
Xerox DocuPrint Network Printer Series Installation Planning Guide for Models 4050/4090 NPS

**THE DOCUMENT COMPANY
XEROX**

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Laser safety



Warning: Adjustments, use of controls, or performance of procedures other than those specified herein may result in hazardous light exposure. ⚠

The Xerox DocuPrint printers are certified to comply with the performance standards of the U.S. Department of Health, Education, and Welfare for Class 1 laser products. Class 1 laser products do not emit hazardous radiation. The DocuPrint printers do not emit hazardous radiation because the laser beam is completely enclosed during all modes of customer operation.

The laser danger labels on the system are for Xerox service representatives and are on or near panels or shields that must be removed with a tool. **DO NOT REMOVE LABELED PANELS OR PANELS NEAR LABELS. ONLY XEROX SERVICE REPRESENTATIVES HAVE ACCESS TO THESE PANELS.**



Ozone information

This product produces ozone during normal operation. The amount of ozone produced depends on copy volume. Ozone is heavier than air. The environmental parameters specified in the Xerox installation instructions ensure that concentration levels are within safe limits. If you need additional information concerning ozone, call 1-800-828-6571 to request the Xerox publication 600P83222, *OZONE*.

Operation safety

Your Xerox equipment and supplies have been designed and tested to meet strict safety requirements. They have been approved by safety agencies, and they comply with environmental standards. Please observe the following precautions to ensure your continued safety.

- Always connect equipment to a properly grounded electrical outlet. If in doubt, have the outlet checked by a qualified electrician.



Warning: Improper connection of the equipment grounding conductor may result in risk of electrical shock. ⚠

- Never use a ground adapter plug to connect equipment to an electrical outlet that lacks a ground connection terminal.
- Always place equipment on a solid support surface with adequate strength for its weight.

-
- Always use materials and supplies specifically designed for your Xerox equipment. Use of unsuitable materials may result in poor performance and may create a hazardous situation.
 - Never move either the printer or the Printer Controller without first contacting Xerox for approval.
 - Never attempt any maintenance that is not specifically described in this documentation.
 - Never remove any covers or guards that are fastened with screws. There are no operator-serviceable areas within these covers.
 - Never override electrical or mechanical interlocks.
 - Never use supplies or cleaning materials for other than their intended purposes. Keep all materials out of the reach of children.
 - Never operate the equipment if you notice unusual noises or odors. Disconnect the power cord from the electrical outlet and call service to correct the problem.

If you need any additional safety information concerning the equipment or materials Xerox supplies, call Xerox Product Safety at the following toll-free number in the United States:

1-800-828-6571

For customers outside the United States, contact your local Xerox representative or operating company.

Table of Contents

Laser safety	iii
Ozone information	iii
Operation safety	iii
Introduction	ix
About this guide	ix
Contents	ix
Conventions	x
Notice	x
1. Product overview	1-1
System overview	1-1
Client workstations and system software	1-3
Supported hardware and operating systems	1-3
Client networking software	1-4
Ethernet LAN	1-4
Token Ring	1-4
Fiber Distributed Data Interface	1-5
NPS/IPS Dual Mode	1-5
Sixth Sense	1-5
2. Controller components and options	2-1
Controller hardware	2-1
Sun Ultra 2 workstation	2-1
Sun Ultra 60 workstation	2-4
Controller software	2-9
3. Printer components and options	3-1
Printer components	3-1
Printer control console	3-3
Printer options	3-4
High-capacity feeder	3-4
Dual stacker	3-5
Stitcher/stacker	3-6
4. Preparing for installation	4-1
Responsibilities	4-1
Xerox responsibilities	4-1
Customer responsibilities	4-2

Installation planning checklist	4-4
NPS network installation checklist	4-6
Novell network information	4-8
DocuPrint as a print server (PSERVER)	4-8
DocuPrint NPS as a remote printer (RPRINTER)	4-9
Connectivity requirements	4-12
Ethernet specifications	4-12
Token Ring specifications	4-12
Fiber Distributed Data Interface specifications	4-12
5. Controller specifications and requirements	5-1
Power requirements	5-1
Outlet configurations	5-2
Environmental specifications	5-3
Space requirements	5-3
Printer controller placement	5-3
Controller hardware specifications and requirements summary	5-7
6. Printer specifications and requirements	6-1
Power requirements	6-1
Outlet configurations	6-2
Printer outlet voltages—60 Hz	6-2
Printer outlet voltages—50 Hz	6-3
Environmental specifications	6-4
Space requirements	6-5
Printer placement	6-6
Space planning guidelines	6-10
Clearance space requirements	6-10
Shared space	6-10
Floor leveling	6-14
Delivery access requirements	6-14
Printer hardware specifications and requirements summary	6-17
Space planning templates	6-19
7. System connections	7-1
Cable lengths	7-1
Cable locations	7-2
8. Installation	8-1
Installation process	8-1
Your responsibilities	8-2
Software licensing	8-3
Ongoing maintenance	8-4

	Routine maintenance	8-4
	Meter reading and reporting	8-4
A. Supplies		A-1
	Paper and other throughput stocks	A-1
	Selecting paper	A-1
	Paper care	A-3
	Other supplies	A-6
	Dry ink	A-6
	Fuser lubricant	A-6
	Developer	A-6
	Diskettes	A-6
	Cartridge tapes	A-6
	Fonts	A-7
	Consumable supplies tables	A-8
	Paper and special stocks tables	A-8
	Complete supplies list—4050/4090 printers	A-11
	Ordering supplies	A-12
B. Xerox support services		B-1
	Xerox Customer Service Support Center	B-1
	Xerox Printing Systems Customer Support Center	B-2
	Xerox Customer Documentation Catalog	B-3
	Xerox Documentation and Software Services (XDSS)	B-3
	Operator training	B-3
	Xerox Customer Education	B-4
	Xerox Font Center	B-4
C. Related publications		C-1
D. DocuPrint NPS on a Novell network		D-1
	Novell NetWare overview	D-1
	Print queues	D-1
	Queue to printer relationships	D-2
	PCONSOLE	D-2
	Print server (PSERVER)	D-3
	Job parameters	D-3
	Using Novell forms to specify virtual printers	D-4
	Remote printer (RPRINTER)	D-4
	DocuPrint NPS as a print server or as a remote printer	D-5
	Choosing a Print Server or Remote Printer Configuration	D-5
	Novell configuration	D-8
	Configuring DocuPrint as a PSERVER	D-8

Configuring DocuPrint as an RPRINTER	D-10
Supporting DocuPrint NPS on the file server	D-12

Glossary	GLOSSARY-1
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Index	INDEX-1
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Introduction

This *Xerox Printing Systems Installation Planning Guide* helps you prepare for delivery and installation of your new Xerox DocuPrint printing system.

About this guide

This guide is intended for the person responsible for coordinating the installation of the DocuPrint printer at your site. It lists the tasks you must complete before installation can begin, as well as your responsibilities during the installation.

Before using this guide, become familiar with its contents and conventions.

Contents

This guide contains the following:

- Chapter 1, "Product overview," provides an overview of the DocuPrint 4050 and 4090 printing systems.
- Chapter 2, "Controller components and options," describes system controller hardware, software, and options.
- Chapter 3, "Printer components and options," describes printer components, configurations, and options.
- Chapter 4, "Preparing for installation," provides a checklist of tasks that must be accomplished before the installation. It also explains connectivity requirements for transporting documents from the host or client to the DocuPrint printing system.
- Chapter 5, "Controller specifications and requirements," describes power, environmental, and space requirements for the system controller.
- Chapter 6, "Printer specifications and requirements," describes power, environmental, and space requirements for the printer. Space planning guidelines and diagrams are provided to help you set up the work area.
- Chapter 7, "System connections," provides cable requirements for your DocuPrint 4050 and 4090 printing systems..
- Chapter 8, "Installation," describes the activities that occur during installation. It also describes ongoing maintenance activities.
- Appendix A, "Supplies," describes how to select, store, and use supplies for the DocuPrint printing system. It also provides a list of consumable supplies you can order.

- Appendix B, "Xerox support services," explains how to utilize available Xerox support services.
- Appendix C, "Related publications," lists other Xerox documents that are part of this publication set.
- Appendix D, "DocuPrint NPS on a Novell network," describes some of the considerations to make before the installation of DocuPrint on a Novell network.

A glossary and index are provided at the back of the guide.

Conventions

This document uses the following conventions:

Italics—Document and library names are shown in italics (for example, the *Xerox DocuPrint IPS Series Messages Guide*).



Note: Notes are hints that help you perform a task or understand the text.



Caution: Cautions alert you to an action that could damage hardware or software. ☉



Warning: Warnings alert you to conditions that may affect the safety of people. ⚠

Notice

This publication may contain descriptions of concepts and features not currently available for your Xerox printing system. Consult your Xerox sales representative or your operating system software program description for additional information.

1. Product overview

This chapter provides an overview of the features and functions of the Xerox DocuPrint 4050 NPS and the 4090 NPS.

System overview

The DocuPrint system enables personal computer (PC), Sun Workstation, DEC workstation, HP/Apollo, IBM RS/6000, and Apple Macintosh users to print PostScript level 2, HP PCL5e, or ASCII documents on a high-speed Xerox DocuPrint Model 4050 or 4090 NPS printer.

One or more of the following network communication systems may be used to transport documents from the client workstation to the printer:

- Ethernet local area network (LAN) running Transmission Control Protocol/Internet Protocol (TCP/IP), AppleTalk, or Novell NetWare network protocol software.
- Token Ring running TCP/IP, Novell, or AppleTalk network protocol software.
- Fiber Distributed Data Interface (FDDI) running TCP/IP, Novell 3.x, or Apple Talk network protocols. The FDDI supports a Single Connection configuration only.

Multiple network devices may be installed on the same NPS controller. The default network device that ships with your NPS controller is a 100 Mbit Ethernet connection. You may install other network devices by installing additional network cards, provided each card has a unique network to which it connects. For example, if you use a Token Ring network connection, you have the option of using the default Ethernet device as a secondary network.

If you choose to install multiple network devices on your NPS controller, the following parameters apply:

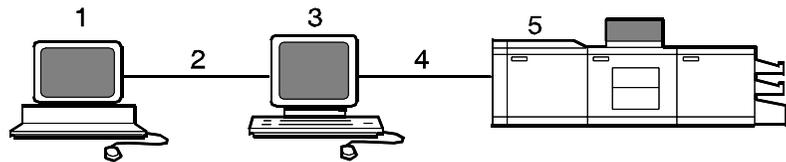
- You must select a primary network device and designate any others as secondary. The primary network device does not have to be the default Ethernet device that ships with your controller; it can be any of the network devices installed.
- You must run the TCP/IP protocol on the primary network device. You may also run TCP/IP on other network devices. For each network device running TCP/IP, you must specify a unique IP address and IP netmask. For the primary network device, you must specify the HostName and router IP address. The HostName for any secondary devices is created from the name chosen for the primary device.



Note: You may not use the NPS controller as an IP router. Consequently, the router IP address must be on the primary network devices network only.

- You may run the AppleTalk protocol on only one network device. The network device on which AppleTalk is run does not have to be the primary network device.
- You may run Novell protocols on only the primary network device.

Figure 1-1. **DocuPrint printer system components**



- 1 Customer-supplied client PC or workstation**
- 2 Customer-supplied network**
- 3 Xerox-supplied printer controller**
- 4 Xerox-supplied printer interface**
- 5 DocuPrint Models 4050 or 4090 printer.**

Briefly, the functions of the components are as follows:

Customer-supplied client PC or workstation

Users create their documents at the networked client PCs or workstations using software applications that generate PostScript (XGF), HP PCL5e, or ASCII output. When ready to print, users submit the documents to the printer controller.

Customer-supplied network

The customer will need to supply one or more of the following networks:

- Ethernet local area network (LAN) running TCP/IP, AppleTalk, or Novell NetWare network protocol.
- Token Ring running TCP/IP, Novell, or AppleTalk network protocol.
- Fiber Distributed Data Interface (FDDI) running TCP/IP, Novell 3.x, or Apple Talk network protocols. The FDDI supports a Single Connection configuration only.

Xerox-supplied printer controller

The printer controller consists of a color or monochrome monitor, processor, CD-ROM drive, keyboard, mouse, and optional 1/4-inch or 4mm tape drive. The printer controller accepts the print job from the client workstation, converts the files into page images, and sends the page images to the printer. The user interface at the printer controller allows you to perform tasks such as monitoring job status, prioritizing jobs, and configuring the system. The optional cartridge tape drive can be used for tasks such as backing up files. The CD-ROM drive also allows you to install the printer controller software.

Xerox-supplied printer interface

The printer interface cable provides high-speed data transport and communication between the printer controller and the printer.

Xerox-supplied DocuPrint printer

The printer (also known as an IOT or print engine) accepts data from the printer controller and prints the document according to the print options specified by the user. The printer also provides paper stacking, collating, and optional finishing.

DocuPrint Network Printing System (NPS)

The entire DocuPrint Network Printing System includes the printer (also known as an IOT or print engine), printer controller, printer interface, and all appropriate software. “DocuPrint printer” or “printer” refers to the base printer engine (IOT) only, without the printer controller and interface.



Note: It is your responsibility to supply, install, and maintain hardware and software on any PC, DECStation, Sun Workstation, HP/Apollo Workstation, IBM RS/6000 Workstation, or Macintosh system used to generate documents for printing on the DocuPrint printers. You are also responsible for obtaining, installing, and maintaining the required Ethernet LAN or Token Ring network, transceivers, cables, and connectors, as well as any necessary FDDI connectors.

Xerox is responsible for the physical installation and service of the printer and printer controller hardware and software components. You have the general responsibility for the site of ensuring that the right personnel, supplies, and that network hardware and software is available. Refer to the “Preparing for installation” chapter of this guide for a detailed description of the shared responsibilities of the customer and of Xerox.

Client workstations and system software

To send print jobs to the DocuPrint NPS printer, the customer needs to provide the proper client hardware as well as operating system and network software.

Supported hardware and operating systems

Xerox DocuPrint 4050 and 4090 NPS support the following types of networked client workstations and operating systems:

- PC running MS-DOS 6.2 and Microsoft Windows 3.1, using Ethernet with TCP/IP or Novell NetWare 3.11 and 3.12



Note: Customers using Novell 4.1 must set the “Bindery Emulation Mode” to be backwards compatible with Novell 3.12.

- PC 386 or 486, running MS-DOS, version 6.2, with one of the following TCP/IP packages:
 - PathWay Access 3.1, Wollongong Integrated Networking/ Transmission Control Protocol (WIN/TCP) for DOS, release 6.0
 - File Transfer Program (FTP) software, PC-TCP/IP, release 3.0 or higher
 - Sun Personal Computer–Network File Services (PC-NFS), version 5.1

- IBM RS/6000 running IBM AIX, version 4.1
- HP/Apollo running HP-UX, version 10.01
- DECStation 5000/200 running DEC Ultrix, version 4.3
- Apple Macintosh, System 7.x or 8.x, using AppleTalk through EtherTalk, phase 1 or 2
- Any system that supports RFC-1179 lpr/lpd.

DocuPrint Model 4050 and 4090 NPS software may be compatible with workstation models and software versions other than those listed above.

Client networking software

Xerox client software, a third-party TCP/IP lpr networking software, Novell, or Apple/Macintosh Printer Access Protocol (PAP) networking software must be installed on your client workstations or downloaded from the printer controller. This software provides an interface with the printer controller, which allows you to submit print jobs and check job status.



Note: The DocuPrint printing options available to a client user vary according to the networking software loaded on the client workstation.

For additional information on submitting jobs from a client workstation, refer to the *Xerox DocuPrint Network Printer Series Guide to Submitting Jobs from the Client*.

Ethernet LAN

Users of networked client workstations may send print jobs to the DocuPrint NPS printer over the Ethernet LAN using TCP/IP, AppleTalk using EtherTalk Link Access Protocol (ELAP), or Novell NetWare 3.1x as the network protocol.

Regardless of printing or transmission protocol, the Ethernet connection to the printer controller must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard.

Token Ring

Users of network client workstations may send print jobs to the DocuPrint NPS printer over Token Ring network using TCP/IP, Novell 3.x, or AppleTalk network protocol.

Regardless of printing transmission protocol, the Token Ring connection to the printer controller must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.5 standard.

Fiber Distributed Data Interface

TCP/IP, Novell 3.x, and Apple Talk network protocols are supported over FDDI. The FDDI supports a Single Connection configuration only.

NPS/IPS Dual Mode

The Xerox DocuPrint Dual Mode option enables both DocuPrint IPS and NPS systems to coexist on the same printer controller (Sun workstation). This allows the DocuPrint system to receive data streams supported by NPS and IPS, including IPDS, PostScript Levels 1 and 2, HP PCL5c, HP PCL5e, and ASCII.

The customer may switch from one mode to the other. When your system is operating in IPS mode, it can accept PostScript and PCL data streams in the background; however, you can print these jobs only when the system is in NPS mode. When in NPS mode, the system cannot accept IPDS data streams in the background; you can print them only when the system is in IPS mode.

Refer to the *Xerox DocuPrint IPS/NPS Dual Mode Switching Instructions* and other Xerox DocuPrint IPS documentation for more information.

Sixth Sense

Sixth Sense is a unique suite of diagnostic tools that allows Xerox customer service engineers, analysts, and consultants to serve customers more effectively.

Sixth Sense is intended to automate and expedite the range of service-related support functions. Sixth Sense is a tool that enables Xerox to provide benchmark service support. Xerox customers benefit from the ability to bring broader support to focus more quickly.

For example, Sixth Sense can allow the Service Representative to repeatedly "preview" the condition of the system prior to an actual site visit. This may provide the ability to determine the correct part or piece of information to have on hand when the site visit is made.

Sixth Sense is a no charge feature available to customers through Xerox Service. The customer need only provide an analog phone line for use by the Sixth Sense modem connection. For those customers unable to dedicate a phone line to the Sixth Sense connection, three and five port phone share devices are available for purchase.

To take advantage of Sixth Sense, the customer needs to:

- Request Sixth Sense enablement through Xerox Service
- Provide an analog phone line
- If necessary, purchase an optional phone share device.

More information about the Sixth Sense can be found in the *Xerox DocuPrint 4050/4090 NPS System Administration Guide*.

2. Controller components and options

The printer controller provides the printer with print data and commands, and receives status information from the printer. This chapter describes the components and options available for the controller.

Controller hardware

The printer controller consists of a Sun workstation. The controller uses proprietary Xerox hardware, firmware, and software to run the NPS.

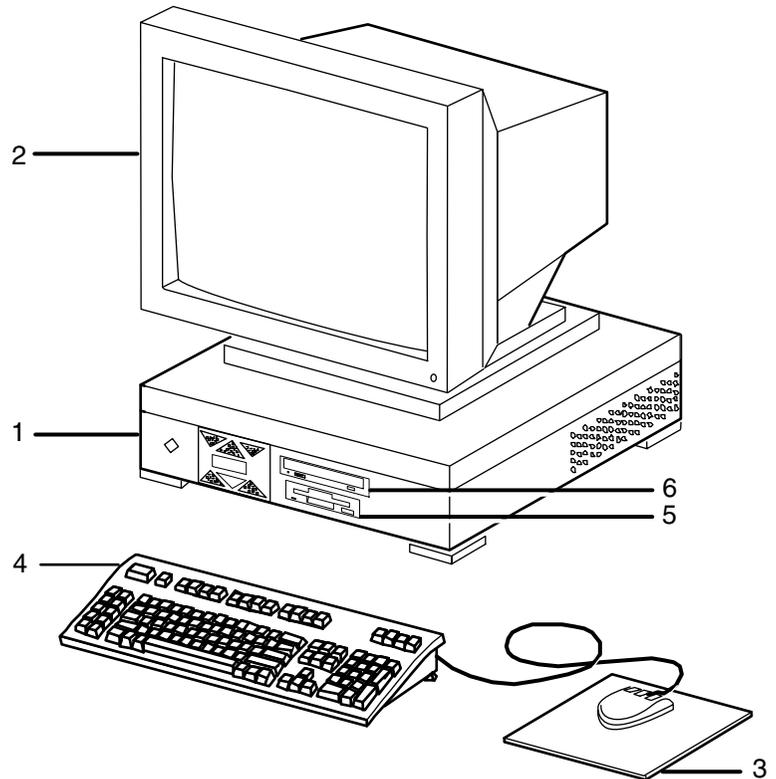
Your controller may be either a Sun Ultra 2 or Ultra 60 workstation. The following sections contain information about both the Ultra 2 and the Ultra 60.

Sun Ultra 2 workstation

The Sun workstation provides a user interface to the print engine. It is used to operate the NPS software which controls the printer. The workstation contains the following hardware components:

- Sun Ultra 2 workstation processor (system unit)
- Display monitor
- Keyboard and mouse
- Connectivity boards for Ethernet and, optionally, Token Ring
- A Data Control Interface Module (DCIM2) card installed in the processor to interface with the print engine.

Figure 2-1. Components of the Sun Ultra 2 workstation



- 1 Processor
- 2 Monitor
- 3 Mouse and mouse pad
- 4 Keyboard
- 5 Diskette drive
- 6 CD-ROM drive

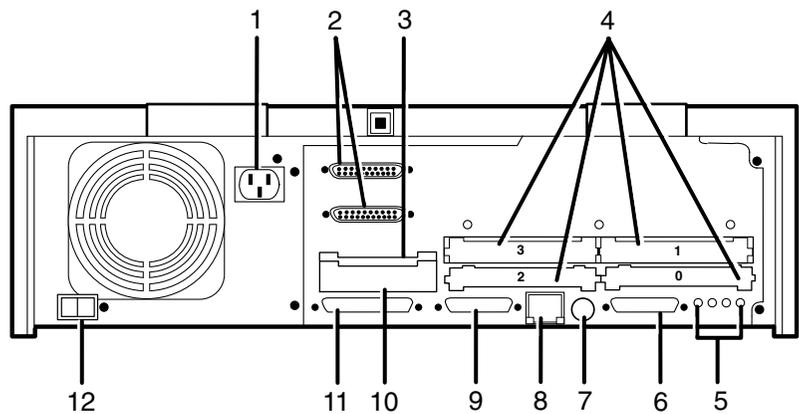
Processor

The processor is the central processing unit of the Sun workstation. It contains a power switch, an internal disk drive, a diskette drive, a CD-ROM drive, a power receptacle and outlet, connectors and ports.

The processor has the following components:

- **Internal disk drive:** One high-speed internal disk drive is provided as a standard feature of the processor. The operating system, the NPS application, and any queued print jobs are stored on the internal disk. This disk cannot be used to store other applications or data except as directed by your service representative.
- **Diskette drive:** Diskettes inserted into a diskette drive are used to load files to, and back up files from, the internal disk drive. The diskette drive uses industry standard 3.5 inch, 1.44 Mb, double-sided, high-density diskettes. This diskette drive is not an input source for print jobs nor any other data or application; it is reserved exclusively for use by a service representative to update software and to store files. The diskette drive is located in the processor, on the right front section for the Ultra 2.

- **CD-ROM drive:** The CD-ROM drive is a high density, read-only, optical laser storage device used for loading the NPS operating system and other files. The CD-ROM drive is located in the processor above the floppy drive.
 - **Cartridge tape drive (not shown):** An optional 8 GB, 4 mm SCSI cartridge tape drive also is available for the NPS. Like the diskette and CD drives, this tape drive is not an input source for print jobs or for any other data or application. It provides the service representative with another means of loading system maintenance files or saving diagnostic information.
- ⊘
- **Back panel:** The back panel of the processor has a power switch, a power receptacle and outlet, connectors, connector openings, and ports. The following figure shows the back panel of the Sun workstation that is part of your NPS controller.

Figure 2-2. **Back panel of the Sun Ultra 2 processor**

- 1 **Power inlet**
- 2 **Serial connectors (2): RS-432/RS-232**
- 3 **Graphics/video output: UPA slot**
- 4 **Sbus slots (Number of slots varies depending on the model)**
- 5 **Audio connectors (4)**
- 6 **Parallel connector**
- 7 **Keyboard/mouse connector**
- 8 **TPE connector**
- 9 **MII connector**
- 10 **UPA slot**
- 11 **SCSI connector**
- 12 **Power on/Standby switch**



Note: The controller back panel contains two serial ports on one DB-25 connector. Both ports are used exclusively by the IPS software for diagnostic purposes. The ports and diagnostic software are accessed only by the service representative.

Display monitor The display monitor has a screen which displays the NPS graphical user interface windows.

The graphical user interface allows you to interact with the printer and to monitor its interaction with the various components. During a print job, printer error messages may display to notify you of any unexpected conditions.

Keyboard The keyboard consists of alphanumeric keys similar to a typewriter, symbols and special character keys, an extended character set, and function keys. The keyboard is one of your main methods of communicating with the printer. You can use the keyboard to make selections, and to enter commands that control functions such as requesting sample prints, obtaining billing meter totals, shutting down the system, and so forth.

Mouse The mouse is another main method of communicating with the printer. The mouse has three buttons. The left and right buttons are used to select NPS functions. The center button provides additional functions that you will not be required to use. If your workstation has an optical mouse, it must remain on its designated metallic pad to be active. If the mouse has a roller ball instead of an optical sensor underneath, it requires a non-metallic pad.



