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Xerox 4050/4090/4450/4650
Laser Printing Systems
System Administration Guide

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Introduction

The *Xerox 4050/4090/4450/4650 Laser Printing Systems System Administration Guide* provides information and procedures for printer administration tasks, including installing software, setting system defaults, setting up security, accounting, and disk management procedures.

This reference is intended for both novice and experienced system administrators. It assumes some familiarity with laser printing systems.

Document conventions

This manual uses the following conventions:

UPPERCASE BOLD BLUE	Uppercase bold blue text indicates required characters or command keywords.
UPPERCASE BLUE ITALICS	Uppercase blue italics indicate optional parameter keywords, characters, or values.
Lowercase black italics	Lowercase black italics indicate variable parameter options, (word, character, phrase, or value).
...	Ellipses indicate that you can repeat a parameter option, or list a series of parameter options.
<>	Angle brackets indicate keys on the system controller keyboard.
	The carat character represents a required space.
TERMINAL FONT	Terminal or monospace fonts are used to represent LPS screen responses.
UPPERCASE	Uppercase letters indicate command names and parameter keywords.
CAUTION:	Cautions appear immediately before any action or omission that may result in damage to your equipment, software, or data.
WARNING:	Warnings are associated with the safety of people.

Related publications

You can find additional information related to the Xerox 4050/4090/4450/4650 LPS in the following publications.

Publication	Number
Xerox 4050/4090/4450/4650 LPS Master Index	720P93070
Xerox 4050/4090/4450/4650 LPS Product Reference	720P93010
Xerox 4050/4090/4450/4650 LPS Installation Planning	720P92990
Xerox 4050/4090/4450/4650 LPS Command Reference	720P23260
Xerox 4050/4090/4450/4650 LPS Operator Guide	720P93000
Xerox 4050/4090/4450/4650 LPS Operator Command Summary	720P93050
Xerox 4050/4090/4450/4650 LPS System Administration Quick Reference Card	720P93080
Xerox 4050/4090/4450/4650 LPS Print Description Language (PDL) Reference	720P93030
Xerox 4050/4090/4450/4650 LPS Print Description Language (PDL) Quick Reference Card	720P93090
Xerox 4050/4090/4450/4650 LPS Forms Creation Guide	720P93060
Xerox 4050/4090/4450/4650 LPS Forms Creation Quick Reference Card	720P93100
Xerox 4050/4090/4450/4650 LPS Message Guide	720P93020
Xerox 4050/4090/4450/4650 LPS Operator Instructor Training Guide	720P22070
Xerox 4050/4090/4450/4650 LPS Operator Instructor Training Flipcharts	720P22080
Xerox 4050/4090/4450/4650 LPS Bypass Transport Instructions, V3.5/3.8	720P22320
Xerox 4050/4090/4450/4650 LPS Bypass Transport Operator Training Guide Flipcharts Supplement	720P22340
Xerox 4050/4090/4450/4650 LPS Bypass Transport Operator Training Guide Supplement	720P22330
Xerox Standard Font Library User Guide	600P86174
Xerox Tape Formats Manual	600P86175
Helpful Facts About Paper	610P50497

1. Sysgen overview

This chapter covers information concerning system generation files. A system generation, or sysgen, is the process used to install, upgrade, or modify the Operating System Software (OSS) on your Laser Printing System (LPS).

The system generation files that come with your OSS consist of the following:

- New system files
- A sysgen processor program you use to load the new system files onto the LPS
- Patch files you use to modify the new system files for optimal performance.

Types of sysgens

There are three types of sysgens: update, full, and mini.

Update sysgen

Adds new features to the existing operating system or replaces the existing version of the operating system with a new version. The update sysgen does not affect user files.

You do not format the system disks for an update sysgen.

Full sysgen

Builds a new OSS on the cleared and formatted system disks. You perform a full sysgen when you install a new system or replace a system disk, or when read errors or other disk problems occur.

Make sure to offload user files before formatting a disk in use, or they will be deleted.

Mini sysgen

Modifies an existing OSS in a way that does not require new system files or patch files. For example, you use a mini sysgen to change configuration options. The mini sysgen does not affect user files.

You do not format the system disks for a mini sysgen.

Sysgen requirements

You need the following resources before you perform an update sysgen or a full sysgen:

Required resources

- An installed LPS
- At least 20% of your system disk space available at all times. You need 40% if your print jobs use many temporary image

files (refer to the "Managing system disk space" chapter in this guide).

- The Operating System Software comes with your system on one of the following media:

  —Magnetic tapes
  —Cartridge tapes
  —Floppy diskettes.

- Font tapes containing the system core fonts. Refer to the *Xerox 4050/4090/4450/4650 LPS Installation Planning* guide for more information and how to order fonts.
- The following documentation:

  —*OSS Program Description*
  —*Xerox 4050/4090/4450/4650 LPS Reference Set.*

Optional resources

In addition, you may need some of the following resources:

- Special font tapes (for example, logo and signature tapes)
- Patch tape
- Font program description
- JDL and FORM files
- Graphic files.

Material to review

Review information about the following topics under the appropriate command in the *Xerox 4050/4090/4450/4650 LPS Command Reference*:

- Setting physical page alignment (ALIGN command)
- Setting the size of the print file (REALLOCATE command)
- Establishing print job characteristics (FONTS, FORMS, and GRAPHIC)
- Setting up job accounting for billing purposes (ACCOUNT and REPORT).

Information required

You need the following information before you perform an update sysgen or a full sysgen:

- The approximate number of forms, fonts, and images you use per page in your installation. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about the maximum number of images and fonts available on your LPS.
- A list of all user files resident on the system disks. User files FSL, JSL, FRM, FR6, JDL, FNT, FN6, and PDE saved from a disk with another OSS version must be restored from the System Software Tape (SST) in order to operate correctly. Refer to the FILE command in the *Xerox 4050/4090/4450/4650 LPS Command Reference* for information about how to list files.
- A hardcopy of your current system configuration, if you want to retain your current defaults.
- The print file size. Refer to the *OSS Program Description* for information on the print file size.
- The system disk ID, if you are performing a sysgen on a previously used disk.

- Your printer engine speed (the number of pages per minute that it prints). Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference.*
- Does your system have the Graphics Handling Option (GHO)? Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about the GHO.
- Does your installation use Mergenthaler fonts?
- Do you have any site-specific patches that you need to apply in the post-sysgen procedure?
- Do you need to recompile your font maps for Interpress if you have an XNS or XPAF connection?

2. Using sysgen commands

This chapter contains information about sysgen commands. The Sysgen Command menu, illustrated in figure 2-1, displays the list of commands that you use to invoke various sysgen and sysgen-related procedures.

To display the Sysgen Command menu, boot the sysgen processor or enter **COMMANDS** or **C** following the sysgen prompt.

The **HOSTCOPY** command only displays on the menu if your system has on-line capability.

Figure 2-1. **Sysgen Command menu**

```
    * * * * SYSGEN PROCESSOR * * * *

COMMAND

    COMMANDS       DISPLAY SYSGEN COMMANDS
    BOOT           BOOT THE OPERATING SYSTEM
    SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
    FORMAT         FORMAT AND INITIALIZE DISK PACK
    HOSTCOPY       COPY USER FILES FROM HOST TO DISK
    AUTO           AUTO SYSGEN
    MINI           CONFIGURATION CHANGE ONLY
    FLOPPY         SYSGEN FROM FLOPPY
    ERASE          ERASE ALL FILES

ENTER CMD ('C' for Menu) >
```

Entering commands

Enter a command at the prompt character (>) and press the <Return> key. You can enter the full command, or abbreviate it to as few letters as necessary to differentiate it from other commands in the menu. To use **FLOPPY**, for example, enter any of the following abbreviations:

- **FL**
- **FLO**
- **FLOP**
- **FLOPP**

After the selected command completes processing, the prompt character displays again (except after the **BOOT** command). You do not need to display the menu to invoke a command.

You can also enter several commands as a string. For example, if you enter FORMAT, SYSGEN, BOOT, and then press the <Return> key, the system invokes each command consecutively, unless fatal errors occur.

Command descriptions

The following commands may appear in the Sysgen Command menu. Minimal abbreviations are indicated with an underline in table 2-1.

Table 2-1. **Sysgen command descriptions**

Command	Description
COMMANDS	Displays the Sysgen Command menu. You can enter a command without displaying the Sysgen Command menu.
BOOT	Boots the operating system. Enter this command after completing a sysgen.
SYSGEN	Builds a new operating system on the system disk from a System Software Tape or from system software files downloaded from a host computer. Requires more interaction than the AUTO command. You can use it to perform either a full or an update sysgen, depending on whether you precede it with the FORMAT command. You must use SYSGEN if you download system software files from a host computer.
FORMAT	Formats any or all of the system disk and performs a sector check. Destroys all files on the system disks, including user files. Do not use this command unless your OSS program specifically calls for FORMAT, or unless read errors or other disk problems occur (refer to ERASE). You may not evoke FORMAT or ERASE following a boot from disk (BD).

Table 2-1. **Sysgen command descriptions** (continued)

Command	Description
HOSTCOPY	Downloads font files, patch files, and user-generated EBCDIC data files from a host computer to the system disks. Allows an online printing system with no magnetic tape drive to retrieve tape files from the host. For more information, see the "Downloading host files" chapter in this guide.
AUTO	Builds a new operating system on the system disks from a System Software Tape (SST) and updates all system files. Requires less interaction than SYSGEN. Automatically invokes a standard sequence of sysgen commands. Differs from SYSGEN in the following ways: • Builds from a tape or floppy disk only • Does not ask for a configuration update • Saves accounting file automatically. You can use it to perform either a full or an update sysgen, although it is only completely automatic if invoked when you do an update sysgen. Because a full sysgen requires that the system disks be cleared and formatted, you must reenter configuration information.
MINI	Modifies the configuration file according to options you select from the Configuration Options menu (see table 3-1). Make sure you only change options that are from a previous sysgen. For example, you can deactivate or reactivate an option or change an interface address using MINI. If you are adding new features, do an update sysgen instead of a mini sysgen to ensure properly built system files. **CAUTION:** Do not execute MINI immediately following completion of a SYSGEN command. This prevents the application of patches.
FLOPPY	Builds a new operating system on the system disks from the system software floppy disks and updates all system files. You can use it to perform either a full or an update sysgen, depending on whether you precede it with the FORMAT command.
ERASE	Clears any or all of the system disks. Destroys all files on the disks, including user files. ERASE executes more quickly than FORMAT because it only initializes the filing structure; it does not perform a format or sector check.

3. Using the Configuration Options menu

This chapter describes the Configuration Options menu. During a sysgen, system configuration information displays on the system controller screen in a format similar to the illustration in figure 3-1. (The specific information displayed depends upon your current configuration.)

Figure 3-1. **System Configuration menu**

```
    * * * * BASE SYSTEM CONFIGURATION * * * *

CPU MEMORY = 512K

CD/IG:  VERSION 3.8              DISK UNITS:  0, 1
FONT MEMORY: 16 MEGABITS         TAPE:  STC DUAL DENSITY
                                 ENGINE SPEED: 90 PPM
                                 PAPER PATH: DUPLEX


    * * * * SYSTEM CONFIGURATION OPTIONS * * * *

PAPER SIZE: 8.5 X 11             LANGUAGE: U.S. ENGLISH
                                 CACHE MEMORY
                                 FLOPPY DISK


850 COMMUNICATION INTERFACE
ETHERNET INTERFACE
           ETHERNET ADDR:        XX-XX-XX-XX
                                 *X-XXX-XXX-XXX

           NETWORK ADDR:         XX
                                 *XX

DO YOU WISH TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'
>
```

If you respond to the `DO YOU WISH TO MAKE ANY CHANGES?` message by entering **Y**, the Configuration Options menu on the following page displays.

Selecting options

Entering the number of an option listed on the Configuration Options menu selects or deselects the feature, or causes a list of suboptions to display.

When you select a feature, the sysgen incorporates the supporting software for that feature into the operating system. Your LPS must have the appropriate hardware to support the features selected. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about supported features.

CAUTION: Selection of unsupported features may result in an unsuccessful sysgen or an unusable system.

Figure 3-2. **Configuration Options menu**

```
WHICH OF THE FOLLOWING MUST BE ADDED, DELETED, OR CHANGED?

0)  NONE
1)  TAPE DRIVE
2)  ON-LINE INTERFACE ADDRESS, OR MODE
3)  PRINTER SPEED
4)  REMOTE INTERACTIVE COMMUNICATIONS
5)  GRAPHICS
6)  KANJI
7)  ETHERNET
8)  LANGUAGE
9)  PAPER SIZE
10) 871 CONTROL MODULE
11) 9500 XEROGRAPHIC
12) MICR
13) TERMINAL TYPE
14) XeroxPRINT ACCESS FACILITY (XPAF)
15) DEFAULT PRINTER RESOLUTION
16) FINISHER
17) DEFAULT PRINTING ORDER
18) HIGH CAPACITY FEEDER
19) RASTER IMAGE PROCESSOR
20) SHARED DISK
21) SCSI INTERFACE
22) PROGRAMMABLE BYPASS TRANSPORT
23) XEROGRAPHIC MODE PERSISTENCE
24) INK PRIORITY
25) XeroxUNITY OF VIEW
26) FIMS
```

Option descriptions

Table 3-1 provides a description of each configuration option.

Table 3–1. **Configuration options**

Option	Description
0) NONE	Takes you back to the base configuration display.
1) TAPE DRIVE	Adds the tape drive feature to the system you are generating.

2) ONLINE INTERFACE ADDRESS OR MODE	Displays the following question:
	`DOES THE SYSTEM HAVE AN ONLINE INTERFACE, ADDRESS, OR MODE?`
	`ENTER 'Y' OR 'N'.`
	Enter **N** to remove the online feature.
	If you have V3.8 software, enter **Y** to have the system determine hardware configurations automatically.
	If you have V3.5 software, enter **Y** to display the following options.
	`OLI CHANGE LIST:`
	`1) NONE`
	`2) OLI HOST ADDRESS`
	`3) BURST MODE`
	`4) 1 BYTE MODE`
	`5) 6 BYTE MODE`
	Select **1** if there are no OLI changes.
	Select **2** to provide the printer internal address as a sysgen parameter. Enter this address in hexadecimal form. (This address is determined by the setting of the device address switch on the online interface.)
	Options **3**, **4**, and **5** are different modes for sending online data. Select the one that corresponds to the setting of the mode switch on the online interface.

3) PRINTER SPEED	Displays the following printer speed and paper path suboptions:
	`1) 120 PPM – SIMPLEX`
	`2) 120 PPM – DUPLEX`
	`3) 92 PPM`
	`4) 70 PPM – SIMPLEX`
	`5) 70 PPM – DUPLEX`
	`6) 50 PPM`
	`7) 50 PPM – H/L COLOR`
	`8) 92 PPM – H/L COLOR`
	Select the appropriate printer speed and paper path for your system. Refer to your *Xerox 4050/4090/4450/4650 LPS Product Reference* for specific information on your printer speed and path options.

Table 3–1. **Configuration options** (continued)

Option	Description
4) REMOTE INTERACTIVE COMMUNICATIONS	Adds the Remote Interactive Communications (RIC) feature to the system.
5) GRAPHICS	Adds the Graphics Handling Option (GHO) or Graphics Video Generator (GVG) feature. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* to determine which graphics feature applies to your system.
6) KANJI	Does not apply.

7) ETHERNET	Displays the following question:
	`IS THIS SYSTEM CONNECTED TO A XeroxETHERNET?`
	`ENTER 'Y' OR 'N'.`
	Enter **N** to remove the Ethernet feature or **Y** to choose one of the following suboptions:
	`ETHERNET CHANGE LIST:`
	`1) NONE`
	`2) READ PRINTER'S ADDRESS`
	`3) ETHERNET NETWORK ADDRESS.`
	Select **1** if there are no Ethernet changes.
	Select **2** to provide the printer internal address as a sysgen parameter. Enter this address in hexadecimal or decimal form. In decimal form, enter an asterisk followed by the address. A value not proceeded by a asterisk is hexadecimal.
	Select **3** to provide the Ethernet network address. Enter this address in hexadecimal or decimal form. In decimal form, enter an asterisk followed by the address (for example, *355). A value not preceded by an asterisk is hexadecimal.

8) LANGUAGE	Specifies the language of the display dialogue:
	`0) NONE`
	`1) U.S. ENGLISH`
	`2) U.K. ENGLISH`
	`3) GERMAN`
	`4) FRENCH`
	`5) DUTCH`
	`6) SWEDISH`
	`7) NORWEGIAN`
	`8) FINNISH`
	`9) DANISH`
	`10) SPANISH`
	`11) ITALIAN`
	`12) PORTUGUESE`
	Select **0** to make no change and leave the default as U.S. English. U.S. English displays paper size in inches. U.K. English displays paper sizes in millimeters.
	Only French, German, and Spanish suboptions are currently translated. The system displays U.S. English messages if you perform a sysgen in any other language.

Table 3–1. **Configuration options** (continued)

Option	Description

9) PAPER SIZE	Selects the correct paper size for your system:
	`ENTER PAPER SIZE OPTION:`
	`1) 8.5 × 11 (US LETTER)`
	`2) 8.27 × 11.69 (A4)`
	`3) 8.5 × 14 (US LEGAL)`
	`4) 8.0 × 10.2`
	`5) 8.0 × 10.5`
	`6) 8.0 × 13.0`
	`7) 8.27 × 10.63`
	`8) 8.27 × 13.0`
	`9) 8.37 × 10.78`
	`10) 8.46 × 10.83`
	`11) 8.46 × 12.40`
	`12) 8.46 × 14.02`
	`13) 8.50 × 10.75`
	`14) 8.50 × 13.0.`
	Diagnostic forms are available in two paper sizes: 8.5 x 11 and 8.27 x 11.69 inches (A4) inches.
	Select option **1** or **2** to download the appropriate forms to the system.
	Consult your site representative if your plan to print on paper sizes other than 8.5 x 11, 8.5 x 13, 8.27 x 11.69, 8.5 x 14 or 8.5 x 14.

10) 871 CM	Adds the 871 CM to the system. Use this only if the OEM1 board is installed. The 871 CM and Xerox Print Access Facility (XPAF) are mutually exclusive.
11) 9500 XEROGRAPHIC	Does not apply.
12) MICR	Does not apply.

13) TERMINAL TYPE	Selects appropriate terminal type for your system:
	`0) NO CHANGES`
	`1) ADM-3`
	`2) ADM-11`
	`3) UI-90`
	`4) VG920.`

14) XEROX PRINT ACCESS FACILITY (XPAF)	Adds the XPAF option to the system. If you want to configure both the Ethernet and the XPAF options, you must perform a sysgen with the Ethernet option configured first. After the sysgen is complete, perform a mini sysgen to select the XPAF option. XPAF and the 871 CM are mutually exclusive.

