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# Document Services for Printing (DS/P) Version 2.0

# User Guide

Order Number: EK–LN17M–UG. A01

Digital Equipment Corporation
Maynard, Massachusetts

**First Printing, February 1996**

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# Chapter 1

# Introduction to DS/P

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# Overview

This manual provides you with instructions for installing and using Document Services for Printing (DS/P) version 2.0—client-server software that allows network users to:

- View real-time printer status at your PC.
- Search for the networked DS/P supported printers that best fits the needs of your job (for example, a printer that supports 1200 x 600 dpi).
- Generate printer usage tracking and accounting reports.
- View and change the printer's default settings from your PC.
- Hold, delete, and release your jobs from the print queue.
- Receive job completion notification when the last page of your job has printed.

DS/P is a combination of software programs that:

- Run in the Novell NetWare 3.x or 4.x (in Bindery Emulation Mode (BEM)) environment.
- Support the Digital LN17/LN17ps printers that are directly connected to the network via the Digital Ethernet network interface card. In addition, DS/P supports the Xerox 4500 series laser printers directly connected to the network using a network interface card. DS/P also provides printer and job status information for Hewlett-Packard printers directly connected to the network via the JetDirect network interface card.

This chapter describes the system requirements for DS/P and introduces you to the features and benefits of each of the DS/P components:

- DS/P SETUP Services
- DS/P UTILITY
- Remote User Interface (RUI)
- Status & Management Services (SMS)
- SMS PURGE Utility

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## Is DS/P Required for Printing?

Installing Document Services for Printing (DS/P) version 2.0 software is optional. You can print to your Digital LN17/LN17ps printers without DS/P. However, installing DS/P allows you to manage print jobs and the printer from your workstation.

## How Much of This Book Must I Read?

At minimum, you must read Chapter 2 for DS/P installation instructions. Use the remainder of the chapters for reference purposes. For example, use:

- *Chapter 3* for instructions on re-installing DS/P components in the future, and for adding (or deleting) printers from DS/P control.
- *Chapter 4* for learning to use the Remote User Interface (RUI).
- *Chapter 5* for learning to use Status & Management Services (SMS).
- *Appendix A* to learn how to fully configure DS/P.

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## System Requirements

DS/P operates only on a PC on a network running NetWare 3.x or 4.x (in BEM) in conjunction with DS/P supported printers directly connected to the network via the Digital Ethernet network interface card running PSERVER emulation mode. DS/P does not support printers directly connected to a file server running PSERVER.NLM, nor printers directly connected to a PC running PSERVER.EXE.

DS/P software is installed on both the file server and client workstations. Table 1.1 lists all DS/P system requirements.

**Table 1.1 DS/P system requirements**

| System Component | Requirements |
|---|---|
| **Client Workstation** | **Processor:** 386 processor or greater<br>**Display** VGA, SVGA or greater<br>**Operating System:** (You must have one of the following)<br>1. DOS 5.0 or higher<br>2. Windows 3.1 (enhanced mode)<br>3. Windows for Workgroups 3.1, 3.11<br>**Memory requirements:**<br>8 MB of hard disk space for full DS/P installation on the client workstation<br>DOS: 2 MB of RAM (with a minimum of 1 MB extended)<br>Windows: minimum of 4 MB of RAM for enhanced mode<br>**Network Adapter:** NetWare Workstation compatible |
| **File Server** | **Network Operating System:**<br>NetWare version 3.x or 4.x (in Bindery Emulation Mode)<br>NetWare CLIB.NLM version F (2Feb94) or later<br>**Memory requirements:**<br>10 MB of hard disk space for a complete initial installation |
| **Printer:** | **Digital LN17/LN17ps Printers:**<br>DNIC-E'NET (Network interface card for Ethernet**)**<br>**Hewlett-Packard Printers:**†<br>JetDirect network interface card (PSERVER‡ emulation)<br>**Xerox 4500 Series Printers**:<br>Network interface card for Ethernet or Token Ring |

† DS/P Status & Management Services (SMS) provides job and printer status information for Hewlett-Packard printers directly connected to the network via the JetDirect network interface card and installed using JetAdmin.

‡ Referred to as "QSERVER" in Hewlett-Packard documentation.

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# DS/P Features and Benefits

DS/P offers you features and functions that can improve your productivity.

## SETUP Services

DS/P SETUP Services has two primary functions:

- Install and configure DS/P software.
- Configure NetWare for a printer directly connected to the network via a Digital Ethernet network interface card running PSERVER emulation mode.