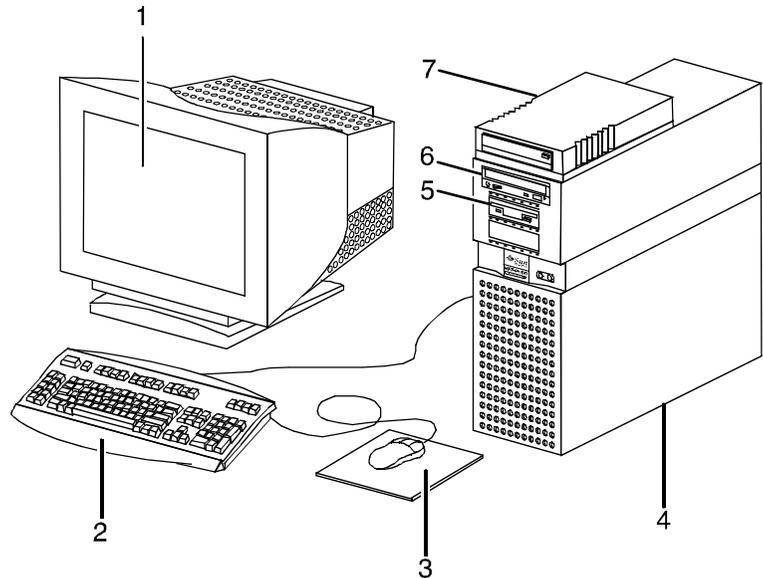
Note: Printer controller hardware configurations are subject to upgrade.

Sun Ultra 60 workstation

The Sun Ultra 60 workstation provides a user interface to the print engine. It has a high performance RISC processor chipset, based on the industry standard Scalable Processor Architecture (SPARC). It is used to operate the software that controls the printer. The workstation contains the following hardware components:

- Sun Ultra 60 workstation processor (system unit)
- Display monitor
- Keyboard and mouse
- Diskette, CD-ROM, and cartridge tape drives
- Connectivity board for Ethernet and, optionally, Token Ring
- A Data Control Interface Module (PDCIMu) card installed in the processor to interface with the print engine.

Figure 2-3. Components of the Sun Ultra 60 workstation



- 1 Monitor
- 2 Keyboard
- 3 Mouse
- 4 Processor
- 5 Diskette drive
- 6 CD-ROM drive
- 7 Cartridge tape drive

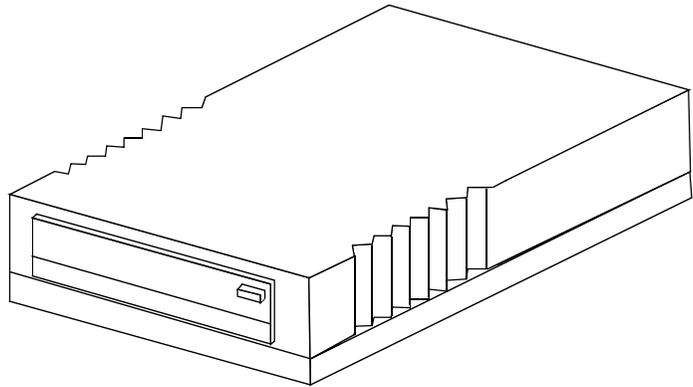
Processor The 256 MB RAM processor is the central processing unit of the Sun Ultra 60 workstation. It contains a power switch, a disk drive, a diskette drive, a CD-ROM drive, a power receptacle and outlet, connectors and ports.

The processor has the following components:

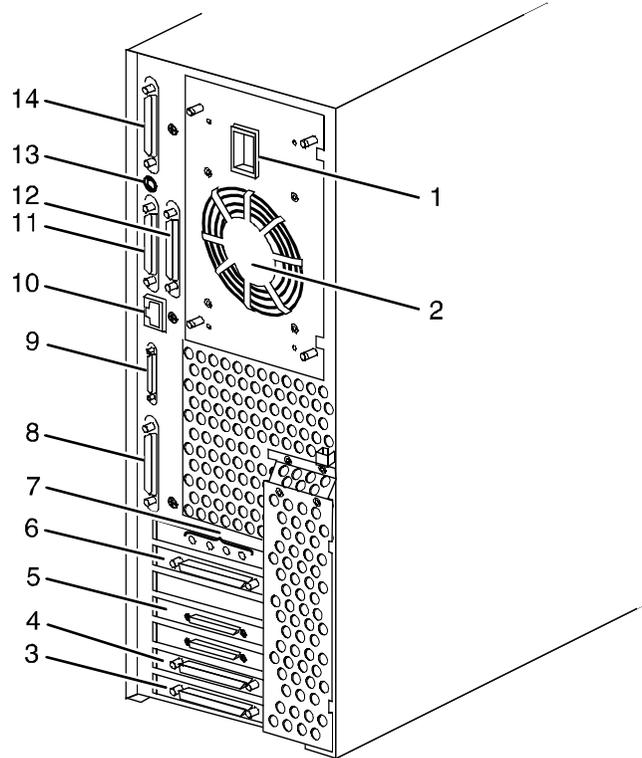
- **Internal disk drive:** Two 18.2 GB primary disk drives are provided as a standard feature of the processor. The operating system, the NPS application, and any queued print jobs are stored on the internal disk. This disk cannot be used to store other applications or data except as directed by your service representative.
- **Diskette drive:** Diskettes inserted into a diskette drive are used to load files to, and back up files from, the internal disk drive. The diskette drive uses industry standard 3.5 inch, 1.44 MB, double-sided, high-density diskettes. This diskette drive is not an input source for print jobs nor any other data or application; it is reserved exclusively for use by a service representative to update software and to store files.
- **CD-ROM drive:** The CD-ROM drive is a high density, read-only, optical laser storage device used for loading the NPS operating system and other files. The CD-ROM drive is located in the processor above the diskette drive.

- **Cartridge tape drive:** A 4 GB external SCSI quarter inch cartridge (QIC) tape drive is an external device provided with the printing system. The cartridge tape drive connects to the controller through the SCSI port on the processor back panel. Like the diskette and CD drives, this tape drive is not an input source for print jobs or for any other data or application. You use it to load resource files, and the service representative uses it to load system maintenance files or to save diagnostic information.

Figure 2-4. **External cartridge tape drive**



- **Back panel:** The back panel of the processor has a power receptacle and outlet, connectors, connector openings, and ports. The following figure shows the back panel of the Sun Ultra 60 workstation that is a part of your NPS controller.

Figure 2-5. **Back panel of the Sun Ultra 60 processor**

- 1 **Power inlet**
- 2 **Fan vent**
- 3 **Online interface (if configured)**
- 4 **Differential SCSI PWB (optional)**
- 5 **Printer connector (PCI66 1)**
- 6 **Monitor connector**
- 7 **Audio connectors (4)**
- 8 **Single-ended SCSI connector**
- 9 **MII connector**
- 10 **TPE (Ethernet) connector**
- 11 **Serial connector A: RS-432/RS-232**
- 12 **Serial connector B: RS-432/RS-232**
- 13 **Keyboard connector**
- 14 **Parallel connector**

Display monitor The graphical user interface allows you to interact with the printer and to monitor its interaction with the various components. During a print job, printer error messages may display to notify you of any unexpected conditions.

Keyboard The keyboard consists of alphanumeric keys similar to a typewriter, symbols and special character keys, an extended character set, and function keys. The keyboard is one of your main methods of communicating with the printer. You can use the keyboard to make selections, and to enter commands that control functions such as requesting sample prints, obtaining billing meter totals, shutting down the system, and so forth.

Mouse The mouse is another main method of communicating with the printer. The mouse has three buttons. The left and right buttons are used to select NPS functions. The center button provides additional functions that you will not be required to use. If your workstation has an optical mouse, it must remain on its designated metallic pad to be active. If the mouse has a roller ball instead of an optical sensor underneath, it requires a non-metallic pad.



Note: Printer controller hardware configurations are subject to upgrade.

Controller software

The installation of printer controller software is performed by your service representative once all the hardware components are in place and properly connected. The following is a summary of major software components installed on the printer controller:

- Xerox printer controller software
 - UNIX Sun operating system



Note: The printer controller's Sun operating system is based on the standard Sun operating system; however, it has been customized for use with the Xerox printer controller. Therefore, not all standard Sun operating system features are available.

- Additional software components for the user interface, printer driver, PDL decomposer, Job Pool Manager, and other operating system utilities.
- Xerox Client Software
 - Xerox client protocol software (an alternative to lpr) downloaded to client workstations or PCs as a means to communicate with the printer controller
 - Windows client (Windows 3.1, Windows 95, or Windows NT 4.0)
 - Xerox PostScript and PCL print drivers
 - Xerox PPDs for use with third-party print drivers.
- Adobe Type 1 PostScript fonts
 - ITC AvantGarde Gothic (Book, Book Oblique, Demi, Demi Oblique)
 - ITC Bookman (Demi, Demi Italic, Light, Light Italic)
 - Courier (Courier, Bold, Oblique, Bold Oblique)
 - ITC Garamond (Light, Light Italic, Bold, Bold Italic)
 - Helvetica (Helvetica, Bold, Oblique, Bold Oblique, Light, Light Oblique, Black, Black Oblique)
 - Helvetica (Narrow, Narrow Bold, Narrow Oblique, Narrow Bold Oblique)
 - Helvetica (Condensed, Condensed Oblique, Condensed Bold, Condensed Bold Oblique)
 - ITC Korinna (Italic, Bold, Bold Italic)
 - New Century Schoolbook (Roman, Bold, Italic, Bold Italic)
 - Palatino (Roman, Bold, Italic, Bold Italic)
 - Symbol
 - Times (Roman, Bold, Italic, Bold Italic)
 - ITC Zapf Chancery Medium Italic
 - ITC Zapf Dingbats.

Using font installation commands, you can load other Type 1 PostScript fonts in *.PFB file format from a MS-DOS-formatted, 3.5-inch diskette or CD-ROM. Refer to the *Xerox DocuPrint Network Printer Series Guide to Configuring and Managing the System* for more information on the font installation commands. Type 1 and Type 3 PostScript fonts can also be downloaded with a print job.

- Adobe Type 0 fonts
Support Chinese double byte printing with third party double byte fonts.
- PCL fonts
 - 35 Intellifont typefaces
 - 10 TrueType typefaces
 - Bitmap typefaces.

3. **Printer components and options**

The printer processes the electronic data and images received from the controller and produces the printed report. This chapter describes the components and options available for the printer.

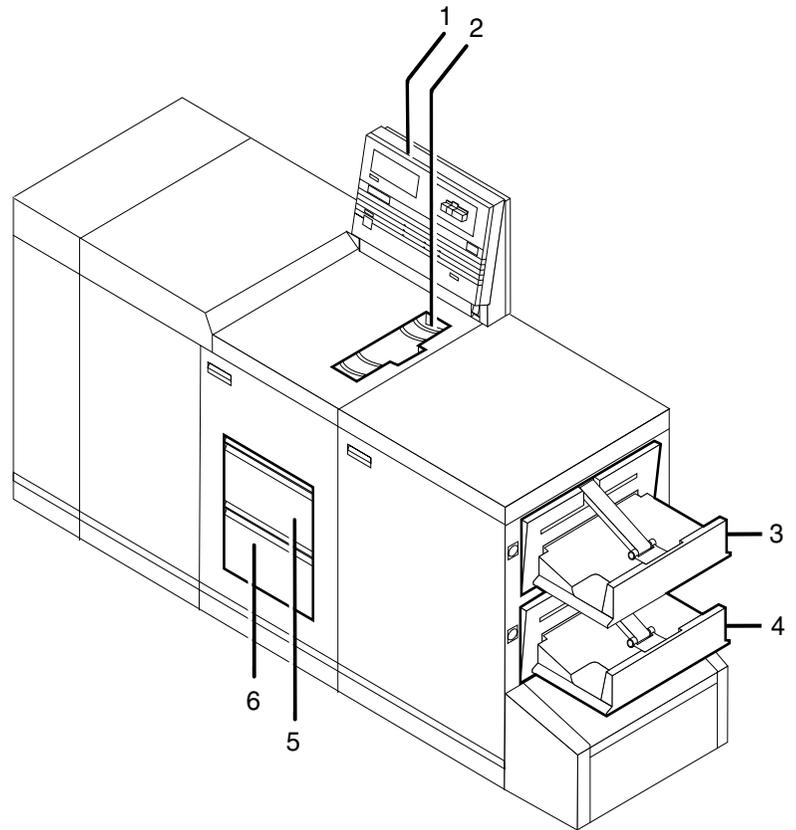
Printer components

The printer is the part of the DocuPrint printing system that processes the electronic data and images received from the printer controller and produces the printed report.

The standard 4050 and 4090 printer components are the printer control console, the sample tray, the feeder trays, and the stacker trays. Labels are located throughout the printer to assist you with a variety of tasks such as clearing a paper jam. The printer also has the capability to sound an audible tone to direct your attention to a printer problem. Your service representative can adjust the volume of this tone.

The printer provides control buttons and displays for basic printer functions and status information. The printer control console contains message and graphic displays that assist you with jam clearance and printer maintenance.

Figure 3-1. 4050/4090 printer shown with dual stacker trays



- 1 **Printer control console**
- 2 **Sample tray**
- 3 **Stacker tray 1**
- 4 **Stacker tray 2**
- 5 **Feeder tray 1**
- 6 **Feeder tray 2**

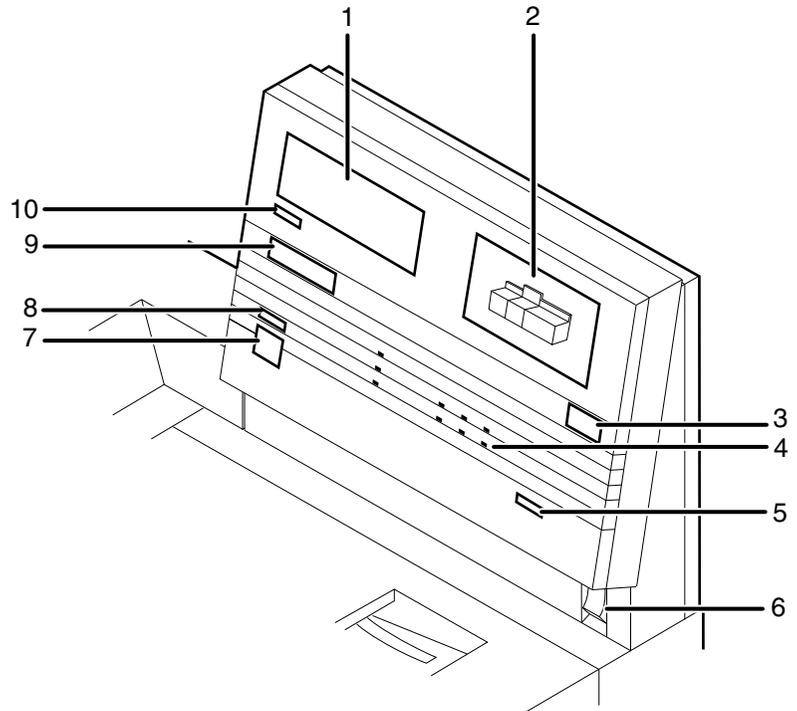
Refer to the *System Overview* manual for a detailed description of the features and operation of the printer components.

Printer control console

The printer control console contains message and graphic displays, as well as status indicator lights that alert you to printer conditions, paper jams, and other fault and status conditions (such as low dry ink). Other indicator lights show which feeder tray is active and the paper size in use. These indicators and the Information button help you to solve printer problems.

Also on this console are Stop and Continue buttons, which allow you to stop printing and resume an interrupted job without returning to the workstation controller. This gives you temporary control of the printer without interrupting input processing.

Figure 3-2. 4050/4090 printer control console



- 1 Attention light
- 2 Message display
- 3 Graphic display
- 4 Wire percentage indicator
- 5 Feeder tray indicators
- 6 Power on/off switch
- 7 Sample button (disabled)
- 8 Continue button
- 9 Stop button
- 10 Fault code display
- 11 Information button

Refer to the *System Overview* manual for a detailed description of the features and operation of the printer control console components.

Printer options

All 4050 and 4090 printers are available with the following options:

- High-capacity feeder
- Dual stacker or stitcher/stacker

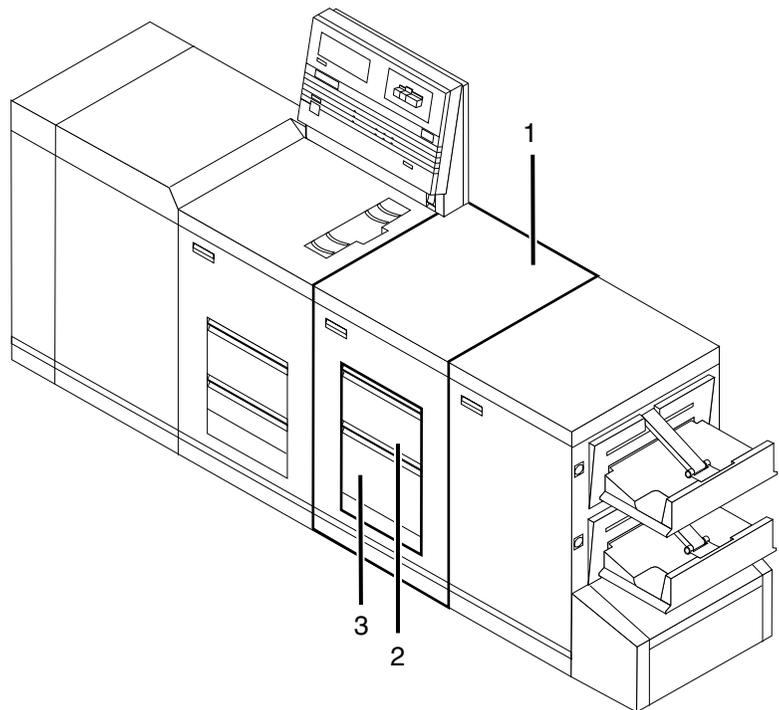
In addition, the LPS 4050/4090 printers are available with the bypass transport option.

These options allow you to customize your printing system for increased efficiency and for specialized applications.

High-capacity feeder

Two feeder trays are provided as part of the printer base configuration (feeder trays 1 and 2). For the DocuPrint Models 4050 and 4090, the high-capacity feeder option increases the versatility and productivity of the printer with two additional feeder trays (trays 3 and 4), increasing the feeder capacity by approximately 2,000 sheets.

Figure 3-3. 4050/4090 with high-capacity feeder



- 1 High-capacity feeder module**
- 2 Feeder tray 3**
- 3 Feeder tray 4**

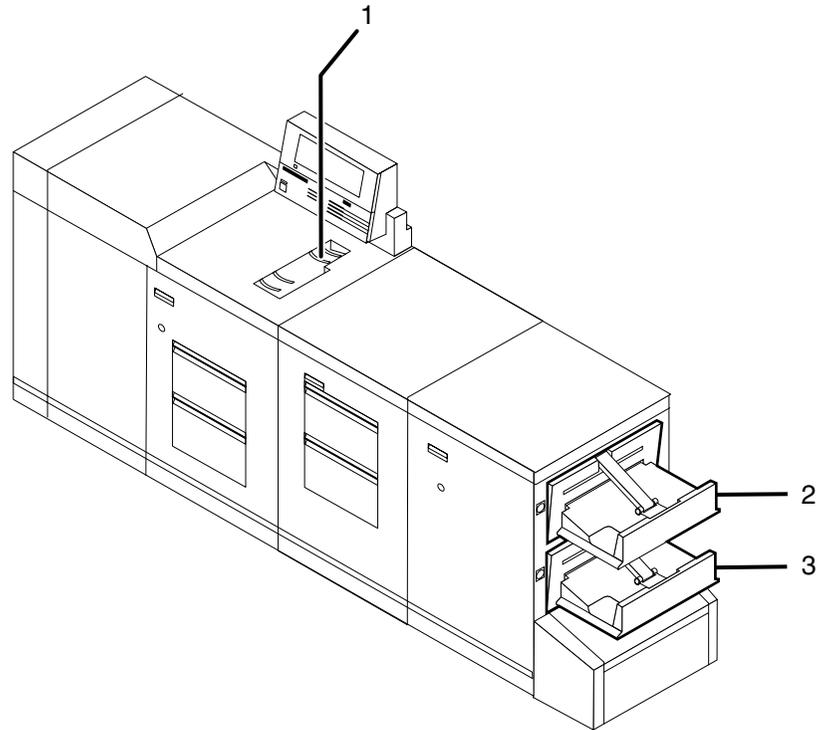
Tray capacities Each high-capacity feeder tray holds 1,000 sheets of 20-pound or 80 gsm bond paper.

Paper sizes Both high-capacity feeder trays handle paper sizes from 8 by 10 inches / 203 by 254 mm to 8.5 by 14 inches / 216 by 356 mm. This includes international paper size A4 (8.27 by 11.16 inches / 210 by 283 mm).

Dual stacker

The dual stacker contains two identical output trays in which it can offset jobs or reports. Using the output configuration windows on the graphical user interface, you can send output to either or both of these trays in the desired order.

Figure 3-4. 4050/4090 with dual stacker



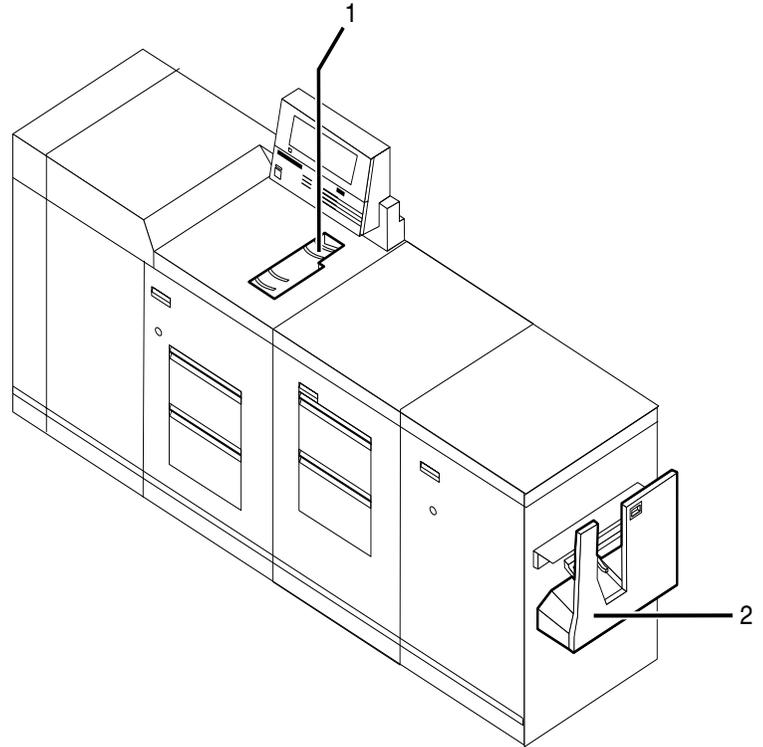
- 1 Sample tray
- 2 Stacker tray 1
- 3 Stacker tray 2

Tray capacities Stacker trays 1 and 2 each hold up to 750 sheets of 20-pound or 80 gsm bond paper.

Stitcher/stacker

The stitcher/stacker can place a wire stitch or staple in stacks of up to 50 sheets. It contains a single output tray in which it can offset jobs and reports.

Figure 3-5. 4050/4090 with stitcher/stacker



- 1 **Stitcher/stacker tray**
- 2 **Sample tray**

Tray capacities

The stitcher tray holds:

- Up to 2,000 sheets of 20-pound or 80 gsm bond, unstitched
- Up to 200 two-sheet stitched sets

Up to 50 sheets can comprise each stitched set. The wire supply provides up to 32,000 staples.

4. Preparing for installation

This chapter assists you in preparing for the installation of your Xerox DocuPrint 4050 and 4090 NPS.

Preparing for installation is a responsibility shared by personnel at your site and Xerox. Your service representatives are available to discuss installation issues and to assist you in completing the site installation tasks.

Prior to installation, you must select and prepare an appropriate location for the DocuPrint system and order supplies. This chapter helps you accomplish these tasks by providing the following information:

- A summary of your responsibilities and those of your Xerox service representative
- A checklist of installation planning activities.

For information on controller power and space requirements, refer to the “Controller specifications and requirements” chapter of this guide. For facts about printer power and space requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Responsibilities

This section describes your site responsibilities and the responsibilities of your service representatives. Included are some joint responsibilities.

Xerox responsibilities

This section lists the responsibilities of the service representatives and system analysts prior to, during, and after installation:

- **Site selection**
 - Assist in site selection
 - Inspect and approve the site.
- **Installation**
 - Schedule the delivery of the hardware
 - Monitor installation activities
 - Assist you in ordering any supplies required
 - Install the DocuPrint system.

- **Training**
 - Provide initial operator training
 - Provide information and assistance in registering for Xerox Customer Education classes or obtaining tutorials.
- **Service**
 - Review preventive maintenance schedules and service call procedures
 - Provide ongoing maintenance
 - Assist in resolving hardware and software problems.