15) DEFAULT PRINTER RESOLUTION	Selects printer resolution for input data:
	`1) 300 SPI (`*default*`)`
	`2) 600 SPI (`*for 4650 printers only*`).`

16) FINISHER	Selects stacker or stitcher/stacker:
	`1) 2-TRAY STACKER`
	`2) 1-TRAY STITCHER/STACKER.`

17) DEFAULT PRINTING ORDER	Selects order of printing output: `1) 1 - N` *(first-to-last page, face down)* `2) N - 1` *(last-to-first page, face up)*.
18) HIGH CAPACITY FEEDER	Adds the high-capacity feeder (HCF) to the system.

Table 3–1. **Configuration options** (continued)

Option	Description
19) RASTER IMAGE PROCESSOR	Select **Y** to enter the appropriate number of RIP devices or **N** to remove all RIP devices from the system.
20) SHARED DISK	Unused.
21) SCSI INTERFACE	Adds the 32-track cartridge tape feature to the system.
22) PROGRAMMABLE BYPASS TRANSPORT	Unused.
23) XEROGRAPHIC MODE PERSISTENCE	Unused.
24) INK PRIORITY	Unused.
25) XEROX UNITY OF VIEW	Unused.
26) FIMS	Unused.

4. Performing a sysgen and related procedures

This chapter contains information on sysgens and related procedures. Even-numbered pages in this chapter walk you through all of the sysgen procedures, as well as procedures for formatting and erasing system disks and updating disk parameters.

Odd-numbered pages illustrate the dialogue that displays on the system controller console as you complete each step of the procedure on the opposite page. In addition to the dialogue, these illustrations indicate user input and provide a quick reference for procedures.

The illustrations use the following conventions:

- **Bolded** characters indicate user input
- Lowercase italics indicate variable information
- [*Bracketed italics*] indicate user actions or provide clarification of the dialogue or procedure. For example, [*enter*] means press the <Return> key.

Update sysgens

You perform an update sysgen to add major new features to the existing operating system or to replace the existing version of the operating system with a new version. Since you do not format system disks prior to an update sysgen, you do not have to back up user files.

Before you perform an update sysgen, use **FCHECK** to make sure you have enough disk space to generate a new system. Each disk must have a minimum of 3,000 free contiguous sectors available. If the number of available sectors is below 3,000, do the following:

- Save as many files to tape as necessary to obtain the minimum number of free sectors
- Delete the saved files from the disk
- Compress the disk.

Note: Do not use <Insert> if you are using a LINK terminal keyboard. Using <Insert> causes garbage characters to display on the console, requiring you to reset the terminal.

Performing an offline update sysgen

Use this procedure to perform an update sysgen when you are reading system files from tape or floppy diskette.

To perform an offline update sysgen, use one of three commands: **SYSGEN**, **FLOPPY**, or **AUTO**. Follow the procedures as necessary for the command you are using.

SYSGEN Updates system files from a System Software Tape or cartridge. Also gives you the option of making configuration changes, deleting the accounting file, and recompiling the font files.

FLOPPY Same as **SYSGEN** command, but from system software floppy disks.

AUTO Updates system files from a System Software Tape or from system software floppy disks. Allows you to recompile the font files. There is no configuration update and the system saves the account file automatically.

Note: If you invoke any of these commands after the **FORMAT** command, the system performs a full sysgen.

Table 4-1. **Procedural overview of offline update sysgen**

Step	Action
1	Boot the new sysgen processor program into main memory.
2	Install new Operating System Software using **SYSGEN**, **AUTO**, or **FLOPPY**.
3	Apply patches.

Figure 4-1 shows an update sysgen invoked using the **SYSGEN** command, performed on an offline 4090 LPS from tape. The sysgen dialogue varies slightly, depending on whether you use **SYSGEN**, **AUTO**, or **FLOPPY**.

1. Load the System Software Tape (SST) or floppy diskette volume 1.
2. Press the boot button on the system controller panel.

   The READY message appears on the display, followed by a prompt character ($).
3. Enter **BT** (boot from magnetic tape), **BF** (boot from floppy diskette), or **BC** (boot from cartridge tape). Command characters must be uppercase.

   The information on the tape or floppy diskette loads the sysgen processor into main memory. (In figure 4-1, the sysgen processor is booted from magnetic tape.)

   The Sysgen Processor command menu displays, followed by a prompt character (>).

Figure 4-1. **Offline update sysgen**

```
    [Press boot button]

    READY
$BT  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >
```

4. Enter **SYSGEN**, **AUTO**, or **FLOPPY** to invoke the appropriate sysgen procedure. (You can abbreviate **SYSGEN** to **S**, as illustrated in figure 4-1.)

   The `* SYSGEN PROGRAM RUNNING *` message displays.

5. Enter replies to queries concerning system ID. If you assign a new ID, you can use up to 30 alphanumeric characters, including spaces, the arrow key, and the <LINE DELETE> key. Do not use the <BACKSPACE> key.

   The message `THIS WILL BE AN UPDATE SYSGEN` displays, and the system asks you if you want to continue or abort.

6. Enter **C** to continue.

7. If an accounting file already exists on the system disks, the system asks if you wish to save accounting information. Enter **Y** to save accounting information or **N** to delete accounting information.

   The System Configuration menu displays, along with the message `DO YOU WANT TO MAKE ANY CHANGES?`

8. If you do not want to make changes, enter **N** and go to step 13.

   If you want to make changes, enter **Y**. The Configuration Option menu displays.

9. Enter the number of any option you want to change. You may enter the numbers of several options, separated by spaces or commas.

   Depending upon the original configuration, you either activate or deactivate an option by selecting it. You may also display a list of suboptions.

10. Make any desired selections from the suboption lists.

    When you have completed your changes, the System Configuration menu displays again, along with the message `DO YOU WISH TO MAKE ANY CHANGES?`

11. Enter **N** if you are finished.

    The system asks if you want to discard the changes you have just made.

12. Enter **N**.

    The system asks if continuation of the sysgen is required.

13. Enter **Y**.

14. (Online/offline switchable only). If your system has both a tape drive for offline input and a host interface, a message displays asking if system files are to be read from tape or from the host. Enter **T** to do an offline sysgen from tape.

    The system initializes each system disk drive, listing each file as it is written. This process takes about 10 minutes for tape and about 20 minutes for floppy diskette.

    If you entered **FLOPPY** to invoke sysgen, the system prompts you to remove and insert floppy diskettes.

    The system displays default values for the number of fonts, forms, and (optionally) graphics allowed per page by the new system. You may change these after you complete the sysgen and patching procedures.

Figure 4-1. **Offline update sysgen** (continued)

```
ENTER COMMAND
>S  [enter]
* SYSGEN PROGRAM RUNNING *
SYSTEM ID IS: user-assigned name
DO YOU WANT TO ENTER A NEW SYSTEM ID? 'Y' OR 'N'  N  [enter]
THIS WILL BE AN UPDATE SYSGEN
DO YOU WANT TO CONTINUE OR ABORT   [C/A]?
>C  [enter]
DO YOU WANT TO SAVE THE ACCOUNTING FILE?  ENTER 'Y' OR 'N'  Y  [enter]



* * * * SYSTEM CONFIGURATION MENU * * * *


DO YOU WISH TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'
>N  [enter]
CREATING FILE DISPCF.SYS
IS CONTINUATION OF SYSGEN REQUIRED? (Y OR N)  Y  [enter]
SHOULD SYSGEN READ FILES FROM HOST OR TAPE?  'H' OR 'T'    T  [enter]
* READING FILES FROM TAPE *
CREATING FILE xxxxxx.yyy ON DRIVE n
CREATING FILE xxxxxx.yyy ON DRIVE n



FOR YOUR SYSTEM THE DEFAULT NUMBER OF FONTS IS 17.
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FORMS IS 06.
TO OVERRIDE DEFAULTS USE 'FONTS/'FORMS' COMMANDS AFTER START-UP
* TAPE REWINDING * SYSGEN PROCESS SUCCESSFUL *
```

After all files are created, the message `* SYSGEN PROGRAM OFF *` displays, followed by a prompt character (>).

15. Enter **B** to boot the new system into main memory and start the patch process.

    Note: You must enter **B** at this time. No other command may intervene.

    The system prompts you for the date and time.

16. Enter the date, using the format MM/DD/YY. You can separate each date field by a slash, space, or dash.

17. Enter the time, using the format HH:MM:SS.

    Use the military 24-hour clock (for example, enter 18:35:22). The entry of the seconds field is optional. You can separate each field by a colon or a space.

    The system displays the date and time entered, and asks you if they are correct.

18. Enter **Y** if the date and time are correct.

    The system asks if you want time of day and printer status displayed. If so, enter **Y**. You can enable or disable this feature later with commands or by performing a mini sysgen.

    The automatic sysgen patch process now takes place, and a list of optional patch IDs displays.

19. Enter the ID of any patches you want to apply exactly as shown in the list. If your system requires it, enter **MER001** to apply the Merganthaler fonts.

    If you do not require any patches, press the <Return> key.

    When the messages `* * SYSGEN PATCHES COMPLETE * *` and `* * DELETING SYSGEN PATCHES * *` display, followed by the message `CRASH/REBOOT WILL OCCUR IN 15 SECONDS`, the patch version of the new system is being read into main memory.

    CAUTION: Do not abort the patching and crash/reboot process.

    If a patch is not available, a message displays. Otherwise, the `LOADING PROGRAM` message displays.

    If an error occurs, it is most likely due to an incorrectly entered patch ID. Before trying the sysgen again, make sure you entered the IDs correctly and that they match your configuration.

    When the patch process completes, the system asks you to confirm the date and time.

20. Enter **Y** if the date and time are correct.

    The `INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS` message displays.

    If a report status file does not currently exist on the system disks, the system asks if you want report accounting.

Figure 4-1. **Offline update sysgen** (continued)

```
* SYSGEN PROGRAM OFF *
>B  [enter]
LOADING PROGRAM

              Xerox4090
       LASER PRINTING SYSTEM
              VERSION 3.8
    SYSTEM ID IS:  user-assigned name
ENTER DATE (MM/DD/YY) :   mm/dd/yy  [enter]
ENTER TIME (HH:MM:SS) :   hh:mm:ss  [enter]
    mm,dd, yy   hh:mm:SS
ARE THE DATE AND TIME CORRECT AS DISPLAYED  (Y/N)?      Y  [enter]
LOAD AND ENABLE TIME-OF-DAY/STATUS DISPLAY  (Y/N)?      N  [enter]

* * APPLYING SYSGEN PATCHES * *
THE FOLLOWING PATCH ID'S MAY BE SELECTED
    PATCH ID  INVOKES
    xxxxx     yyyyy . . .
ENTER PATCH ID'S OR RETURN:  [enter]
* * RESUMING SYSGEN PATCHES * *
* * STILL APPLYING SYSGEN PATCHES * *
* * SYSGEN PATCHES COMPLETE * *
* * DELETING SYSGEN PATCHES * *
-CRASH/REBOOT WILL OCCUR IN 15 SECONDS - -

LOADING PROGRAM
DATE, TIME POSSIBLY INCORRECT?  (Y/N)?
11/17/93   12:20:45
Y  [enter]
INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS.
11/17/93   12:20:45
FORMS MEMORY BANK:     1 2 3 4
FONT MEMORY BANK:      1 2 3 4
```

21. Enter **Y** to create a normal-sized report accounting file, or **N** to create a minimal file. (Refer to the "Generating reports" chapter in this manual for more information.)

    The `DO YOU WANT TO RECOMPILE IPFNTS (Y/N)?` message displays.

22. Enter **Y** or **N**. If you enter **Y** to recompile Interpress fonts, the process takes about 30 minutes. If you enter **N**, the system compiles the default font, 10-point Classic.

    The message `DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?` displays.

23. Enter **Y** if you want to enable a finishing enhancement device.

    The system automatically performs Reallocate, Fix Font, and Logon procedures. The `0S1000 READY FOR COMMANDS` message displays, indicating that you can begin normal printing operations.

24. Perform any post-sysgen procedures, such as changing forms, fonts, or graphics values that were assigned default values.

Figure 4-1. **Offline update sysgen** (continued)

```
DO YOU WANT REPORT ACCOUNTING?  (Y/N)?       Y  [enter]
DO YOU WANT TO RECOMPILE IPFNTS   (Y/N)?     N  [enter]

DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?  (Y/N)?     N  [enter]
0S1060 INITIALIZING PRINTER
REALLOCATE!
REA VERSION D01
           * * * * * * * * * * * * * * * * * * * * * * * *
* * * * DO NOT ABORT OR OTHERWISE DISTURB THIS PROCESS * * * *
           * * * * * * * * * * * * * * * * * * * * * * * *
         400 CYLINDER PRINT FILE ALLOCATED WITH 400 USABLE CYLINDERS
* * * * RESUMING NORMAL OPERATION * * * *
FIX FNT
FIXING xxxxxx.yyy



    ALL FONTS ARE FIXED
FIX PROCESS FINISHED
LOG 1
    LOGON VERSION CO1
CLASS 1 SELECTED
    IF THE FILE “USTART.CMD (USER’S STARTUP COMMAND FILE) DOES NOT
    EXIST, THE MESSAGE “0S1552 FILE DOES NOT EXIST” WILL BE DISPLAYED
    AND SHOULD BE IGNORED
0S1552 FILE DOES NOT EXIST
0S1000 READY FOR COMMANDS   12:25:16
```

Performing an online update sysgen

You use the **SYSGEN** command to download System Software Tape files from a host computer to an online-only or online/offline switchable printing system.

Table 4-2. **Procedural overview of online update sysgen**

Step	Action
1	Use the **SYSGEN** command to download the new sysgen processor program into main memory.
2	Use the **SYSGEN** command again to download system files, which the processor uses to build the new operating system.
3	Apply patches.

Figure 4-2 shows an update sysgen for an online/offline switchable 4090 LPS.

1. Press the boot button located on the system controller panel.

   The READY message appears on the display, followed by a prompt character ($).

2. Enter **BD** to boot the current operating system sysgen processor into main memory from the system disks. Command characters must be uppercase.

   The Sysgen Processor command menu displays, followed by a prompt character (>).

   Note: This step assumes that some version of the operating system already resides on the disks. If this is not the case, load a version of the sysgen procedures from tape (by entering **BT**), or from floppy diskette (by entering **BF**).

3. Enter **SYSGEN**. (You can abbreviate **SYSGEN** to **S**, as illustrated in figure 4-2.)

   The * SYSGEN PROGRAM RUNNING * message displays, indicating the sysgen update has begun.

4. Enter replies to queries concerning system ID. If you assign a new ID, you can use up to 30 alphanumeric characters, including spaces, the arrow key, and the <LINE DELETE> key. Do not use the <BACKSPACE> key.

   The message THIS WILL BE AN UPDATE SYSGEN displays, and the system asks you if you want to continue or abort.

5. Enter **C** to continue.

Figure 4-2. **Online update sysgen**

```
    [Press boot button]

    READY
$BD  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >S  [enter]
    * SYSGEN PROGRAM RUNNING *
    DISK PACK ID IS: user-assigned name
    DO YOU WANT TO ENTER A NEW DISK PACK ID? 'Y' OR 'N'  N  [enter]
    THIS WILL BE AN UPDATE SYSGEN
    DO YOU WANT TO CONTINUE OR ABORT [C/A]?  C  [enter]
```

6. If an accounting file already exists on the system disks, the system asks if you wish to save accounting information. Enter **Y** to save accounting information or **N** to delete accounting information.

   The System Configuration menu displays, along with the message `DO YOU WANT TO MAKE ANY CHANGES?`

7. If you do not want to make changes, enter **N** and go to step 10.

   If you want to make changes, enter **Y**. The Configuration Option menu displays.

8. Enter the number of any option you want to change. You may enter the numbers of several options, separated by spaces or commas.

   Depending upon the original configuration, you either activate or deactivate an option by selecting it. You may also display a list of suboptions.

9. Make any desired selections from the suboption lists.

   When you have completed your changes, the System Configuration menu displays again, along with the message `DO YOU WISH TO MAKE ANY CHANGES?`

10. Enter **N** if you are finished.

    The system asks if you want to discard the changes you have just made.

11. Enter **N**.

    The system asks if continuation of the sysgen is required.

12. Enter **Y**.

13. (Online/offline switchable only). If your system has both a tape drive for offline input and a host interface, a message displays asking if system files are to be read from tape or from the host. Enter **H** to read system files from the host.

14. If you are adding new features to an existing software version, go to step 17.

    if you are installing a new software version, notify the host operator to vary the printer online.

15. Submit a job from the host to transmit the next-to-last System Software Tape file to the printer. This file contains the new system processor, which the system uses to build the new operating system.

    The host job should use a utility program that does the following:

    - Spaces down the System Software Tape to the next-to-last file.
    - Reads the file from tape. (The System Software Tape is in fixed-block format, with a record size of 128 bytes and maximum block size of 8192 bytes.)
    - Transmits the file to the printer in 128-byte record, unblocked output format.
    - Transmits the file without adding page numbers or reformatting the data.

Figure 4-2. **Online update sysgen** (continued)

```
DO YOU WANT TO SAVE THE ACCOUNTING FILE? ENTER 'Y' OR 'N'  Y  [enter]

* * * * SYSTEM CONFIGURATION MENU * * * *


DO YOU WISH TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'
>N  [enter]
IS CONTINUATION OF SYSGEN REQUIRED? (Y OR N)  Y  [enter]
SHOULD SYSGEN READ FILES FROM HOST OR TAPE?  'H' OR 'T'    H  [enter]
WAITING TO READ FILES FROM HOST
```

[Vary online at host.]
[Host job copies next-to-last SST file to printer.]

```
TAPE NOW BEING PROCESSED
CREATING FILE xxxxxx.yyy ON DRIVE n
CREATING FILE xxxxxx.yyy ON DRIVE n
```

Refer to the "Sample JCL for transmission of System Software Tapes" appendix in this guide for an example of a typical host utility program for file transmission.

The following message displays: `END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N.`

16. Enter **N**.
17. Notify the host operator to vary the system offline. Then type **C** without pressing the <Return> key. The `* SYSGEN PROGRAM OFF *` message displays, followed by a prompt character (>).
18. Press the boot button on the system controller. The `READY` message displays, followed by a prompt character ($).
19. Enter **BD** to boot the new sysgen processor into main memory. Command characters must be uppercase.

    The Sysgen Processor command menu displays, followed by a prompt character (>).
20. Enter **SYSGEN** to begin the process of downloading system files. (You can abbreviate **SYSGEN** to **S**, as shown in figure 4-2.)
21. Enter replies to queries concerning system ID, accounting file, and configuration changes.
22. Enter **Y** in response to the query `IS CONTINUATION OF SYSGEN REQUIRED?`
23. (Online/offline switchable only). If your system has both a tape drive for offline input and a host interface, a message displays asking if system files are to be read from tape or from the host. Enter **H** to read system files from the host.
24. Notify the host operator to vary the printer online.
25. Submit a job from the host to transmit the last System Software Tape file to the printer. This file contains a concatenation of all the system files on the System Software Tape. The sysgen processor uses these files to build a new operating system on the system disks.

    This host job is identical to the one used in step 13, except that it spaces down the System Software Tape one file further.

    The following message displays: `END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N.`
26. Enter **N**.
27. Notify the host operator to vary the system offline, then enter **C** without pressing the <Return> key.