SETUP's application icon (Windows only) is shown above at left.

## DS/P UTILITY

The DS/P UTILITY allows NetWare users with supervisor privileges to:

- Enable DS/P for all LN17/LN17ps printers directly connected to the network.
- Configure Status & Management Services (SMS) so that the accounting data it captures is most useful to you. UTILITY also allows you to assign a printer name and description to each LN17/LN17ps printer directly connected to the network, and to set other parameters that control how SMS operates with those printers.

UTILITY's application icon (Windows only) is shown above at left.

## Remote User Interface (RUI)

The DS/P Remote User Interface (RUI) is a menu-driven program that brings the Digital printer's Control Panel functionality to your IBM PC or compatible.

Use the RUI to remotely change the Digital printer's settings. For example, use it to:

- Set the default font, format, paper source, and print resolution for PCL and PostScript print jobs.
- Check the current settings for all printer options.

RUI's application icon (Windows only) is shown above at left.

**Note**

*On a Novell NetWare network, only users with supervisor privileges can change a directly-connected (via a Digital network interface card) Digital printer's settings via the RUI. Users without supervisor privileges can view a directly-connected network printer's current settings.*

## Status & Management Services (SMS)

The DS/P Status & Management Services (SMS) virtually eliminates the need to go to the printer to obtain printer and job status information. For example:

- The minimized SMS application icon (shown at left) flashes to alert you to printer conditions that require your attention (such as paper jams).
- An SMS printer mimic (shown at left) that looks like your LN17/LN17ps printer is displayed on the SMS main screen. It tells you what size paper is currently loaded in each paper tray, and immediately notifies you when:
  - There is a paper jam.
  - A tray is out of the printer.
  - The top cover is open.

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Among the many other features and benefits of SMS are the abilities to:

- Find the printer that best fits the needs of your print job in terms of paper size, printing emulation, duplex, memory, jobs in the queue, and much more.
- View the status of DS/P supported directly-connected network printers (in PSERVER emulation) and quickly obtain detailed information about each printer, such as:
  - — the name of the job currently printing,
  - — the number of jobs waiting to be printed on the printer,
  - — the emulations available,
  - — duplex printing
  - — optional output trays such as the Mailbox / Collator or the Offset Catch Tray
  - — the paper size installed, and
  - — supported print resolution.
- View the status of Hewlett-Packard printers that are directly connected to the network via the JetDirect network interface card.
- Quickly view jobs in the queue for any network printer.
- Hold, release, and delete multiple print jobs in a printer's queue.
- Be notified when your print job has finished printing.
- Send a job to the default network printer simply by "dragging" a file from the Windows File Manager and "dropping" it on the SMS main screen (or minimized icon).

- Generate load balancing and user chargeback reports using SMS accounting.

  — You can display user chargeback reports (graphs) on your PC and print them.

  — You can print load balancing reports and save them to a file.

  If the SMS-generated reports don't meet your needs, you can export the SMS-collected data and use it to create custom reports.

  — SMS creates export data files in Standard Data File format (see *Appendix B: Sample SMS Export Data Files*).

  — You can import SMS export data files to any application that reads Standard Data Files.

- View NetWare status of any network printer.

  The amount of detailed information available for network printers other than DS/P supported directly-connected network printers (in PSERVER emulation mode) is dependent on the printer's connection to the network.

- Quickly and easily issue NetWare CAPTURE commands. Using SMS to issue CAPTURE commands eliminates the need to issue NetWare CAPTURE commands. SMS generates the CAPTURE command for you when you select a default printer.

- Eliminates the need to use NetWare PCONSOLE to view jobs in the queue. In SMS you simply select a queue from the SMS main screen and SMS dynamically displays the list of jobs in that queue.

- Provides you with the capability to quickly log into and out of multiple file servers.

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## SMSPURGE Utility

The SMSPURGE Utility is a DOS utility that performs three functions. It:

- Converts DS/P version 1.x accounting files (PRINTER.LOG) to DS/P version 2.0 format.
- Deletes corrupted records from the DS/P accounting file.
- Deletes specified old records from the DS/P accounting file.