Customer responsibilities

Your responsibilities prior to, during, and after installation of the DocuPrint NPS system are to schedule and monitor your installation activities. Refer to the “4050/4090 NPS installation planning checklist” and the “Network preinstallation checklist” in this chapter for a complete list of responsibilities.

Refer to the “Xerox support services” appendix for information on services designed to support you prior to, during, and after your installation.

Site personnel

Identify the person (or persons) at your site who will be the primary interface with Xerox.

After the installation of your DocuPrint 4050 or 4090 NPS, there are a few ongoing tasks that must be performed. These tasks may include all or some of the following:

- Meter reading and reporting
- Overseeing routine maintenance
- Placing service calls for hardware problems
- Ordering additional documentation, software, or fonts
- Arranging additional operator training
- Maintaining an adequate inventory of consumable supplies.

It is your responsibility to designate a person (or persons) to perform these tasks.

Operator and Systems training

Select personnel for Operator and Systems training and set up a training schedule.

Site preparation

Select and prepare the site for DocuPrint NPS system installation (including proper power, air conditioning, and work space).

Network installation

Install the necessary network connections required to connect client workstations to the printer controller. Refer to the “Network preinstallation checklist” in this chapter.

- Client workstations** Make sure all client workstations that will be submitting print jobs have the proper hardware, operating system, and networking software supported by the DocuPrint system as client platforms.
- Applications** Work with your Xerox systems analyst to determine requirements for initial applications.

Installation planning checklist

To aid you in installation planning of the DocuPrint NPS, this section provides a checklist, listing tasks you and your service representative need to complete in the weeks before installation. If you have questions about any of these activities, contact your sales or service representative.

Use the timeframes in this checklist as guidelines. It is best to consult your suppliers to determine the exact lead times they require.

Table 4-1. **4050/4090 NPS installation planning checklist**

Week	Activity	Reference	Responsibility	Date completed
-4	<ul style="list-style-type: none"> Select location for DocuPrint system. 	Chapters 5 and 6	Customer	_____
	<ul style="list-style-type: none"> Identify networked client workstations to be used. Make sure the hardware, operating systems, and networking software are supported by the DocuPrint NPS. 	Chapter 4 and Appendix D	Customer	_____
	<ul style="list-style-type: none"> In the United States, sign up with Xerox Documentation and Software Services. Order additional documentation, if needed. 	Appendix B	Customer	_____
	<ul style="list-style-type: none"> In the United States, register for Xerox Customer Education classes, if needed. 	Appendix B	Customer and Xerox	_____
-3	<ul style="list-style-type: none"> Schedule hardware delivery. 	Sales rep	Customer and Xerox	_____
	<ul style="list-style-type: none"> Prepare the site: <ul style="list-style-type: none"> — Install network to system location — Establish network addresses and logical unit names for print server and user workstations. — Complete preinstallation checklist. — Provide table with adequate space for hardware and cables. — Ensure and install proper electrical receptacles. — Ensure proper operating environment. 	Chapters 4 to 6	Customer	_____

Table 4-1. **4050/4090 NPS installation planning checklist** (continued)

Week	Activity	Reference	Responsibility	Date completed
-2	<ul style="list-style-type: none"> • Inspect and approve site. • Order consumable supplies. • Minimum supplies needed for installation: <ul style="list-style-type: none"> — Paper (2 cartons) — Developer (1 carton) — Fuser agent (2 cartons) — Dry ink (1 carton) <p>After installation, you will need to establish a procedure for ordering supplies according to your ongoing production requirements.</p>	Chapter 4, Appendix A and sales rep	Xerox Customer and Xerox	_____ _____
-1	Schedule operator training.	Systems analyst	Customer and Xerox	_____
Install	<ul style="list-style-type: none"> • Ensure supplies are available. • Ensure system administrators are available during software installation. • Provide preinstallation checklist and network address of print server (or host file containing this information) to Xerox personnel. Also, designate two client workstations if applicable, for Xerox client software installation. • Install DocuPrint system hardware and software. • Load Xerox client software on client workstations. • Have operators available for training. • Check documentation and software kits for completeness. • Have test jobs ready to run. 	Chapter 4 and Appendix A Chapter 4 <i>Guide to Configuring and Managing the System</i> Appendix B	Customer Customer Customer Xerox Customer Customer Customer	_____ _____ _____ _____ _____ _____ _____
Post-install	<ul style="list-style-type: none"> • Become familiar with support services available. • Establish supplies ordering procedure. • Provide ongoing printer controller and DocuPrint printer maintenance. • Adjust the IOT alignment and magnification. 	Appendix B Appendix A <i>Guide to Performing Routine Maintenance</i>	Customer Customer Customer and Xerox Xerox	_____ _____ _____ _____

NPS network installation checklist

The DocuPrint NPS system is installed and configured by your service representative. The service representative needs certain information about your network environment to complete the DocuPrint printer controller software installation. Use the checklist in table 4-2 to gather the necessary information for the installation.

Some of the items in the checklist may not apply to your environment. Fill in those items that you know may apply, and refer to your network administrator for information, if necessary.



Note: If you are installing the DocuPrint NPS in a Novell NetWare environment, refer to this chapter and your Novell network NPS administrator to assist you in completing the checklist in table 4-2.

The information you may need to provide is defined as follows:

Hostname A unique name that designates a node on the network. You may use up to 32 characters: upper and lower case alpha (a-z and A-Z), integers (0-9), and hyphens (-). The name you choose may be the same as the printer name.

IP address Series of four integers between 0 and 255 separated by a period, such as 192.9.200.1, to create an IP address for the DocuPrint system. (Do not use all zeros or designate 255 for all integers when assigning an IP address.)

- You must assign a unique IP address to each controller connected to a TCP/IP network.



Note: To avoid routing problems that will slow down the controller, the IP addresses you assign must belong on different TCP/IP subnets, as determined by the IP subnet netmask.

- If you are not on a TCP/IP network, use the Xerox-supplied IP address value (192.9.200.1), or the IP address value assigned by your network administrator.

IP netmask Series of four integers between 0 and 255 separated by a period, such as 255.255.255.0 to create an IP netmask. (Do not use all zeros or designate 255 for all integers when assigning an IP netmask, and do not use the IP address value.)

- If you are on a TCP/IP network, assign a valid IP netmask.
- If you are not on a TCP/IP network and you used the Xerox-supplied IP address value (192.9.200.1), use 255.255.255.0 for the IP netmask.

IP broadcast address Series of four integers between 0 and 255 separated by a period, such as 255.255.255.0, to create an IP broadcast address. (Do not use the IP address value.)

- If you are on a TCP/IP network, assign a valid IP broadcast address.
- If you are not on a TCP/IP network, use the Xerox-supplied IP broadcast address value (255.255.252.0), which is a plus (+) sign.

Default router Series of four integers between 0 and 255 separated by a period, such as 188.9.234.1, to specify a default router. Most TCP/IP networks broadcast routing information.



Caution: Specify a default router only if your network does not specify broadcast routing information. 

- If the TCP/IP network does not broadcast routing information, specify an IP address of an existing router that is on the same subnet as the DocuPrint.
- If you are not on a TCP/IP network, specify the default of NONE.

Superuser password (UNIX root password)

Select a password to prevent unauthorized access to your superuser account. You can select a series of any ASCII characters, except those that your UNIX system interprets in a special way. Passwords have no limits on the number of characters, but the system uses only the first eight characters to administer password security. The password selection you make is case sensitive to the system.



Caution: Select a password that cannot be easily obtained by others to avoid unauthorized access to your account. This is not the same password used for Operator or Administrator functions. 

AppleTalk network information

If the DocuPrint NPS is installed in an AppleTalk network environment, indicate whether your AppleTalk network is phase 1 or 2. Also, indicate the AppleTalk zone name you want the DocuPrint to locate. The zone name must be the same name as the existing zone used on the network to which the DocuPrint is attached. In addition, you must specify the network device on which AppleTalk runs.



Note: Do not use the ampersand (“&”) in the zone name to avoid conflict with UNIX expressions. If the ampersand character must be used, enter “\&” instead.

Accounting information

Indicate whether to set an interval on the system to automatically purge accounting information. If accounting information is not purged manually or automatically, the system disk can reach storage limits. To keep your system running at optimum speed, you need to periodically purge accounting data.

Xerox client software

Indicate whether you have Xerox client software installed, and are supporting Xerox clients on the network.

lpr and lpd	Indicate whether to enable client use of lpr and lpd job submission and status commands.
UNIX command tool	Indicate whether to have a UNIX command tool available for use in the background menu.
Retry count	<p>Determine whether the DocuPrint NPS system supports a print production environment, or whether the system remains unattended. Once you determine the environment the DocuPrint NPS supports, you must decide the number of attempts the system makes to print a job before a sequencer restart causes the job to be held for intervention.</p> <ul style="list-style-type: none">• If the DocuPrint NPS supports a print production environment, you may want to specify a large number or zero as the number of attempts the system makes to retry a print job. (Zero indicates an infinite number of retries.)• If the DocuPrint NPS is unattended, you may want to specify only 1 or 2 retries to print a job.

Novell network information

The Novell network information you provide to your service representative is based on whether you configure the DocuPrint as a print server or a remote printer. Refer to Chapter 4 and your Novell network administrator for assistance, if necessary.

DocuPrint as a print server (PSERVER)

Provide the following information to the service representative if you configure DocuPrint NPS as a print server on the Novell network (for further information, refer to the “Installation process” section in Chapter 7 of this guide):

- Novell file server name—indicates the name of the file server that the DocuPrint NPS services. The file server must have the appropriate print server definition and the queue to be serviced.
- Print server name—indicates the name used by the DocuPrint NPS print server. A print server definition with this name must exist on the file server that the DocuPrint NPS services. A single printer (type Remote Other/Unknown) must be defined for this print server and the queue (refer to the queue name below).
- Password for the print server—refers to a password you may have added in the print server definition (using PCONSOLE). It is not necessary to add a password to a print server, and there is no default password.
- Queue name to service—refers to the name of the queue from which the DocuPrint print server accepts jobs. The queue must be defined on the file server that the DocuPrint NPS services. The single printer that must be defined for the print server (as stated above) must also be defined to service the specified queue.
- Form names—distinct form names for DocuPrint NPS that map to the DocuPrint virtual printer names.

DocuPrint NPS as a remote printer (RPRINTER)

Provide the following information to the service representative if you configure DocuPrint NPS as a remote printer on the Novell network (for further information, refer to the “Installation process” section in Chapter 7 of this guide):

- Novell print server name—indicates the name of the print server to which the DocuPrint NPS will connect. An advertising print server with this name must be running on the Novell internet.
- Printer name(s) to service—refers to the name(s) of the printers defined for the Novell print server. Virtual printers should be defined with these names after DocuPrint NPS installation is complete. These printers should be defined as type Remote Other/Unknown.

IPX internal network number	Specify the network number for the internal IPX network in the DocuPrint server. This number must be globally unique within the NetWare internet to which the DocuPrint NPS is connected. (Do not assign a number that is used by other machines to which the DocuPrint NPS will be connected.)
LAN network number	Specify the network number for the cabling system to which the DocuPrint NPS is connected, for example the Ethernet or Token Ring segment.
Network framing type	<p>Specify the network framing type used for IPX/SPX communication by DocuPrint NPS. There are eight options:</p> <ul style="list-style-type: none"> • ETHERNET__II • ETHERNET__802.3 • ETHERNET__802.2 • ETHERNET__SNAP • TOKENRING • TOKENRING__SNAP • FDDI • FDDI__SNAP. <p>Choose a framing type used by the file server that communicates with DocuPrint NPS. If you are using print server or remote printer, and have the DocuPrint NPS communicate with a different machine for each, then choose a framing type that is used by both of the machines.</p> <p>If you are installing a new Novell network using Ethernet, it is recommended that you choose the ETHERNET__II framing type for the file server and the DocuPrint NPS. If you are using Token Ring and the Novell server has both TOKENRING and TOKENRING__SNAP enabled, use TOKENRING on the DocuPrint NPS. For FDDI networks running Novell, it is recommended that you choose the FDDI framing type.</p>

Table 4-2. Network preinstallation checklist

Network Information	Information you supply
Hostname	
IP address for primary net device	
IP netmask for primary net device	
IP address for secondary net device #1 (if applicable)	
IP netmask for secondary net device #1 (if applicable)	
IP address for secondary net device #2 (if applicable)	
IP netmask for secondary net device #2 (if applicable)	
IP address for secondary net device #3 (if applicable)	
IP netmask for secondary net device #3 (if applicable)	
Primary network device	
Default router	
Secondary network devices (if applicable)	
Superuser password	
Accounting information	
Xerox client software	
lpr and lpd	
UNIX command tool	
Retry count	

Table 4-3. Novell preinstallation checklist

Novell Network Information	Information you supply
Novell network information (DocuPrint NPS as a print server) Novell file server name Print server name Password for the print server Queue name to service Form names	
Novell network information (DocuPrint NPS as a remote printer) Novell print server name Printer name(s) to service	
IPX internal network number	
LAN network number	
Ethernet framing type (ETHERNET_II, 802.3, 802.2, or SNAP; TOKENRING or TOKENRING_SNAP)	

Table 4-4. **AppleTalk preinstallation checklist**

AppleTalk Network Information	Information you supply
AppleTalk Phase 1 or 2	
AppleTalk zone name	
Network device used for the AppleTalk protocol	

Connectivity requirements

A Token Ring network or an Ethernet local area network (LAN) running Transmission Control Protocol/Internet Protocol (TCP/IP), AppleTalk, or Novell NetWare software is the network communication system used to transport documents from the client workstation to the printer.

Ethernet specifications

The Ethernet connection to the printer controller processor must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard.

The Ethernet interface on the printer controller processor is a 10Mb/sec twisted pair standard (10BaseT and 100BaseT). Attachment Unit Interface (AUI) Coax Ethernet is enabled with an adapter cable.

Work with your system administrator to assess what type of network you have and what modifications need to be made to supply an Ethernet connector to the printer controller processor.

Token Ring specifications

The Token Ring connection must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard. The printer controller processor has a 4MB Token Ring interface.

Fiber Distributed Data Interface specifications

TCP/IP, Novell 3.x, and Apple Talk network protocols are supported over FDDI. The FDDI supports a Single Connection configuration only.

5. Controller specifications and requirements

This chapter provides power and space requirements for your 4050/4090 NPS printer controller. It also provides controller environmental specifications.

For facts about printer power and space requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Power requirements

Your 4050/4090 NPS controller has important power requirements that must be accommodated. These requirements are summarized in the table below.

For details on printer power requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Table 5-1. **4050/4090 NPS controller 60 Hz electrical requirements**

	Voltage	Amp service	KVA rating	NEMA
Sun Ultra 2 printer controller	100 to 240 VAC	15 amp	0.4 KVA	TBD
Sun Ultra 60 printer controller	100 to 240 VAC	15 amp.	0.4 KVA	5-15R

Table 5-2. **4050/4090 NPS controller 50 Hz electrical requirements**

	Voltage	Amp service	KVA rating
Sun Ultra 2 printer controller	100 to 240 VAC	15 amp	0.4 KVA
Sun Ultra 60 printer controller	100 to 240 VAC	15 amp	0.4 KVA

Agency certification: UL 478 and 1950, IEC 950, CSA 22.2 #220-1986, FCC (Class A), and VDE 0871 (Class A).

Outlet configurations

This section discusses specifications for system outlets and the required wall outlet configurations for the USA/Canada and internationally.



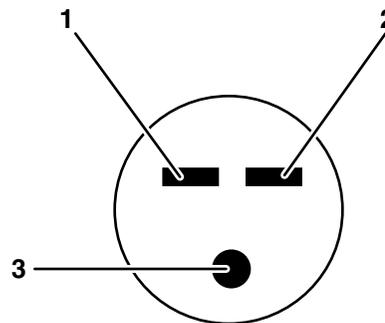
Note: All power outlets must be dedicated to this equipment. When determining the electrical connections for your printing system, make sure that:

- Each power cord has a separate circuit
- The printer power cord configurations match your receptacle
- Your electrical outlets are within the required specifications.

50 Hz systems: Ensure that power connections are per local codes/regulations. □

The following figure shows a 60 Hz American and Canadian wall outlet in which to plug the printer controller.

Figure 5-1. **60 Hz wall outlet**



- 1 **AC Hot (ACH)**
- 2 **AC Hot (ACH)**
- 3 **Earth Ground (GND)**

The required American and Canadian wall outlet voltage is 100 to 120 VAC between AC hot and neutral, and between AC hot and GND. The voltage is less than three VAC between GND and neutral.

Refer to the 60 Hz and 50 Hz controller electrical requirements tables earlier in this chapter for a description of the power specifications for the controller.



Warning: To reduce the risk of electrical shock, do not plug components into any other type of power system. Contract your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your work area. ⚠

Environmental specifications

The environmental requirements for the NPS printer controller are all satisfied by the printer module. Refer to the “Printer specifications and requirements” chapter of this guide.

For recommended environmental ranges for the printer work area, refer to the “Printer specifications and requirements” chapter of this guide.

Table 5-3. **Heat dissipation specifications for the 4050/4090 NPS controller**

Heat dissipation	
Processor	1,100 BTU per hour
Monitor	408 BTU per hour

Space requirements

This section provides recommendations for placement of printer controller hardware components.

For printer component space requirements, refer to the “Printer specifications and requirements” chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Printer controller placement

You should consider the following factors when deciding where to place the DocuPrint printer controller:

- Adequate work space and service clearance around the equipment
- Proximity to electrical and network connectors
- Security of the work area. You may need to place the system in an area where you can restrict access to it.

You must supply a table or desk as a work surface for the printer controller. The top of the table must provide at least 36 by 36 inches / 91 by 91 cm of space for each component, to allow enough space for the components and cables, as well as for service access.

Refer to the “Printer controller specifications and requirements” summary table at the end of this chapter to make sure the tables you supply can support the weight of the printer controller hardware elements, and that they are suitable for the intended use.



Warning: The printer controller must be positioned within the line-of-sight of the printer for safety purposes while servicing the equipment. 

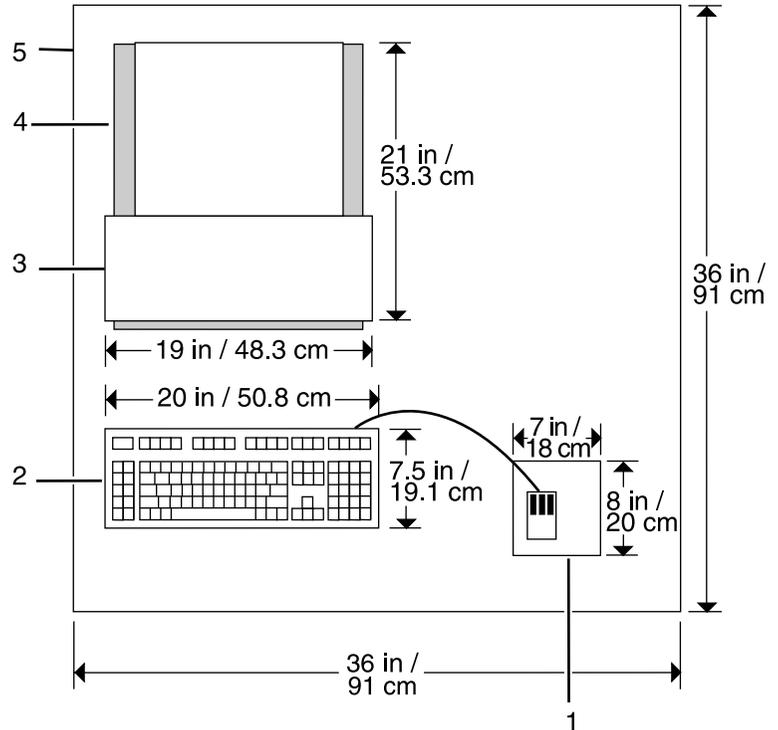


Caution: Position the table(s) at least 6 inches / 15.2 cm from the wall. Make sure the printer controller processor is at least 12 inches / 30.4 cm from the wall. Do not put the processor on the NPS printer.

Sun Ultra 2 workstation placement

Following are guidelines for placement of the Sun Ultra 2 workstation components of the printer controller.

Figure 5-2. **Sun Ultra 2 printer controller hardware**



- 1 **Mouse and mouse pad**
- 2 **Keyboard**
- 3 **Monitor**
- 4 **Processor**
- 5 **Table**

When you place your workstation processor on a table top, make sure to allow at least 6 inches / 152 mm of unobstructed space at the rear and both sides of the processor. Do not allow any piece of equipment to blow warm air into the air-intake vents of the processor.

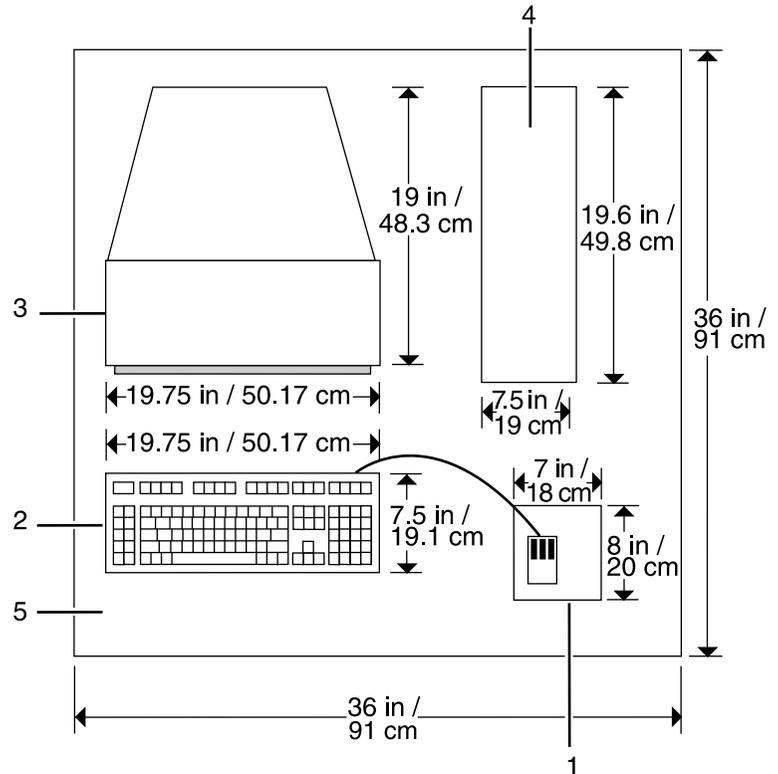


Caution: Do not place a monitor with a base larger than the processor on top of the unit. Do not block any fan or vents on the sides or rear of the processor.

Sun Ultra 60 workstation placement

Following are guidelines for placement of the Sun Ultra 60 workstation components of the printer controller.

Figure 5-3. **Sun Ultra 60 printer controller hardware**



- 1 Mouse and mouse pad**
- 2 Keyboard**
- 3 Monitor**
- 4 Processor**
- 5 Table**

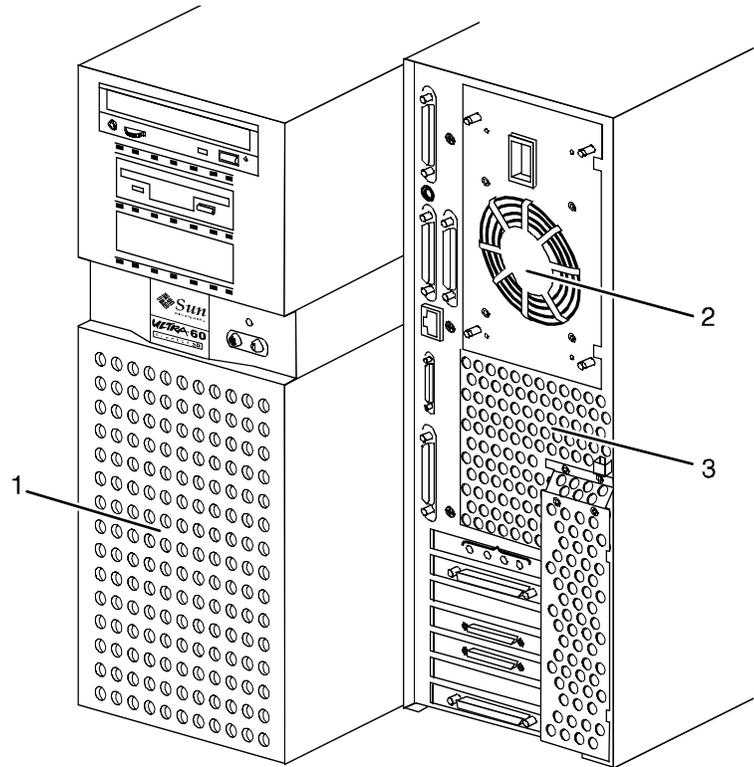
To ensure consistent performance and avoid any damage to equipment, follow these rules for placing the components of the Sun Ultra 60 controller.