Figure 4-2. **Online update sysgen** (continued)

```
    END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N   N  [enter]
    VARY OFFLINE AT HOST.  THEN ENTER 'C'   C
    * SYSGEN PROGRAM OFF *
    >

    [Press boot button]

    READY
$BD  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >S  [enter]
    * SYSGEN PROGRAM RUNNING *
    DISK PACK ID IS: user-assigned name
    DO YOU WANT TO ENTER A NEW DISK PACK ID? 'Y' OR 'N'  N  [enter]
    THIS WILL BE AN UPDATE SYSGEN
    DO YOU WANT TO CONTINUE OR ABORT  [C/A]?
    >C  [enter]
    DO YOU WANT TO SAVE THE ACCOUNTING FILE? ENTER 'Y' OR 'N'  Y  [enter]

    IS CONTINUATION OF SYSGEN REQUIRED?  (Y OR N)    Y  [enter]
    SHOULD SYSGEN READ FILES FROM HOST OR TAPE? 'H' OR 'T'      H  [enter]
    WAITING TO READ FILES FROM HOST

[Vary online at host.]
[Host job copies last SST file to printer]

    * TAPE NOW BEING PROCESSED *
    CREATING FILE xxxxxx.yyy ON DRIVE n
    CREATING FILE xxxxxx.yyy ON DRIVE n


    END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT?  Y OR N      N  [enter]
    VARY OFFLINE AT HOST.  THEN ENTER 'C'    C
```

The system displays default values for the number of fonts, forms, and (optionally) graphics allowed per page by the new system. You may change these after you complete the sysgen and patching procedures.

After all files are created, the message `* SYSGEN PROGRAM OFF *` displays, followed by a prompt character (>).

28. Enter **B** to boot the new system into main memory and start the patch procedure. The system prompts you for the date and time.

    Note: You must enter **B** at this time. No other command may intervene.

29. Enter the date, using the format MM/DD/YY. You can separate each date field by a slash, space, or dash.

30. Enter the time, using the format HH:MM:SS.

    Use the military 24-hour clock (for example, enter 18:35:22). The entry of the seconds field is optional. You can separate each field by a colon or a space.

    The system displays the date and time entered, and asks you if they are correct.

31. Enter **Y** if the date and time are correct.

    The system asks if you want time of day and printer status displayed. If so, enter **Y**. You can enable or disable this feature later with commands or by performing a mini sysgen.

    The automatic sysgen patch process now takes place, and a list of optional patch IDs displays.

32. Enter the ID of any patches you want to apply exactly as shown in the list. If your system requires it, enter **MER001** to apply the Merganthaler fonts.

    If you do not require any patches, press the <Return> key.

    When the message `CRASH/REBOOT WILL OCCUR IN 15 SECONDS` displays, the patch version of the new system is being read into main memory.

    CAUTION: Do not abort the patching and crash/reboot process.

    If a patch is not available, a message displays. Otherwise, the `LOADING PROGRAM` message displays.

    If an error occurs, it is most likely due to an incorrectly entered patch ID. Before trying the sysgen again, make sure you entered the IDs correctly and that they match your configuration.

    When the patch process completes, the system asks you to confirm the date and time.

33. Enter **Y** if the date and time are correct.

    The `INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS` message displays.

    If a report accounting file does not currently exist, the system asks if you want report accounting.

Figure 4-2. **Online update sysgen** (continued)

```
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FONTS IS 17.
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FORMS IS 06.
TO OVERRIDE DEFAULTS USE 'FONTS/'FORMS' COMMANDS AFTER START-UP
FOR YOUR SYSTEM THE DEFAULT NUMBER OF GRAPHICS IS 32.
OVERRIDE GRAPHICS DEFAULT BY USING 'GRA' COMMAND
* SYSGEN PROGRAM OFF *
>B  [enter]
LOADING PROGRAM

ENTER DATE (MM/DD/YY) :   mm/dd/yy  [enter]
ENTER TIME (HH:MM:SS) :   hh:mm:ss  [enter]
    mm,dd, yy   hh:mm:ss
ARE THE DATE AND TIME CORRECT AS DISPLAYED  (Y/N)?      Y  [enter]
LOAD AND ENABLE TIME-OF-DAY/STATUS DISPLAY  (Y/N)?      N  [enter]

* * APPLYING SYSGEN PATCHES * *
THE FOLLOWING PATCH ID'S MAY BE SELECTED
    PATCH ID  INVOKES
    xxxxx     yyyyy . . .
ENTER PATCH ID'S OR RETURN:  [enter]
* * RESUMING SYSGEN PATCHES * *
* * CONTINUING SYSGEN PATCHES * *
* * SYSGEN PATCHES COMPLETE * *
* * DELETING SYSGEN PATCHES * *
-CRASH/REBOOT WILL OCCUR IN 15 SECONDS - -

LOADING PROGRAM
DATE, TIME POSSIBLY INCORRECT?  (Y/N)?
11/17/93   12:20:45
Y  [enter]
INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS.
11/17/93   12:20:45
FORMS MEMORY BANK:     1 2 3 4
FONT MEMORY BANK:      1 2 3 4
DO YOU WANT REPORT ACCOUNTING?  (Y/N)?       Y  [enter]
```

34. Enter **Y** if you want to create a status file large enough to contain 2,001 reports. If a job contains over 2,001 reports, you should clear the status file before running the job.

    Enter **N** if you want to create a status file that only holds 100 reports.

    A command file applies the OSS patches. Once the patches are applied and you specify that no patch errors have occurred, the system rolls over. The system then prompts you with a crash code and the date and time.

    The `DO YOU WANT TO RECOMPILE IPFNTS (Y/N)?` message displays.

35. Enter **Y** or **N**. If you enter **Y** to recompile Interpress fonts, the process takes about 30 minutes. If you enter **N** and do not recompile Interpress fonts, the system compiles the default font, 10-point Classic.

    The message `DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?` displays.

36. Enter **Y** if you want to enable a finishing device.

    The system automatically performs Reallocate, Fix Font, and Logon procedures. The `0S1000 READY FOR COMMANDS` message displays, indicating that you can begin normal printing operations.

37. Perform any post-sysgen procedures, such as changing forms, fonts, or graphics values that were assigned default values.

Figure 4-2. **Online update sysgen** (continued)

```
DO YOU WANT TO RECOMPILE IPFNTS   (Y/N)?     N  [enter]

DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?  (Y/N)?     N  [enter]
0S1060 INITIALIZING PRINTER
REALLOCATE!
REA VERSION D01
          * * * * * * * * * * * * * * * * * * * * * * * *
* * * * DO NOT ABORT OR OTHERWISE DISTURB THIS PROCESS * * * *
          * * * * * * * * * * * * * * * * * * * * * * * *
        400 CYLINDER PRINT FILE ALLOCATED WITH 400 USABLE CYLINDERS
* * * * RESUMING NORMAL OPERATION * * * *
FIX FNT
FIXING xxxxxx.yyy



   ALL FONTS ARE FIXED
FIX PROCESS FINISHED
LOG 1
   LOGON VERSION CO1
CLASS 1 SELECTED
   IF THE FILE “USTART.CMD (USER’S STARTUP COMMAND FILE) DOES NOT
   EXIST, THE MESSAGE “0S1552 FILE DOES NOT EXIST” WILL BE DISPLAYED
   AND SHOULD BE IGNORED
0S1552 FILE DOES NOT EXIST
0S1000 READY FOR COMMANDS   12:25:16
```

Full sysgens

A full sysgen involves either erasing or formatting the system disks, then loading the Operating System Software on the system disks. You perform a full sysgen when:

- You install a new system
- You replace a system disk
- Read errors or other disk problems occur
- A new system or patch requires a full sysgen.

It is faster to erase system disks than to format them, and the **ERASE** command, unlike **FORMAT**, saves bad block files. It is recommended that you use **ERASE** unless your OSS program specifically calls for **FORMAT**, or unless you experience read errors or other disk problems.

Make sure to back up user files before you erase or format the system disks.

Performing an offline full sysgen

Use this procedure to perform a full sysgen when you are reading system files from tape or floppy diskette.

Table 4-3. **Procedural overview of offline full sysgen**

Step	Action
1	Boot the new sysgen processor program into main memory.
2	Use the **ERASE** or **FORMAT** commands to clear the system disks.
3	Install new Operating System Software using the **SYSGEN** or **FLOPPY** command.
4	Apply patches.

Figure 4-3 shows a full sysgen invoked using the **SYSGEN** command, performed on an offline 4090 LPS from magnetic tape. It includes an erase procedure, followed by the sysgen procedure.

1. Load the System Software Tape (SST) or floppy diskette volume 1.
2. Press the boot button on the system controller panel.

   The READY message appears on the display, followed by a prompt character ($).
3. Enter **BT** (boot from magnetic tape), **BF** (boot from floppy diskette), or **BC** (boot from cartridge tape). Command characters must be uppercase.

   The information on the tape or floppy diskette loads the sysgen processor into main memory. The Sysgen Processor command menu displays, followed by a prompt character (>).

Figure 4-3. **Offline full sysgen**

```
    [Press boot button]

    READY
$BT  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS        DISPLAY SYSGEN COMMANDS
        BOOT            BOOT THE OPERATING SYSTEM
        SYSGEN          BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT          FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY        COPY USER FILES FROM HOST TO DISK
        AUTO            AUTO SYSGEN
        MINI            CONFIGURATION CHANGE ONLY
        FLOPPY          SYSGEN FROM FLOPPY
        ERASE           ERASE ALL FILES

    ENTER COMMAND
    >
```

Erase or format the system disks

4. Enter **ERASE** to erase the system disks, or **FORMAT** to format them.

   The system asks you to verify that you want to run the procedure and then asks for a second confirmation.

5. Make sure that all necessary files have been backed up, then enter **Y** to each query.

   A list of options displays.

6. Enter **1** to clear all system disks, or **2** to clear selected disks. If you entered **2**, enter the disk unit numbers, separating each number by a comma.

   The system displays the numbers of the selected disk units and asks you to confirm the selection.

7. Enter **Y** if correct, or **N** to change your selection. The system displays information for each disk unit you selected and asks if you want to continue or abort.

   If you are erasing, continue with step 10.

   If you are formatting, the system displays a list of manufacturers.

8. Enter the number corresponding to your disk manufacturer ID. If your manufacturer ID does not appear on the list, enter **4**. Respond to the questions about the total number of cylinders, read/write head, and sectors per track on the disk. (If you do not have this information, ask your service representative.)

   The system checks the Manufacturer Bad Area Information Sheet (MBAIS) data sheet for the first designated disk unit. The system displays a message indicating whether the data is valid or invalid.

9. If the data is valid, enter **N** in response to the message asking if you want to reenter MBAIS data. Enter **C** in response to the message asking if you want to continue or abort. (If you abort, the system does not format the specified disk drive.) The system continues to check the MBAIS data sheet for each specified disk drive.

   If the data is invalid, the system asks if you want to continue or abort. Enter **A** if you want to abort formatting for the specified disk drive. Enter **C** if you want to reenter MBAIS data. Complete the appropriate procedure in the "Restoring MBAIS data" appendix before continuing with step 10.

10. Enter **1** to continue the erase or format procedure.

Figure 4-3. **Offline full sysgen** (continued)

```
ENTER COMMAND
>ERASE  [enter]
FORMATTING/ERASING THE DISK(S) WILL DESTROY THE DATA
DO YOU STILL WANT TO FORMAT/ERASE THE DISKS? [Y/N]
>Y  [enter]
ARE YOU STILL SURE?  [Y/N]
>Y  [enter]

ERASE OPTIONS
1.  ALL THE DISKS
2.  SELECT THE DISK UNIT(S)
ENTER OPTION NUMBER:
>1  [enter]

ERASE DP0: , DP1:  CONFIRM? [Y/N]
>Y  [enter]
DO YOU WANT TO ERASE OR ABORT?
1. ERASE
2. ABORT
>1  [enter]

* * FORMAT PROGRAM RUNNING * *

DISK UNIT          0-CDC              1-CDC                  2-                 3-
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* STATUS           * SELECTED         *SELECTED              *NOT PRESENT       *NOT PRESENT
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* FORMATTING       * IN PROGRESS      *                      *                  *           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* SECTOR CHECK     *                  *                      *                  *           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* CYLINDER NUMBER * nnn               *                      *                  *           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* TOTAL NUMBER     *                  *                      *                  *           *
* OF BAD SECTORS   *                  *                      *                  *           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                  *                  *                      *                  *           *
* ERROR MESSAGES   *                  *                      *                  *           *
*                  *                  *                      *                  *           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

When erasing or formatting is complete, the table remains on the screen. The `* * FORMAT PROGRAM OFF * *` message displays, followed by the "Enter command" prompt.

11. Enter **FLOPPY** if you booted from a floppy diskette in step 3 and are continuing sysgen on floppy diskette. Remove and insert floppy diskettes, as prompted.

    Enter **SYSGEN** if you booted from tape or cartridge and are continuing the sysgen on tape or cartridge, or if you booted from floppy but are continuing the sysgen on tape or cartridge. (You can abbreviate **SYSGEN** to **S**, as illustrated in figure 4-3.)

    The `* SYSGEN PROGRAM RUNNING *` message displays, indicating the sysgen update has begun. The system asks you to enter a system ID.

12. Enter a new system ID. You can use up to 30 alphanumeric characters, including spaces, the arrow key, and the <LINE DELETE> key. Do not use the <BACKSPACE>key.

    The message `THIS WILL BE A FULL SYSGEN` displays, and the system asks you if you want to continue or abort.

13. Enter **C** to continue.

    A list of printer speeds displays, and the system asks you to select your printer speed and paper path.

14. Enter the number corresponding to your printer speed. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about printer speeds.

    The System Configuration menu displays, along with the message `DO YOU WISH TO MAKE ANY CHANGES?`

15. If you do not want to make changes, enter **N** and go to step 20.

    If you want to make changes, enter **Y**. The Configuration Option menu displays.

16. Enter the number of any option you want to change. You may enter the numbers of several options, separated by spaces or commas.

    Depending upon the original configuration, you either activate or deactivate an option by selecting it. You may also display a list of suboptions.

17. Make any desired selections from the suboption lists.

    When you have completed your changes, the System Configuration menu displays again, along with the message `DO YOU WISH TO MAKE ANY CHANGES?`

18. Enter **N** if you are finished.

    The system asks you if you want to discard the changes you have just made.

19. Enter **N** if you want to keep the changes.

    The message `CREATING FILE DISPCF.SYS` displays. The system asks if continuation of sysgen is required.

20. Enter **Y**.

Figure 4-3. **Offline full sysgen** (continued)

```
* * FORMAT PROGRAM OFF **
ENTER COMMAND
>S  [enter]

ENTER COMMAND
>S  [enter]
* SYSGEN PROGRAM RUNNING *
SYSTEM ID IS: user-assigned name
DO YOU WANT TO ENTER A NEW SYSTEM ID? 'Y' OR 'N'  Y  [enter]
>user-assigned name
SYSTEM ID IS:  user-assigned name

THIS WILL BE A FULL SYSGEN
DO YOU WANT TO CONTINUE OR ABORT  [C/A]?
>C  [enter]

SELECT PRINTER SPEED WITH PAPER PATH OPTION
1)  120 PPM - SIMPLEX
2)  120 PPM - DUPLEX
3)  92 PPM
4)  70 PPM - SIMPLEX
5)  70 PPM - DUPLEX
6)  50 PPM
7)  50 PPM H/L COLOR
8)  92 PPM H/L COLOR
ENTER OPTION NUMBER
>3  [enter]

* * * * SYSTEM CONFIGURATION MENU * * * *

DO YOU WISH TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'
>N  [enter]
CREATING FILE DISPCF.SYS
IS CONTINUATION OF SYSGEN REQUIRED? (Y OR N)  Y  [enter]
```

21. If your system is an offline only system, no further input is required to start downloading system files. (Figure 4-3 shows downloading files to an offline only system.)

    If your printing system has a tape drive for offline input and a channel-attached host for online input, the following message displays:

    ```
    SHOULD SYSTEM READ FILES FROM HOST OR TAPE 'H' OR 'T'?
    ```

    Enter **T**.

    The system initializes each system disk drive, listing each file as it is written. This process takes about 10 minutes for tape and about 20 minutes for floppy diskette.

    If you entered **FLOPPY** to invoke sysgen, the system prompts you to remove and insert floppy diskettes.

    The system displays default values for the number of fonts, forms, and (optionally) graphics allowed per page by the new system. You may change these after you complete the sysgen and patching procedures.

    After all files are created, the message `* SYSGEN PROGRAM OFF *` displays, followed by a prompt character (>).

22. Enter **B** to boot the new system into main memory and start the patch process.

    Note: You must enter **B** at this time. No other command may intervene.

    The system prompts you for the date and time.

23. Enter the date, using the format MM/DD/YY. You can separate each date field by a slash, space, or dash.

24. Enter the time, using the format HH:MM:SS.

    Use the military 24-hour clock (for example, enter 18:35:22). The entry of the seconds field is optional. You can separate each field by a colon or a space.

    The system displays the date and time entered, and asks you if they are correct.

25. Enter **Y** if the date and time are correct.

    The system asks if you want time of day and printer status displayed.

26. Enter **Y** if you want time and printer status displayed. You can enable or disable this feature later with commands or by performing a mini sysgen.

    The automatic sysgen patch process now takes place, and a list of optional patch IDs displays.

27. Enter the ID of any patches you want to apply exactly as shown in the list. If your system requires it, enter **MER001** to apply the Merganthaler fonts.

    If you do not require any patches, press the <Return> key.

Figure 4-3. **Offline full sysgen** (continued)

```
SHOULD SYSGEN READ FILES FROM HOST OR TAPE?  'H' OR 'T'     T  [enter]
* READING FILES FROM TAPE *
CREATING FILE xxxxxx.yyy ON DRIVE n

FOR YOUR SYSTEM THE DEFAULT NUMBER OF FONTS IS 17.
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FORMS IS 06.
TO OVERRIDE DEFAULTS USE 'FONTS/'FORMS' COMMANDS AFTER START-UP
* TAPE REWINDING * SYSGEN PROCESS SUCCESSFUL *
* SYSGEN PROGRAM OFF *
>B  [enter]
LOADING PROGRAM