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Chapter 2

# Quick Start Installation / Upgrading to DS/P 2.0

**Read Me First** ..... **2-2**
*How Long Will It Take to Install DS/P?* ..... *2-2*
*Installation Overview* ..... *2-3*
**DS/P Installation for Network Administrators** ..... **2-5**
**DS/P Installation for Network Users** ..... **2-10**
**Upgrading DS/P 1.x** ..... **2-12**

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## Read Me First

The instructions in this chapter will guide you through a quick installation of the DS/P software from diskettes, including upgrading DS/P version 1.x to DS/P 2.0.

Follow these instructions ONLY if:

- your PC is running NetWare 3.x or 4.x BEM (with CLIB.NLM version F (2Feb94) or later),
- the network is operational,
- the Digital Ethernet network interface card (DNIC) is already installed in the printer and is plugged into the network, and
- you will be running the DNIC in PSERVER emulation mode.

**Note**

To take full advantage of SMS' accounting capabilities, you must configure the DS/P NLM (service coordinator) and set SMS accounting options. If you plan to use SMS' accounting feature, Digital recommends you fully configure SMS now. Before installing DS/P from diskette see *Appendix A: Configuring SMS*.

## How Long Will It Take to Install DS/P?

First time DS/P installation time varies depending on the number of printers for which you are enabling DS/P. To install DS/P software and enable it for use with one printer, it is likely to take about 15 to 30 minutes. For each additional printer that you enable, allow another 5 to 7 minutes.

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## Installation Overview

Installing DS/P client-server software adds directories and files to both the file server and client workstations. The installation procedure copies software onto both the file server and client workstations, and allows the system administrator to configure and setup DS/P supported network printers, and create and attach queues.

**Note**

*If upgrading to DS/P version 2.0, exit all DS/P version 1.x applications, including unloading the NLM, before beginning the installation process.*

Briefly, the installation procedure will accomplish the following six tasks. (Detailed step-by-step instructions are given starting on page 2-5.)

1. Decompress the **DS/P UTILITY** and **SETUP** files from the floppy diskettes to the DS/P host directory on the file server drive you specify. DS/P automatically creates the host directory (\XDSP) on the selected drive and loads files into that directory. (The host directory is usually created on a file server as DS/P users will need these files to set up DS/P on their workstations.)
2. Configure DS/P for the printers it will control by running **DS/P UTILITY** from the host directory. (DS/P **UTILITY** can be invoked during DS/P initial installation from diskette.) One result of configuring DS/P using **UTILITY** is the creation of both the \XEROX directory on the SYS volume of the file server with the SMS configuration file —"XDSP.CFG"— file in it.
3. Install the DS/P applications (DS/P UTILITY, SETUP, RUI, and SMS) on your (system administrator) workstation and

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configure your NetWare environment for printing by running **SETUP** from the host directory.

SETUP decompresses and installs the application program files from the file server to your local hard drive.

4. Upgrade DS/P 1.x configuration and accounting files (if applicable) to 2.0 format by running the SMSPURGE utility. SMSPURGE was automatically loaded into the host directory (\XDSP) in Step 1 above.
5. Load the **XDSP.NLM** onto the host file server. This NLM was automatically copied to the \XDSP directory during Step 1 above.

   Loading the XDSP.NLM creates the DS/P accounting files (PRINTER.LOG and ERROR.LOG) in the \XEROX directory on the SYS volume of the file server.

   Once this step is complete, your DS/P printing environment is installed.
6. Fill in the client installation worksheet found in *Appendix C* and distribute it to network clients. This worksheet tells clients how to install DS/P software onto their workstations from the file server.

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# DS/P Installation for Network Administrators

These instructions are to be performed only by the system administrator to:

1. Install DS/P software master files onto the file server,
2. Configure NetWare for use with DS/P, and
3. Install DS/P applications on your local hard drive.
4. Ensure that all users have access rights to the DS/P directory to execute WINSETUP or DOSSETUP.

**1** **Log onto the network with supervisor privileges, then insert DS/P diskette #1 into drive A (or B).**

**2** **Windows Users: Exit Windows. At the DOS prompt type** `A:\WINSETUP` **then press** `<ENTER>`**.**

**DOS Users: Type** `A:\DOSSETUP [drive]:` **then press** `<ENTER>`**.**

**Do not run the DOS version of SETUP from within Windows.**

**3** **When prompted in Windows, enter the network drive onto which DS/P master files should be copied and installed.**

Digital recommends you install DS/P software to the file server (to allow each client user to easily install DS/P to his/her workstation). After selecting a network drive, the `\XDSP` directory will be created on it. DS/P SETUP and UTILITY will be decompressed from the diskettes and copied to this directory, along with the SMSPURGE utility and the DSP NLM (XDSP.NLM).