Do:

- Place the monitor and processor on a desk or table top, separate from the printer. The monitor should be placed beside the processor, on the same surface. (The cartridge tape drive may be placed on top of the processor.)
- Keep the processor in an upright, vertical position as illustrated below.
- Allow at least 6 inches / 152 mm of unobstructed space at the front and rear of the processor, so the fan and vents are not blocked.

The following illustration shows fan and vent locations on the front and back of the controller.

Figure 5-4. Sun Ultra 60 fan and vent locations to keep clear



- 1 Vent in front of processor
- 2 Fan in back of processor
- 3 Vent in back of processor

Do not:

- Do not place the controller monitor on top of the processor.
- Do not allow any piece of equipment to blow warm air into the air intake vents of the processor.
- Do not place the processor on its side, or in any other position but the upright, vertical position shown in the previous figure.
- Do not place the processor or monitor on top of the printer.

Controller hardware specifications and requirements summary

The following table summarizes the specifications and electrical requirements of your DocuPrint NPS printer controller hardware components.

For a summary of printer hardware specifications and requirements, refer to the "Printer specifications and requirements" chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Table 5-4. **Printer controller specifications and power requirements**

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements	Cable lengths
Processor	d=16.1 / 40.9 cm w=16.4 / 41.7 cm h= 3 in. / 7.6 cm	27 lbs. / 12.7 kgs	1,100 BTU per hours	Sun Ultra 2 (60 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA, 5-15 NEMA Sun Ultra 2 (50 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA Sun Ultra 60 (60 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA, 5-15 NEMA Sun Ultra 60 (50 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA	Power: 8 ft. / 2.4 m Interface to printer: 20 ft. / 6.1 m usable length
Monitor	d=6.1 / 41cm w=18.1 / 46 cm h=17.7 in. / 45 cm	61 lbs. / 27.7 kg	408 BTU per hour	100-120 ~ VAC, 1 phase, 50-60 Hz, 3.0A, 0.4 KVA 200-240 ~ VAC, 1 phase, 50-60 Hz, 2.0A, 0.4 KVA	Video cable to processor: 46 in. / 1.17 m
4 mm cartridge tape drive	d=12.2 in. / 31 cm w=7.5 in. / 19 cm h=2.8 in. / 7 cm	8 lbs. / 6.6 kg	---	100-120/200-240 VAC, 0.8/0.4A, 47-63 Hz	SCSI cable to processor or additional SCSI device: 28 in. / 71 cm
Keyboard	d=7.5 in. / 17.8 cm w=18 in. / 45.7 cm	2 lbs. / 1kg	---	---	72 in. / 1.8 m
Mouse	d=3 in. / 8 cm w=4 / 10 cm h=2 in. / 5 cm	0.3 lbs. / 0.14 kg	---	---	25 in. / 63 cm

6. Printer specifications and requirements

This chapter provides power and space requirements for your 4050/4090 printer. It also provides printer environmental specifications.

For facts about controller power and space requirements, refer to the “Controller specifications and requirements” chapter of this guide.

Power requirements

Your DocuPrint system has important power requirements that must be accommodated. These requirements are summarized in the table below. For further details on power requirements, refer to the voltage charts and wiring diagrams that follow.

For details on controller power requirements, refer to the “Controller specifications and requirements” chapter of this guide.

Table 6-1. 4050 printer 60 Hz electrical requirements

Voltage	Amp. service	KVA rating	NEMA
120/208 or 120/240 VAC	30 amp	Operating: 4.1 Standby: 2.7	14-30R

Table 6-2. 4050 printer 50 Hz DELTA electrical requirements

Voltage	Amp. service	KVA rating
220, 230, 240 VAC (3 phase, 4 wire or single-phase)	30 amp	Operating: 3.8 Standby: 2.5

Table 6-3. 4090 printer 60 Hz electrical requirements

Voltage	Amp. service	KVA rating	NEMA
120/208 or 120/240 VAC	30 amp	Operating: 5.5	14-30R

Table 6-4. 4090 printer 50 Hz DELTA electrical requirements

Voltage	Amp. service	KVA rating
220, 230, 240 VAC	30 amp	Operating: 5.5

Agency certification: UL 478 and 1950, IEC 950, CSA 22.2 #220-1986, FCC (Class A), and VDE 0871 (Class A).

Outlet configurations

This section discusses specifications for the DocuPrint system outlets and the required wall outlet configurations for the U. S. / Canada and internationally.



Note: All power outlets must be dedicated to this equipment. When determining the electrical connections for your system, make sure that:

- Each power cord has a separate circuit
- The printer power cord configurations match your receptacle
- Your electrical outlets are within the required specifications.

50 Hz systems: Ensure that power connections are per local codes/regulations.

Printer outlet voltages—60 Hz

The following table shows the voltages for the outlets on your printing system. All power outlets must have a dedicated circuit for each system equipment piece.

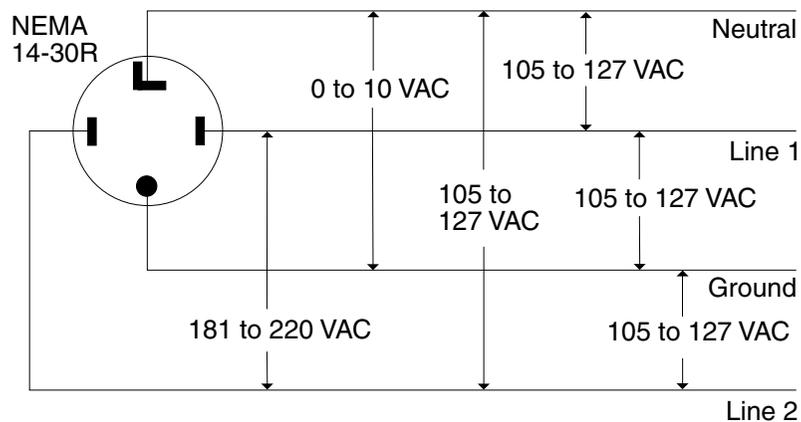
Table 6-5. 60 Hz voltage requirements at power outlet

Measurement of wiring	Nominal	Range
Line 1 to neutral	120 V	105 to 127 V
Line 2 to neutral	120 V	105 to 127 V
Neutral to ground	0 V	0 to 10 V
Line 1 to line 2	208 V	181 to 220 V
Line 1 to ground	120 V	105 to 127 V
Line 2 to ground	120V	105 to 127 V

Printer power cord configurations

The following figure shows the 60 Hz power cord configuration for 30 amp NEMA 14-30R. Voltage to ground is shown for troubleshooting purposes.

Figure 6-1. 60 Hz power configuration



Printer outlet voltages—50 Hz

All power outlets must have a dedicated circuit for each system equipment piece. Make sure each power cord has a separate circuit.

50 Hz systems: Ensure that power connections are per local codes/regulations.

Single phase DELTA configurations

For 50 Hz DELTA configurations, measure the DELTA connection voltages at the power source.

Table 6-6. **50 Hz single phase DELTA outlet voltage requirements**

Wiring	Nominal	Range
Line to neutral	220 VAC 230 VAC 240 VAC	198-242 VAC 207-253 VAC 216-264 VAC
Neutral to ground	0 VAC	<10 VAC

Three-phase DELTA configurations

The current carrying conductors available for 50 Hz, three-phase, DELTA are:

- Three-phase
- Safety ground.

Table 6-7. **50 Hz three-phase DELTA outlet voltage requirements**

Nominal	Phase to phase
220 VAC	198-242 VAC
230 VAC	207-253 VAC
240 VAC	216-264 VAC



Note: If one of the phases is connected to ground in the service system, it should be connected to the neutral terminal of the printer. In this case, the line is not a true neutral, and voltage between all current carrying conductors is equal and mutually 120 degrees out of phase. □

Environmental specifications

When you select a site location for your DocuPrint printer, avoid environments with extreme variations in temperature and other hazards, such as excessive dust or humidity. Recommended environmental ranges for the work area are as follows:

Table 6-8. **Environmental specifications for 4050/4090**

Condition	Range	
Temperature:	Recommended:	72° F ± 4° F 22° C ± 2° C
	Minimum: Maximum:	60° F / 15.5 °C 80° F / 26.7° C
Humidity:	Recommended:	45% ±10%
	Minimum: Maximum:	30% 65%
Altitude:	Normal:	Up to 6,000 feet / 1,830 m above sea level
	Maximum:	9,000 feet / 2,743 m above sea level.
4050 Printer - 60 Hz heat dissipation	Operating: Standby:	11,200 BTU/hour 7,400 BTU/hour
4050 Printer - 50 Hz DELTA heat dissipation:	Operating: Standby:	11,200 BTU/hour 7,400 BTU/hour
4090 Printer - 60 Hz heat dissipation:	Operating: Standby:	14,980 BTU/hour 9,100 BTU/hour
4090 Printer - 50 Hz DELTA heat dissipation:	Operating: Standby:	14,980 BTU/hour 9,100 BTU/hour

Space requirements

You should consider the following factors when deciding where to place the printer hardware components:

- Adequate work space and service clearance around the equipment
- Proximity to electrical and network connectors
- Security of the work area. You may need to place the system in an area where you can restrict access to it. This may be important if your personnel need to print confidential documents or if you are concerned with unauthorized usage.

Dimensions and weights of the printer components are listed in this section, along with diagrams, to help you visualize the sizes and total space requirements.



Warning: The printer controller must be positioned within the line-of-sight of the printer for safety purposes while servicing the equipment. 



Note: There must be a 78-inch / 198-cm vertical clearance throughout the entire area. In addition, your printer must be installed in a fixed location with a minimum clearance space of 36 inches / 91.4 cm around all sides of each piece of equipment for access by service personnel. 

For information on clearance space and other space planning considerations, refer to the “Space planning guidelines” section of this chapter. Contact your service representative if you have questions not specifically addressed in this guide.

Printer placement

The following configurations are available for your Xerox DocuPrint 4050/4090 printer:

- Standard (two-tray) feeder with dual stacker
- Standard (two-tray) feeder with stitcher/stacker
- High-capacity feeder (HCF) with dual stacker
- High-capacity feeder with stitcher/stacker.

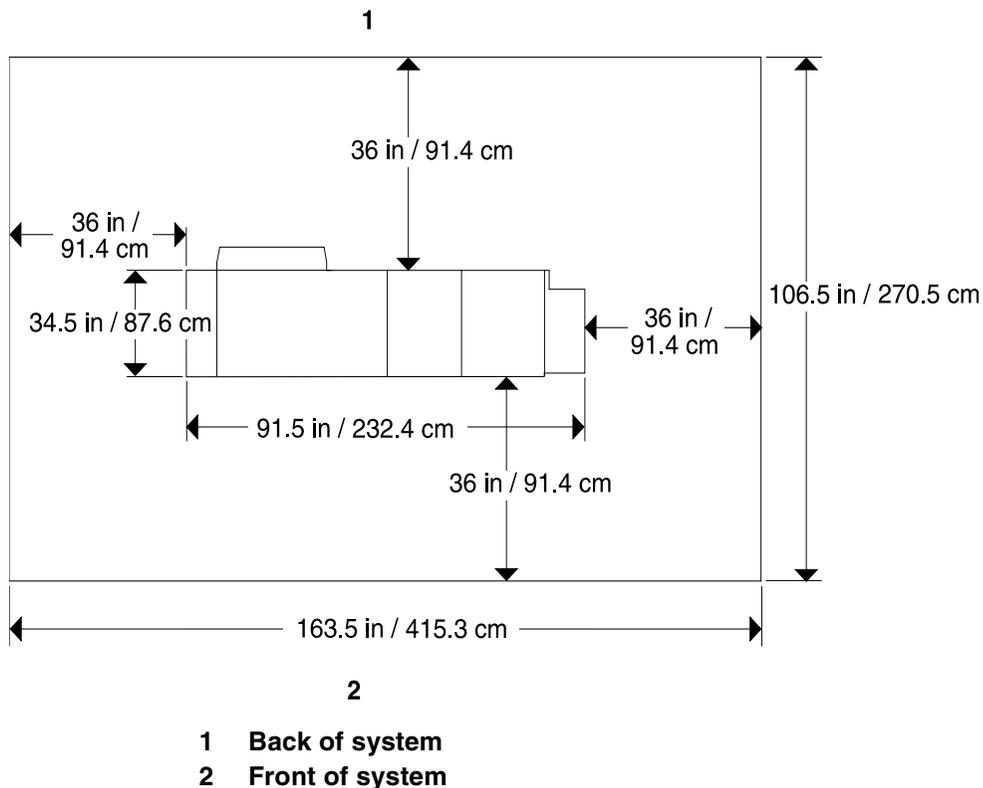
Printer with standard (two-tray) feeder and dual stacker

The dimensions of the printer with the standard (two-tray) feeder and the dual stacker are as follows:

Dimension	Specifications
Width:	91.5 inches / 232 cm
Depth:	34.5 inches / 87.6 cm
Height:	41 inches / 104 cm
Total weight:	1,272 pounds / 578 kg
Total space requirement:	163.5 by 106.5 inches / 415 by 271 cm

The following illustrates a top view of the space requirements for the printer with a standard (two-tray) feeder and dual stacker configuration.

Figure 6-2. 4050/4090 printer with dual stacker



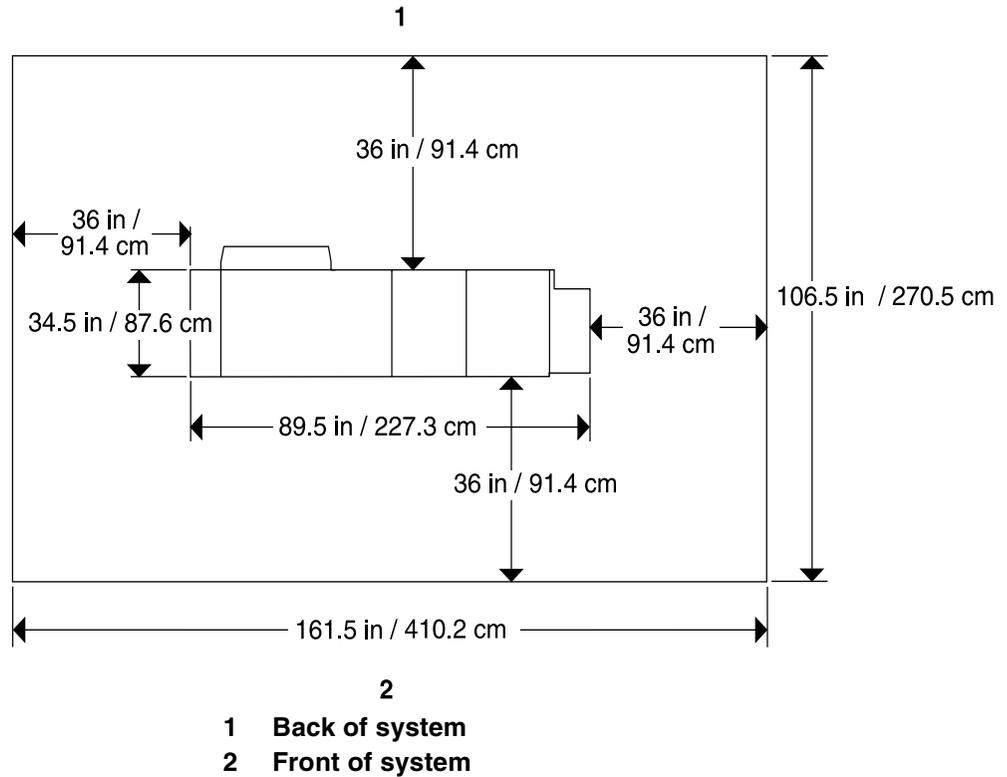
Printer with standard (two-tray) feeder and stitcher/stacker

The dimensions of the printer with the standard (two-tray) feeder and the stitcher/stacker are as follows:

Dimension	Specifications
Width:	89.5 inches / 227 cm
Depth:	34.5 inches / 87.6 cm
Height:	41 inches / 104 cm
Total weight:	1,274 pounds / 578 kg
Total space requirement:	161.5 inches by 106.5 inches / 410 cm by 271 cm

The following illustrates a top view of the space requirements for the printer with a standard (two-tray) feeder and stitcher/stacker configuration.

Figure 6-3. **4050/4090 printer with stitcher/stacker**



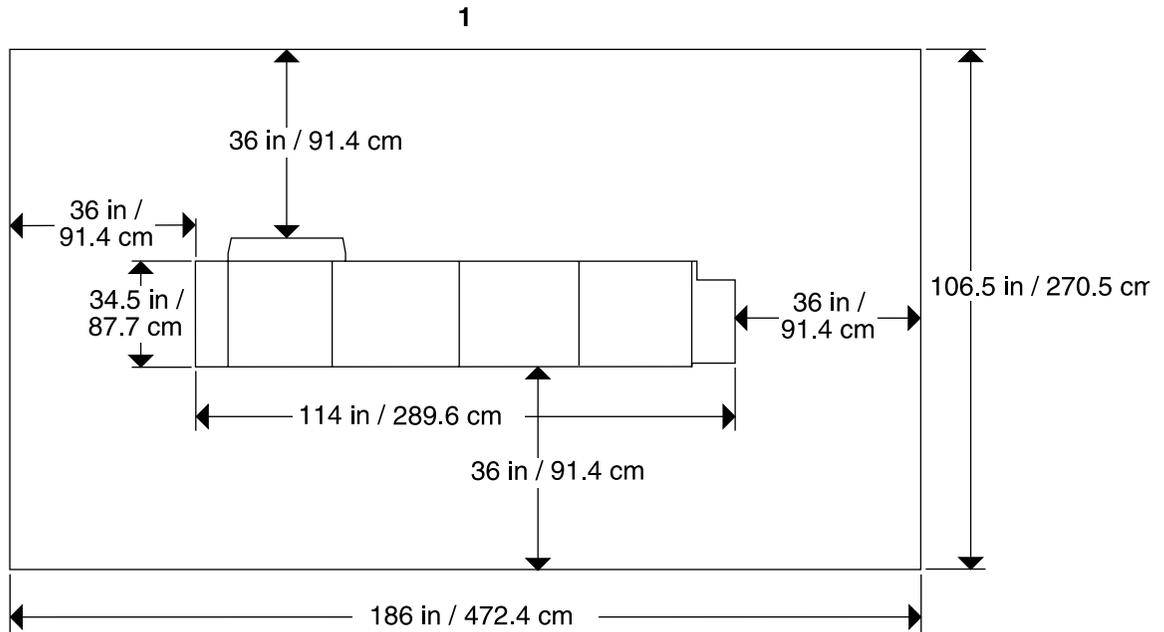
Printer with high-capacity feeder and dual stacker

The dimensions of the printer with the high-capacity feeder and the dual stacker are as follows:

Dimension	Specifications
Width:	114 inches / 290 cm
Depth:	34.5 inches / 87.6 cm
Height:	41 inches / 104 cm
Total weight:	1,560 pounds / 709 kg
Total space requirement:	186 inches by 106.5 inches / 472 cm by 271 cm

The following illustrates a top view of the space requirements for the printer with a high-capacity feeder and dual stacker configuration. The high-capacity feeder provides the printer with additional paper handling capabilities.

Figure 6-4. **4050/4090 printer with high-capacity feeder and dual stacker**



- 2
- 1 Back of system
- 2 Front of system

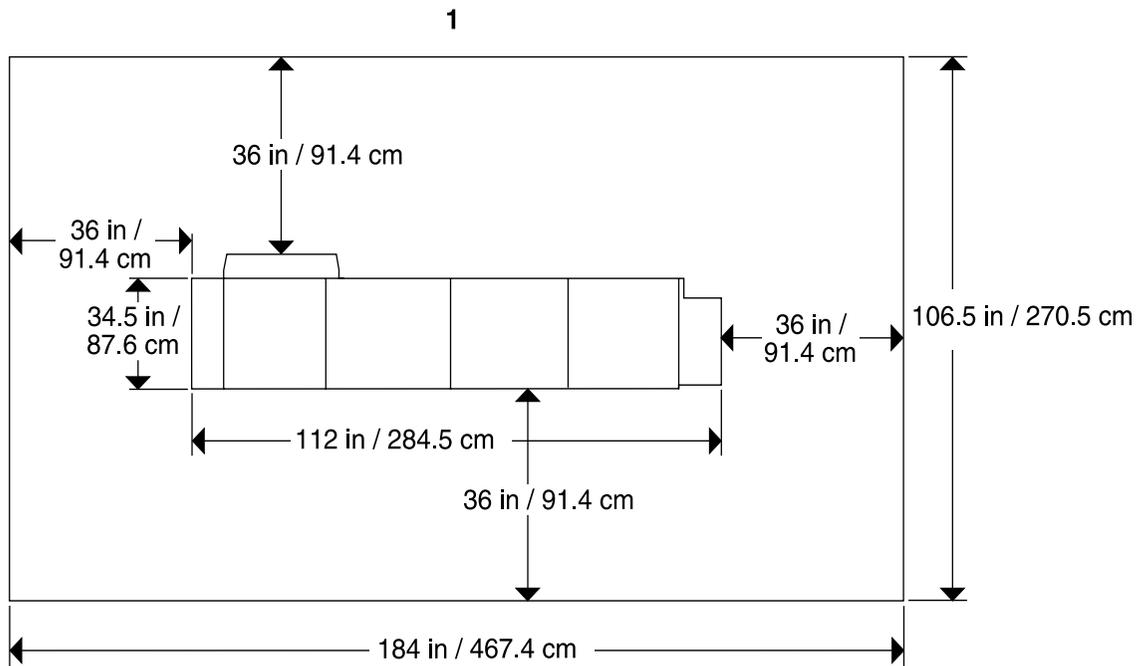
Printer with high-capacity feeder and stitcher/stacker

The dimensions of the printer with the high-capacity feeder and the stitcher/stacker are as follows:

Dimension	Specifications
Width:	112 inches / 285 cm
Depth:	34.5 inches / 88 cm
Height:	41 inches / 104 cm
Total weight:	1,562 pounds / 710 kg
Total space requirement:	184 inches by 106.5 inches / 467 cm by 271 cm

The following illustrates a top view of the space requirements for the printer with a high-capacity feeder and stitcher/stacker configuration.

Figure 6-5. **4050/4090 printer with high-capacity feeder and stitcher/stacker**



- 2
- 1 Back of system
 - 2 Front of system

Space planning guidelines

When determining your space requirements and planning for shared space between your DocuPrint printers, it is important to consider all of the components you plan to install.

To ensure all of the space requirements are met, it is important to work with your Xerox representative.

Before installation, you must consider the following:

- Clearance space requirements where you intend to install the printing system
- Delivery access requirements
- Recommended cable lengths and locations (refer to the “System connections” chapter of this guide for more information)
- Floor leveling.

Clearance space requirements

The printer must be installed in a fixed location that provides the following clearance space:

- 36 inches / 91.4 cm on all sides of each component
- 78 inches / 198 cm of vertical clearance throughout the entire area
- 24 inches / 61 cm of exclusive operator area in front of each component.

Shared space

It is best to provide the full amount of clearance space around the hardware components. Your environment may require you to use shared space between components, such as between the printer and another Xerox printing system. You can share the 36-inch / 91.4 cm clearance space around each component, as long as you follow these rules:

- Space may be shared only with other Xerox equipment.
- Components may share the 36-inch / 91.4 cm general service clearance areas, but they may not share the 24-inch / 61 cm operator area in front of each component.
- There must be 78 inches / 198 cm of vertical clearance throughout the entire area.



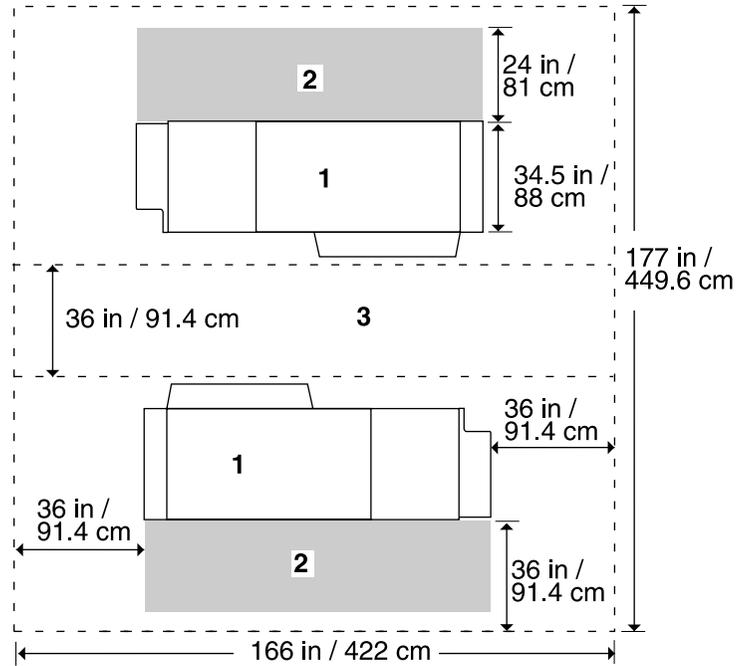
Note: Finishers attached to your bypass transport may occupy shared space with Xerox equipment. However, they must be removable to allow servicing of the DocuPrint NPS printer stackers. Consult with your Xerox representatives to ensure all the requirements are met.