              Xerox4090
        LASER PRINTING SYSTEM
              VERSION 3.8
    SYSTEM ID IS:  user-assigned name
ENTER DATE (MM/DD/YY) :    mm/dd/yy  [enter]
ENTER TIME (HH:MM:SS) :    hh:mm:ss  [enter]
    mm,dd, yy    hh:mm:ss
ARE THE DATE AND TIME CORRECT AS DISPLAYED  (Y/N)?      Y  [enter]
LOAD AND ENABLE TIME-OF-DAY/STATUS DISPLAY  (Y/N)?  Y  [enter]
* * APPLYING SYSGEN PATCHES * *
THE FOLLOWING PATCH ID'S MAY BE SELECTED
    PATCH ID  INVOKES
    xxxxx     yyyyy . . .
ENTER PATCH ID'S OR RETURN:  [enter]
```

When the messages * * SYSGEN PATCHES COMPLETED * * and * * DELETING SYSGEN PATCHES * * display, followed by the message CRASH/REBOOT WILL OCCUR IN 15 SECONDS, the patch version of the new system is being read into main memory.

CAUTION: Do not abort the patching and crash/reboot process.

If a patch is not available, a message displays. Otherwise, the LOADING PROGRAM message displays.

If an error occurs, it is most likely due to an incorrectly entered patch ID. Before trying the sysgen again, make sure you entered the IDs correctly and that they match your configuration.

When the patch process completes, the system asks you to confirm the date and time.

28. Enter **Y** if the date and time are correct.

    The INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS message displays.

    The system asks if you want report accounting. (Refer to the "Generating reports" chapter in this guide for more information about report accounting.)

29. Enter **Y** if you want to create a status file large enough to contain 2,001 reports. If a job contains over 2,001 reports, you should clear the status file before running the job.

    Enter **N** if you want to create a status file that only holds 100 reports.

    A command file applies the OSS patches. Once the patches are applied and you specify that no patch errors have occurred, the system rolls over. The system then prompts you with a crash code and the date and time.

    The DO YOU WANT TO RECOMPILE IPFNTS (Y/N)? message displays.

30. Enter **Y** or **N**. If you enter **Y** to recompile Interpress fonts, the process takes about 30 minutes. If you enter **N** and do not recompile Interpress fonts, the system compiles the default font, 10-point Classic.

    The message DO YOU HAVE A FINISHING ENHANCEMENT DEVICE? displays.

31. Enter **Y** if you want to enable a finishing device.

    The system automatically performs Reallocate, Fix Font, and Logon procedures. When you see the message 0S1000 READY FOR COMMANDS, you are ready to begin normal printing operations.

32. Perform any postsysgen procedures, such as changing forms, fonts, or graphics values that were assigned default values.

Figure 4-3. **Offline full sysgen** (continued)

```
* * RESUMING SYSGEN PATCHES * *
* * STILL APPLYING SYSGEN PATCHES * *
* * SYSGEN PATCHES COMPLETE * *
* * DELETING SYSGEN PATCHES * *
-CRASH/REBOOT WILL OCCUR IN 15 SECONDS - -

LOADING PROGRAM
DATE, TIME POSSIBLY INCORRECT?  (Y/N)?
11/17/93   12:20:45
Y  [enter]
INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS.
11/17/93   12:20:45
FORMS MEMORY BANK:     1 2 3 4
FONT MEMORY BANK:      1 2 3 4
DO YOU WANT REPORT ACCOUNTING?  (Y/N)?       Y  [enter]
DO YOU WANT TO RECOMPILE IPFNTS   (Y/N)?     N  [enter]

DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?  (Y/N)?     N  [enter]
0S1060 INITIALIZING PRINTER
REALLOCATE!
REA VERSION D01
          * * * * * * * * * * * * * * * * * * * * * * * *
* * * * DO NOT ABORT OR OTHERWISE DISTURB THIS PROCESS * * * *
          * * * * * * * * * * * * * * * * * * * * * * * *
        400 CYLINDER PRINT FILE ALLOCATED WITH 400 USABLE CYLINDERS
* * * * RESUMING NORMAL OPERATION * * * *
FIX FNT
FIXING xxxxxx.yyy



   ALL FONTS ARE FIXED
FIX PROCESS FINISHED
LOG 1
   LOGON VERSION CO1
CLASS 1 SELECTED
   IF THE FILE “USTART.CMD (USER’S STARTUP COMMAND FILE) DOES NOT
   EXIST, THE MESSAGE “0S1552 FILE DOES NOT EXIST” WILL BE DISPLAYED
   AND SHOULD BE IGNORED
0S1552 FILE DOES NOT EXIST
0S1000 READY FOR COMMANDS   12:25:16
```

Performing an online full sysgen

Use this procedure to perform a full sysgen when you are reading system files from a host computer.

Table 4-4. **Procedural overview of online full sysgen**

Step	Action
1	Use the **SYSGEN** command to download the new sysgen processor program into main memory.
2	Use **ERASE** or **FORMAT** to clear the system disks.
3	Use the **SYSGEN** command again to download system files, which the processor uses to build the new operating system.
4	Apply patches.

Figure 4-4 shows a full sysgen invoked using the **SYSGEN** command, performed on an online/offline switchable 4090 LPS. It includes an erase procedure, followed by the sysgen procedure.

1. Press the boot button located on the system controller panel.

   The READY message appears on the display, followed by a prompt character ($).

2. Enter **BD** to boot the current operating system sysgen processor into main memory from the system disks. Command characters must be uppercase.

   The Sysgen Processor command menu displays, followed by a prompt character (>).

   Note: This step assumes that some version of the operating system already resides on the disks. If this is not the case, load a version of the sysgen procedures from tape (by entering **BT**), or from floppy diskette (by entering **BF**).

Erase or format the system disks

3. Enter **ERASE** to erase the system disks, or **FORMAT** to format them.

   Note: It is faster to erase system disks than to format them, and the **ERASE** command, unlike **FORMAT**, saves bad block files. Normally, you use **ERASE**, unless your OSS program specifically calls for **FORMAT**, or unless you experience read errors or other disk problems.

   The system asks you to verify that you want to run the procedure and then asks for a second confirmation.

4. Make sure that all necessary files have been backed up, then enter **Y** to each query.

   A list of options displays.

Figure 4-4. **Online full sysgen**

```
    [Press boot button]

    READY
$BD  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >ERASE  [enter]
    FORMATTING/ERASING THE DISK(S) WILL DESTROY THE DATA
    DO YOU STILL WANT TO FORMAT/ERASE THE DISKS? [Y/N]
    >Y  [enter]
    ARE YOU STILL SURE?  [Y/N]
    >Y  [enter]

    * * FORMAT PROGRAM RUNNING * *
    ERASE OPTIONS
    1.  ALL THE DISKS
    2.  SELECT THE DISK UNIT(S)
```

5. Enter **1** to clear all system disks, or **2** to clear selected disks. If you entered **2**, enter the disk unit numbers, separating each number by a comma.

   The system displays the numbers of the selected disk units and asks you to confirm the selection.

6. Enter **Y** if correct, or **N** to change your selection. The system displays information for each disk unit you selected and asks if you want to continue or abort.

   If you are erasing, continue with step 9.

   If you are formatting, the system displays a list of manufacturers.

7. Enter the number corresponding to your disk manufacturer ID. If your manufacturer ID does not appear on the list, enter **4**. Respond to the questions about the total number of cylinders, read/write heads, and sectors per track on the disk. (If you do not have this information, ask your service representative.)

   The system checks the Manufacturer Bad Area Information Sheet (MBAIS) data sheet for the first designated disk unit. The system displays a message indicating whether the data is valid or invalid.

8. If the data is valid, enter **N** in response to the message asking if you want to reenter MBAIS data. Enter **C** in response to the message asking if you want to continue or abort. (If you abort, the system does not format the specified disk drive.) The system continues to check the MBAIS data sheet for each specified disk drive.

   If the data is invalid, the system asks if you want to continue or abort. Enter **A** if you want to abort formatting for the specified disk drive. Enter **C** if you want to reenter MBAIS data. Complete the appropriate procedure in the "Restoring MBAIS data" appendix before continuing with step 9.

9. Enter **1** to continue the erase or format procedure.

   When erasing or formatting is complete, the table remains on the screen. The `* * FORMAT PROGRAM OFF * *` message displays, followed by the "Enter Command" prompt.

10. Enter **SYSGEN**. (You can abbreviate **SYSGEN** to **S**, as illustrated in figure 4-4.)

    The `* SYSGEN PROGRAM RUNNING *` message displays, indicating the sysgen update has begun. The system asks you to enter a system ID.

11. Enter a new system ID. You can use up to 30 alphanumeric characters, including spaces, the arrow key, and the <LINE DELETE> key. Do not use the <BACKSPACE>key.

    The system asks again if you want to enter a new system ID.

Figure 4-4. **Online full sysgen** (continued)

```
ENTER OPTION NUMBER:
>1  [enter]
ERASE DP0: , DP1:  CONFIRM? [Y/N]
>Y  [enter]
DO YOU WANT TO ERASE OR ABORT?
1. ERASE
2. ABORT
>1  [enter]

* * FORMAT PROGRAM RUNNING * *

DISK UNIT          0-CDC             1-CDC                 2-                3-
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* STATUS           * SELECTED        *SELECTED             *NOT PRESENT      *NOT PRESENT
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* FORMATTING       * IN PROGRESS     *                     *                 *          *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* SECTOR CHECK      *                 *                     *                 *          *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* CYLINDER NUMBER * nnn               *                     *                 *          *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* TOTAL NUMBER     *                 *                     *                 *          *
* OF BAD SECTORS   *                 *                     *                 *          *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                  *                 *                     *                 *          *
* ERROR MESSAGES   *                 *                     *                 *          *
*                  *                 *                     *                 *          *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *


* * FORMAT PROGRAM OFF * *
Enter Cmd> S  [enter]
* SYSGEN PROGRAM RUNNING *
SYSTEM ID IS: user-assigned name
DO YOU WANT TO ENTER A NEW SYSTEM ID? 'Y' OR 'N'  Y  [enter]
>user-assigned name
SYSTEM ID IS:  user-assigned name
DO YOU WANT TO ENTER A NEW SYSTEM ID? 'Y' OR 'N'  N  [enter]
```

12. Enter **N** unless you entered the wrong ID.

    The message `THIS WILL BE A FULL SYSGEN` displays, and the system asks you if you want to continue or abort.

13. Enter **C** to continue.

    A list of printer speeds displays, and the system asks you to select your printer speed and paper path.

14. Enter the number corresponding to your printer speed. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about printer speeds.

    The System Configuration menu displays, along with the message `DO YOU WANT TO MAKE ANY CHANGES?`

15. If you do not want to make changes, enter **N** and go to step 20.

    If you want to make changes, enter **Y**. The Configuration Option menu displays.

16. Enter the number of any option you want to change. You may enter the numbers of several options, separated by spaces or commas.

    Depending upon the original configuration, you either activate or deactivate an option by selecting it. You may also display a list of suboptions.

17. Make any desired selections from the suboption lists.

    When you have completed your changes, the System Configuration menu displays again, along with the message `DO YOU WANT TO MAKE ANY CHANGES?`

18. Enter **N** if you are finished.

    The system asks you if you want to discard the changes you have just made.

19. Enter **N** if you want to keep the changes.

    The message `CREATING FILE DISPCF.SYS` displays. The system asks if continuation of sysgen is required.

20. Enter **Y**.

21. (Online/offline switchable only). If your system has both a tape drive for offline input and a host interface, a message displays asking if system files are to be read from tape or from the host. Enter **H** to read system files from the host.

22. Notify the host operator to vary the printer online.

23. Submit a job from the host to transmit the next-to-last System Software Tape file to the printer. This file contains the new system processor, which the system uses to build the new operating system.

    Refer to the "Sample JCL for transmission of System Software Tapes" appendix in this manual for an example of a typical host utility program for file transmission.

Figure 4-4. **On-line full sysgen** (continued)

```
THIS WILL BE A FULL SYSGEN
DO YOU WANT TO CONTINUE OR ABORT  [C/A]?
>C  [enter]

SELECT PRINTER SPEED WITH PAPER PATH OPTION
1)  120 PPM - SIMPLEX
2)  120 PPM - DUPLEX
3)  92 PPM
4)  70 PPM - SIMPLEX
5)  70 PPM - DUPLEX
6)  50 PPM
7)  50 PPM H/L COLOR
8)  92 PPM H/L COLOR
ENTER OPTION NUMBER
>3  [enter]

* * * * SYSTEM CONFIGURATION MENU * * * *
DO YOU WISH TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'
>N  [enter]

CREATING FILE DISPCF.SYS
IS CONTINUATION OF SYSGEN REQUIRED? (Y OR N)  Y  [enter]
SHOULD SYSGEN READ FILES FROM HOST OR TAPE?  'H' OR 'T'    H  [enter]
WAITING TO READ FILES FROM HOST
```

[Vary online at host.]
[Host job copies next-to-last SST file to printer.]

```
TAPE NOW BEING PROCESSED
CREATING FILE xxxxxx.yyy ON DRIVE n
CREATING FILE xxxxxx.yyy ON DRIVE n
```

The host job should use a utility program that does the following:

- Spaces down the System Software Tape to the next-to-last file.
- Reads the file from tape. (The System Software Tape is in fixed-block format, with a record size of 128 bytes and maximum block size of 8192 bytes.)
- Transmits the file to the printer in 128-byte record, unblocked output format.
- Transmits the file without adding page numbers or reformatting the data.

The following message displays: `END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N.`

24. Enter **N**.
25. Notify the host operator to vary the system offline. Then enter **C**. The `* SYSGEN PROGRAM OFF *` message displays, followed by a prompt character (>).
26. Press the boot button on the system controller. The `READY` message displays, followed by a prompt character ($).
27. Enter **BD** to boot the new sysgen processor into main memory. Command characters must be uppercase.

    The Sysgen Processor command menu displays, followed by a prompt character (>).
28. Enter **SYSGEN** to begin the process of downloading system files. (You can abbreviate **SYSGEN** to **S**, as shown in figure 4-4.)
29. Enter **Y** in response to the query `IS CONTINUATION OF SYSGEN REQUIRED?`
30. (On-line/offline switchable only). If your system has both a tape drive for offline input and a host interface, a message displays asking if system files are to be read from tape or from the host. Enter **H** to read system files from the host.
31. Notify the host operator to vary the printer online.
32. Submit a job from the host to transmit the last system software tape file to the printer. This file contains a concatenation of all the system files on the System Software Tape. The sysgen processor uses these files to build a new operating system on the system disks.

    This host job is identical to the one used in step 23, except that it spaces down the System Software Tape one file further.

    The following message displays: `END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N`
33. Enter **N**.
34. Notify the host operator to vary the system offline, then enter **C** without pressing the Return key.

Figure 4-4. **Online full sysgen** (continued)

```
   END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N   N  [enter]
   VARY OFFLINE AT HOST.  THEN ENTER 'C'   C
   * SYSGEN PROGRAM OFF *
   >
```

[Press boot button]

```
   READY
$BD  [enter]
LOADING PROGRAM

   * * * * SYSGEN PROCESSOR * * * *

COMMAND

       COMMANDS       DISPLAY SYSGEN COMMANDS
       BOOT           BOOT THE OPERATING SYSTEM
       SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
       FORMAT         FORMAT AND INITIALIZE DISK PACK
       HOSTCOPY       COPY USER FILES FROM HOST TO DISK
       AUTO           AUTO SYSGEN
       MINI           CONFIGURATION CHANGE ONLY
       FLOPPY         SYSGEN FROM FLOPPY
       ERASE          ERASE ALL FILES

   ENTER COMMAND
   >S  [enter]
   * SYSGEN PROGRAM RUNNING *

   IS CONTINUATION OF SYSGEN REQUIRED?  (Y OR N)    Y  [enter]
   SHOULD SYSGEN READ FILES FROM HOST OR TAPE? 'H' OR 'T'      H  [enter]
   WAITING TO READ FILES FROM HOST
```

[Vary online at host.]

[Host job copies last SST file to printer.]

```
   * TAPE NOW BEING PROCESSED *
   CREATING FILE xxxxxx.yyy ON DRIVE n
   CREATING FILE xxxxxx.yyy ON DRIVE n


   END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT?  Y OR N      N  [enter]
   VARY OFFLINE AT HOST.  THEN ENTER 'C'    C
```

The system displays default values for the number of fonts, forms, and (optionally) graphics allowed per page by the new system. You may change these after you complete the sysgen and patching procedures.

After all files are created, the message `* SYSGEN PROGRAM OFF *` displays, followed by a prompt character (>).

35. Enter **B** to boot the new system into main memory and start the patch process.

    Note: You must enter **B** at this time. No other command may intervene.

    The system prompts you for the date and time.

36. Enter the date, using the format MM/DD/YY. You can separate each date field by a slash, space, or dash.

37. Enter the time, using the format HH:MM:SS.

    Use the military 24-hour clock (for example, enter 18:35:22). The entry of the seconds field is optional. You can separate each field by a colon or a space.

    The system displays the date and time entered, and asks you if they are correct.

38. Enter **Y** if the date and time are correct.

    The system asks if you want time of day and printer status displayed.

39. Enter **Y** if you want time and printer status displayed. You can enable or disable this feature later with commands or by performing a mini sysgen.

    The automatic sysgen patch process now takes place, and a list of optional patch IDs displays.

40. Enter the ID of any patches you want to apply exactly as shown in the list. If your system requires it, enter **MER001** to apply the Merganthaler fonts.

    If you do not require any patches, press the <Return> key.

    When the messages `* * SYSGEN PATCHES COMPLETE * *` and `* * DELETING SYSGEN PATCHES * *` display, followed by the message `CRASH/REBOOT WILL OCCUR IN 15 SECONDS`, the patch version of the new system is being read into main memory.

    CAUTION: Do not abort the patching and crash/reboot process.

    If a patch is not available, a message displays. Otherwise, the `LOADING PROGRAM` message displays.

    If an error occurs, it is most likely due to an incorrectly entered patch ID. Before trying the sysgen again, make sure you entered the IDs correctly and that they match your configuration.

    When the patch process completes, the system asks you to confirm the date and time.

41. Enter **Y** if the date and time are correct.

Figure 4-4. **Online full sysgen** (continued)

```
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FONTS IS 17.
FOR YOUR SYSTEM THE DEFAULT NUMBER OF FORMS IS 06.
TO OVERRIDE DEFAULTS USE 'FONTS/'FORMS' COMMANDS AFTER START-UP
* TAPE REWINDING * SYSGEN PROCESS SUCCESSFUL *
* SYSGEN PROGRAM OFF *
>B  [enter]
LOADING PROGRAM

              Xerox4090
       LASER PRINTING SYSTEM
              VERSION 3.8
    SYSTEM ID IS:  user-assigned name
ENTER DATE (MM/DD/YY) :    mm/dd/yy  [enter]
ENTER TIME (HH:MM:SS) :    hh:mm:ss  [enter]
    mm,dd, yy    hh:mm:ss
ARE THE DATE AND TIME CORRECT AS DISPLAYED  (Y/N)?      Y  [enter]
LOAD AND ENABLE TIME-OF-DAY/STATUS DISPLAY  (Y/N)?  Y  [enter]

