a seamless manner. Although it is a separate protocol from TCP, it is often referred to as TCP/IP because both TCP and IP protocols are often used together.

**IP.** See Internet Protocol.

**IP address.** Number that identifies a network printer.

## L

**LAA.** See *locally administered address*.

**LAN.** See *local area network*.

**LAN segment.** Any portion of a LAN that operates independently of, but is connected to, the network by bridges or routers.

**LexLink Protocol.** A proprietary network printer protocol developed by Lexmark International, Inc., based on IEEE 802.2. The LexLink protocol is used by the IBM 4033 adapter and the MarkNet, MarkNet XL, and MarkNet XLe adapters in environments such as AIX, OS/2, and Windows NT.

**local area network (LAN).** A computer network located on a user's premises within a limited geographical area. Communication within a LAN is not subject to external regulations; however, communication across the LAN boundary may be subject to some form of regulation.

**locally administered address (LAA).** An address that a network administrator assigns to a network adapter on the LAN. Administrators may assign the adapter any address they wish (within certain constraints). Many administrators use the LAA to give the adapter a meaningful address in their workplace (for example, assigning the adapter an address that identifies its location).

## M

**MarkNet adapters.** Network adapters that can be installed or attached to printers to enable LAN communication.

**MarkVision server.** Software contained in the MarkVision Utilities package that allows communication between network-attached printers and computers.

**MarkVision Utilities.** A software package designed for use with TCP/IP network printers. It contains *client utilities*, *MarkVision server* software, and a *BOOTP* server.

## N

**netmask.** A bit mask that specifies the local network portion of an IP address, allowing you to logically subdivide a network.

**network address.** The logical location on the LAN where a device such as a printer is located, typically 12 characters long.

**network card.** The adapter card received with the IBM LaserPrinter Integrated Network Option and installed in the printer.

**network printer.** A printer with either an *INA* or an *ENA* connecting it to the LAN.

**Network Printing Alliance Protocol.** A standard protocol that specifies how data is passed from network printers to computers.

**nickname.** A name that a network administrator gives to the network card. It can have various uses, one of which is to identify the location of the printer.

**NPA.** See *Network Printing Alliance Protocol*.

## P

**Packet InterNet Groper (PING).** Software that tests whether an IP destination can be reached by sending it an ICMP echo request and waiting for a reply.

**PING.** See *Packet InterNet Groper*.

**printq group.** An AIX group authority. Members typically have authority to perform functions such as setting up printers, making print queues, and deleting printers.

**print queue.** The place in the server where print jobs are stored for printing.

**print server.** Hardware or software (or a combination of hardware and software, such as adapters) that takes information from a print queue and sends it to a printer.

**protocol.** A set of rules governing the communication and the transfer of data between two or more devices in a communication system.

## R

**remote operator panel.** MarkVision Utilities feature that provides a graphic representation of a printer operator panel that allows you to view and change printer settings from your screen. To use this feature, the printer you are using must be enabled for NPA.

**requester.** A workstation that requests access to shared resources, such as printers or plotters, so that they appear to be running on the user's own workstation even though they may be running somewhere else on the LAN.

## S

**server.** A device that allows people using LAN workstations to share resources such as printers and plotters on the network.

**Simple Network Management Protocol (SNMP).** A TCP/IP protocol that defines how computers will communicate management information.

**SMIT.** See *System Management Interface Tool*.

**SNMP.** See *Simple Network Management Protocol*.

**source routing.** A Token-Ring function that allows data to pass from one Token-Ring network across Token-Ring bridges to another Token-Ring network. If source routing is disabled, packets will not cross source-routing bridges.

**System Management Interface Tool (SMIT).** User interface used on AIX operating system.

## T

**TCP/IP.** Transmission Control Protocol/Internet Protocol. A network protocol used to connect workstations and hosts, commonly used in UNIX and AIX environments.

**TFTP.** See *Trivial File Transfer Protocol*.

**Token-Ring.** A network with a ring topology that passes a token from adapter to adapter and conforms to IEEE 802.5 standard. An example is the IBM Token-Ring Network.

**Trivial File Transfer Protocol (TFTP).** A TCP/IP protocol that transfers files with minimum overhead and no guarantee of delivery.

## U

**UAA.** See *universally administered address*.

**UDP.** See *User Datagram Protocol*.

**universally administered address (UAA).** An adapter's UAA is the factory-set default address. Network administrators may choose to set a locally administered address (LAA) for the adapter so that its address is more meaningful in their workplace.

**User Datagram Protocol (UDP).** The protocol that allows one computer to send a datagram (unit of data) to another. It uses the IP protocol to deliver datagrams. UDP datagrams include a protocol port number so that the sending computer can differentiate among several destinations on the remote computer.

**utilities.** See *client utilities*.

## V

**virtual device.** A device (for example, a printer) simulated by an operating system and software.

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# Reader's Comment Form

## MarkVision Utilities for TCP/IP Networks

SA40-0855-0

Thank you for taking a few minutes to fill out this card.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_

Job Title \_\_\_\_\_

Printer model number: \_\_\_\_\_ Serial number: \_\_\_\_\_

What are the primary uses of your printer?

- Documents and letters
- Desktop publishing
- Electronic forms
- Spreadsheets
- Mixed text and graphics
- Other

What computer system are you using with this printer?

What is the version number of your operating system software?

Do you use  Windows™ or  OS/2® with your network printer?

What LAN hardware do you use?

- Ethernet 10BASE-T
- Ethernet 10BASE2
- Token-Ring

How many users are sharing this LAN printer? \_\_\_\_\_

How many workstations did you install the client software on? \_\_\_\_\_

Did you find the book well organized?

- Yes
- No

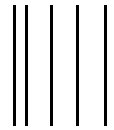


Cut Along Line

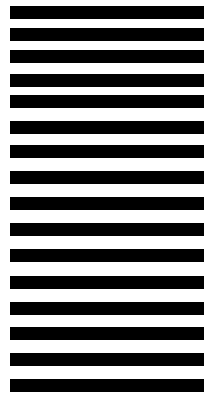
Fold and Tape

Please Do Not Staple

Fold and Tape



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