The following figures illustrate three possible configurations of shared space.

Back-to-back shared space

The figure below illustrates the two printers placed in a back-to-back position. This allows them to share the entire 36 inches / 91.4 cm of general service space.

Figure 6-6. **Back-to-back shared service area space**

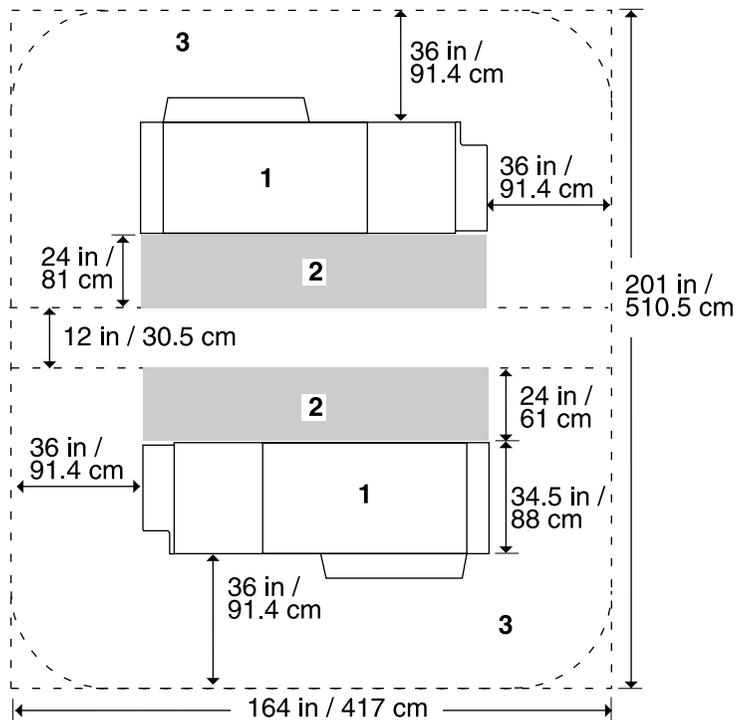


- 1 Printer
- 2 Operator area
- 3 General service area

Face-to-face shared space

The following figure shows the two printers facing each other. The printers share 12 inches / 30.5 cm of the general service space, but not the exclusive operator area in front of each printer. Therefore, the printers should be separated by 24 inches / 61 cm, plus 24 inches / 61 cm, plus 12 inches / 30.5 cm. This allows for the entire operator space for each printer, plus the shared general service area of 12 inches / 30.5 cm.

Figure 6-7. **Face-to-face shared service area space**



- 1 Printer
- 2 Operator area
- 3 General service area

Floor leveling

For proper operation, the printer must be perfectly level. On floors less than two degrees out of level, installation personnel use a leveling kit to level the machine.



Note: The printer will not function properly on floors more than two degrees out of level. □

If the floor is more than two degrees out of level, this condition cannot be corrected by the leveling kit. Another suitable location must be found for the printer to be installed properly.

For your reference, two degrees represents a height discrepancy of approximately 3.8 inches / 9.6 cm measured at the casters with the printer tilting from left to right, or approximately 0.7 inches / 1.8 cm with the printer tilting from back to front.

If you move the printer unit after its initial installation, it is your responsibility to make sure that the printer can be leveled properly. If you do not have the leveling kit (the printer in its initial location did not require it), and you need one to level the printer in a new location, contact your Xerox site representative to obtain one.

Delivery access requirements

It is easy to overlook the path required to move the equipment from the truck to the operation site. To determine access, ask the following questions:

- Does the equipment need to go up stairs?
- Do you have an elevator, if the equipment is to be located above the first floor?
- Is the elevator large enough for the equipment?
- How wide are the hallways and doorways?
- Do you have a loading dock or a specific door to which the equipment should be delivered?

You need to review these issues prior to, or at the time of, the site inspection conducted by your service representative.

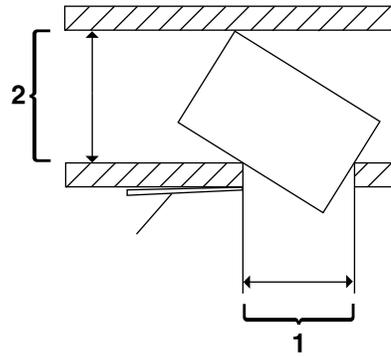
The equipment dimensions are specified earlier in this chapter, so it is easy to determine whether your hallways and doorways are wide enough to permit access.

Turning radius

You must also consider the width of the passageway when the equipment must negotiate a corner, whether into a room, an elevator, or another passageway.

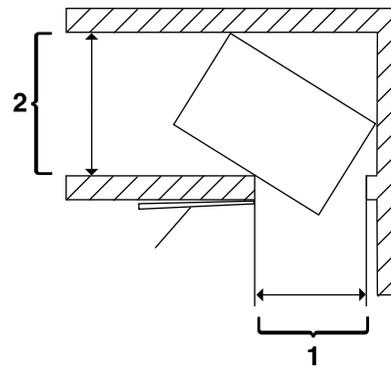
There are L-shaped turns and T-shaped turns. The diagrams and the tables that follow show the minimum space required to maneuver through the turns.

Figure 6-9. **T-shaped turn**



- 1 **Passage A**
- 2 **Passage B**

Figure 6-10. **L-shaped turn**



- 1 **Passage A**
- 2 **Passage B**

Using the turning radius table

To use the following table:

1. Measure the minimum width of the passage or doorway you need to use. This is Passage A.
2. Find that number (or the next higher number) in the turning radius table and read across to the corresponding minimum value for Passage B, depending on the type of turn the equipment must negotiate.

The following table contains turning requirements for the printer.

Table 6-9. Turning radius for the printer

If passage or doorway A is:	Passage B for an L-turn must be:	Passage B for a T-turn must be:
29 inches / 73.7 cm	68.6 inches / 174.2 cm	67.6 inches / 171.7 cm
30 inches / 76.2 cm	66.2 inches / 168.1 cm	65.7 inches / 166.9 cm
31 inches / 78.7 cm	64.2 inches / 163.1 cm	63.9 inches / 162.3 cm
32 inches / 81.3 cm	62.3 inches / 158.2 cm	62.2 inches / 158 cm
33 inches / 83.8 cm	60.7 inches / 154.2 cm	60.6 inches / 153.9 cm
34 inches / 86.4 cm	59.1 inches / 150.1 cm	59.1 inches / 150 cm
35 inches / 88.9 cm	57.7 inches / 146.6 cm	57.7 inches / 146.6 cm
36 inches / 91.4 cm	56.3 inches / 143 cm	56.3 inches / 143 cm
37 inches / 94 cm	55.2 inches / 140.2 cm	55.2 inches / 140.2 cm
38 inches / 96.5 cm	54.0 inches / 137.2 cm	54.0 inches / 137.2 cm
39 inches / 99.1 cm	52.9 inches / 134.4 cm	52.9 inches / 134.4 cm
40 inches / 101.6 cm	51.8 inches / 131.6 cm	51.8 inches / 131.6 cm
41 inches / 104.1 cm	50.5 inches / 128.3 cm	50.5 inches / 128.3 cm
42 inches / 106.7 cm	49.8 inches / 126.5 cm	49.8 inches / 126.5 cm

Printer hardware specifications and requirements summary

The following table summarizes the specifications and electrical requirements of your printer hardware components.

For a summary of controller hardware specifications and requirements, refer to the “Controller specifications and requirements” chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Table 6-10. **Printer specifications and power requirements—4050/4090 printer**

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements
4050/4090 printer: Standard (two-tray) feeder and dual stacker	d=34.5 in. / 87.6 cm w=91.5 in. / 232 cm h=41 in. / 104 cm Total space required: 163.5 by 106.5 in. / 415 by 271 cm	1,272 lbs. / 578 kg	4050 (60 Hz) and 4050 (50 Hz DELTA): Operating: 11,200 BTU per hour Standby: 7,400 BTU per hour 4090 (60 Hz) and 4090 (50 Hz DELTA): Operating: 14,980 BTU per hour Standby: 9,100 BTU per hour	4050 (60 Hz): 120/208 VAC or 120/240 VAC, 30 amp Oper. max: 4.1 KVA Standby: 2.7 KVA NEMA 14-30R 4050 (50 Hz DELTA): 200, 230, 240 VAC (3-phase, 4 wire or single-phase), 30 amp Oper. max: 3.8 KVA Standby: 2.5 KVA 4090 (60 Hz) and 4090 (50 Hz DELTA): Oper. max: 5.5 KVA
4050/4090 printer: Standard (two-tray) feeder and stitcher/stacker	d=34.5 in. / 87.6 cm w=89.5 in. / 227 cm h=41 in. / 104 cm Total space required: 161.5 by 106.5 in. / 410 by 271 cm	1,274 lbs. / 579 kg	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.
4050/4090 printer: High-capacity feeder and dual stacker	d=34.5 in. / 87.6 cm w=114 in. / 290 cm h=41 in. / 104 cm Total space required: 184 by 106.5 in. / 467 by 271 cm	1,560 lbs. / 709 kg	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.

Table 6-10. **Printer specifications and power requirements—
4050/4090 printer** (continued)

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements
4050/4090 printer: High-capacity feeder and stitcher/stacker	d =34.5 in. / 87.6 cm w =112 in. / 285 cm h =41 in. / 104 cm Total space required: 184 by 112.5 in. / 467 by 286 cm	1,562 lbs. / 710 kg	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.	Same as 4050/4090 standard (two-tray) feeder and dual stacker configuration, above.

Space planning templates

The dimensions and space requirements for your printer components are provided earlier in this chapter. The space planning templates are designed to simplify the space planning process by helping you to create a floor plan for your base components, particularly if you have shared clearance space.

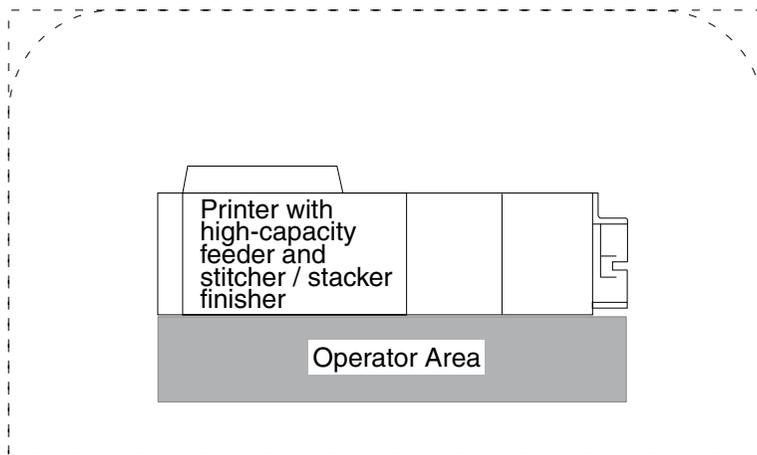
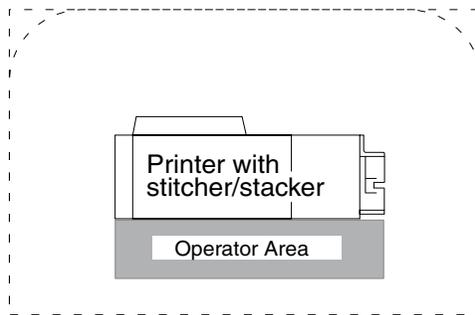
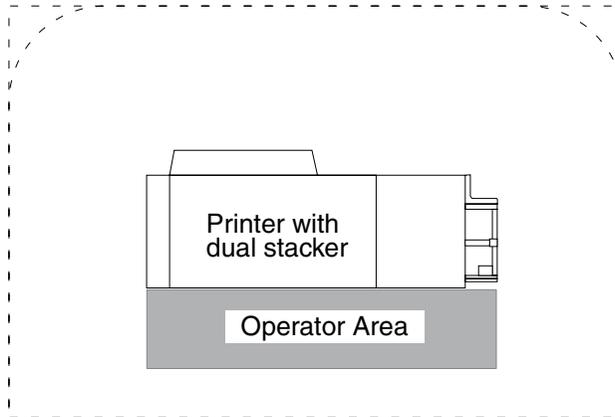
The easiest way to use the space planning templates is to move the templates around on the grid located at the end of this section and determine the optimum placement for your printer components. Make sure to consider other pieces of equipment, such as cabinets, tables, and optional equipment when planning your space. Your customer support representative can help you plan space for additional components.

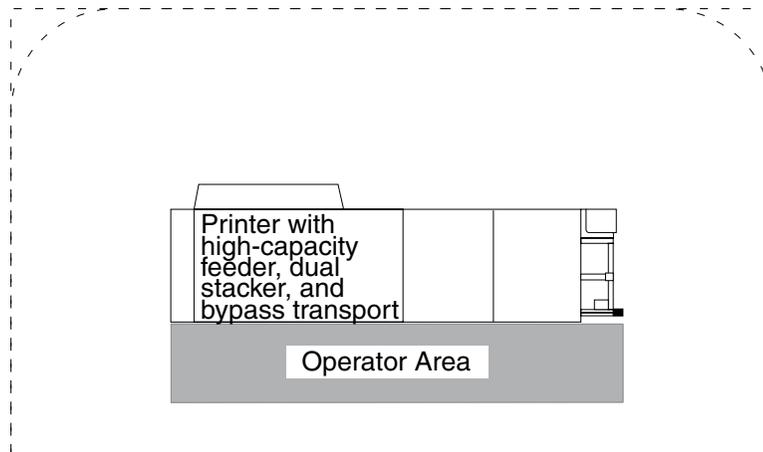
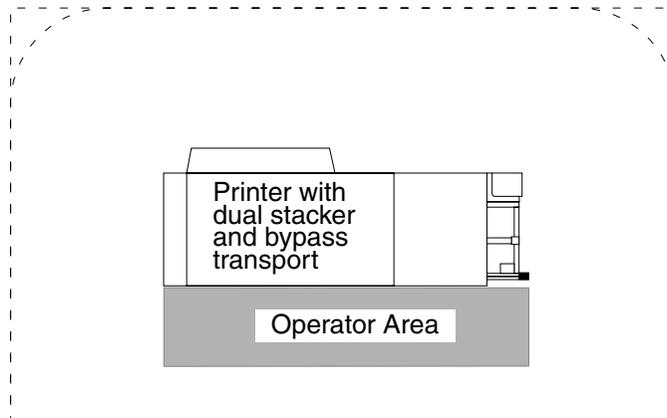
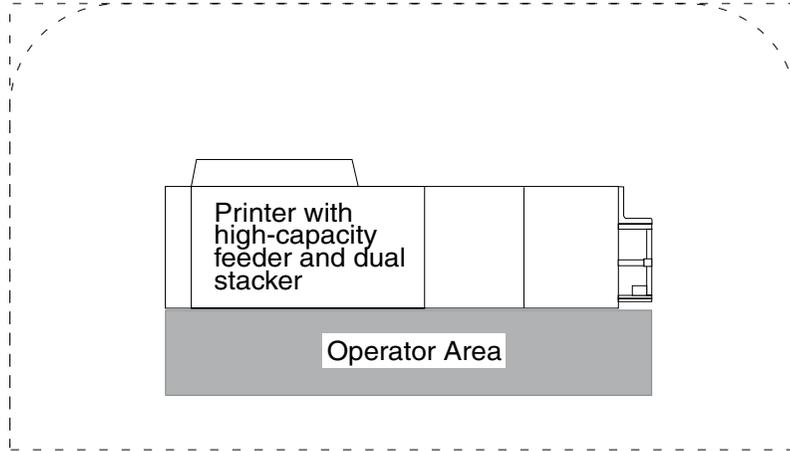
The templates are to scale with the grid; each square is equal to 12 by 12 inches/30.5 by 30.5 cm. The curved dotted lines in the corners of the space perimeters indicate the corners that may be rounded off while still maintaining the required clearance space.

There are a number of factors to keep in mind when planning your site, including the following:

- Clearance space requirements
- Cable length.

Refer to these sections in this manual when considering the various factors involved in planning the appropriate location for your printing system.





7. System connections

This chapter provides cable requirements for your 4050/4090 NPS system. To ensure all of your cable requirements are met, it is important to work with your Xerox representative.

Cable lengths

Cable lengths are important considerations in planning your layout, as components can be separated only up to the length of the data interface cables that connect them.

Cables supplied with the printer are of sufficient length to meet the needs of most installations. Some of these cables are specific lengths to conform to engineering and safety standards.

Data cables The printer components can be separated up to the length of the data interface cables that connect them. The printer and controller are connected by a 25-foot / 7.5 meter data cable.

Power cables The 4050/4090 power cable lengths are as follows:

Table 7-1. **Power cable lengths**

Power cable	Length
Printer controller	8 feet / 2.4 meters
Printer	10 feet / 3 meters



Warning: Using an inappropriate alternate cable may degrade the performance of your equipment and may also be hazardous.



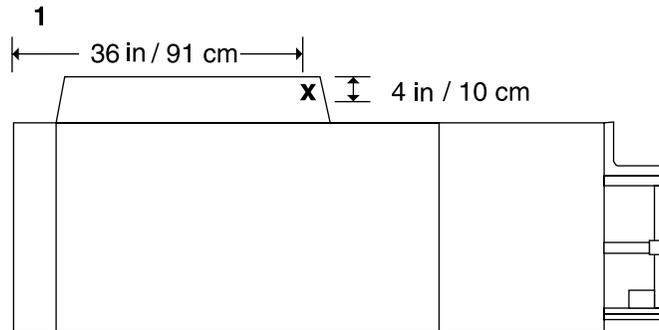
Note: Cable length loss must be factored in if equipment is installed in a raised-floor environment. You should also consider that part of the length of a cable is routed inside the equipment to connect with interior power or data receptacles.

Cable locations

To run the cables beneath the flooring effectively, it is necessary to know where the cables enter and exit the printer. The following diagrams show those locations (marked with an X).

All power cords attach to the back of the printer. Listed below are the distances of the printer power cord attachments from the left end of the printer as you face it.

Figure 7-1. 4050/4090 cable enter/exit location (top view)



2

- 1 Back of system
- 2 Front of system

This chapter describes the activities performed by you and Xerox during the installation of the Xerox DocuPrint 4050 or 4090 NPS hardware and software components. Before installation can begin, you must complete the tasks described in the “Preparing for installation” chapter of this guide.

Installation process

Xerox is responsible for the physical installation of the 4050/4090 NPS hardware components and the software.

For customers outside the United States, contact your local Xerox representative or operating company for your specific installation process.

The installation process can take one or several days to complete. Equipment, software kits, and documentation kits may all arrive in one day, or over the course of several days. When all of the necessary items are in place, Xerox personnel will complete the installation of the NPS components.

In the United States, the steps in the installation process typically occur in the following order:

1. Xerox personnel installs all DocuPrint 4050/4090 NPS printer hardware and connects the printer controller to your network through the Ethernet, Token Ring, and FDDI connector you supply. This process takes approximately four hours if all the necessary network and electrical connectors are in place.
2. Xerox personnel loads printer controller software on the printer controller (approximately 1.5 hours).
3. Xerox personnel downloads Xerox client software if applicable, on one client workstation to validate the installation (15 minutes). Software is downloaded on another client workstation as part of training conducted by your systems analyst. All other client software installations are your responsibility. Refer to the *Xerox DocuPrint Network Printer Series Guide to Configuring and Managing the System* for more information.

If your site uses third-party Transmission Control Protocol/Internet Protocol (TCP/IP) lpr networking software, refer to the *Xerox DocuPrint Network Printer Series Guide to Configuring and Managing the System* for information on modifying the printcap file.

4. Xerox personnel test the system and run sample jobs (30 minutes).

5. Xerox personnel conducts initial operations training (2 to 4 hours).
6. Xerox personnel reviews preventive maintenance schedules and service call procedures.

Your responsibilities

Xerox is responsible for the physical installation of the printer components and for loading the software and applications. You have the general site responsibility of ensuring that the right personnel and supplies are available.

At the time of installation, you should do the following:

- Make sure that your system administrator is available during the loading of software.
- For software loading purposes, be prepared to provide Xerox personnel with network information from the preinstallation checklist. Refer to the "Preparing for installation" chapter of this guide for specifics regarding network information.
- Designate two client workstations for downloading Xerox client software if applicable: one for initial system validation and another for use in operator training provided by your systems analyst.
- Check the documentation and software kits with their packing lists for completeness.
- Load Xerox client software on any additional client workstations.

Remember that you are responsible for supplying, installing, and maintaining your client workstations and the Token Ring network or Ethernet local area network (LAN) that connects them with the printer controller. You are also responsible for the Ethernet, Token Ring, and FDDI connectors required for your system.

- Have test jobs ready to run.
- Have your operators available for training.

Refer to the installation planning checklist in the "Preparing for installation" chapter of this guide for a complete list of responsibilities.

Software licensing

When an NPS is purchased, the owner needs to receive a license to use the operating system software. Once a user calls in with a host ID, (Sun SPARC/Ultra host ID), the user receives a license string. Refer to the “Setting up the printer controller” chapter in the *Guide to Configuring and Managing the System* (section titled “Loading the NPS software license text stream”).

This license is enabled by entering a 20-character authorization text string at the printer controller keyboard. Your Xerox service representative obtains this license text string for you and enters it when your NPS is installed.

Until this license string is entered, your NPS cannot receive data from the host to print. You can power on and boot the system, and perform all offline tasks such as setting up input and output configurations, but the NPS remains in Disabled mode and cannot print.

Although your service representative usually does this for you, you also can enter your license string, by selecting NPS Authorization Enablement from the Administration pulldown menu on the NPS main window. Refer to your NPS *Guide to Configuring and Managing the System*, “Setting up the printer controller” chapter, for the procedure.



Note: If your system will be operating in Dual Mode, it requires two license strings: one for IPS and one for NPS. □

Ongoing maintenance

After the installation of your Xerox DocuPrint NPS, there are a few ongoing tasks that must be performed. These tasks may include the following:

- Maintaining an adequate inventory of consumable supplies
- Overseeing routine maintenance and meter reporting
- Arranging for additional operator training
- Ordering additional fonts
- Ordering additional documentation
- Placing service calls for hardware problems
- Obtaining assistance in solving software-related problems.

As installation coordinator, it is your responsibility to designate the staff members responsible for these tasks.

Routine maintenance

A number of routine maintenance tasks must be performed to ensure maximum efficiency of your printer. These tasks include:

- Adding standard dry ink to your printer
- Adding fuser lubricant
- Replacing the dry ink and developer waste containers
- Cleaning the exterior surfaces of the system.

Step-by-step instructions on performing these routine maintenance tasks are contained in your *Guide to Performing Routine Maintenance*. You need to decide how many operators will be responsible for performing these maintenance tasks. Most maintenance procedures are covered in the initial operator training provided shortly after installation.



Note: Only operators who have completed the Xerox Advanced Customer Training (ACT) course, eXcellerate course, or equivalent advanced customer training can replace stitcher wire. Refer to the “Xerox support services” appendix in this guide for additional information on training.

Meter reading and reporting

As print jobs are processed, the printer controller accumulates, saves, and maintains usage data.

During the last five working days of each month, you need to review and transmit the data to Xerox for billing purposes. Refer to your *Guide to Performing Routine Maintenance* for complete instructions on how to report meter readings.

This appendix provides information and specifications for the media you use with your Xerox DocuPrint 4050 or 4090 printer. Instructions for ordering supplies are also provided.

Consumable supplies (those that are depleted during operation of the system), such as paper, dry ink, developer, fuser agent, etc., must be ordered for your printer. It is important that an adequate supply of these items be on hand for installation, and that your supply be maintained afterwards.

Paper and other throughput stocks

The success of any print run is greatly dependent on the proper selection, care, and handling of the stock used.

Selecting paper

You need to select your paper carefully. If you do not use the proper paper, you increase the probability of paper jams and misfeeds. The stocks you use must meet the specifications set forth by Xerox for operability in the printer. For additional information about paper specifications, refer to your *System Overview Guide* and to *Helpful Facts about Paper*, both delivered with your printer.

Acceptable paper stocks and sizes

Your 4050 or 4090 printer accepts the following standard size cut-sheet papers:

- US Letter: 8.5 by 11 inches / 216 by 279 mm
- US Legal: 8.5 by 14 inches / 216 by 356 mm
- A4: 8.27 by 11.69 inches / 210 by 297 mm

Recommended weight and grade:

Use a good quality, xerographic-grade paper. For best results, use paper that is 20-pound or 80 gsm (grams per square meter) bond, xerographic grade. Xerox 4024 Dual Purpose Paper provides optimal performance in the printer. Refer to the consumable supplies table in this appendix.

Use paper within these parameters:

- Lightest: 20-pound or 80 gsm bond
- Heaviest: 110-pound or 200-gsm index.

- Characteristics** The paper stock should have the following characteristics:
- Low moisture content (a paper-to-moisture ratio below 5.7 percent). Paper with higher moisture content may curl and jam.
 - Smooth surface
 - Moisture-resistant wrapping
 - No defects (bent edges, uneven surfaces)
 - Grain long (parallel with the long side of paper).
- Paper is usually fed into the printer with the long side as the leading edge. When you purchase paper, buy long-grain paper. Make sure the grain is parallel with the long side (long-grain) for the most reliable feeding and stacking.