* * APPLYING SYSGEN PATCHES * *
THE FOLLOWING PATCH ID'S MAY BE SELECTED
    PATCH ID  INVOKES
    xxxxx     yyyyy . . .
ENTER PATCH ID'S OR RETURN:  [enter]
* * RESUMING SYSGEN PATCHES * *
* * STILL APPLYING SYSGEN PATCHES * *
* * SYSGEN PATCHES COMPLETE * *
* * DELETING SYSGEN PATCHES * *
-CRASH/REBOOT WILL OCCUR IN 15 SECONDS - -
LOADING PROGRAM
DATE, TIME POSSIBLY INCORRECT?  (Y/N)?
11/17/93   12:20:45
Y  [enter]
```

The `INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS` message displays.

The system asks if you want report accounting. (Refer to the "Generating reports" chapter in this guide for more information about report accounting.)

42. Enter **Y** if you want to create a status file large enough to contain 2,001 reports. If a job contains over 2,001 reports, you should clear the status file before running the job.

    Enter **N** if you want to create a status file that only holds 100 reports.

    A command file applies the OSS patches. Once the patches are applied and you specify that no patch errors have occurred, the system rolls over. The system then prompts you with a crash code and the date and time.

    The `DO YOU WANT TO RECOMPILE IPFNTS (Y/N)?` message displays.

43. Enter **Y** or **N**. If you enter **Y** to recompile Interpress fonts, the process takes about 30 minutes. If you enter **N** and do not recompile Interpress fonts, the system compiles the default font, 10-point Classic.

    The message `DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?` displays.

44. Enter **Y** if you want to enable a finishing device.

    The system automatically performs Reallocate, Fix Font, and Logon procedures. The `0S1000 READY FOR COMMANDS` message displays, indicating that you can begin normal printing operations.

45. Perform any postsysgen procedures, such as changing forms, fonts, or graphics values that were assigned default values.

Figure 4-4. **Online full sysgen** (continued)

```
INITIALIZING MEMORY FOR THE IMAGING SUBSYSTEMS.
11/17/93   12:20:45
FORMS MEMORY BANK:     1 2 3 4
FONT MEMORY BANK:      1 2 3 4
DO YOU WANT REPORT ACCOUNTING?  (Y/N)?       Y  [enter]
DO YOU WANT TO RECOMPILE IPFNTS   (Y/N)?     N  [enter]

DO YOU HAVE A FINISHING ENHANCEMENT DEVICE?  (Y/N)?     N  [enter]
0S1060 INITIALIZING PRINTER
REALLOCATE!
REA VERSION D01
          * * * * * * * * * * * * * * * * * * * * * * * *
* * * * DO NOT ABORT OR OTHERWISE DISTURB THIS PROCESS * * * *
          * * * * * * * * * * * * * * * * * * * * * * * *
        400 CYLINDER PRINT FILE ALLOCATED WITH 400 USABLE CYLINDERS
* * * * RESUMING NORMAL OPERATION * * * *
FIX FNT
FIXING xxxxxx.yyy



   ALL FONTS ARE FIXED
FIX PROCESS FINISHED
LOG 1
   LOGON VERSION CO1
CLASS 1 SELECTED
   IF THE FILE "USTART.CMD (USER'S STARTUP COMMAND FILE) DOES NOT
   EXIST, THE MESSAGE "0S1552 FILE DOES NOT EXIST" WILL BE DISPLAYED
   AND SHOULD BE IGNORED
0S1552 FILE DOES NOT EXIST
0S1000 READY FOR COMMANDS   12:25:16
```

Performing a mini sysgen

You perform a mini sysgen to change configuration options enabled in a full or update sysgen.

If you select options that are not available for your hardware configuration, you are unable to use them. Refer to the *Xerox 4050/4090/4450/4650 LPS Product Reference* for information about features available for your configuration.

Table 4-5. **Procedural overview of mini sysgen**

Step	Action
1	Use the **BD** command to boot the sysgen program into main memory.
2	Use the **MINI** command to display the current configuration.
3	Make configuration changes.
4	Reboot the system.

Figure 4-5 shows a mini sysgen performed on an online/offline 4050 LPS. Values shown in the Base System Configuration and the System Configuration Options vary with different configurations.

1. Press the boot button located on the system controller panel.

   The READY message displays, followed by a prompt character ($).

2. Enter **BD** to boot the sysgen program into main memory from the system disks. Command characters must be uppercase.

   The Sysgen Processor command menu displays, followed by a prompt character (>).

3. Enter **MINI** to start a mini sysgen. (You can abbreviate **MINI** to **M**, as shown in figure 4-5.

   The System Configuration menu displays. The system asks if you want to make any changes.

4. Enter **Y**.

Figure 4-5. **Mini sysgen**

```
    [Press boot button]

    READY
$BD  [enter]
LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >M     [enter]
    * SYSGEN PROGRAM RUNNING *
    SYSTEM ID IS: user-assigned name
        * * * * BASE SYSTEM CONFIGURATION * * * *

    CPU MEMORY = 512K

    CD/IG:  VERSION 3.8              DISK UNITS:  0, 1
    FONT MEMORY: 16 MEGABITS         TAPE:  STC DUAL DENSITY
                                     ENGINE SPEED: 90 PPM
                                     PAPER PATH: DUPLEX


        * * * * SYSTEM CONFIGURATION OPTIONS * * * *

    PAPER SIZE: 8.5 X 11             LANGUAGE: U.S. ENGLISH
                                     CACHE MEMORY
                                     FLOPPY DISK


    850 COMMUNICATION INTERFACE
    ETHERNET INTERFACE
               ETHERNET ADDR:        XX-XX-XX-XX
                                     *X-XXX-XXX-XXX

               NETWORK ADDR:         XX
                                     *XX

    DO YOU WISH TO MAKE ANY CHANGES?
    ENTER 'Y' OR 'N'
    >Y     [enter]
```

5. Enter the number of any option you want to change. You may enter the numbers of several options, separated by spaces or commas.

   Depending on the original configuration, you either activate or deactivate an option by selecting it. You may also display a list of suboptions.

6. Make any desired changes from the suboption lists.

   When you have completed your changes, the System Configuration menu displays again, along with the message `DO YOU WANT TO MAKE ANY CHANGES?`

7. Enter **`N`** when you are through making changes.

   The `DO YOU WANT TO SAVE CHANGES?` message displays.

8. Enter **Y**.

   When sysgen finishes processing, the `* SYSGEN PROGRAM OFF *` message displays, followed by a prompt (>).

9. Enter **BOOT** or press the boot button.

Figure 4-5. **Mini sysgen** (continued)

```
WHICH OF THE FOLLOWING MUST BE ADDED, DELETED, OR CHANGED?
0)  NONE
1)  TAPE DRIVE
2)  ON-LINE INTERFACE ADDRESS, OR MODE
3)  PRINTER SPEED
4)  REMOTE INTERACTIVE COMMUNICATIONS
5)  GRAPHICS
6)  KANJI
7)  ETHERNET
8)  LANGUAGE
9)  PAPER SIZE
10) 871 CONTROL MODULE
11) 9500 XEROGRAPHIC
12) MICR
13) TERMINAL TYPE
14) XeroxPRINT ACCESS FACILITY (XPAF)
15) DEFAULT PRINTER RESOLUTION
16) FINISHER
17) DEFAULT PRINTING ORDER
18) HIGH CAPACITY FEEDER
19) RASTER IMAGE PROCESSOR
20) SHARED DISK
21) SCSI INTERFACE
22) PROGRAMMABLE BYPASS TRANSPORT
23) XEROGRAPHIC MODE PERSISTENCE
24) INK PRIORITY
25) XeroxUNITY OF VIEW
26) FIMS
(ENTER NUMBERS)
>7  [enter]

IS THIS SYSTEM CONNECTED TO A XeroxETHERNET
ENTER 'Y' OR 'N'        Y  [enter]
EHTERNET CHANGE LIST:
    1) NONE
    2) READ PRINTER'S ADDRESS
    3) EHTERNET NETWORK ADDRESS
ENTER OPTIONS
>3  [enter]
ENTER ETHERNET NETWORK ADDRESS
>5  [enter]

* * SYSTEM CONFIGURATION MENU * *

DO YOU WANT TO MAKE ANY CHANGES?
ENTER 'Y' OR 'N'        N  [enter]
DO YOU WANT TO SAVE CHANGES (Y/N)?     Y  [enter]
CREATING FILE DISPCF.SYS
* SYSGEN PROGRAM OFF *
>
[Press boot button]
```

Creating a floppy for booting the system

Use the CREATE command to create a bootable floppy. This command formats, initializes, and copies the mini-loader and .SAF files to one floppy diskette.

Table 4-7. **Overview of procedure to create a bootable floppy diskette**

Step	Action
1	Boot the sysgen processor into main memory.
2	Invoke the CREATE command.
3	Enter either **ERASE** or **FORMAT**.
4	Insert the floppy diskette and verify its volume ID.
5	Reformat and (optionally) sector check the floppy diskette.
6	Specify a new volume ID for the floppy diskette.

Follow these steps to create a bootable floppy diskette:

1. Press the boot button on the system controller panel.

   The READY message displays, followed by a prompt character ($).

2. Enter **BT** (boot from magnetic tape), **BF** (boot from floppy diskette), **BC** (boot from cartridge tape), or **BD** (boot from system disk). Command characters must be uppercase.

   The system loads the sysgen processor into main memory. The Sysgen Processor command menu displays, followed by a prompt character (>).

3. Enter **CREATE**.

   If a valid directory exists on the floppy diskette, the system displays the floppy volume ID followed by the message HAVE YOU INSERTED THE RIGHT FLOPPY? 'Y' OR 'N'.

4. Enter **Y** if you inserted the correct floppy diskette.

   Floppy format information displays, followed by a message asking if you want to perform a sector check.

5. Enter **Y** to perform the sector check.

   A message displays warning that data on the disk will be destroyed and asking if you want to continue the sector check.

6. Enter **Y**.

   The * * FLOPPY FORMATTING IN PROGRESS * * message displays. When the process completes, the PLEASE ENTER FLOPPY VOLUME ID UP TO 30 CHARACTERS message displays.

7. Enter a volume ID of up to 30 alphanumeric and special characters, including spaces.

Figure 4-5. **Creating a bootable floppy dIskette**

```
    [Press boot button]

    READY
    $BD  [enter]
    LOADING PROGRAM

    * * * * SYSGEN PROCESSOR * * * *

COMMAND

        COMMANDS       DISPLAY SYSGEN COMMANDS
        BOOT           BOOT THE OPERATING SYSTEM
        SYSGEN         BUILD OR UPDATE SYSTEM FILES ON DISK FROM TAPE OR HOST
        FORMAT         FORMAT AND INITIALIZE DISK PACK
        HOSTCOPY       COPY USER FILES FROM HOST TO DISK
        AUTO           AUTO SYSGEN
        MINI           CONFIGURATION CHANGE ONLY
        FLOPPY         SYSGEN FROM FLOPPY
        ERASE          ERASE ALL FILES

    ENTER COMMAND
    >CR  [enter]
    INSERTED FLOPPY VOLUME ID IS:  user-assigned name
    HAVE YOU INSERTED THE RIGHT FLOPPY?  'Y' OR 'N'    Y  [enter]
    * * FLOPPY FORMATTING IN PROGRESS * *
    CYLINDER = 0


    CYLINDER - 79
    * * FLOPPY FORMATTING IN PROGRESS * *
    * * FLOPPY FORMATTING COMPLETE * *
    * * SECTOR CHECK IN PROGRESS * *
    CYLINDER = 0


    CYLINDER - 77
    PLEASE ENTER FLOPPY VOLUME ID UP TO 30 CHARACTERS
    ....*....*....*....*....*....*
    >user-assigned name  [enter]
    CREATING FILE XXXXXX.YYY