- Special stocks** Following are some guidelines for choosing and using special materials:
- **Labels** — Must be the type designed for high-speed printers and must meet the specifications described in the section above. Loading instructions are printed on all paper trays.
Load labels with the label side up. You can direct them to any output tray.
 - **Transparencies** — Must be the type designed for high-speed printers and must meet the specifications described in the section above. Loading instructions are printed on all paper trays.
Load transparencies with the opaque strip to the right. All printed transparencies are delivered to the sample tray.
As long as they meet your printer's paper specifications, you can also use:
 - **Tinted paper** — Available in a variety of colors, it has many uses, including calling attention to certain printed material, separating special sections, or dividing chapters of a report.
 - **Preprinted paper** — May be letterhead, forms, or logos.
 - **Predrilled paper** — Has a varying number of holes for use in binders or binder rings. Before loading predrilled paper, fan it to remove loose plugs that could cause paper jams. Load predrilled paper in the printer with holes to the right.
 - **Perforated paper**

Paper care

Once you have purchased your paper, you must be sure it is stored and conditioned properly, so that it performs optimally in the printer with a minimum of jams.

Storing paper

Paper has a tendency to curl under the heat that is present inside xerographic equipment. To minimize the amount of curling, use paper with low moisture content. Paper with excessive moisture content has a tendency to jam because of the greater curl. The maximum recommended moisture content is 5.7 percent.

Keep these points in mind when preparing your paper storage area:

- Store paper in its own wrapper; do not leave it unwrapped or where it can be damaged by dampness or heat.
- Store paper on a flat surface and not on its side or edge.
- Store reams of paper in a closed cabinet.
- Always store paper in a cool, dry area. Store on pallets or shelves, not on the floor.
- Plan ahead and keep at least a day's supply of paper in the same area as the printer to allow environmental stabilization prior to printing.

For more detailed information on paper for Xerox printers, refer to *Helpful Facts about Paper*, provided with your printer.

Figure A-1. **Storing paper correctly**

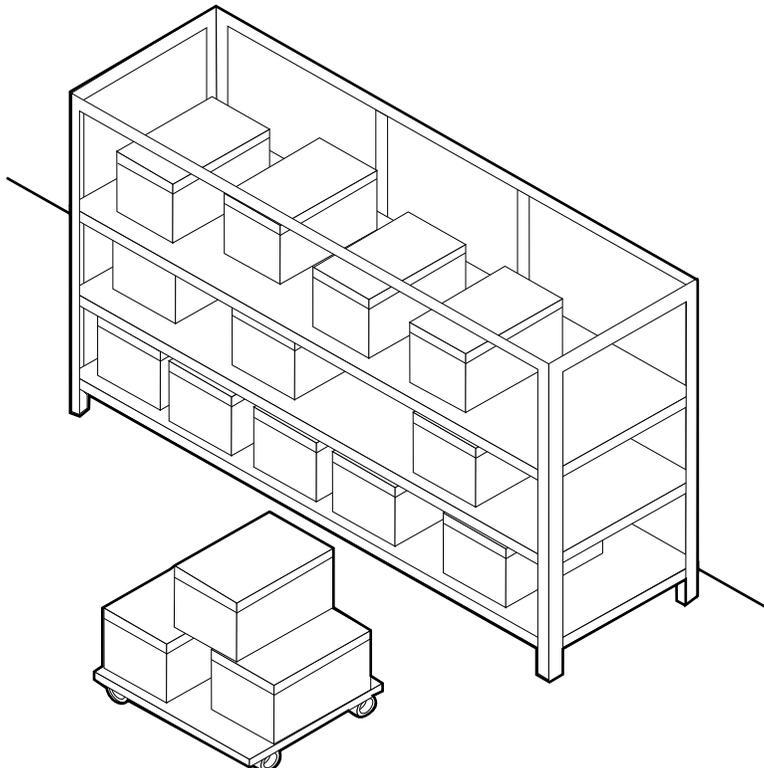
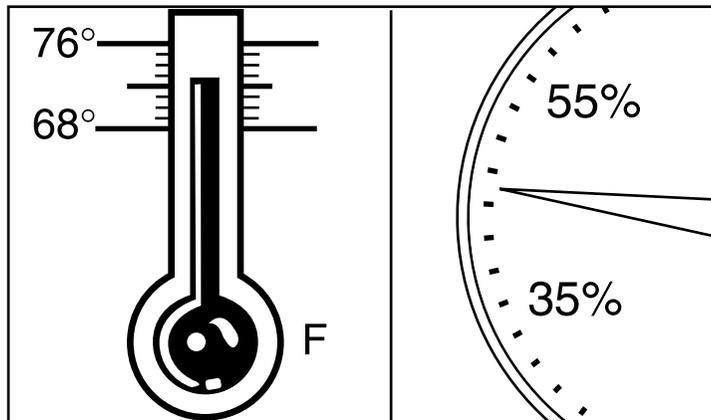


Figure A-2. Recommended temperature and humidity for paper storage



Conditioning paper

Because temperature and humidity affect paper performance in the printer, you need to condition paper before using it. To do this, store paper for a specified length of time in the same type of environment as your printer.

The length of time you should condition your paper depends on the amount of paper and the difference between the storage and operating temperatures.

Use the following chart to determine the length of time needed to condition stacked cartons of paper.



Note: The numbers in the top two rows indicate the temperature difference between the storage area and the operating environment, not actual room temperatures.

Table A-1. **Paper conditioning: Recommended temperature differences between storage and operating areas**

Temperature differences between storage and operating areas							
Fahrenheit							
10°	15°	20°	25°	30°	40°	50°	
Centigrade							
5.5°	8.5°	11°	13°	17°	22°	28°	
Cartons	Hours						
1	4	8	11	14	17	24	34
5	5	9	12	15	18	25	35
10	8	14	18	22	27	38	51
20	11	16	23	28	35	48	67
40	14	19	26	32	38	54	75

Example: (See the shaded rows in the table above.) If you want to move ten cartons of paper from a storage area with a temperature of 90 °F to an operating area with a temperature of 75 °F (a 15° difference), you should do so at least 14 hours before using the paper.

Other supplies

This section describes the supplies other than paper that are necessary for installation and afterward. Your sales representative will help you place your initial supply order.

Dry ink

Dry ink (also called toner) is the black powder which forms the image on the printed page. There are three cartridges of dry ink in each carton. You should keep at least one extra cartridge on hand at all times. The disposable cartridges are easily changed with no mess. The consumption rate of Xerox dry ink is approximately one cartridge per 45,000 pages. Use only dry ink that is specified for use in the 4050 or 4090 printer, as described in the consumable supplies table.

Fuser lubricant

Fuser lubricant is a consumable item required by the printer. You should keep at least two boxes (each box contains two tubes) on hand for installation by the service representative. The consumption rate of Xerox fuser lubricant is approximately one tube per 120,000 pages. For product information, refer to the consumable supplies table in this appendix.

Developer

Developer is not consumed by the printer but does have an effective life of approximately 300,000 pages per bottle, guaranteed by Xerox. Developer is a required item and must be kept on hand.

Use only the developer specified for use in your 4050 or 4090 printer.

The developer is changed by your service representative. For product information, refer to the consumable supplies table in this appendix.

Diskettes

Diskettes are optional items that provide loading and backup of fonts, forms, and user files to and from the printing system. The processor accepts 3.5-inch, 1.44 MB, double-sided, high density diskettes.

Cartridge tapes

The optional 4 mm cartridge tape drive uses 5 GB or 8 GB tapes.

Fonts

Data can be printed on DocuPrint printers in many sizes and type styles called fonts. A font is a character set which has unique characteristics, such as type style, size, weight, orientation (portrait, landscape, inverse portrait, and inverse landscape), character spacing (fixed and proportional), line spacing, and postures (Roman, italic, and so forth).

There are three classifications of fonts:

- Standard fonts
- Licensed fonts
- Custom fonts.

Standard fonts	A library of 51 fonts is provided with your printer's operating system software.
Licensed fonts	Additional fonts may be ordered from your local Xerox Font Center.
Custom fonts	Custom fonts and graphic images such as company logos and signatures can be digitized by the Xerox Font Center for use on your printer.
Receiving fonts	Fonts are received on a diskette from your local Xerox Font Center.

Consumable supplies tables

A number of supplies are available from Xerox for your DocuPrint printer. Use the following tables to help determine your supply needs.



Note: Customers in the U. S. may use the part numbers in these tables to order supplies. Customers outside the U. S. should contact their local service organization for part numbers.

Paper and special stocks tables

The following tables list all throughput stocks available for the 4050/4090 printers, with size, order number, and a brief description for each.

Table A-2. **Stocks list for 4050/4090 printers**

Item	Description	Part number
Paper	Xerox paper quantities are 10 reams (5,000 sheets) to a carton unless otherwise noted below.	
8.5 x 11 inch	4024 Dual Purpose Paper	3R721
A4	4024 Dual Purpose Paper	3R2594
8.5 x 14 inch	4024 Dual Purpose Paper	3R727
8.5 x 11 inch	4024 Dual Purpose Paper, 3-hole	3R723
8.5 x 11 inch	4024 Dual Purpose Paper, 3-hole*	3R2193
8.5 x 11 inch	4024 Dual Purpose Paper, 4-hole	3R1983
8.5 x 11 inch	4024 Dual Purpose Paper, 4-hole*	3R3008
8.5 x 11 inch	4024 Dual Purpose Paper, 7-hole	3R1984
8.5 x 11 inch	4024 Dual Purpose Paper, 7-hole*	3R3010
8.5 x 11 inch	4024 Smooth	3R2675
8.5 x 14 inch	4024 Smooth	3R2677
8.5 x 11 inch	Dual Purpose Colors—Blue	3R3052
8.5 x 11 inch	Dual Purpose Colors—Blue, 3-hole	3R3068
8.5 x 14 inch	Dual Purpose Colors—Blue, 3-hole	3R3084
8.5 x 11 inch	Dual Purpose Colors—Green	3R3056
8.5 x 11 inch	Dual Purpose Colors—Green, 3-hole	3R3072
8.5 x 14 inch	Dual Purpose Colors—Green	3R3088
8.5 x 11 inch	Dual Purpose Colors—Pink	3R3058
8.5 x 11 inch	Dual Purpose Colors—Pink, 3-hole	3R3074
*5/16-inch drilled holes		
** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-2. **Stocks list for 4050/4090 printers** (continued)

Item	Description	Part number
8.5 x 14 inch	Dual Purpose Colors—Pink	3R3090
8.5 x 11 inch	Dual Purpose Colors—Yellow	3R3054
8.5 x 11 inch	Dual Purpose Colors—Yellow, 3-hole	3R3070
8.5 x 14 inch	Dual Purpose Colors—Yellow	3R3086
8.5 x 11 inch	Dual Purpose Colors—Buff	3R3060
8.5 x 11 inch	Dual Purpose Colors—Buff, 3-hole	3R3076
8.5 x 14 inch	Dual Purpose Colors—Buff	3R3092
8.5 x 11 inch	Dual Purpose Colors—Goldenrod	3R3062
8.5 x 11 inch	Dual Purpose Colors—Goldenrod, 3-hole	3R3078
8.5 x 14 inch	Dual Purpose Colors—Goldenrod	3R3094
8.5 x 11 inch	Dual Purpose Colors—Ivory	3R3064
8.5 x 11 inch	Dual Purpose Colors—Ivory, 3-hole	3R3080
8.5 x 14 inch	Dual Purpose Colors—Ivory	3R3096
8.5 x 11 inch	Dual Purpose Colors—Gray	3R3066
8.5 x 11 inch	Dual Purpose Colors—Gray, 3-hole	3R3802
8.5 x 14 inch	Dual Purpose Colors—Gray	3R3098
8.5 x 11 inch**	Dual Purpose Colors, Rainbow Pack—35,000 sheets per carton**	3R3107
8.5 x 11 inches	4200 Primary Image	3R5802
8.5 x 14 inches	4200 Primary Image	3R5804
8.5 x 11 inches	4200 Primary Image, 3-hole	3R5803
8.5 x 11 inch	10 Series Dual Purpose Paper	3R2950
8.5 x 11 inch	10 Series Dual Purpose Paper, 3-hole	3R2952
8.5 x 11 inch	10 Series Dual Purpose Paper, 3-hole*	3R3016
8.5 x 14 inch	10 Series Dual Purpose Paper	3R2954
8.5 x 11 inch	10 Series Smooth	3R54
8.5 x 14 inch	10 Series Smooth	3R83
8.5 x 11 inch	4024 Dual Purpose, reinforced 3-hole*	3R2057
*5/16-inch drilled holes		
** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-2. **Stocks list for 4050/4090 printers** (continued)

Item	Description	Part number
Transparencies	Xerox transparencies are packaged 100 sheets to a box.	
8.5 x 11 inch	Clear, with a white strip on the edge	3R2780
8.5 x 11 inch	Clear, high speed, with paper backing	3R3028
Labels (Gummed)	Xerox labels are packaged 100 sheets to a box.	
8.5 x 11 inch	33 labels per sheet	3R3139
8.5 x 11 inch	6 labels per sheet	3R3146
8.5 x 11 inch	Custom form (uncut)	Contact Xerox Supplies Order Service
8.5 x 11 inch	1-up label	3R4476
8.5 x 11 inch	1-up label	3R4475
8.5 x 11 inch	1-up label	3R4474
Cover stock	Xerox cover stock is packaged 2,500 sheets per carton.	
8.5" x 11"	65-pound, blue	3R3044
8.5" x 11"	65-pound, white	3R3041
<p>*5/16-inch drilled holes</p> <p>** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.</p>		

Complete supplies list—4050/4090 printers

The following table lists the supplies in addition to paper that are available for your printer. Use this table to help you determine your supplies needs.

Table A-3. **Complete supplies list for 4050/4090**

Item	Description	Part number	Items/ carton	Expected yield
Developer material	Packaged one container per carton. (Needs replacement only if current supply becomes contaminated.)	5R302	1/carton	
Diskettes	3.5-inch, 1.44 MB, double-sided, high density diskettes. Packaged 10 diskettes per box.	8R7683	10/box	
Dry ink	Dry ink is packaged six bottles per carton. (Consumption rate is approximately 45,000 pages per bottle.)	6R301	6/carton	270,000 prints/carton
Fuser lubricant	Packaged two tubes per carton.	8R983	2/carton	240,000 prints/carton
Cartridge tape	4mm blank cartridge tape, 5GB	9R01190		
	4mm blank cartridge tape, 8GB	109R00314		
Cleaning supplies	4mm cartridge head cleaning kit	9R01189		
	Foam-tipped swabs	99P87256		
	Lint-free towels	35P2163		
Stitcher wire	Packaged one reel per box.	8R1174	One reel	32,000 staples

Ordering supplies

To avoid unnecessary downtime, always have an adequate amount of the necessary supplies. To do this, you need to establish a procedure for checking and ordering supplies. A supplies checklist is provided at the end of this appendix to help you with this task. It lists the supplies needed for the printer and contains a column for you to enter the date when you want to place the order and a column to record the date of the actual order. The consumable supplies table, above, contains a list of Xerox supplies available for the printer.

It is important that you check your supplies regularly and order before you run out. Plan on approximately five working days for delivery after placing the order. You can make arrangements to receive them sooner in emergency situations.

Your Xerox sales representative can help you submit the initial order of supplies needed for installation. These items include paper, dry ink, fuser lubricant, and developer.

Once your printer volume is established, planning ahead and buying Xerox supplies in quantity can save you money. Your Xerox supply specialists can help you. There are two centers available to assist you:

- To order Xerox paper, transparencies, labels, dry ink, developer, fuser lubricant, stitcher wire, cartridge tapes, and diskettes, call the Xerox Supply Center at 1-800-822-2200, weekdays between 7:30 a.m. and 6:00 p.m., Pacific time.

If you prefer, you may mail orders to the following address:

Xerox Corporation
P. O. Box 25075
Santa Ana, CA 92799-5075

- To order cleaning supplies, call the Xerox Customer Parts and Product Support Center at 1-800-828-5881, weekdays between 5:30 a.m. and 5:00 p.m., Pacific time, (U.S. only).

You may also mail cleaning supply orders to the following address:

Xerox Corporation
Parts Marketing Center
Building 214-07S
P. O. Box 1020
Webster, NY 14580

Please provide the following information when placing orders:

- Your customer number (provided by your Xerox sales representative)
- Your printer model: Xerox DocuPrint 4050 or Xerox DocuPrint 4090
- Your supply order, including the following information:
 - Item name
 - Part number
 - Quantity desired

- If your company requires a purchase order for payment of an invoice, you need to provide the purchase order number to Xerox at the time you place the order.

The following table is a checklist you can use to keep track of the supplies you order.

Table A-4. Supplies checklist for 4050/4090 printer

Supplies checklist Use this checklist to help record the supplies and accessories you need, the date you plan to place the order, and the actual date of the order.				
Item	Description and part number	Quantity	Date to order	Date ordered
Paper				
Transparencies, labels, and special stocks				
Dry ink				
Fuser lubricant				
Diskettes				
Stitcher wire				
Cartridge tapes				
Cleaning supplies				

B. Xerox support services

Xerox provides many services in support of your laser printing system. This appendix contains information on the following services:

- Xerox Customer Service Support Center
- Xerox Printing Systems Customer Support Center
- *Xerox Customer Documentation Catalog*
- Xerox Documentation and Software Services (XDSS)
- Operator training
- Xerox Customer Education
- Xerox Font Center.

Prior to installation, your sales representative is available to answer your questions about products, services, or billing. In the U. S., however, if you need assistance in resolving application-related problems or questions, call the Xerox Printing Systems Customer Support Center (refer to the following section of this chapter). Your systems analyst is also available to assist you with applications development.



Note: For customers outside the United States, contact your local Xerox representative or operating company for information on available support services.

Xerox Customer Service Support Center

The Xerox Customer Service Support Center provides regular maintenance care for your printer as well as any necessary repairs. Call the Service Support Center if your printer has a hardware-related problem such as poor print quality, repeated paper jams, or connectivity problems.

Before calling your Customer Service Support Center, make sure you have tried the corrective actions described in your *Troubleshooting Guide*. If a problem persists, gather the necessary information and call your customer service support center.

In the United States, call the following number to report DocuPrint hardware or software problems:

1-800-821-2797



Note: This phone number is attached to your printer at installation time. □

Before contacting service, make note of the following:

- Status code numbers and messages which appear on the keyboard/display
- Status messages which appear on the printer control console
- Indicator lights that are lit.

Your call is answered by a representative, who asks you for the model number and the serial number for your printing system, and for the following:

- Serial number for your printing system
- Your name
- Company name
- System condition or status

Give this information to a customer service representative, who will call you back to help you resolve the problem over the phone, or to give you an estimated time of arrival.

Xerox support personnel may use the Sixth Sense Remote Service feature to access IPS/NPS controller information via modem from a remote location. More information about Remote Service can be found in the *Xerox DocuPrint 96/4635/180 IPS Troubleshooting Guide*.

Xerox Printing Systems Customer Support Center

The Xerox Printing Systems Customer Support Center is available to address your application problems or to direct you to the appropriate documentation.

The key to effective use of the Xerox Printing Systems Customer Support Center is correct identification of the problem. Before calling the center, it is helpful to have the following information available:

- The correct name of your system, such as the Xerox DocuPrint 4050 IPS or the Xerox DocuPrint 4090 IPS.
- A list of any error messages
- An explanation of how output is different from what was expected.
- An assessment of whether the symptoms follow a pattern or occur randomly.
- A list of special conditions that may have caused the problem:
 - New applications
 - Changes made to the software
 - Recent service performed
 - Previous conditions under which the application has printed properly.

To contact the Xerox Printing Systems Customer Support Center, call: **1-310-333-0501** (U. S. only), between the hours of 5:00 a.m. and 5:00 p.m., Pacific time.

Xerox Customer Documentation Catalog

Detailed information on documentation for DocuPrint printers and other Xerox products is contained in the *Xerox Customer Documentation Catalog*. The catalog includes a brief description of each item and its cost.

Once you are on the mailing list, updated catalogs are sent to you automatically. You may call Xerox Documentation and Software Services (XDSS) to request a catalog. Refer to the following section for further information.

Xerox Documentation and Software Services (XDSS)

XDSS offers a variety of services that can be customized to meet your documentation needs.

XDSS distributes the documents you need to facilitate the installation and use of the DocuPrint printer, other Xerox printers, and associated software.

XDSS will also send you a *Xerox Customer Documentation Catalog* free of charge upon request. To order documents or request a *Xerox Customer Documentation Catalog*, call XDSS at **1-800-327-9753**, between the hours of 6:00 a.m. and 5:00 p.m., Pacific time (U. S. only).

XDSS representatives will explain the services available, answer your questions, and take orders for documentation.

XDSS also has a web page from which you can order customer documentation and/or obtain a catalog. Its address is:

<http://www.XDSS.com>

Operator training

Operator training is conducted at your location by your Xerox system analyst or other identified representative, shortly after the printer is installed. Training takes two to four hours, depending on the system configuration. It includes hands-on practice running basic jobs, performing routine maintenance, and solving problems. Determine the number of operators you want to attend the initial training and schedule training dates and times through your Xerox sales representative.

Additional training classes, such as Advanced Customer Training (ACT) for operators, teach advanced service and maintenance skills. Your sales representative can give you information on availability of ACT training.

A variety of classes and workshops are available through Xerox Customer Education (refer to the following section).

Xerox Customer Education

Xerox offers classes and tutorial documents on various topics relating to printing systems and document production. For information about Xerox training courses, or to receive a catalog, call Xerox Customer Education at **1-800-445-5554** (U. S. only). Customer Education has a web page where you can obtain additional information. Its address is:

<http://xwww.dsss.world.xerox.com/CustomerEd>

Xerox Font Center

The Xerox Font Center can send you samples and catalogs of the fonts available for your printer.

To receive font samples, obtain price information, obtain technical support, or order licensed or custom fonts, call **1-800-445-FONT (-3668)** between 6:00 a.m and 5:00 p.m. Pacific time (U. S. only).

For technical support regarding fonts (such as installing fonts or solving font usage problems), call **1-800-521-8324**.

C.

Related publications

The *Xerox DocuPrint Network Printer Series* includes the following documents, in addition to this guide:

Title

System Overview Guide for Models 4050/4090 NPS

Guide to Performing Routine Maintenance for Models 4050/4090 NPS

Messages Guide for Models 4050/4090/4850/4890 NPS

Troubleshooting Guide for Models 4050/4090 NPS

Guide to Submitting Your Jobs from the Client

DocuPrint NPS Decomposition Service and Tools Guide

Guide to Managing Print Jobs

Guide to Using PDL

Guide to Configuring and Managing the System

Generic MICR Fundamentals Guide

Glossary

Master Index for 4050/4090 NPS

Refer to the “Xerox support services” appendix of this guide for information on how to order these and other publications.

D. DocuPrint NPS on a Novell network

This appendix provides a brief overview of Novell NetWare, and describes some of the considerations you must make before the service representative installs DocuPrint NPS on a Novell network.

Novell NetWare overview

In a Novell network, clients who connect to the file server, are authenticated, and maintain an open connection. Communication is through the file server and not client-to-device. Communications are typically on an Ethernet or Token Ring LAN.

Novell NetWare software receives and queues print jobs. It assigns priorities to incoming jobs and tracks information about each job. It sends print jobs to the printer, and contains a series of utilities and menus to set up, manage, and manipulate print queues.

DocuPrint NPS supports Novell NetWare versions 3.11 and 3.12.



Note: Customers using Novell 4.1 must set the Bindery Emulation Mode to be compatible with Novell 3.12.

Print queues

A print queue is a holding area on the file server where print jobs are stored until a printer is ready. A queue allows multiple users to send jobs to the same printer at the same time. The queue software accepts and tracks jobs to enable users to view, remove, and change values of jobs while they are in the queue.

Each queue has a directory on a hard disk. A print job sent to a queue is stored as a file within that directory. Once the job is printed, the file is removed from the queue directory.

The print queue software maintains a temporary record of information for every print job. The information includes such items as job number, job position in the queue, time the job entered the queue, print server designated to print the job, user ID of the person who submitted the job, and so on. The user can access this information or cancel a job, using PCONSOLE, for each queue.

Queue to printer relationships

Novell NetWare allows for flexibility in setting up different printing configurations. Multiple queues and printers can be associated in different ways to meet different needs, such as the following:

- One queue to one printer
- Multiple queues to one printer
- One queue to many printers
- Multiple queues to multiple printers.

PCONSOLE

PCONSOLE is the main Novell utility used for creating, viewing and managing print queues. When you create a queue with PCONSOLE, the Novell software sets up the queue directory and a bindery entry. The bindery is the database of all users, groups, and other defined entities on the NetWare file server.



Note: There is no PCONSOLE access at the DocuPrint NPS printer controller.

You can perform the following tasks using PCONSOLE:

- Add or remove the following:
 - definitions of file servers serviced by the print server
 - definitions of print queues serviced by the print server
 - definitions of printers for a print server
 - print servers
 - users
 - jobs to and from a queue
 - queues
- View or change job information
- Check or change queue status.

A user or operator can change job values or delete a job while it is still in the Novell queue, and before DocuPrint NPS starts to receive it. If the user has deleted the job after DocuPrint NPS begins to receive it, DocuPrint receives the delete action and attempts to cancel the job. Cancellation may fail and the job will partially or completely print.

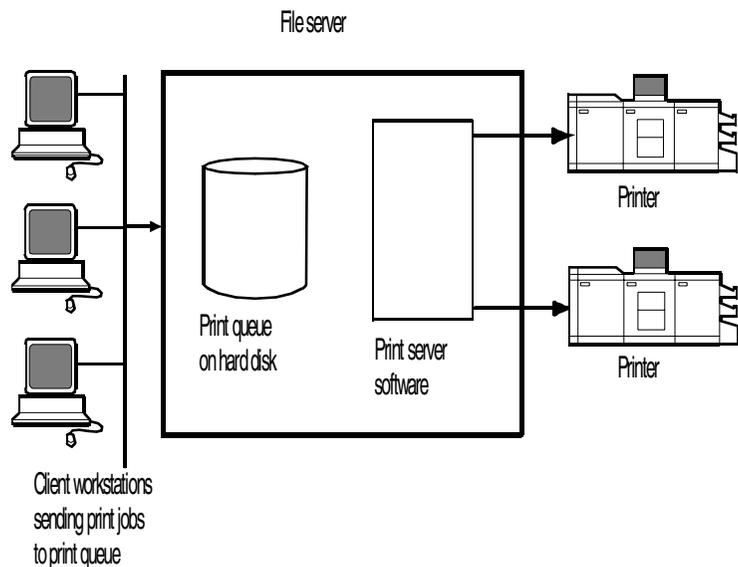
Print server (PSERVER)

A Novell print server (PSERVER) is a combination of hardware and software that takes ready-to-print jobs from the print queue and sends them to the printer. The print server software is the link between the print queue and the printer (either local or remote). Only one print server can be running on the file server. Each print server can service up to 16 printers. A print server can also run on a dedicated machine that is not running as a file server.



Note: Although Novell PSERVER can support multiple queues on multiple file servers, DocuPrint NPS PSERVER does not. It supports one queue on one file server only.

The print server software scans the print queues to which it is assigned looking for jobs that are ready to print. When it obtains a job from a queue, the print server sends the data to the DocuPrint NPS through an NCP/IPX connection. Once the job is sent to the printer, the job is deleted from the print queue, and the file removed from the queue directory.



Job parameters

The following job parameters are affected when the DocuPrint NPS is configured as a PSERVER:

- Job description is used as the document name
- Copies is used to set the number of copies
- Sender name is set from the user name
- Message is sent to the user when the job finishes printing or is canceled, if you set the Notify flag
- ElideHeaders is set to TRUE if you disable banner
- Form name is used to specify the virtual printer.

Using Novell forms to specify virtual printers

Novell allows the user to specify a form that has a name, number, length and width.

DocuPrint NPS uses Novell form names to specify virtual printers.

- If a Novell user wishes to access a given virtual printer, a form with the same name as the virtual printer must be defined by the NetWare administrator. The user must specify that form for the job.
- The Novell system administrator must create form names to match the names of DocuPrint NPS virtual printers.
- The form name can have a maximum of twelve characters, and the first character must be alphabetic.

If a form name is not used, a virtual printer with the same name as the queue is used.

Forms are defined on the Novell server using the Novell PRINTDEF program. (Use a prefix such as "DP" to distinguish them from other form names.)

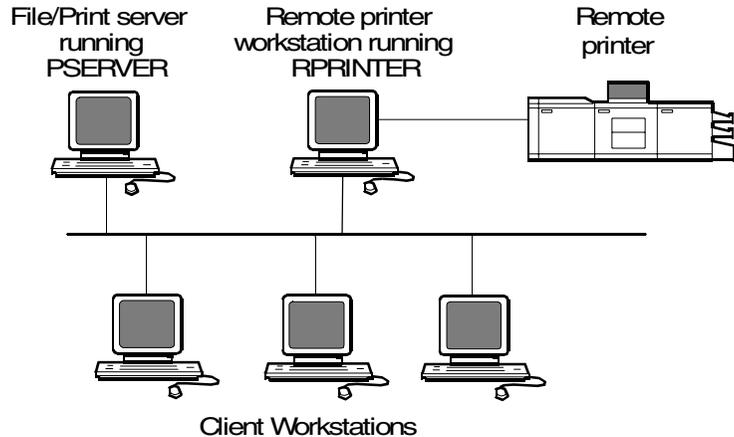


Note: DocuPrint NPS is not using a form in the Novell sense. It reads the name field of the form specified, and interprets it as a DocuPrint virtual printer. None of the form attributes other than *name* is read.

Remote printer (RPRINTER)

A Novell remote printer workstation (DocuPrint NPS printer controller) is a vehicle for the print server to move print data to a printer that is not directly connected to the print server. The remote printer software runs on a workstation that connects to a remote printer through a parallel or serial port.

The remote printer software communicates with a print server running print server software. The print server services jobs from the print queue and sends the data over the network through a SPX connection to the RPRINTER. The RPRINTERSs are associated with DocuPrint NPS virtual printers. There can be up to sixteen RPRINTERS on the Novell file server. The RPRINTER does not have access to the queue or the data for a job in the queue. The RPRINTER configuration allows for multiple queues to provide access to the attributes of the associated virtual printers.



DocuPrint NPS as a print server or as a remote printer

Before installing DocuPrint NPS on a Novell network, first determine whether you want the DocuPrint to function as a print server, or a remote printer.

Choosing a Print Server or Remote Printer Configuration

The following contrasts the Print Server (PSERVER) configuration with the Remote Printer (RPRINTER) configuration for your DocuPrint NPS.

- The PSERVER configuration uses a licensed connection to a File Server. The RPRINTER configuration connects to a Print Server, and does not require a regular client connection.
- Using the PSERVER configuration, DocuPrint NPS can obtain job attributes from the Novell Queue.



Note: The RPRINTER configuration can't do this, and this leads to some irregularities, such as no job and submitter names, as well as an inability to select duplex through the submission interface.

- The setting of the Novell banner pages switch operates successfully using PSERVER (this toggles the ElideHeader attribute).
 If Banner Page is requested with RPRINTER, DocuPrint NPS prints a Novell-generated ASCII banner page as the first page of a job, and will print the entire job as an ASCII file (500 pages could be generated when requesting a banner page regardless of the actual file contents.)
- With PSERVER, multiple copies are requested as a job attribute; DocuPrint NPS receives only one copy and prints multiple copies.
 With RPRINTER, since most remote printers can't understand a request for multiple copies, the Print Server will send the job multiple times to print multiple copies, tying up network and DocuPrint NPS resources as the file is processed.
- With PSERVER, a DocuPrint NPS can receive jobs from only one print queue on one File Server, but users can submit jobs to different DocuPrint NPS virtual printers using Novell forms. The administrator uses the PRINTDEF program to create forms with the same name as DocuPrint NPS virtual printers. Users then select a virtual printer by selecting a form with the same name using the User Tools program in the NetWare Tools folder of Windows, or the -F option in the DOS CAPTURE command.
 With RPRINTER, the Print Server can direct jobs to different virtual printers, from multiple queues, possibly on multiple file servers.
- The PSERVER configuration allows the submitter to determine when printing is complete. Jobs are retained in the Novell queue until DocuPrint NPS completes printing them. This may fill up the queue in some environments.
 The RPRINTER configuration informs the submitter only when the job has been submitted, even though it may print days later.
- PSERVER requires that unencrypted login is enabled on the Novell File Server to which PSERVER connects. Regular Novell clients will still use encrypted passwords.
 RPRINTER does not require that unencrypted logins be permitted.

The following table lists the differences between DocuPrint NPS as a print server or as a remote printer.

Table D-1. **Print server and remote printer differences**

DocuPrint NPS as a PSERVER	DocuPrint NPS as an RPRINTER
Functions like a Novell print server.	Functions like a Novell remote printer.
Connects to a Novell file server and consumes a licensed connection.	Connects to a Novell print server without consuming a licensed connection.
Reads the Novell print queue directly and obtains all the job parameters.	Cannot read the Novell print queue; receives only the job data, not the data from the queue entry.
Not necessary for the user to disable the print job banner.	User must disable the banner for each print job. If not disabled, the job prints incorrectly.
No unusual delays in output of print jobs.	May be delays in output of print jobs when jobs are not sent back-to-back. The system views the start of a print job as the end of a previous job.
Services only one queue on one file server.	May service multiple print queues through the Novell print server.
Supports user notification of the end of a print job (completion of printing).	Notifies user only when job submission completes (does not notify user of print completion).
Can send a job ticket that references one file on the Novell file server to which the DocuPrint NPS is connected.	Cannot reference files on a Novell file server.

Novell configuration

Once you decide to configure the DocuPrint NPS as an RPRINTER or as a PSERVER on your Novell network, there are a number of tasks you must perform.

Configuring DocuPrint as a PSERVER

The following is a summary of the tasks to perform if the DocuPrint NPS is configured as a PSERVER:

- Novell tasks:
 - Sign on to the Novell workstation as a network administrator.
 - From PCONSOLE, create a Printer Queue (for example, Gazette) and a Print Server (for example, PGazette).



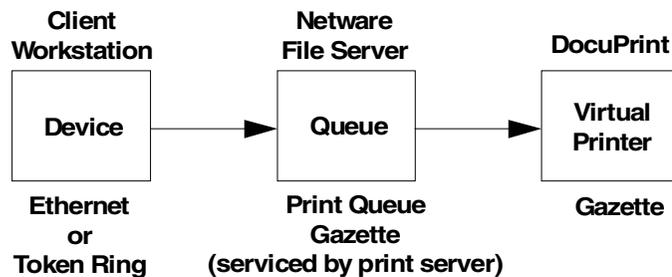
Caution: If you use Novell's Quick Setup feature, you must do the following after creating the queue and server:

- In the definition of the server, choose Printer Setup.
- Define the printer per the naming convention suggested by NPS.
- Select DEFINED ELSEWHERE.
- From the Print Server window, configure a printer for PServer using the Printer Configuration option.
- Type any name (for example, Gazette) for the printer. Select **Remote Other/Unknown type** for the printer and save the information.
- Define the printer in the Queue Service by highlighting the printer name (for example, Gazette) and pressing **Enter**.
- Press the **Insert** key to select the Print Queue (for example, Gazette) you want to bind with PServer (for example, PGazette).
- Save the information.
- When configuring NPS, answer the configuration questions as follows:
 - Remote Printer for Novell Netware -- <N>
 - Use Print Server for Novell Netware -- <Y>
 - Name of Novell Print Server -- **PGazette**
 - IPX Internal Network Number [000000##] (assigned by network administrator)
 - IPX number of Connected LAN [000000##] (assigned by network administrator)
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**)

- After installation, change from PSERVER to RPRINTER as follows:
 - Sign on to privilege as an administrator.
 - Type **Configure** to specify the printer configuration.
 - Select **Option 3**, enter **<N>** to the **Review All Information** question, and type **Novell** to review Novell information.
 - Remote Printer for Novell Netware -- **<N>**
 - Use Print Server for Novell Netware -- **<N>**
 - Name of Novell Print Server -- **PGazette**
 - IPX Internal Network Number [**000000##**] (assigned by network administrator)
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator)
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**)
 - Save all of the options.
- Type **Start All**.
- Reboot the NPS.
- Provide all of the required installation parameters identified in the checklist provided in Chapter 2 of this guide to your service representative.

In the following illustration, the queue, virtual printer, and specified form are configured with the same name. The user sends a print job that specifies a print queue named Gazette through the Ethernet or Token Ring port to the Gazette queue that is served by the print server. This job is assigned to the Gazette virtual printer on NPS.

Figure D-1. DocuPrint NPS configured as a PSERVER



Configuring DocuPrint as an RPRINTER

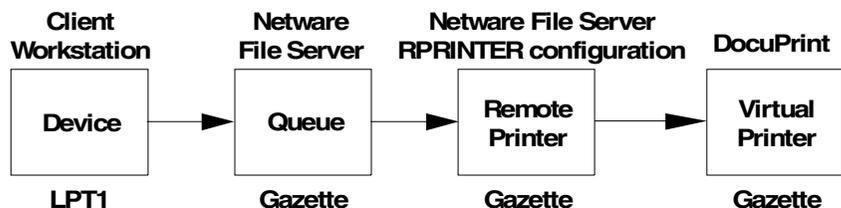
The following is a summary of the tasks to perform if you configure the DocuPrint NPS as an RPRINTER:

- Novell tasks:
 - Sign on to the Novell workstation as a network administrator.
 - From PCONSOLE, create a Printer Queue (for example, Gazette) and a Print Server (for example, PGazette).
 - From the Print Server window, configure a printer for PSERVER using the Printer Configuration option.
 - Type any name (for example, Gazette) for the printer. Select **Remote Other/Unknown type** for the printer and save the information.
 - Define the printer in the Queue Service by highlighting the printer name (for example, Gazette) and pressing **Enter**.
 - Press the **Insert** key to select the Print Queue (for example, Gazette) you want to bind with PSERVER (for example, PGazette).
 - Save the information.
- When configuring NPS, answer the configuration questions as follows:
 - Remote Printer for Novell Netware -- <Y>
 - Use Print Server for Novell Netware -- <Y>
 - Name of Novell Print Server -- **PGazette**
 - IPX Internal Network Number [000000##] (assigned by network administrator)
 - IPX number of Connected LAN [000000##] (assigned by network administrator)
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**)

- After installation, change from PSERVER to RPRINTER as follows:
 - Sign on to privilege as an administrator.
 - Type **Configure** to specify the printer configuration.
 - Select **Option 3**, enter **<N>** to the **Review All Information** question, and type **Novell** to review Novell information.
 - Remote Printer for Novell Netware -- **<Y>**
 - Use Print Server for Novell Netware -- **<N>**
 - Name of Novell Print Server -- **PGazette**
 - IPX Internal Network Number [**000000##**] (assigned by network administrator)
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator)
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**)
 - Save all of the options.
- Type **Create Virtual Printer Gazette** (must be the same name as the PSERVER printer name).
- Type **Start All**.
- Reboot the NPS.
- Perform the following tasks from the Novell server console.
 - Type **Load PSERVER PGazette**.
 - Make sure the PSERVER window displays and Gazette activates and is waiting for jobs.
- Provide all of the required installation parameters identified in the checklist provided in Chapter 2 of this guide to your service representative.

In the following illustration, the queue, remote printer, and virtual printer are configured with the same name, and the specified printer is set to print duplex. The user sends a print job through the LPT1 port to a queue named DPDuplex that is sent to the DPDuplex, and assigned to DPDuplex virtual printer.

Figure D-2. DocuPrint NPS configured as an RPRINTER



Supporting DocuPrint NPS on the file server

There are a number of tasks you perform on the file server to support the DocuPrint NPS as either a print server or a remote printer:

- With DocuPrint NPS as a PSERVER you must allow unencrypted password login on the file server. Enter the following command at the file server console prompt and in the AUTOEXEC.NCF file:

set allow unencrypted passwords=on



Note: Set this command even if you do not establish a print server password. Novell clients that use encrypted passwords are unaffected by this change and will continue to use encrypted passwords.

- Do not configure the file server to support IPX checksums or NCP packet signatures. Set these options to equal 0 or 1 so that the server performs these options only when the client requests them. The default value is 1.
- Do not set the watchdog interval to less than one minute. Longer intervals may cause the DocuPrint NPS to be logged out.
- If the print queue contains 250 jobs on a regular basis, set the Maximum File Locks Per Connection to a value greater than 250. The default value is 250.
- Define forms using PRINTDEF with names matching virtual printer names. (Applies only if DocuPrint NPS is configured as an RPRINTER.)



Note: DocuPrint NPS supports native connection to Novell 3.12 file servers. However, to run DocuPrint NPS with Novell 4.X servers, the Novell server must be configured to Bindery Emulation.

Glossary

This glossary contains a list of terms for working with the Xerox DocuPrint 4050/4090 printing systems, and a definition of each.

A3	Paper size measuring 297 by 420 mm.
A4	Paper size measuring 210 by 297 mm.
American Standard Code for Information Interchange (ASCII)	Standard 7-bit code which represents alphanumeric information. Each alphanumeric character and several nonprinting characters are assigned a binary number, covering 128 possible characters. It is used for information interchange among data processing systems, data communication systems, and associated equipment.
AppleTalk	Network communication protocol inherent to the Apple Macintosh operating system and supported by the DocuPrint NPS.
application software	Software resident on the host or client workstation used to create print documents.
B4	Paper size measuring 250 by 353 mm.
background job	Low-priority job, usually batched, which is executed automatically as system resources become available.
batch	Method by which bodies of data are accumulated and grouped by kind before processing.
batch processing	Allows for repetitive operations to be performed sequentially on batched data without much involvement of the computer operator.
baud	Measurement of data rate in bits per second. This term is used to describe information flow between two devices. Unit of data transmitting/receiving speed is roughly equal to a single bit per second. Common baud rates are 110, 300, 1200, 2400, 4800, and 9600.
binary	Numbering system based on 2 rather than 10 and containing only the symbols 0 and 1. Binary is especially well suited for use in computers and related devices since information can be represented with electric pulses (0=off, 1=on). Most computer calculations are binary.

binary digit (bit)	<p>In the binary numbering system, either of the characters 0 or 1. The bit is the basic unit of information with which a computer works. It can take the form of a magnetized spot, an electric pulse, a positive or negative charge, etc. A number of bits strung together represents a character to a computer.</p> <p>Multipliers are:</p> <p>1 byte = 8 bits</p> <p>1 kilobyte (KB) or 1,024 bytes = 8,192 bits</p> <p>1 megabyte (MB) or 1,048,576 bytes = 8,388,608 bits.</p> <p>Computer space equivalents are:</p> <p>1.5 KB = about 1 single-spaced typed page</p> <p>30 KB = about 20 typed pages</p> <p>150 KB = about 100 typed pages</p>
bitmap	<p>Electronic definition of an image, comprised of a matrix of picture elements (pixels or dots), where a bit value of one means that the picture element is imaged, and a bit value of zero means that the picture element is not imaged. The number of picture elements in a square area is a function of the display device resolution.</p>
bit mapped	<p>Display image generated bit by bit for each point or dot. A software-driven scanner is used to create characters and/or graphics.</p>
bits per second (bps)	<p>In serial communication, the instantaneous bit speed with which a device or channel transmits a character.</p>
blocking	<p>Process of combining two or more records into a single block of data which can then be moved, operated upon, stored, etc., as a single unit by the computer.</p>
block length	<p>Number of characters or bytes contained in a block of data (the block is treated as a unit within the computer). Block length is usually invariable within a system and may be specified in units such as records, words, computer words, or characters.</p>
boot	<p>To load a program's initial instructions of a program into the computer's memory. These instructions then direct the loading of the rest of the program. Booting may require entry of a few commands at the keyboard or the flip of a switch to begin the process.</p>
break page	<p>See header page</p>
buffer	<p>Compartment of memory in which data is stored during transfer from one device to another. Useful for (1) accumulating data into blocks before storage or processing, and (2) for adjusting differences of speed between devices, or between a device and a communicating facility.</p>
bypass transport	<p>Optional module that moves paper from the printer to a finishing device.</p>

byte	Fixed number of bits (in data processing, usually 8) operated upon as a unit. A byte may represent a character, a machine instruction, or some other logical unit of information.
CCU	Customer changeable unit. In the DocuPrint Models 4850 and 4890, the unit is removed to change the color of the dry ink installed in the printer. Consists of the color developer housing and the dry ink bottle.
CCU changeout cart	Cart used to remove and install the customer changeable unit for changing the color dry ink installed in the printer.
carriage return	Control character that (unless set to be interpreted as a line end) causes the printing system to start printing at the left margin of the current line.
case-sensitive	Treating lowercase and uppercase characters differently.
central processing unit (CPU)	Interprets and executes instructions, performs all operations and calculations, and controls input and output units and auxiliary attachments.
channel	1. In data communications, a path or line that enables two or more devices to communicate (sometimes called a circuit, facility, or link). 2. In computers, a path for communication between the central processing unit (CPU) and input/output units, or between the CPU and peripheral devices.
character	Single printable letter (A-Z), numeral (0-9), symbol (& % #), or punctuation mark (, . ! ?) used to represent data. Characters can also be nonprinting, such as space, tab, or carriage return.
character cell	Digitized space containing a single character within a font set.
character code	Code representing alphanumeric information, for example, ASCII.
character set	Number of different characters used by a particular device, including alphabetic, numeric, and special characters such as symbols.
characters per inch (dpi)	Designates the number of characters per inch for a particular typeface. Refer to pitch.
client software	Software that manages the submission of print jobs to the Printer Controller.
client workstation	Workstation connected to the network used to create print jobs (documents) and submit them to the Printer Controller.
command	Statement entered that instructs the system to perform an operation.

communication line	Telecommunication line connecting devices at one location with devices at other locations in order to transmit and receive information.
communication link	Physical means (i.e., data link) connecting one location to another to transmit and receive information.
compatibility	Characteristic of computer equipment permitting one device to use the same information or programs as another device without conversion or code modification.
compile	To translate instructions written in high-level language into machine language for execution by a system.
concatenate	To connect or link in a series, as when files are grouped together for faster processing. Refer to job concatenation mode.
console	Functional unit containing devices used by an operator to communicate with an IOT. It may consist of a display, keyboard, and certain switches or other controls.
control program	An operating system program that manages job flow, input/output processing, and other overall system functions and resources.
daemon	A task that runs continually in conjunction with the UNIX operating system that periodically checks for specific conditions or logical events and performs some action if the conditions are met. The task can be used to display and notify the operator of such conditions.
database	Information to meet specific processing and retrieval needs. Generally applies to integrated file of data, arranged for access by many subsystems.
data communications	Transmission and reception of encoded information over telecommunication lines.
data file	Collection of related data records organized in a specific manner so that each record is similarly structured, e.g., a payroll file set up with one record for each employee, last name first, indicating the rate of pay and all deductions.
data link	Physical means of connecting one location with another for communication, i.e., the communications lines, modems, and controls which transmit information between two or more stations.
data rate	In data communications, the rate at which a channel carries data, measured in bps (bits per second).
data storage	Preservation of data on various media (e.g., tape, disks, magnetic bubble memory, etc.).

data stream	Format of data passed from one device to another.
data transmission	Transmission of coded data over telephone or other telecommunication lines.
DCIM	Data Control Interface Module. The video interface hardware which resides in the SUN workstation (the DCIM replaces the XEPI board).
decomposer	Printer Controller task that translates print data from the PDL command file into a bitmap image of the page to be printed.
default	Predefined value the system uses when another value is not provided.
device	Any piece of hardware other than the CPU (Central Processing Unit).
DFA	Document Feeding and Finishing Architecture. Software that enables third-party feeding and finishing devices to be attached to a Xerox printer to perform pre- and post-processing functions (such as roll-feeding, saddle-stitching, booklet-making, etc.)
diagnostics	Programs used to diagnose problems within the system or to help service personnel pinpoint the source of such problems.
digitize	To express or represent data in digital (binary) form so that it can be processed electronically.
directory	Logical grouping of files and subdirectories that are identified by name. The directory helps organize data on large storage media.
dithering	The process in laser printing which uses dot patterns to simulate shades of gray or tones of a color.
DOS	Disk Operating System. Operating system commonly used on personal computers. <i>See also</i> operating system.
dot	Unit of measurement representing a fraction of an inch, for example, 300 dots per inch (dpi). May also be referred to as a picture element (pixel) or spot.
dry ink	Minute particles of resin and carbon toner deposited and fused onto the page to create images. Toner is combined with developer to form the dry ink.
duplex	Ability to send and receive information simultaneously.
duplex printing	Printing on both sides (front and back) of a page. <i>See also</i> simplex printing.

electronic publishing	The integrated production of documents on demand, using digitally stored documents, computerized composition, and electronic printing systems.
enabler	Hardware devices or software packages that allow the printer to perform as specified.
Ethernet	Network standard consisting of a coaxial cable or twisted pair and associated components for connecting workstations to each other, to file servers, and to peripherals. This communication system enables workstation users to share information and services.
EtherTalk	Hardware interface and network software for Apple Macintosh computers that provides connection to an Ethernet network.
Extended Binary Coded Decimal Interchange Code (EBCDIC)	Coded character set consisting of 8-bit coded characters. It can accommodate 256 characters.
extension	Portion of a filename that follows a period. In some instances it identifies the file type. For example, .ps specifies a PostScript file.
fault	Condition which prevents proper processing of a print job and requires the intervention of an operator. For example, a paper jam is a fault.
FDL	forms description language. LPS-resident source language used for designing electronic forms. See also FSL; form.
field	Preset place for entering information.
file	Set of records or text that can be stored and retrieved. Organized, named collection of records treated as a unit. For offline, it is the data between the two tape marks. For online, it is the data between banner pages.
file maintenance	Keeping a file up to date by regularly adding, changing, or deleting data.
filename	Name of a file or directory in a command line.
finisher	Any optional output finishing solution, for example, the stitcher/stacker.
firmware	Permanent programs stored in read-only memory (ROM).
fixed disk	Disk drive that is mounted within a computer and is not removable.
fixed font	Font containing characters with fixed spacing.

fixed pitch	Font set in which every character cell has the same width. In reference to character sets, this term describes typefaces in which all character cells are of equal width. Monospaced as opposed to proportional spaced.
fixed spacing	Arrangement of characters on a line so that all characters occupy the same amount of horizontal space.
flag	Small indicator marking the occurrence of an event or the existence of a certain condition while the program is executing.
font	A complete set of alphanumeric characters and punctuation marks, having common characteristics such as style, width, height, and weight.
form	1. Compiled forms source library (.FSL) file. 2. Printed or typed document with blank spaces for inserting information. Specific arrangement of lines, text, and graphics stored in a computer under an identifying name. Page of data that, when preceded by proper commands, is stored on the system disk as a permanent file. It may be merged with variable data by a form start command. See also FDL; FSL.
format	1. Layout of a document, including margins, page length, line spacing, typeface, etc. 2. In data storage, the way the surface of a disk is organized to store data. 3. To prepare the surface of a disk for acceptance of data.
form feed	Keyboard/printer control character that causes the printer to skip the top of the next page.
FSL	forms source library. Uncompiled collection of user-created files containing FDL commands. Refer to FDL; form.
fuse	To affix dry ink to paper by heat or pressure or a combination of both.
HCF	High capacity feeder. An optional feeder module containing two feeder trays that work independently with the standard feeder trays 1 and 2. The HCF increases the feeder capacity by approximately 2,000 sheets and allows automatic tray switching and increased uninterrupted printing time.
hard disk	See fixed disk.
hardware	Physical components (mechanical, magnetic, electronic, etc.) of a system, as opposed to programs, procedures, rules, and associated documentation. The hardware is operated by software and firmware.
header page	Page printed at the beginning of a job that provides information about the print job, such as the name of the document and the job sender.

hexadecimal	Numbering system with a base of 16. In this system, 10 through 15 represented by A through F, respectively.
hierarchy	Relative priority assigned to arithmetic or logical operations that must be performed.
high-level language	Programming language consisting of words and symbols that are close to normal English and, therefore, readily understandable by the user. High-level source languages are used for most commercial programs.
host	Computer accessed by users which serves as a source of high-speed data processing for workstations with less computer power. Commonly referred to as mainframe.
host interface	Connection between network and host computer.
HSB	A printing industry standard color definition model in which all colors are defined in terms of values for hue, saturation, and brightness. Refer to color definition model.
identifier (id)	Characters used to identify or name data and possibly to indicate certain properties of that data.
image area	Area on a physical page that may contain text or graphics.
implementation	Process of installing system hardware and software. Also the process of converting a design into an actual working system.
impressions per minute (ipm)	The number of pages (one side) a printer can print during the space of one minute. Used interchangeably with <i>pages per minute (ppm)</i> .
in-front page	A term that refers to the top page of a double-sided sheet.
initialize	1. To prepare the magnetic surface of a blank diskette so that it can accept data. 2. To set all information in a computer system to its starting values (usually the first step is accomplished when a program is booted).
interface	Hardware that provides physical connection and electronic communication between two hardware devices.
Internet Protocol (IP) address	Refers to an address of any host that uses TCP/IP network protocol.
IOT	Image Output Terminal. See printer.
IPDS	Intelligent Printer Data Stream.
IPS	IPDS Printing System.