    COPY IS SUCCESSFUL
    * * CREATION PROGRAM OFF * *
    >
```

System files are copied to the floppy diskette from the system disks. Each filename displays as it is copied. Format for filenames is xxxxx.yyy, where xxxxx is the filename and yyy is the file type.

When the process is complete, the system displays the messages `* COPY IS SUCCESSFUL *` and `* * CREATE PROGRAM OFF * *`.

8. Remove and store the floppy diskette.

Configuring a finishing device

Before you can configure a third-party finishing device, you must create a FCG.LIB text file describing the device. This file is loaded into the printer nonvolatile memory during configuration and tells the printer how to communicate with the finishing device.

The FCG.LIB text file must have one entry for each finishing device. Each entry consists of a label, an equal sign (=), and a set of values. You create the label, which should identify the finishing device and indicate its configuration, if possible. Make sure the following occurs:

- Each entry must begin with an alpha character A-Z.
- Each entry provides the NVM values for the finishing device.
- Each entry must have a label which begins the record.
- Each label may consist of more than eight characters even though the system processes only the first eight characters.
- Each entry can have one to seven array values coded.
- Each label separates the equal sign from the array values.
- Each array value is separated by a comma.
- Each array value is positional.
- Each entry is terminated by a semicolon.

5. Backing up and restoring files

This chapter provides information about backing up system files to tape, and for restoring files from tape to the system disk.

Disk Save and Restore (DSR) utility

The Disk Save and Restore (DSR) utility allows you to create a tape backup of all system files, and to restore those files back to the system disk when you need them.

Back up files after sysgens

You should back up the entire system on tape or cartridge after each update or full sysgen. If your system later crashes or you lose system files, you can then use the DSR tape to restore the system.

Source disks and object disks

The system files you copy from disk to tape are known as the source disks. The disks to which you restore the files are known as object disks.

All the disks files are saved or all the tape or cartridge files are restored, since DSR does not process individual files. If you wish to restore a single file, see the "Single File Transfer (SFT) utility" section later in this chapter.

Using multiple tapes

Sometimes the data stored on a disk does not fit on a single tape, so DSR supports multivolume save and restore. DSR writes a volume label with a sequence number at the beginning of each tape. When a tape reaches the end of its volume (EOV), DSR does one of the following:

- During the save process, it rewinds and unloads the tape, increments the next sequence number, and instructs you to mount the next tape.
- During the restore process, it rewinds the tape, then instructs you to unload it and mount the next tape.

Backing up system files

To back up system files, follow these steps:

1. Load the tape and make sure the tape drive is online.
2. Enter **DSR**, followed by a space.
3. Enter either **CARTRIDGE** or **TAPE** followed by a space to specify the device to which you are backing up files. (You must previously have used the **SUB DEV** command to identify this device to the system.)

4. If you want to specify a tape recording density of 6250 bpi, skip to step 5.

   If you want to specify a tape recording density of 1600 bpi, enter **1600** followed by a space.

5. Enter the ID (**DP0**, **DP1**, **DP2**, or **DP3**) of the system disk that you are backing up, followed by a space. If you do not enter an ID, all disks are backed up.

6. If you want to display file information as the files are copied to tape, enter **L**. If you do not want to display file information, skip this step.

7. Press the <Return> key.

DSR backs up all files from the specified disks. If the drive you indicated does not exist, the message `DSR XXXX INVALID PARAMETER...DSR ABORTED` displays, and DSR terminates.

If an abnormal device error persists after a number of entries, an error message displays and DSR aborts the save process and exits. No files are lost by terminating an in-progress save to tape.

Restoring system files

To restore system files to disk, follow these steps:

1. Load the tape and press the boot button.

   The system displays the `READY $` prompt.

2. Enter **BT** (boot from magnetic tape) or **BC** (boot from cartridge tape).

   The system loads the DSR program that executes the restore function (DSR.SAF) from tape. DSR then prompts you to confirm that you want to restore the files.

3. Enter **Y**.

   DSR compares the source disk ID with the object disk ID. If the disk IDs are different, or if the object disk has no ID, DSR prompt you to confirm that the object disk files should be overwritten by the source disk files.

4. Enter **Y** if you are sure that you want to overwrite the files currently on your system disk.

   DSR checks to see if there are any unprinted jobs in the print queue. If there are, DSR asks you to confirm that you want to lose the unprinted jobs.

5. Enter **Y** if you want to continue the restore process.

   DSR displays a menu which lists all disks on the DSR tape. The number of items on the menu is determined by the number of disks on the tape.

6. Enter the numbers corresponding to the items you want to select. To enter several numbers, separate each number by a comma and a space.

Bad block information

Since the bad block information on the object disk dictates where files are restored, DSR verifies whether the disk has a file listing its bad block. If no bad block file is found, DSR displays

the UNABLE TO LOCATE BAD BLOCK DATA. REFORMAT DISK message and aborts the restore process.

If a bad block file is found, the restore process executes. DSR reconstructs the file directory chains, loading all directory sectors of the same file type contiguously at the lowest possible disk address. After the restore process completes, the REALLOCATE task runs automatically to generate working space for the print file.

When a file is too large

If a file being restored from tape is too large to fit in the largest free contiguous space on the object disk, DSR skips to the next file and displays a message identifying the file that was not restored.

Single File Transfer (SFT) utility

The Single File Transfer (SFT) utility allows you to transfer individual files from tape to a system disk drive.

The SFT utility has the following limitations:

- Copies only one file from tape to disk. If two files on the tape have the same name, SFT writes only the first file to disk.
- Writes the file to the first location on the disk which can accommodate the file size. If a file of the same name already exists on the disk, SFT overwrites it.
- Does not support wildcards. Make sure you specify the full file name.
- Does not copy Y, SAF, SYS, TSK, or LOG files.

Restoring a single file to disk

Follow these steps to restore a single file to disk:

1. Load the tape and make sure the tape drive is online.

   The OS1000 READY FOR COMMANDS menu displays.

2. Enter **SFT**.

   The SFT menu displays. The system prompts you to make a selection.

3. Enter **1** to restore a file, or **2** to unload the tape automatically and exit SFT.

   If you enter **1**, the system displays the message ENTER FILE NAME AND FILE TYPE REQUESTED AND PRESS <RETURN> TO CONTINUE OR <X> TO EXIT.

4. Enter the file name and type.

   The system asks you to confirm the file you requested.

5. Enter **Y** if the file identified is correct.

   The system locates the file on the tape and copies it to the disk, then exits SFT.

If you are restoring a single file contained on several tapes and you reach the end of the first tape, the system prompts you to mount the next tape and press the <Return> key.

6. Downloading host files

This chapter describes how to download certain types of files such as forms that are stored on the host computer using HOSTCOPY. You can download them to your LPS when a job requires it. The DJDE FILE command can also be used. Refer to the *Xerox 4050/4090/4450/4650 LPS Print Description Language (PDL) Reference* for information about how to download files using the FILE command.

You can only download system files

System files include form files, font files, or logo files. You cannot download host variable data files.

You can download files in two formats

Download files in the following two formats: user-created card-image files, and LPS-labeled files (such as font, logo, and patch tapes). The following restrictions apply:

- Card-image files are restricted to destination file types CMD, FSL, JSL, MSC, PCH, TMP, and TPF.
- File types OSD, SAF, SYS, Y, and TSK are not accepted for LPS-labeled files.

Files loaded onto the system using the HOSTCOPY command must be retrieved by the editor MERGE command prior to editing in order to insert valid sequence numbers. Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for information about how to use the MERGE command.

Downloading LPS-labeled files

LPS-labeled files, which are issued by Xerox, are structured for use with online as well as offline systems. The last physical file on these tapes is a concatenation of all previous files on the tape. It is this last file which is transmitted to the LPS.

Follow these steps to download LPS-labeled files:

1. Vary the LPS offline IDLE at the host system.
2. Press the boot button.

   A message tells you to use sysgen, not HOSTCOPY, when transmitting a System Software Tape (SST).
3. Enter **C**.

   The message `WAITING TO READ FILE FROM HOST` displays.
4. Notify the host computer operator to vary the system online.

   The system begins to download files from the host. As each file is downloaded, the message `CREATING FILE XXXXXX.YYY` displays.

When the system encounters the end of the file, it displays a message and asks if another tape is to be transmitted.

5. Enter **Y** if you want to transmit another tape.

   Enter **N** when you are finished downloading.

   The message `VARY OFFLINE AT HOST, THEN ENTER C` displays.

6. Enter **C**.

   HOSTCOPY completes, then the operating system reloads.

7. Use the editor MERGE command to insert valid sequence numbers into the files.

Downloading card-image files

You transmit card-image format files to the LPS in 80-character EBCDIC records. You can collect a group of records and store them as a data file, which is called a packet. You must precede each transmitted packet with a control record which identifies the file name and type. You can transmit several packets at a time, but you must end the transmission with another control record.

Follow these steps to download card-image files:

1. Vary the LPS offline IDLE at the host system.
2. Press the boot button.

   A message tells you to use sysgen, not HOSTCOPY, when transmitting a System Software Tape (SST).

3. Enter **C**.

   The message `WAITING TO READ FILE FROM HOST` displays.

4. Notify the host computer operator to vary the system online.
5. Enter the control record for the first packet in the following format: $$$START file name.file-type.

   The file name is a two to six-character name. Valid file types include CMD, FSL, JSL, MSC, PCH, TMP, and TPF. Use either a period or a comma as a separator between the file name and file-type.

   Each packet transmitted may not exceed 3072 records. Exceeding this limit results in truncation of the file to 3072 records.

6. If you want to transmit more than one packet, precede each packet with the $$$START record.
7. Enter a control record in the following format when you have finished downloading records: $$$END

   The following message displays: `END OF TAPE FOUND. IS ANOTHER TAPE TO BE SENT? Y OR N.`

8. Enter **Y** if you want to transmit another tape.

   Enter **N** when you are finished downloading.

   The message `VARY OFFLINE AT HOST, THEN ENTER C` displays.

9. Enter **C**.

   HOSTCOPY completes, then the operating system reloads.

10. Use the editor MERGE command to insert valid sequence numbers into the files.

7. Managing system disk space

This chapter discusses how the system allocates file space and disk space requirements for V3.8 software.

File allocation strategy

Depending on the configuration, the LPS has two to four system disks known as DP0, DP1, DP2, and DP3. To optimize file access, the system allocates file space to given file types on a preferred system disk. This file allocation strategy is known as *file biasing*.

File biasing depends on the following factors, which you should consider when you manage disk space:

- Number of system disks on an LPS
- File class and file type
- EDITOR, FDL, PDL, and SYSGEN tasks.

The following table lists the system disks each task uses.

Table 7–1. **System disks used by various tasks**

Task	File type	Number of system disks		
		Two	Three	Four
EDITOR	TMP, FSL, JSL, and CMD	DP1	DP2	DP3
FDL	FRM	DP0 and DP1	DP2	DP2 and DP3
PDL	JDL	DP0 and DP1	DP2	DP2 and DP3
SYSGEN	System files	DP0	DP0	DP0

There are four classes of file types, as shown in table 7-2. The class of a file type also determines the file storage location.

Table 7-2. **File types according to file class**

Class 1	Class 2	Class 3	Class 4
TSK	LOG	CME	CMD
OSD	SYS	FNT	DAT
SAF	Y	ICT	FIS
		IDR	FSL
		IMG	ISL
		IPF	JSL
		IPM	LIB
		JDL	MSC
		LGO	PCH
		PDE	TMP
		STK	TPF
		XCS	TST

The following tables show how the system prioritizes files by class and where it stores them according to the configuration. Use these tables as a guide for allocating disk space on your LPS. An X indicates that the file class cannot reside on a system disk.

Table 7–3. **File biasing—4 system disks**

File type class	DP3	DP2	DP1	DP0
1	X	X	X	First
2	Last	Third	Second	First
3	Second	First	Last	Third
4	First	Second	Third	Last

Table 7–4. **File biasing—3 system disks**

File type class	DP2	DP1	DP0
1	X	X	First
2	X	Second	First
3	First	Last	Second
4	First	Second	Last

Table 7–5. **File biasing—2 system disks**

File type class	DP1	DP0
1	X	First
2	Last	First
3	Last	First
4	First	Last

Space requirements for V3.8

Before running a sysgen, make sure there is enough disk space on the various drives. If there is not enough space, the system can abort the sysgen and become unbootable. V3.8 software requires approximately 10,000 more disk sectors than V3.5.

Use FCHECK to determine if the required amount of free space is available. If the system you want to use does not have the required minimum, you must back up, delete or erase until you recover enough space. Once you have the necessary amount of free disk space, it is a good idea to compress the system. Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for information about FCHECK.

You should leave at least 20% of your system disk space capacity free for normal system expansion and optimum system performance.

Refer to table 7-6 below to find the disk configuration that matches your system.

Table 7–6. **Required disk sectors for V3.8**

Number of system disks	DP0	DP1	DP2	DP3
Two	7,000	3,000		
Three	4,000	50	5,950	
Four	4,000	50	3,000	2,950

Corrupted files and file fragmentation

There are two commands for maintaining the system disks: FCHECK and COMPRESS. Refer to the *Xerox 4050/4090/4450/4650 LPS Commands Reference* for detailed information.

The following suggest the use of these commands:

- Run FCHECK to search for file fragmentation and bad sector information. Depending on the results, you may have to run PURGE and COMPRESS.
- Run COMPRESS to identify the existence of corrupted files and minimize file fragmentation.

8. Restricting and tracking user activity

As a system administrator, you can authorize and restrict access to files of a given type, or restrict use of certain commands. You can also track console and keyboard activity through use of a console log which keeps track of both system messages and user responses. When you want to review the log file, you can either redisplay or print it.

Assigning logon class to user accounts

To assign logon class to user accounts, you log on to the system at a specified level and change the password. There are five logon levels, each authorized for certain users. As a system administrator, you can change the password and thus restrict access to logon levels 2 and 5.

Table 8–1. **Logon levels and password requirements**

Logon level	Authorized users	Password requirements
1	Operator	None required.
2	Operator Programmer System Administrator	No default assigned at installation.
3	Xerox Systems Analysts Customer Service Representatives	Always required.
4	Xerox Systems Analysts Customer Service Representatives	Always required.
5	System Administrator	Default password is SECURITY. Change to maintain security.

Assigning and changing passwords

To change the password for level 2 or 5:

1. Enter **LOGON 2** or **5**
2. Enter **LOGON**
3. Enter the new password (up to 15 characters) and press <Enter>.
4. Answer **Y** or **N** to `IS PASSWORD OK [Y/N]` message.

Although you can create a new password in lowercase or mixed case letters, only passwords in uppercase may be entered using the preferred procedure described in "Logging on with a password" earlier in this chapter, which affords greater system security. All passwords are case sensitive; the system recognizes a password only if you enter it correctly in content and case.

The percent sign (%) is not a valid character in a password.

Logging on with a password

To log on to level 2, 3, 4, or 5:

1. Enter **LOGON 2** or **3** or **4** or **5**.

   The system prompts you for the password.

2. Enter the password.

The password is not displayed on the screen when you enter it. The screen remains blank and does not indicate the length of the password.

Passwords and Data Capture Utility

It is possible to enter the LOGON command with the logon level and the password on the same line separated by a comma:

LOGON 2,*password*

This method is more expedient. However, be aware that if you have V3.8 software and the Data Capture Utility (DCU) log is on, the password is captured on the DCU log when you enter the LOGON command in this format, making that password accessible to users at all security levels.

For greater system security, always enter the LOGON command in the format:

LOGON *security-level*

When the system prompts you for the password, enter it. In this case, the password is not captured on the DCU log.

Note: Any password you enter in this format must be in uppercase letters.

Moving from one logon level to another

You must always use a password to access a logon level higher than the current level or to move from level 5 to level 3 or 4.

You do not need a password, however, to move from a higher level to a lower level, except to levels 3 and 4.

Restricting access to files

Secure a file by entering the SECURE command in the following format:

SECURE *file–name.file–type*

You can only access a secured file at logon level 5 or higher. The only exception to this rule is FIX. Fixing fonts and logos is

unaffected by security. You can fix a secured font or logo at any logon level.

Only user files consisting of file types CMD, CME, FNT, FRM, FSL, IMG, JDL, JSL, LGO, PDE, TST, STK, LIB, FN6, IM6, LG6, and TYPE are secured against unauthorized access.

Users at logon levels lower than 5 cannot use the following editor commands on secured files: COPY, DELETE, FID, FLOPPY, GET, MERGE, REVIEW, RNAME, and SAVE.

Purging system or print files

Data from deleted files remains largely intact on the disk until overwritten with new data. Use the PURGE command to overwrite unused disk areas with random bit patterns as an added security measure. To purge system or print files:

1. Enter **LOG 2** or **5**.

   The system prompts you for the password.

2. Enter the password.
3. Enter **PURGE D** or **P** or **F**

   Entering **D** purges the entire disk, including the print file, entering **P**, purges only the print file, and entering **F** purges the entire disk excluding the print file.

Restricting access to commands

To restrict access to particular commands:

1. Enter **LOG 2** or **5**.

   The system prompts you for the password.

2. Enter the password.
3. Enter **RCU**, the command you want to restrict, and the logon level you are on.

   For example, enter **RCU COM 5**.

Tracking console activity (V3.8 only)

You can track console activity by using the DCU command at any command level. DCU creates a console log of all LPS console entries and system console messages. To create a console log:

1. Enter **DCU CAP ON** to turn DCU on.
2. Enter **DCU FOR PRI** to print out a log.
3. Enter **DCU CAP OFF** to turn off DCU capture session.

Note: If the system was not rebooted after turning data capture on following the last system generation, the system may hang during PURGE and require a reboot. Prevent this situation by rebooting the system immediately after turning data capture on

or by turning data capture off before running PURGE and turning data capture back on when PURGE has completed.

Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for information on other DCU commands.

9. Generating reports

This chapter discusses generating reports. As the LPS processes print jobs, the system accumulates and saves status information in a status file. From this file, the system can generate three types of reports as shown in table 9-1.

Table 9–1. **Types of status reports**

Report	Purpose
User accounting report	Summarizes general print job processing information by department name.
Customer billing report	Summarizes customer-specific billing meter information.
System activity report	Provides system activity information for all user accounts, including the number of jobs, files, and reports processed, number of pages processed, processing time for each job, and so forth.

REPORT command

You can use the REPORT command to display a report on the system controller display, print a report, or display and print a report. You can also clear system activity and user accounting information from the log file. You cannot clear customer billing information. Table 9-2 summarizes how to use the REPORT command to generate each type of report.

Table 9-2. **REPORT command**

Command	What it does...
REPORT USER,PRINT	Prints the user accounting report.
REPORT USER,DISPLAY	Displays the user accounting report on the system controller display.
REPORT USER,DISPLAY,PRINT	Displays and prints the user accounting report.
REPORT USER,PRINT,CLEAR	Prints the user accounting report, then clears user accounting information from the status file.

Table 9–2. **REPORT command** (continued)

Command	What it does...
REPORT USER,PRINT,DISPLAY,CLEAR	Prints and displays the user accounting report, then clears user accounting information from the status file.
REPORT BILLING,PRINT	Prints the customer billing report.
REPORT BILLING,DISPLAY	Displays the customer billing report on the system controller display.
REPORT BILLING,DISPLAY,PRINT	Displays and prints the customer billing report.
REPORT ACTIVITY,PRINT	Prints the system activity report.
REPORT ACTIVITY,DISPLAY	Displays the system activity report on the system controller display.
REPORT ACTIVITY,PRINT,CLEAR	Prints the system activity report, then clears system activity information from the status file.
REPORT ACTIVITY,PRINT,DISPLAY,CLEAR	Prints and displays the system activity report, then clears system activity information from the status file.

You enter commands in the following format:

REPORT BILLING,DISPLAY

Make sure to include a space after REPORT, and to separate each parameter with a comma.

Machine serial number

After you run a full sysgen or reformat the system disks, the first time you enter the REPORT command the LPS prompts you to enter the nine character machine serial number located on a silver metal plate inside the front right-hand door of the printer. If your entry is valid, the information is saved in the file MCHID$.SYS. You are prompted only once for the machine serial number.

If the file MCHID$.SYS is not on the system, you are prompted for the machine serial number each time you run the REPORT utility.

Customizing the font for printed reports

The user accounting, customer billing, and system activity reports print in the system portrait font P0612$.FNT by default. You can specify another font by creating a DFLT.SYS file which consists of any or all of these records:

BLRPTF=*font id* (specifies customer billing font)
ACRPTF=*font id* (specifies activity report font)
SARPTF=*font id* (specifies system activity font).

The font specified must be fixed pitch, portrait, and 12-point or smaller.

User accounting report fields

The following sections explain the fields within the user accounting report.

General print job information

ACCTINFO
: The text from the delimiter record when the ACCTINFO command of the RSTACK statement is coded in JDE.

  The document name is the source of the ACCTINFO field on the accounting page and the Report Name field in the job status display. These fields are printed without filtering space characters or punctuation. If the document name is all blank characters, '.DFLT.' is substituted and shown in the Report Name field on the accounting sheet, as well as on the job status display. '.DFLT.' shows in the HIP job status display.

  If the source of the document name is printing protocol, the ACCTINFO field is truncated to 14 characters when displayed on the accounting page or job status display. If the document name comes from Printing Instructions (Interpress), the ACCTINFO field displays 64 characters on the accounting page and 16 characters on the job status display.

BLOCKS READ
: Number of data blocks read from the input source device.

BLOCKS RECEIVED
: Number of blocks (512 bytes each) on the LPS disk required for the data file.

BLOCKS SKIPPED
: Number of blocks skipped as a result of the OSS command MOVE *n* BLOCKS.

COLLATE
: Entry is YES or NO depending on the COLLATE command of the OUTPUT statement. The default is to collate the output pages. COLLATE may also be modified by a DJDE. COLLATE=YES is forced for any job run in duplex mode.

DATA PAGES
: The total number of document pages printed. The count does not include the accounting sheet. This value may be 0–0 when an Interpress job has been aborted by the HIP ABORT <HIP job number>or ABORT *jid* command. The value is correct only if RESET is issued after these commands.

DATE
: Date job was printed.

DEPARTMENT
: This is either the character string entered as part of the ACCT statement (DEPT=) or a system default name. The system default name is the name of the .JDL file under which the job ran with :JDL appended to it. If the requested department name using DEPT= has not been previously set up in the accounting file, the requested name is listed on the accounting page and an asterisk is appended.

DJDE RECORDS READ
Number of DJDE records read from input source device.

FILE ID
This is the file identifier field of the HDR1 label if it exists (refer to the *LPS Tape Formats Manual*). This data appears only for tape or cartridge print jobs.

FILE RECEIVE TIME
Time file is received written as *hh:mm:ss*. For Interpress documents, this value is 00:00:00.

SENDER ID
This entry appears only for Interpress or HIP jobs.

Graphic processing data

GRAPHIC COMPLETION CODE
Composite code identifying the types of abnormal graphic processing conditions encountered by the input processing task.

GRAPHIC EXCEPTION CODE
A code defining a graphic processing fault in graphic processing jobs.

GRAPHIC IMAGES READ
A count of all graphics read in the input stream. (Logos are not graphics; they are fonts.)

GRAPHIC IMAGES MOVED
Total count of the times one or more images were copied from one disk location to another (for example, Move mode, page interleaved with Hold).

GRAPHIC IMAGES PRINTED
A count of all pages containing at least one graphic impression delivered to the bin. (Logos are not graphics; they are fonts.)

PDL processing data

INITIAL CME LIST
The names printed are the identifiers of CMEs referenced in a JDE. CMEs are defined with the CME statement (along with an identifier) and referenced in a JDE with the OUTPUT statement (MODIFY command). If CMEs are used in DJDE processing, the message `DJDE MODIFIED` is printed along with the original list of names.

INITIAL FONT LIST
The names of the fonts referenced in the JDE. Fonts are defined in the PDE statement (FONTS command) and referenced for use in a JDE on the OUTPUT statement (FORMAT command). If the font list is modified by DJDEs, the message `DJDE MODIFIED` is printed along with the original list of font names.

INITIAL FORM LIST
The names of the forms specified in the JDE on the FORMS command of the OUTPUT statement. The form specified in the BFORM command will not be included in this list. If other forms are invoked using DJDEs, the message `DJDE MODIFIED` is printed along with the original list of form names.

Basic job processing data

INPUT PROCESSING TIME
: The elapsed time for the input processor to process the report from the input source device and pass the results to the output processor. For online systems, this includes any time the input processor is waiting for data because of host–induced data transmittal delays.

JDE, JDL USED
: The names of the Job Descriptor Entry and Job Descriptor Library as specified in the START command. These names may have been modified by a DJDE.

JOB ID
: This entry is the system–generated identifier of the print job. It is automatically incremented by the system each time a job is run.

LINES PRINTED
: A count of lines printed on the pages delivered to the print trays (PAGES TO BIN) and to the sample tray (PAGES TO TRAY). This includes the number of lines on the accounting, RTEXT, DJDE, and OPRINFO pages. The count does not include the lines printed for a user–requested page number. Maximum line count is 999,999,999. The line count may differ significantly for jobs you have also run under V3.5 software on other LPS systems because V3.8 is more accurate.

MAXIMUM COPY COUNT
: The maximum number of printed copies is requested of the report; however, it may not be the number actually printed if the job was aborted. The number of copies to be printed is defined in the JDE (COPIES command of the OUTPUT statement) and may be overridden by DJDEs or by the COPIES option of the START command.

ONLINE IDLE (SEC)
: Measure of LPS idle time while it is waiting for the host system.

OUTPUT PROCESSING TIME
: The elapsed time for the output processor to print the report as sent to it by the input processor. This time includes processing time of the report plus any time the output processor is waiting for paper jams to be cleared or other conditions requiring operator intervention.

OVERPRINTS
: The number of overprint lines in the report. If the IGNORE command of the LINE statement in the OVERPRINT command is coded in the JDL file, the accounting entry is 0.

PAGES TO BIN
: A count of all pages printed and delivered to the print trays. Any sheet of paper going through the duplex paper path counts as two pages to bin even if only one side has printing (this includes OPRINFO, RPAGE, ROFFSET, DJDE, and RTEXT routing pages). Maximum page count is 999,999,999.

PAGES TO TRAY
: A count of pages delivered to the sample tray. This includes the printing of tape label (if VOLUME PLABEL=YES), as well as sample, accounting, and RSTACK delimiter pages delivered to the sample tray.

PAPER PATH HOLES
: A count of paper path holes caused by user job characteristics. For example, a hole may be caused by a disk access required to load a previously unloaded form or font. Another way to cause a hole in the paper path is for a job or an operator to change the output page destination (such as print tray to sample tray or print tray 1 to print tray 2). Holes caused by error recovery (for example, by disk read or CD/IG errors) and those caused by a nonrecoverable error are not included in the hole count printed on the accounting summary.

RECORDS READ
: Number of records read from input source device according to a format defined in JDE.

REPORT COMPLETION CODES
: Two codes are listed. The first code is the primary report completion code; the second code is the secondary report completion code. These codes indicate the completion status of the report. Refer to tables 9–3 and 9–4.

  Report completion codes refer to abnormal events that occur while the LPS prints a report. If an abnormal event occurs during input processing but the report prints without aborting, the report completion code is zero (0).

  The system may combine codes and add them together into a unique code which you must decode. For example, a code of 11 indicates that the system combined exception codes 1, 2, and 8.

  These codes also appear in the JOBS command display. This is helpful for reports aborted by the user, for which accounting pages are not printed. For more information about the JOBS command, refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference*.

  Note: The LPS automatically generates a user accounting report whenever the primary and secondary report completion codes are not zero.

REPORT NO.
: The number of the report within the current job.

SENDER ID
: The document sender name as specified by the Ethernet printing protocol. Up to 19 characters are printed with blanks suppressed.

SF/MF
: Entry is SINGLE (single report mode) or MULTI (multiple report mode). The default mode is MULTI, which may be overridden with the START command.

SIMPLEX/DUPLEX
: Simplex or duplex mode. Simplex mode is the default. Duplex is selected by the PDL DUPLEX command of the OUTPUT statement.

DUPLEX is overridden by a page–oriented DJDE which specifies transparency printing (TRANS=YES). This page is delivered to the sample tray. DUPLEX is also overridden by the OSS command TRANS YES if the operator enters this command before the report is processed.

SOURCE FILENAMES
The names of the disk files transmitted from a workstation on a network to the LPS.

TAPE MOUNTS
A count of the tape volumes required to process an offline job.

WP EXCEPTION CODE
A code defining a text processing fault in word processing jobs.

WP COMPLETION CODE
A code registering input processing faults. An accounting page prints after each report if you request it or if an error occurs.

The system may combine codes and add them together into a unique code which you must decode. For example, a code of 11 indicates that the system combined exception codes 1, 2, and 8.

Table 9-3. **Primary (left) report completion code**

Code	Definition
0	Normal completion
1	Operator-issued SPACE PAGES command
2	End-of-report encountered during SPACE PAGES command processing
4	Data on page exceeded page size
8	Graphic memory size exceeded
16	Font memory size exceeded
32	Report too big for available memory
64	Too much data on a page or duplex setup error
128	Irrecoverable graphics imaging error
256	Irrecoverable disk, CD, or IG error
512	Account page not printed because of aborted job
1024	Unable to recover to a page boundary (following a system crash)
2048	Successive page recover used
4096	Secondary report completion code
8192	Operator issued ABORT O command
16384	Operator issued ABORT JOB# command

Table 9-4. **Secondary (right) report completion code**

Code	Definition
1	Data stream stock callout was overridden by the operator
2	SIZING option caused the system to abort the report
4	Rasterization was used during printing
8	More than 8 TL/DL blocks were used on one page
16	CODE=NONE error was detected during printing
32	Set integerity problem
64	Graphic shifted off leading edge of page

Customer billing report fields

The customer billing report contains the following fields:

DATE
Current date.

TIME
Current time.

CUSTOMER ID
System disk ID.

MACHINE ID
Nine-character machine serial number.

CPU memory
Amount of memory available on the main processor board.

CD/IG:
Version of image generator subsystem.

ONLINE:
Online host address.

MODE
Data transmission rate.

ENET ADDR:
Device address on the ethernet.

NET ADDRESS:
Network address.

871 CM
Indicates you have 871 processing capability.

TERMINAL TYPE:
Type of user terminal attached to your LPS.

DISK UNITS:
Number of system disk drives.

TAPE:
Type of tape drive attached to the LPS.

SPEED:
Printer speed.

RESOLUTION:
Spots per inch imaging resolution.

FINISHER:
Type of finisher attached to the LPS.

PAPER SIZE:
Paper size the printer is currently set up for.

LANGUAGE:
Default language.

GRAPHICS WITH
Amount of graphics memory available to the system.

GRAPHICS TYPE:
Type of graphic options installed on your LPS: CVG, GHO, or NONE.

GOOD IMPRESSIONS SUCCESSFULLY DELIVERED:
Number of pages the LPS printed since you last cleared the customer billing report.

SHEETS PRINTED IN IOT DIAGNOSTIC MODE:
Number of nonbillable pages the LPS prints.

System activity report fields

The system activity report contains the following fields:

DATE
Current date.

TIME
Current time.

CUSTOMER ID
System disk ID.

MACHINE ID
Nine-character machine serial number.

PAGE COUNTS
Number of pages processed and number of paper path holes.

PROCESSING TIME
Input and output time of a job in hours and minutes.

PROCESSING COUNTS
Number of jobs, files, and reports processed.

I/O STATISTICS
Number of tape mounts, and number of blocks read and skipped.

Maintaining the status file

The LPS allocates a specified amount of memory to the status file. When the status file uses up available memory, it displays a warning to use the SFS HOST or the SFS TAPE command to back up the file. If you do not back up the status file, the LPS overwrites the oldest record with each new record.

Use the JOBS command to display the number of unused entries remaining in the status file if you are starting a long job. If your job exceeds the number of entries available, you can save the status file before you begin the job.

You use the SFS CLEAR command to reinitialize the status file by clearing all records and resetting the warning and frequency flags. Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for more information on the SFS commands.

Printing, saving, and copying the status file

Use the following SFS commands to print, save, or copy the status file. Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for more detailed information on using these commands.

Table 9–5. **SFS commands**

Command	Purpose
SFS *filename*	Prints the contents of the status file.
SFS HARDCOPY	Prints a report of the status file contents.
SFS HOST	Formats the status file for transmission to a remote host and saves host–format file to system disk, allowing you to use LPS to host file transfer interface to transfer file.
SFS TAPE	Copies the status file to an LPS–labeled tape.

Structure of the status file

If you write the SFS file to tape, the first record is the required LPS standard label, followed by the 512–byte blocks defined in table 9–6. Refer also to table 9–7 which shows the status codes. The first block of the status file contains "STATUS FILE *x*," where *x* is 80, 256, or 512.

The DISK ID, DATE, and TIME parameters are found in the second block on the tape or the first block for the host–format disk file option.

Every field in the saved status file (both tape and disk) has another leading field (in ASCII or EBCDIC, three characters long) containing the byte length of that field, including the additional 3–byte field length. For each job record within a block, a leading field (three characters long) contains the record length, including that leading field. Two records fit within a 512–byte block.

Forward and backward pointers

The forward pointer contains the sequence number of the next 512–byte block on the tape to be used. The first block is numbered 0, the second block is 1, and so on. This is the next forward block on the tape except when a disk error occurrs. The backward pointer provides the sequence number of the previous 512–byte block used on the tape.

Printing a file tape dump

Use the ASCII JDE and the DUMP JDL supplied from the System Software Tape to obtain a dump of the status file copied to a tape.

Table 9–6. **First status file record**

Bytes	Contents
0-167	Report entry
168–335	Report entry
336–503	Report entry
504–505	Unused
506–507	File format ID (internal use only)
508–509	Forward pointer
510–511	Backward pointer

Table 9-7. **Structure of the host/tape output**

Mnemonic	Status file field content	Max. length (characters)
STA	Status codes: 1 Unused 2 Input 3 Queued for output 4 Output 5 Done 6 Aborted 7 Aborted by user 8 Operator requested no recovery on rollover 9 Report skipped for unknown reason	1
JNO	Job number	5
RNO	Report number	5
DAT	Date	9
TIM	Time	8
CJN	Customer job number	6
RNA	Report name	16
JDE	Job descriptor entry	6
JDL	Job descriptor library	6
MCC	Maximum copy	5
PWD	Pages written to disk	9
DPT	Department name	31
RNS	Report number suffix	1
NTM	Number of tapes mounted	5
GIR	Graphic images read	9
IPT	Input processing time	8
FLG	Flag	3
MES	Message/completion code	4
COP	Number of copies printed	9
PPC	Pages printed in this copy	9
PTB	Pages to bin	9
PTT	Pages to tray	9
GPP	Graphic pages printed	9
CC1	Primary completion code	9
CC2	Secondary completion code	9
	(Unused)	18
OPT	Output processing time	8

Table 9-7. **Structure of the host/tape output** (continued)

Mnemonic	Status file field content	Max. length (characters)
SPP	Simplex pages printed	9
NLP	Number of lines printed	9
ENN	Entry number	5
PBC	Blank column	0

Structure of a status file entry

Each 512–byte block may contain up to three report entries. SFS accesses the entries in the status file report and formats them. The constants for each report are defined in table 9–8.

Table 9–8. **Status file entries**

Bytes	Report entry contents
0–1	Status message (more than one bit may be set in this word) 1000_8 = REPORT BY OUTPUT FOR UNKNOWN REASON 400_8 = OPERATOR REQUESTED NO RECOVERY ON ROLLOVER 200_8 = FILE NEARLY FULL WARNING 100_8 = PASSING BIT 40_8 = ABORTED BY RESET 20_8 = REPORT ABORTED 10_8 = DONE 4_8 = OUTPUTTING 2_8 = QUEUED FOR OUTPUT 1_8 = INPUTTTING
2–3	Job number
4–5	Report number
6–11	Time: current year minus 1900; month; day; hour; minute; second
Bytes	**Data from input processing**
12–17	Customer job number
18–33	Customer report name
34–39	JDE
40–45	JDL
46–47	Maximum copy count
48–51	Pages written to disk
52–82	Department name
83	Report number suffix
84–85	Tape mounts

Table 9–8. **Status file entries** (continued)

Bytes	Data from output processing
86–89	Graphic images read
90–92	Input processing time HH/MM/SS
93	Flag byte: Bit 0: 0=noncollate, 1=collate Bit 1: 0=simplex, 1=duplex Bit 2: 0=not copy sensitive, 1=copy sensitive
94–97	Completion code/abort message (in ASCII)
98–99	Customer job number (extension—most significant)
100–125	Unused
126–127	Copies printed
128–131	Pages printed
132–135	Pages to bin
136–137	Pages to tray
138–141	Graphic pages printed
142–143	Report completion code (binary)
144–145	Secondary report completion code (binary)
146–149	Unused
150–152	Output processing time HH/MM/SS
153–156	Simplex pages printed
157–160	Duplex pages printed
161–164	Lines printed
165–167	End time stamp

Creating the status file user form file

A status file user form file is a user–created file containing commands that describe the content and format of a status report. Its file name is 1 to 6 characters; its file type must be .MSC.

The status file user form file consists of the following commands:

- TITLE (optional)
- COLUMN
- END (optional).

Each statement is made up of one more commands. Commands within a statement are separated by commas (,).

Comments are delimited by slashes (/).

Terminate the form file with a comma (,), a semicolon (;), and END statement, or the physical end–of–file.

Command statements

The following conventions apply to the commands in a status file form file:

- Keywords (shown in uppercase letters) must be abbreviated to the first three characters or entered in their entirety.
- Single quotes are required where shown.
- There must be at least one blank between the closing single quote of a text string and the opening single quote of the next text string.
- An apostrophe within a text string is denoted by two consecutive single quotes (’’).
- An empty string (KEYWORD=’) denotes a blank line.

Title statement

The title statement, if present, must be the first statement in the file. In can consist of three commands:

TITLE=‘*text*’ ‘*text*’ ...
Text strings form the title for the print queue database report. (A text string is a series of characters.) Each string is printed as one physical line of text. Multiple text strings can be specified by enclosing each text string in single quotation marks. Separate each text string with one or more spaces. The default value for TITLE is a blank line. The number of lines (or text strings) in TITLE should not exceed 4. Lines after the fourth one are ignored.

MAX=*value*
Defines the number of lines in header rows for the status report. The default is 1. The value for MAX should not exceed 4. If a value greater than 4 is entered, the system assumes 4.

HJUSTIFY=*title justification*
Specifies justification (L for left, R for right, or C for center) for the TITLE text. The default is C (center).

Column statement

Each column statement consists of up to seven commands:

HEADER=*‘text’ ‘text’ ...*
Text strings form the header for the column that contains the command. To specify multiple text strings, enclose each text string in single quotation marks and separate text strings with one or more spaces. Each string is printed as one physical line of text. If a column header is to contain more than one line, the MAX command must be present. If there is no TITLE command, a MAX command may be included in the column command. The number of lines in HEADER should not exceed the MAX value. If it is less than the MAX value, blank lines are provided on top. The default is the MAX value of blank lines.

WIDTH=*value*

Defines the width for the column that contains the command. A WIDTH command affects the column that contains it and all following columns, until the system encounters another WIDTH command. The first column defined following the title statement should contain a WIDTH command. Columns with an invalid WIDTH command are ignored by the system.

CONTENT=*three–character–text string*

Specifies the status file content of the column. Refer to table 9–7 for a list of status fields. The CONTENT command is required for each column. Columns with an unspecified content are ignored.

LENGTH=*value*

Specifies the number of characters in the CONTENT field that are to be shown on the report. The number of characters actually printed is whichever value is smallest: the LENGTH value, WIDTH value, or the real length of the status file field. Actual field lengths are listed in table 9–7. The default for LENGTH is whichever value is smaller: the WIDTH value or the real length of the status file field.

HJUSTIFY=*header justification*

Specifies justification (L for left, R for right, or C for center) for the HEADER text, affecting the column that contains the command and all the following columns until another HJUSTIFY command is encountered. The default is C (center).

CJUSTIFY=*content justification*

Specifies justification (L for left, R for right, or C for center) for the CONTENT text, affecting the column that contains the command and all the following columns until another CJUSTIFY command is encountered. The default is C (center).

PART=*value*

Specifies which side of the status file field is shown by the CONTENT command (L for left or R for right) when the specified LENGTH is less than the real length of the status file field. PART affects the column that contains the command and all the following columns until another PART command is encountered. The default is R (right).

END statement

The end statement specifies the logical end of the status file form file. Whatever follows the END command is discarded. The END command may also be used as the last command of the last column command with the same result.

10. Editing the HIP.LIB file

The Host Interface Processor (HIP) software stores system defaults in a file called HIP.LIB. You can edit this file to change option parameters such as host types, file types, spooling size, buffer size, and JDE/JDL specifications.

Accessing the HIP.LIB file

Perform the following steps to edit the HIP.LIB file:

1. At the console, enter **HIP END**. Make sure the system is idle.
2. Enter **LOG** (level 2 through 5).
3. Enter **EDI**.
4. Use the options and their parameters listed in the following section to edit the HIP.LIB file according to your requirements.

   Refer to the *Xerox 4050/4090/4450/4650 LPS Command Reference* for instructions on editing text files.
5. After you edit the HIP.LIB file, you must unload HIP and then reload it for the changes to take effect. Enter the following:

   HIP END
   HIP ONL.

Changing HIP.LIB file option parameters

You can change the following options and their parameters listed in the HIP.LIB file to suit your printing environment.

ACCEPT

Lists the file types that HIP accepts for permanent storage. You can list up to 12 file types.

Syntax **ACCEPT=***file type*$_1$ *file type*$_2$...

Parameter options *file type*
CMD, CME, FIS, FNT, FRM, FSL, HST, IMG, IPF, JDL, JSL, LIB, MSC, LGO, PDE, STK, TMP, TST, or XCS.

Considerations Do not specify the following file types: SYS, Y, TSK, SAF, OSD, TPF, and LOG. If the system receives a file type not listed under this parameter, it rejects the file and displays the following message:

```
HP2200 REJECTED NON-PRINT FILE TRANSFER.
```

Default If this parameter is missing, the default is ACCEPT=CMD, FSL, JSL, TMP, MSC, XCS.

BLOCKSIZE

Defines the maximum amount of data the host can transfer to the LPS in 512 byte disk sectors. 1 block equals 512 bytes. This parameter should be set to 1 for 871 hosts and 3 (or 4) for XPF hosts. XNS hosts ignore this parameter.

Syntax **BLOCKSIZE=***value*

Parameter options *value*

1
: 512 byte buffer

2
: 1024 byte buffer

3
: 2048 byte buffer

4
: 4096 byte buffer

Default The default value is 1.

BUFFERSIZE

Defines the size of the file HIP uses to spool files to be printed.

Syntax **BUFFERSIZE=***value*

Parameter options *value*

Numbers that are multiples of 32. The range is 1024 to 65504.

Default The default is 2048 if this line is missing in the HIP.LIB file or if *value* is less than 1024.

Considerations HIP may allocate a file smaller than the one specified in *value* if there is insufficient free space in the system; it allocates to the largest possible file and displays the following message:

```
HP1130 BUFFER FILE ALLOCATION LESS THAN SPECIFIED.
```

If there is insufficient disk space for even the minimum size spooling file, HIP cannot run; the system displays the following message:

```
HP2120 INSUFFICIENT DISK SPACE FOR HOST BUFFERING.
```

End HIP immediately and make more disk space available.

If you encounter errors indicating that the spool file is full, you may wish to increase the size of the file using this parameter. However, making this file larger reduces the amount of disk space available for other printer functions.

DUPLICATEFILE

Specifies how HIP stores a file with the same name as an existing file on the hard disk.

Syntax **DUPLICATEFILE=***action*

Parameter options *action*

ACCEPT
Overwrites the existing file.

REJECT
Aborts the file storage process.

VERIFY
Asks you if it should overwrite the existing file and displays the following message:

```
2130 OVERWRITE FILE name.type:CONFIRM WITH 'Y.'
```

Considerations You must respond to this message within 30 seconds or the system displays the `HP1300 ASSUMING NEGATIVE CONFIRMATION` message and does not overwrite the file.

ECHOSERVER

Identifies one or more echoservers for testing server reception. Use in conjunction with the ECHO START command.

Syntax **ECHOSERVER=***name***:***address*

Parameter options *name*
Specifies a mnemonic name between 1 and 16 alphanumeric characters. A longer name is truncated.

address
Specifies the 48–bit physical Ethernet address of an echoserver, expressed as a 12–digit hexadecimal number. Use leading zeros if necessary to make the address 12 digits.

ENETMAXCONS

Limits the number of XNS sessions which can run concurrently.

Syntax **ENETMAXCONS=***value*

Parameter options *value*
Specifies a decimal integer between 1 and 8 inclusive.

Default Defaults to 8 if you specify an invalid number.

HOST

Specifies the default host system.

Syntax **HOST=***system*

Parameter options *system*

871
Specifies 871.

DMR
Specifies DMR.

XNS
Specifies XNS.

XPF
Specifies XPF.

Default The default is HOST=871.

LOGENTRIES

Specifies the maximum number of entries in a log file. The last entry of the log file marks the end of the file.

Syntax **LOGENTRIES=***value*

Parameter options *value*
Specifies the number of entries between the range of 16_{10} through 4992_{10}. Specify this number as a multiple of 32.

Considerations If there is insufficient disk space, the system displays the following message and creates a smaller log file less than the one specified:

```
HP1170 LOG FILE ALLOCATION LESS THAN SPECIFIED.
```

MAXXNSPKTSIZE

Limits the size of the data packets transmitted to the LPS by XNS.

Syntax **MAXXNSPKTSIZE=***value*

Parameter options *value*
Specifies a decimal integer between 576 and 1500, inclusive.

Default Defaults to 576 if you specify an invalid number.

NAME

Specifies the name of your LPS.

Syntax **NAME=***printer name*

Parameter options *printer name*
Specifies the printer name.

Default The default is NAME=XEROX.

PACKETCOUNT

Identifies how many packets are sent to echoserver during the echoserver test.

Syntax **MAXXNSPKTSIZE=***value*

Parameter options *value*
Specifies a decimal integer between 1 and 100, inclusive.

Default Defaults to 20 if you specify an invalid number.

QUEUESIZE

Specifies the size of the internal job queue maintained by HIP.

Syntax **QUEUESIZE=***value*

Parameter options *value*
Specifies the queue size as an increment of 20 within the range of 20 through 120.

Default The default is QUEUESIZE=20.

REPORTSTATUS

Informs the host of the status of a new job when the LPS defines it and every time it changes states (such as received, pending, or queued).

Syntax **REPORTSTATUS=***keyword*

Parameter options *keyword*
YES
The default for DMR–11 hosts.

NO
The default for all other hosts.

Default The default for DMR–11 hosts is YES and the default for all other hosts is NO.

STARTCOMMANDS

Specifies one to 16 pairs of JDE/JDLs. Each pair is defined by a START command index number, which is then used by other commands in the HIP.LIB file.

Syntax **STARTCOMMANDS=***sci*$_1$**:***jde*$_1$*,jdl*$_1$*;sci*$_2$**:***jde*$_2$*,jdl*$_2$*;...*

Parameter options *sci*
Specifies an index number from 1 to 16.

jde
Specifies the Job Descriptor Entry file name.

jdl
Specifies the Job Description Library file name.

Default STARTCOMMANDS=1:HIP,HIP;5:PUNCH,HIP;

STARTCOMMANDS=7:IP,ENET;8:,ONLINE;9:DMR11,DMR;

STARTCOMMANDS=13:EBCDIC,HIP;14:ASCII,HIP;15:HEXDMP,HIP;

Considerations
- Use only documented HIP START commands to start an Ethernet job.

- Do not use HIP file types HST and XDP to start jobs with the ENET JDL.
- To selectively start jobs in the HIP queue, list the jobs in the queue and manually start the desired jobs with the HIP START *jid,...,jid* command.
- Multiple command lines can reside in a file.
- If you specify an sci (start command index) more than once, the LPS uses the last one.
- The default JDE/JDL for XPAF pass–through jobs is DEFAULT. To use the correct JDE/JDL for the current version of XPAF, you may have to edit the HIP.LIB file from ONLINE to DEFAULT in the ACCEPT command.

Table 10–1. **START command index number defaults and their corresponding hosts**

Start command index number default	Host
871JOB=1 (use this for 871 print port jobs)	871
PUNCHJOB=5 (use this for 871 punch port jobs)	871
DMRJOB=9 (use this with the DEC interface)	DMR
XNSJOB=7	XNS
XPFJOB=7	XPF
PASSTHROUGHJOB=8	XPF
DUMPJOB=15 (use this for hex dumps)	All

XOPERATIONS

Defines the XNS remote filing and printing procedures logged in the HIP log.

Syntax **XOPERATIONS**=*value*

Parameter options *value*

ALL
: Logs all XNS operations.

NONE
: Disables all HIP logging.

OPR
: Logs on one of the following operations: CLOSE, CONTINUE, DELETE, LGN, LGF, LIST, OPEN, PRINT, RETRIEVE, or STORE.

CLOSE
: Logs each file closure.

CONTINUE
: Allows logging to continue across periods of inactive file service.

DELETE
Logs each file deletion.

LGN
Logs each logon to the LPS filing service.

LGF
Logs each logoff from the LPS filing service.

LIST
Logs each time files in an LPS directory are listed at a workstation.

OPEN
Logs each file opened.

PRINT
Logs each file printed.

RETRIEVE
Logs each file retrieved.

STORE
Logs each file stored.

Default If you enter this command incorrectly, the LPS does not send a message to the console and uses the default parameters DELETE, RETRIEVE, and STORE.

A. Sample JCL for transmission of System Software Tapes

You use a host utility program to space down the tape to the beginning of the next-to-last and last files. These files, which consist of 128-byte and 8192-byte blocks, must be deblocked to 128-byte records before transmission to the printer.

The following is a sample JCL using the IEBGENER host utility to send the concatenated files to the printer. In the example, 01E is the device address of the printing system, and the tape to be transmitted contains 421 system files. Appended to these 421 files are a dummy ENDFIL file, a file containing the sysgen processor program, and a concatenated file containing the preceding 423 files, bringing the total number of files to 424. The first parameter after LABEL= is the number of the file to be transmitted, in this case file number 424, the last file.

```
//LOADXERX   EXEC    PGM=IEBGENER,REGION=80K
//SYSPRINT     DD        SYSOUT=A
//SYSIN        DD        DUMMY
//SYSUT2       DD        UNIT=O1E,DCB=(RECFM=FB,LRECL=128,BLKSIZE=128)
//SYSUT1       DD        DISP=OLD,LABEL=(424,NL,EXPDT=98000) , VOL=SER=XEROXO
```

Some operating systems may require you to transmit an FCB and UCSB with the job. The printer accepts these, but ignores them.

The program (for example, IEBGENER) which transmits files to the printer must not add page numbers or do any reformatting of the data. In particular, no additional records may be added between the files.

B. Restoring MBAIS data

The system automatically checks for the existence and validity of Manufacturer Bad Area Information Sheet (MBAIS) data whenever you format a system disk. If the MBAIS data on a disk being formatted is invalid, a message displays asking if you want to reenter MBAIS data.

If you do not reenter MBAIS data, formatting aborts for the designated disk drive and the system examines MBAIS data on any other disks that you have designated for formatting.

If you do reenter MBAIS data, you can restore this information from tape, floppy diskette, or the keyboard.

MBAIS information is available from your service representative.

CAUTION: Your Operating System Software may become corrupted if you enter MBAIS information incorrectly.

Restoring MBAIS data from tape or floppy diskette

Follow these steps to restore MBAIS data from tape or floppy diskette:

1. If you are inputting from floppy diskette, insert the diskette in the floppy diskette drive.

   If you are inputting MBAIS data from tape, remove the SST (System Software Tape) and mount the MBAIS tape.

2. Enter **MT** (tape) or **FP** (floppy diskette) to specify the input device that you are using.

   The message `HAVE YOU INSERTED THE RIGHT DISKETTE [Y/N]` displays.

3. Enter **Y**.

   The system displays the tape or floppy diskette volume ID, and you are asked to verify that the correct tape or floppy diskette is being used.

4. Make sure that you have the correct input device. If the volume ID is correct, enter **Y**. Enter **N** to use another tape or floppy diskette.

   The system asks you to enter the serial number of the drive so that you can format the diskette or tape.

5. Enter the serial number of the drive.

   If the serial number you enter matches the one stored on the tape or floppy diskette, the MBAIS file is copied onto the system disk and is checked for validity. The system displays a message when MBAIS data has been entered successfully. You are told that a sector check must be performed, and asked if you want to continue or abort. Go to step 7.

If the serial number does not match the one stored on the tape or floppy diskette, the following messages display:

```
**DISK SERIAL NUMBER INVALID**
SERIAL NUMBER ON DISKETTE (TAPE)   IS XXXXXX
DO YOU WANT TO CONTINUE OR ABORT (C/A)?
```

6. Enter **C** if you want to restart the procedure for entering MBAIS data. When MBAIS data has been entered successfully, the system displays a message telling you that a sector check must be performed and asking if you want to continue or abort. Continue with step 7.

   Enter **A** if you want to terminate the format process for the designated disk. The system proceeds to check the validity of MBAIS data on any other disks that you are formatting. You are given the opportunity to reenter MBAIS data for each disk whose MBAIS data is missing or invalid.

7. If you are inputting MBAIS data from tape, remove the MBAIS tape and remount the SST.

8. Enter **C** to perform a sector check. The system displays the format status table, then performs a sector check. When the formatting process is complete, the message `**FORMAT PROGRAM OFF**` displays.

   Enter **A** if you want to terminate the format process for the designated disk. The system proceeds to check the validity of MBAIS data on any other disks that you are formatting. You are given the opportunity to reenter MBAIS data for each disk whose MBAIS data is missing or invalid.

Restoring MBAIS data from the keyboard

Follow these steps to reenter MBAIS data from the keyboard.

1. Enter **CO**.

   A message displays asking you to enter the serial number of the system disk that is to be restored.

2. Enter the serial number for the drive that you are formatting.

   The system asks if you want to enter new disk parameters (track number, head number, or byte count).

3. Enter new values for track number, head number, or byte count, if necessary, or enter **NO** if the values remain unchanged.

   The system asks if you want to change the values you have entered. This allows you to correct any key-in errors.

4. Enter **4** if the values are correct.

   If the values are not correct, enter **1** to change the track number, **2** to change the head number, or **3** to change the byte count. The system displays these numbers repeatedly until you enter **4**.

   Note: The largest number of byte counts accepted by the system is 10,416 for 5 MHz of unusable bytes on the track. Byte counts in excess of this number are ignored.

The system validates the MBAIS data file. When the process is complete, the following message displays:

```
**MBAIS DATA ENTERED SUCCESSFULLY**
**BAD BLOCK FILE VALID ON DISK
DO YOU WANT TO CONTINUE OR ABORT [C/A]?
```

5. Enter **C** to continue formatting. The system displays the format status table, then performs a sector check. When the formatting process is complete, the message `**FORMAT PROGRAM OFF**` displays.

   Enter **A** if you want to terminate the format process for the designated disk. The system proceeds to check the validity of MBAIS data on any other disks that you are formatting. You are given the opportunity to reenter MBAIS data for each disk whose MBAIS data is missing or invalid.

Glossary

A3 International paper size measuring 297 by 420 mm or 11.69 by 16.54 inches.

A4 International paper size measuring 210 by 297 mm or 8.27 by 11.69 inches.

B4 International paper size measuring 250 by 353 mm or 9.84 by 13.9 inches.

batch processing Process that allows for repetitive operations to be performed sequentially on batched data without much involvement from the computer operator.

BCD Binary coded decimal.

bitmap Visual representation of graphic images in which a bit defines a picture element (pixel) and a matrix of bits defines an image. For example, if a bit is 1, the corresponding pixel is printed.

blocking Process of combining two or more records into a single block of data which can moved, operated upon, stored, and so on, as a single unit by the computer.

block length 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.

BOF Bottom-of-form.

BOT Beginning-of-tape.

bpi Bits per inch.

CCID Character Code Identifier. Code associated with the universal identifier "Xerox" to indicate the version of the Xerox character code standard used to code Interpress strings.

character set Set of all characters defined in a font, including alphabetic, numeric, and special characters such as symbols.

cluster Group of related feeder trays, usually containing the same size and type of paper (stock). Each cluster has a name, consisting of one to six alphanumeric characters.

CME Entry modifying the output printing characteristics of a report on a copy-to-copy basis.

compiler Software that translates instructions written in high-level language into machine language for execution by a system.

Copy Modification Entry See *CME*.

copy-sensitive Job in which multiple copies of a report contain different data, such as paychecks and banking statements.

cpi Characters per inch.

default Value assigned to a field by the system if no input is received from the operator. You can change the default value of a field.

DJDE Dynamic Job Descriptor Entry. Command within an input data stream used to modify the printing environment dynamically.

dot Picture element (pixel) imaged by a printer. The number of dots imaged per inch measures printer resolution, for example, 300 dots per mich (dpi). See also *spot*.

dpi Dots per inch. Indicates the number of dots per inch displayed on a terminal screen or printed to form a character or graphic.

dry ink Minute particles of resin and carbon black that can accept an electrical charge and create images. Resin and carbon black or color pigment toner are combined with developer to form the dry ink.

duplex 1. Ability of a data communications system to send and receive information simultaneously. 2. In printing, duplex means printing on both sides of the paper.

Dynamic Job Descriptor Entry See *DJDE.*

edgemarking Use of graphic objects (usually lines or boxes) that bleed off the edge of the physical page. See also *physical page*.

embedded blanks Blank spaces within a command line.

ENET Ethernet network.

EOT End of tape.

Ethernet Xerox local area network (LAN) that allows transmission of data by cable from one device to another.

FCB Forms Control Buffer. Controls the vertical format of printed output.

FCP File Control Parameter.

FCU File Conversion Utility.

FDL Forms Description language. LPS-resident source language used to design electronic forms. See also *FSL* and *form.*

FDR File directory.

FIS Font Interchange Standard. Defines the digital representation of fonts and character metrics for the generation of an entire series of Interpress fonts.

floating accent Nonspacing accent characters that can be combined with characters and printed as a composite.

font Complete set of characters of a particular font family having the same point size, weight, stress, and orientation.

Font Interchange Standard See *FIS.*

form 1. Compiled .FSL file. 2. Specific arrangement of lines, text, and graphics stored in an electronic version. Forms can be printed without variable data or merged with variable data during the printing process. See also *FDL* and *FSL*.

Forms Control Buffer See *FCB.*

Forms Description Language See *FDL.*

Forms Source Library See *FSL.*

FSL Forms Source Library. Uncompiled collection of user-created files containing FDL commands. See also *FDL* and *form*.

hexadecimal Numbering system with a base of 16. The numbers 10 through 15 are represented by A through F.

highlight color Printing with black plus another color. A range of colors, tints, and shades is printed by varying the percentage of black dots, colored dots, and the white space between the dots.

HIP Host Interface Processor.

image area Area on a physical page that may contain text or graphics.

initialize 1. To prepare a blank diskette so it can accept data. This is usually accomplished when a program is booted. 2. To set all information in a computer system to its starting values.

Interpress Industry-standard page description language developed by Xerox. Interpress documents can be printed on any sufficiently powerful printer equipped with Interpress print software.

JCB Job Control Block.

JCL Job Control Language.

JDE Job Descriptor Entry. Collection of job descriptions.

JDL Job Description Library. Collection of compiled job descriptions. See also *JSL*.

JID Job Identifier.

job Synonymous with a START command, a job is a group of print data sets called reports. A job may contain one or multiple reports.

job control Program called into storage to prepare each job or job step to be run.

Job Descriptor Entry See *JDE.*

Job Descriptor Library See *JDL.*

job management Collective functions of job scheduling and command processing.

Job Source Library See *JSL.*

JSL Job Source Library. Collection of uncompiled job descriptions. See also *JDE* and *JDL*.

keyword Required part of a command.

label Reference to a file saved on tape or disk, a record indicating the file name or date created, or other control information.

landscape Orientation in which text and images are positioned parallel to the long edge of the paper.

legal size Paper size measuring 8.5 by 14 inches or 216 by 356 mm.

letter size Paper size measuring 8.5 by 11 inches or 216 by 279 mm.

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.

literal Alphanumeric character beginning with a letter, including an asterisk, period, colon, or slash, and not enclosed in single quotes.

logical page In Xerox printing systems, a logical page is a formatted page that is smaller than the physical page. A logical page is defined by an origin, thus allowing more than one logical page to be placed on a physical page.

lpi Lines per inch.

LPS Laser printing system.

mask Selection of bits from a storage unit by use of an instruction that eliminates the other bits in the unit. In accessing files, a file name mask is used to reference one or more files with similar file-id (identifier) syntax. In Interpress, a mask serves as a template, indicating the shape and position of an object on a page.

metacode Method of controlling the image generator. The character dispatcher uses these codes to generate scan line information. This information is sent in the form of character specifications to the image generator, which uses it to compose the bit stream that modulates the laser. Also called native mode.

monochrome Printing in one color only.

nesting Subroutine or set of data, such as a comment, contained sequentially within another set of data.

object file Source file converted into machine language (binary code).

octal System of representing numbers based on 8.

offset To place printed output sets in slightly different positions from each other in an output bin for easy separation of collated sets.

operand That which is acted upon, for example, data, in an operation or process.

operating system Software that controls the low-level tasks in a computer system, such as input or output and memory management. The operating system is always running when the computer is active.

orientation In reference to image area, describes whether the printed lines are parallel to the long edge of the paper (landscape) or the short edge of the paper (portrait).

origin In reference to image area, the upper left corner of a sheet.

overprint ratio Maximum number of variable data and form characters that can be intersected by a single scan line.

packet A group of DJDE records terminated by an END command.

page end Command character (form feed) to terminate the current page.

palette Predefined set of colors or inks. Different versions are provided with the printer and with host- or PC-based application software.

parameter Part of a command, other than the keyword. See *keyword*.

parse To read or interpret a command; to build up a parameter list from information within a command.

PCC Printer Carriage Control.

PDE Page Description Entry.

PDL Print Description Language. Language used to describe printing 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).

PE Phase encoded.

physical page Actual page size your printer uses to print a form.

pitch Width of a fixed-pitch font expressed in characters per horizontal inch.

pixel Acronym for picture element. Smallest addressable point of a bitmapped screen that can be independently assigned color and intensity.

point In Xerox laser printing systems, a unit of measurement equal to 0.0139 inch. Points are always used to express type, size, and leading. There are 12 points to a pica and about 72 points to an inch.

portrait Orientation in which text and images are positioned parallel to the short edge of the paper.

ppm Pages per minute.

Print Description Language See *PDL.*

print file Portion of the system disk memory (up to 4 MB) reserved for temporary storage of formatted pages for printing. Pages are retained until they are delivered to the output tray.

PSC Printer Subsystem Controller

query Request for data or other information, entered by an operator while the system is processing.

record A line of data as defined in the RECORD command.

report A single output data set, delimited by an RSTACK command or as a file. In setting a separation boundary, reports are subsets of a job.

resolution Number of dots per inch (dpi) or spots per inch (spi). The greater the number of dots, the higher the resolution and the clearer the image. The terms dots, spots, and pixels are synonymous.

scale To adjust font or image size according to given proportions.

sequential 1. In numeric sequence, usually in ascending order. 2. A file structure in which records are written one after another and cannot be randomly accessed.

set Multiple copies of the same report.

simplex printing Printing on one side of the page.

spi Spots per inch. See *resolution*.

spot A picture element imaged by the printer. Synonymous with *dot* and *pixel*.

statement Detailed instructions in a program step, written according to specific rules called syntax.

stock User-defined name in the JSL that specifies a certain type of paper for printing a job.

stockset Collection of stocks to be used on a print job. See also *stock*.

string Connected sequence of alphanumeric characters treated as one unit of data by a program.

syntax Rules governing the structure of expressions in a programming language.

system page Maximum area in which text and graphics can be imaged on a printing system.

tape density Expression of the format of a magnetic tape measured in number of bytes that can be stored per inch of tape.

TOF Top of form.

two-up Printing two logical pages on one side of a physical page.

UCSB Universal Character Set Buffer.

UCS Universal Character Set

variable data Changeable information which is merged with a standard document to create specialized or personalized versions of that document. Variable data is not a part of a form design, but varies from page to page.

virtual page Page area selected by a forms designer for printing.

vpos Vertical positioning.

wildcard Character (usually an asterisk *) which can be inserted into a command string to indicate that it may represent one or more characters in that position.

xdot Unit of measurement representing a fraction of an inch. May also be referred to as a picture element (pixel) or spot; for example, 1/600 spots per inch (spi).

xerographic mode Either of two possible printer configurations: 1. Black mode which allows printing with black dry ink only. 2. Highlight mode which enables both highlight color and black printing.

XNS Xerox Network Systems.

XPAF, XPF Xerox Printer Access Facility.

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