JDE	job descriptor entry. Collection of job descriptions. See also job; JSL.
JDL	job descriptor library. Collection of compiled job descriptions. See also JSL.
job	Print data and attributes required for processing and printing a document.
job size	Size of the print master data file measured in bytes.
JSL	job source library. Collection of uncompiled job descriptions. See also job; JDE; and JDL.
label	1. In data storage, a reference to a file saved on tape or disk, a record indicating the file name or date created, and/or other control information. 2. To set all information in a computer system to its starting values (usually the first step is accomplished when a program is booted). 3. In programming, a name assigned to a particular instruction or portion of a program as a locational reference (the computer translates the label into an address).
landscape page orientation	Orientation of print lines or top of an illustration parallel to the long edge of the paper.
language	Defined set of characters and symbols combined together by specific rules. Refer to high-level language and low-level language.
laser printing	Technology that uses a laser to transfer character forms to a page by direct or indirect means.
library	In data storage, a collection of related files or programs.
light emitting diode (LED)	Solid substance that glows when a current is passed through it. Often used for indicator lights on disk drives or modems, as well as for displays on other electronic equipment.
line feed	Control character that (unless set to be interpreted as a line end) causes the printing system to begin printing in the current character position of the next line.
load	To enter data into storage or working registers.
Local Area Network (LAN)	Network connecting computer and peripheral devices through cables.
log	Collection of messages or message segments placed on an auxiliary storage device for accounting or data collection purposes.
logical page	A logical page is defined by an origin location, thus allowing more than one logical page to be placed on a physical page.

long-edge feed (LEF)	The movement of paper through the printer in the direction of the paper length (the longer side of a sheet of paper). <i>See also</i> short-edge feed.
low-level language	Language that is close to machine language so that each written instruction in a program can be converted to machine language on a one-to-one basis.
mainframe	Central processing unit (CPU) and memory of a large computer. More often used to denote any large computer of the type that might be used to control a group of smaller computers, terminals, or other devices. Refer to host.
markform	A parameter name for an end-of-job marker in the IPDS data stream.
megabyte (MB)	A unit of approximately one million bytes.
megahertz (MHz)	1. Unit of cycling speed (one million cycles per second) for an electromagnetic wave (in particular, a radio wave). 2. The sending and receiving stations of a radio wave transmission must be tuned in to the same unit of megahertz.
message	Information passed to the user or to a task within the system. The information is usually associated with an error, fault, or system condition.
MICR	Functionality that produces a Magnetic Ink Character Recognition (MICR) line on negotiable and turnaround documents such as checks and bills. The MICR printing system prints documents using magnetic ink and special fonts to create machine readable information that allows for quick document processing. In general, MICR is used to print accounting and routing information on blank checks and other negotiable documents.
mixed environment	Group of different printing systems at the same location.
modem	Device that converts digital information into an analog signal suitable for sending over analog telecommunication lines. Also converts an analog signal from telecommunication lines into digital information.
module	Cohesive unit within a program. It is consistent in its level and identifiable in terms of loading or with other units.
network	1. System of geographically separate computers, linked to one another over transmission lines. 2. Communication lines connecting a computer to its remote terminals.
node	Station, terminal, or computer that performs some control operation and influences the operation of the network as a whole.
Novell	Commonly used network communications protocol supported by the DocuPrint NPS.

NPS	Network Printing System
object file	Source file converted into machine language (binary code).
offline	Devices not under the active control of a central processing unit. For example, a computer makes output to a magnetic tape. The tape is then used by an offline printing system to produce printed data. Offline operations are much slower than online operations. Refer to online.
offset	To place pages currently being printed in slightly different positions from previous pages.
offset printing	A widely-used method of commercial and corporate printing, where ink is picked up by a metal or paper plate, passed to an offset drum, and then passed to the paper.
online	Devices under the direct control of a central processing unit, e.g., a printing system in interactive communication with a mainframe. Refer to offline.
operating system	Basic host- controlling program that governs the operations of a computer, such as job entry, input/output, and data management. The operating system is always running when the computer is active. Unlike other types of programs, it does not run to an end point and stop.
orientation	1. In reference to image area, orientation describes whether the printed lines are parallel to the long edge of the paper or the short edge of the paper. 2. Choice of printing portrait (vertically) or landscape (horizontally).
page orientation	Direction in which data is printed on a report. Refer to landscape page orientation and portrait page orientation.
parsing	To read or interpret a command; build up a parameter list from information within a command.
PC	Personal computer. Family of computers that most commonly run a version of DOS.
Page Description Language (PDL)	Page description language used to describe the printing of jobs to a laser printing system. PDL describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
peripheral	Device used with a computer or workstation, usually for input or output. Printers, modems, and the IPS/NPS cartridge tape drives are examples of peripherals.
platform	Combination of hardware and operating system software.

portrait page orientation	Orientation of print lines or the top of an illustration parallel to the short edge of the paper.
PostScript	Page description language developed by Adobe Systems, Incorporated. PostScript describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
ppm	Pages per minute.
print attribute	Set of attributes available for controlling the processing of a print job. Print attributes include simplex or duplex printing, media selection, collating, stitching, and so on. Print attributes can be sent to the Printer Controller as part of the job, providing automatic job processing.
printer	Component of the DocuPrint Printing System that accepts data from the Printer Controller and prints the document according to the print attributes specified by the user. The printer also provides paper stacking, collating, and optional finishing. "DocuPrint printer" or "printer" refers to the base printer engine (IOT) only, without the Printer Controller and interface.
Printer Controller	Component of the DocuPrint printing system that manages the spooling and processing of print jobs.
Printer Control Language (PCL)	Printer description language defined by Hewlett-Packard Company. PCL describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
print quality adjustment (PQA)	The process by which the IPS maintains the electrostatic state of the xerographic subsystem to ensure optimal print quality.
protocol	Formal set of conventions governing the format of data and the control of information exchange between two communication devices.
query	Request for data or other information, entered by an operator while the system is processing.
queue	List of documents waiting to be processed.
Random Access Memory (RAM)	Volatile memory used for temporary storage of data and software commands, used by programs for immediate task processing.
raster data	Binary data, usually consisting of dots arranged in scan lines, according to the print order.
rasterization	The creation of a bitmap image of a page for printing.

raster output scanner (ROS)	Raster output scanner. A motor-driven laser scanning system.
Read-Only Memory (ROM)	Solid-state memory for programs. It cannot be rewritten.
read/write head	A small electromagnet that reads, writes, and erases data in the form of magnetic dots on the surface of an external storage medium, such as a magnetic disk.
real time	To process transactions as they are entered into a system. User and system interchange allow transactions to be processed and the results returned to the user.
resolution	The number of dots per unit. An imaging system converts a character from digitized data into a printed image composed of these tiny dots. The greater the number of dots per inch (i.e., higher the resolution), the clearer the image is produced.
sequencing	Method of ordering messages, records within a file, or statements in a program according to rank or time of entry.
sequential	In numeric sequence, usually in ascending order. As applied to a file organization, describes files in which records are written one after another and cannot be randomly accessed. For example, the first 99 records in a sequential file-access file have to be read before the 100th record is accessible.
short-edge feed (SEF)	The movement of paper through the printer in the direction of the paper width (the shorter side of a sheet of paper).
simplex printing	Printing on one side of the page. <i>See also</i> duplex printing.
small computer system interface (SCSI)	An accepted standard for connecting devices to computers.
software	Programs, including operating systems, procedures, utilities, applications programs, etc., written for a system.
software application	<i>See</i> application software.
spooling	Process of releasing data from main memory and storing it temporarily until a peripheral device is ready to accept it, e.g., storing text before sending it to a printer.
string	Connected sequence of alphanumeric characters treated as one unit of data by a program.
SunOS	Operating system developed primarily by Sun Microsystems for use on Sun computers and workstations. SunOS provides inherent support for UNIX and for TCP/IP.

syntax	Rules governing the structure of expressions in a programming language.
syntax error	System response to a mistake in the entry of a command.
sysgen	Abbreviated form of system generation.
system administrator	Person responsible for configuring, operating, and maintaining the DocuPrint system, and also for installing client software on network workstations.
system generation	Process whereby the system is made ready to operate. Typically involves selecting the operative parameters and activating the relevant software.
System Network Architecture (SNA)	Total description of logical structure, formats, and protocols of operation sequences for transmitting an information unit through the communication system. Developed by IBM for distributed processing networks.
TCP/IP	Transmission Control Protocol/Internet Protocol Commonly used network communications protocol supported by the DocuPrint NPS.
telecommunications	The transfer of data via telephone lines.
teleprocessing	Data transfer via telecommunication lines for processing among various remote terminals and the central processing unit (CPU).
throughput	In data processing systems, the amount of data that can be processed, transmitted, printed, etc., in a specified unit of time.
Token Ring	Network topology in which a control packet or token is passed from station to station in sequential order. Stations needing access must wait for the token before transmitting data. In a Token Ring, the next logical station receiving the token is also the next physical station.
transaction processing	Method of data processing in which files are updated and results are generated immediately after data entry.
translation	1. In data communications, the conversion of one code to another on a character-by-character basis. 2. In programming, the function of a language processor which converts a source program from one programming language to another.
transmission speed	In data communications, the rate at which data is passed through communication lines, usually measured in bits per inch (bpi).
two-up	Application that prints two logical pages on one side of a physical page.

ULTRIX	Operating system that runs on DECStations. It consists of a hierarchical system of commands, shells, files, and directories. <i>See also</i> operating system.
UNIX	Operating system for computers, usually working in a network environment. UNIX consists of a hierarchical system of commands, shells, files, and directories. <i>See also</i> operating system.
user interface (UI)	System for gathering input from a user and presenting data to the user.
virtual page	Page area selected by a forms designer for printing.
virtual printers	Alternate names for the printer which allow different sets of default attributes to be applied to submitted jobs. The operator and system administrator define virtual printer names and the associated set of attributes and values.
workstation	Computer able to process data but designed specifically for interaction with a network.
write	To record data in memory or an external storage medium.
write protection	Data protection feature implemented on magnetic media (e.g., floppy disk) to prevent stored data from being modified, written over, or erased.
xerographic mode	There are two xerographic modes: black mode or highlight mode. Black mode allows printing with black dry ink only, while the highlight mode enables highlight color printing.

Numerics

1/4-inch cartridge tape drive, 2-6
4 mm cartridge tape drive, 2-3, 5-7
4090 printer, high-capacity feeder, 3-4
50 Hz voltage requirements
 Delta configurations, 6-3
60 Hz voltage requirements, 6-2

A

access requirements, delivery, 6-14 to 6-16
accounting information, purging, 4-7
Adobe fonts, 2-9 to 2-10
Advanced Customer Training (ACT), B-3
AppleTalk
 network, 4-7
 zone name, specifying, 4-7
ASCII, 1-5

B

back panel, Sun workstations, 2-3 to 2-4, 2-6 to 2-7
billing meter
 reading, 8-4
 reporting, 8-4

C

cables
 locations, 7-2
 power, 6-2
cartridge tape
 drive, 2-3, 2-6, 5-7
 ordering, A-6
CD-ROM drive, 2-3, 2-5
central processing unit, 2-2, 2-5
checklists
 installation planning, 4-4 to 4-5
 network installation, 4-6 to 4-11
 preinstallation, 4-6
Class 1 laser product, iii
clearance space, 6-5, 6-10 to 6-13
client workstations, supported, 1-3
commands
 font installation, 2-10
 job submission, 4-8
 lpd, 4-8
 lpr, 4-8

 status, 4-8
 UNIX command tool, 4-8
components
 DocuPrint system, 1-2
 hardware, 5-7
 printer, 3-1 to 3-3
 printer controller, 2-1 to 2-8
 system, 1-2
conditioning paper, A-4 to A-5
configuration, network, 1-3 to 1-5
connectivity
 boards, 2-1
connectivity boards, 2-4
consumables supplies tables, A-8 to A-11
control console, printer, 3-1 to 3-3
controller, *see* printer controller
customer responsibilities, 1-3, 4-2 to 4-3, 8-2

D

danger labels, iii
data cables, 7-1
Data Control Interface Module (DCIM2) card, 2-1, 2-4
DB-25 connector, 2-3
default router, 4-7
delivery requirements, 6-14 to 6-16
DELTA configurations, 6-3
developer, A-6
diagnostic software, 2-3
diagnostic tools, 1-5
dimensions, printers, 6-6 to 6-9
diskettes, A-6
display monitor, 2-4, 5-7
documentation, other, C-1
DocuPrint system components, 1-2
drives
 cartridge tape, 2-3, 2-6, 5-7
 CD-ROM, 2-3, 2-5
 disk, 2-5
 floppy disk, 2-2
dry ink, toner, A-6
dual feeder, 6-17
Dual Mode, 1-5
dual stacker, 3-5, 6-6 to 6-8, 6-17

E

electrical
 specifications, 5-1 to 5-2, 6-1 to 6-3

environmental requirements, 6-4
Ethernet, 2-1, 2-4
 framing type, 4-9
 requirements, 4-12

F

FDDI
 compatibility, 1-5
 specifications, 4-12
feeder trays, 3-4
Fiber Distributed Data Interface, *see* FDDI
file server, D-12
floor leveling, 6-14
floppy disk drive, 2-2
font installation commands, 2-10
fonts
 Adobe Type 0, 2-10
 Adobe Type 1, 2-9
 PCL, 2-10
framing type, Ethernet, 4-9
fuser
 agent, A-6
 shield, A-6

H

hard disk, 2-2
hardware
 components, 5-7
 Printer Controller, installing, 8-2
 specifications, 5-7, 6-17 to 6-18
 supported, 1-3 to 1-4
HCF, 3-4 to 3-5, 6-8 to 6-9
heat dissipation, 6-17 to 6-18
Hewlett-Packard, PCL fonts, 2-10
hotlines
 ozone information, iii
 safety, iv
HP, *see* Hewlett-Packard
HPPCL5e, 1-5

I

IEEE
 802.3, 1-4, 4-12
 802.5, 1-4
IEEE 802.3, 4-12
installation
 hardware, 8-1
 network checklist, 4-6 to 4-11
 planning checklist, 4-4 to 4-5
 preparation, 4-1 to 4-3
 process, 8-1, 8-1 to 8-2
 timeframes, 4-4
 Xerox responsibilities, 4-1
interface requirements,

FDDI, 4-12
IP
 address, 4-6
 broadcast address, 4-7
 Netmask, 4-6
IPDS data streams, 1-5
IPX internal network number, specifying, 4-9

K

keyboard, 2-4, 2-7, 5-7

L

labels
 danger, iii
 selecting, A-2
LAN network number, specifying, 4-9
laser safety, iii
leveling, floor, 6-14
license, software, 8-3
lpd commands, 4-8
lpr commands, 4-8

M

maintenance
 ongoing, 8-4
 routine, 8-4
meter, billing
 reading, 8-4
 reporting, 8-4
monitor, 2-4, 5-7
mouse, 2-4, 2-8, 5-7

N

network
 AppleTalk, 4-7
 configuration, 1-3 to 1-5
 Ethernet, 1-4
 FDDI, 1-5
 installation checklist, 4-6 to 4-11
 interface requirements, 4-12
 Novell, 4-8
 protocols, required, 1-2
 requirements, 1-4
 Token Ring, 1-4, 8-1
Novell NetWare, 4-12
Novell Network
 installation information, 4-8 to 4-9
 PCONSOLE, D-2
 print queues, D-1 to D-2, D-9, D-11
 PSERVER, 4-8, D-3 to D-4, D-5 to D-9, D-12
 remote printer (RPRINTER), 4-9, D-4 to D-7,
 D-10 to D-12
 virtual printers, 4-9, D-4, D-9, D-11

Novell network information, 4-8

O

operating systems supported, 1-3 to 1-4
 operation safety, iii
 operator training, 4-2
 ordering supplies, A-12 to A-13
 outlets, power configurations, 5-2, 6-2
 Output Configuration window, 3-5
 ozone, iii

P

pad, 2-8
 paper
 characteristics, A-2
 conditioning, A-4 to A-5
 recommended weight, grade, A-1
 size, 3-5, A-1 to A-2
 storing, A-3
 password, Superuser, 4-7
 PCL fonts, 2-10
 PCONSOLE, Novell, D-2
 perforated paper, A-2
 planning checklist, 4-4 to 4-5
 PostScript fonts, 2-9 to 2-10
 PostScript level 2, 1-5
 power
 cord, 6-2
 requirements, 5-1 to 5-2, 6-1 to 6-3, 6-17 to 6-18
 predrilled paper, A-2
 preinstallation checklist, 4-6
 preprinted paper, A-2
 print queues, Novell, D-1 to D-2, D-9, D-11
 print server (PSERVER), Novell, 4-8, D-3 to D-4, D-5
 to D-9, D-12
 printer
 attention
 alarm, 3-1
 light, 3-1
 components, 3-1 to 3-3
 configurations, 3-4 to 3-6
 control console, 3-1 to 3-3
 dimensions
 dual stacker, 6-6
 HCF, 6-8
 HCF and stitcher/stacker, 6-9
 stitcher/stacker, 6-7
 installation, 8-1
 maintenance, 8-4
 power requirements, 6-17 to 6-18
 Printer control console, 3-1
 Purge tray, 3-1
 Sample tray, 3-1
 printer controller
 components, 2-1 to 2-8

description, 1-2
 placement, 5-3 to 5-6
 software
 components, 2-9 to 2-10
 installing, 8-1
 processor, 2-2, 2-5, 5-7
 PSERVER, D-3
 publications, related, C-1
 purging accounting information, 4-7

R

remote printer (RPRINTER), Novell, 4-9, D-4 to D-7,
 D-10 to D-12
 requirements
 see also specifications
 clearance space, 6-10 to 6-13
 delivery access, 6-14 to 6-16
 environmental, 6-4
 Ethernet, 4-12
 network information, 4-8
 network interface, 4-12
 Novell Netware, 4-8
 power, 5-1 to 5-2, 6-1 to 6-3, 6-17 to 6-18
 site, 4-4
 space, 5-3, 6-10 to 6-16
 Token Ring, 4-12
 responsibilities
 customer, 1-3, 4-2 to 4-3
 installation
 customer, 8-2
 Xerox, 8-2
 Xerox, 1-3, 4-1 to 4-2
 retry count, 4-8
 root password, 4-7
 router, default, 4-7
 RPRINTER, D-5

S

safety
 hotline, iv
 precautions, iii
 standards, iii
 SCSI cartridge tape drive, 2-3, 2-6
 selecting
 labels, A-2
 paper, characteristics, A-2
 transparencies, A-2
 serial ports, 2-3
 service
 telephone number, B-1
 Xerox responsibilities, 4-2
 shared space, 6-10 to 6-13
 site
 selection, Xerox responsibilities, 4-1
 site preparation, 4-2

Sixth Sense, 1-5
Sixth Sense Remote Service, B-2
software
 network, 1-3 to 1-5
 operating system, 1-3 to 1-4
 printer controller
 components, 2-9 to 2-10
 installing, 8-1
Software license, 8-3
software licensing, 8-3
space
 planning guidelines, 6-10
 requirements, 5-3, 6-10 to 6-16
specifications
 see also requirements
 electrical, 5-1 to 5-2, 5-7, 6-1 to 6-3, 6-17 to 6-18
 environmental, 5-3
 FDDI, 4-12
 printer, 6-17 to 6-18
stitcher/stacker, 3-6, 6-7 to 6-9, 6-18
Sun workstations, 2-1 to 2-4, 2-4 to 2-8, 5-4, 5-5
Superuser password, 4-7
supplies
 cartridge tapes, A-6
 checklist, A-14
 consumables tables, A-8 to A-11
 developer, A-6
 diskettes, A-6
 dry ink, toner, A-6
 fuser
 agent, A-6
 shield, A-6
 paper, A-1 to A-3
supplies table, A-8 to A-11
support services, A-12 to A-13
system components, 1-2
system controller, *see* printer controller

T

tape drive, 2-3, 2-6, 5-7
TCP/IP, 1-1, 8-1
telephone numbers
 service, B-1
 Xerox Parts and Product Support Center, A-12
 Xerox Product Safety, iv
 Xerox Supply Center, A-12
three-phase
 DELTA, 6-3
time requirements, planning installation, 4-4
tinted paper, A-2
Token Ring, 1-4, 2-1, 2-4, 4-12
toner, *see* dry ink
training
 operators, 4-2, 8-2, B-3
 Xerox responsibilities, 4-2
transparencies, selecting, A-2

trays
 capacities
 dual stacker, 3-5
 HCF, 3-4
 stitcher/stacker, 3-6
 types, 3-1
turning radius, 6-14 to 6-16

U

Ultra 2 workstation, *see* Sun workstations
UltraSPARC workstation, *see* Sun workstations
United States/Canada, 5-2
UNIX
 command tool, 4-8
 root password, selecting, 4-7
 Sun operating system, 2-9
 Superuser password, 4-7

V

vertical clearance, 6-5
virtual printers, 4-9, D-4, D-9, D-11
voltages, requirements, 5-2

W

When, 8-3
work area, setting up, 2-1 to 6-18
workstations *see* Sun workstations

X

Xerox Client Software, 2-9, 4-7, 8-1
Xerox Customer Documentation Catalog, B-3
Xerox Customer Education, B-4
Xerox Customer Parts and Product Support Center,
 A-12
Xerox Customer Service Support Center, B-1
Xerox Documentation and Software Services
 (XDSS), B-3
Xerox Font Center, B-4
Xerox Printing Systems Customer Support Center,
 B-2
Xerox Product Safety, iv
Xerox responsibilities, 1-3, 4-1 to 4-2, 8-2
Xerox Supply Center, A-12

Z

zone name, specifying, 4-7