Three additional subdirectories will also be created under \XDSP on the file server: `\CLIB`, `\X1`, and `\X2`.

- Copied into `\XDSP\CLIB` are CLIB updates.
- Copied into `\XDSP\X1` are compressed RUI program files.
- Copied into `\XDSP\X2` are compressed SMS files.

Online help is available by pressing `<F1>` (or clicking **Help**).

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**4** **At the DS/P Installation Options window, choose Yes to run the DS/P UTILITY.**

The DS/P UTILITY program starts. This program allows you to configure each LN17 and LN17ps printer and the DS/P NLM for the selected file server on your network.

A directory—SYS:\XEROX—is created on the file server at this step. The DS/P configuration file (XDSP.CFG) will also be created during this step.

*If upgrading from DS/P version 1.x, simply add or release a printer from each file server where service coordinators are loaded, and the configuration file is automatically updated from version 1.x to version 2.0.*

After configuring your printers, exit UTILITY and SETUP appears. SETUP allows you to choose which DS/P programs to load.

**For detailed instructions running DS/P UTILITY and SETUP, go to** *Chapter 3: Using DS/P UTILITY and SETUP* **and:**

A **Follow Step 2 (page 3-4) through Step 13 (page 3-6).**

B **Then complete Step 2 (page 3-7) through Step 8 (page 3-9).**

C **Return to this chapter and continue with Step 8 on page 2-7.**

**5** **When the DS/P SETUP - Options window appears choose the DS/P programs to install, then select Continue. (Press <F1> or click Help for assistance.)**

SETUP will create Windows icons on your workstation for each of the DS/P application programs you choose to install. Digital recommends you install the programs on your workstation; not on the file server. Be sure to specify your local hard drive (C:\) as the DS/P Directory.

*DS/P can be decompressed and run from the file server. See README.TXT for additional information.*

**6** **Windows users: The program will go to Step 7 on page 2-7, as the SMS TSR is not required to run Windows SMS.**

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**DOS users: At the DS/P SETUP - Install TSR Program for SMS window, select the appropriate option to specify how the SMS TSR (CUI.EXE) should be loaded. The TSR is required to run DOS SMS but not the Windows version.**

*SETUP adds a CUI.EXE line to the end of the batch file it modifies.*

- Select the default option (AUTOEXEC.BAT) if the NetWare shell is loaded directly by AUTOEXEC.BAT on your workstation at power up.
- Select the second option if the NetWare shell is loaded by some other batch file, and specify its full path.
- Select the last option if you wish to run CUI.EXE manually before using DS/P SMS (press the Help button for more information).

**7** **At the DS/P SETUP - Novell NetWare Printer Settings window, select the Printer and File Server to configure for NetWare.**

- Select Create/Delete... to create a queue for the printer, then attach the printer to the queue by selecting Attach/Detach....
- Select Notify... to update the NetWare notify list.
- Select Other... to allow this printer to service other file servers.

When finished configuring all printers and file servers, select Continue.

**8** **At the Done window, exit SETUP. If you are upgrading from DS/P version 1.x, continue to Step 9. Otherwise skip to Step 10.**

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**9** **Change to the directory where the SMSPURGE utility is located to convert your DS/P version 1.x accounting file (PRINTER.LOG) to 2.0 format.**

SMSPURGE is located in your host directory, typically at `[drive]:\XDSP` (unless you installed DS/P to another directory).

**A** **From DOS type:**

```
SMSPURGE [drive]:\XEROX\PRINTER.LOG
 PRINTER.200
```

**then press** <ENTER>.

For help type `SMSPURGE /?` then press <ENTER>.

**B** **Rename** `PRINTER.200` **to** `PRINTER.LOG`. **Type:**

```
REN [drive]:\XEROX\PRINTER.200
 PRINTER.LOG
```

**then press** <ENTER>.

The SMSPURGE Utility can also be used to purge corrupt accounting records, and to purge old accounting records you no longer want. For more information, see *"Purging Old Accounting Data"* (page 5-30) and *"Purging Corrupted Accounting Data"* (page 5-31).

**10** **Copy "XDSP.NLM" from the \XDSP directory on the file server to the SYSTEM directory on the SYS volume of each file server to which your networked printers are attached.**

**11** **Load the Service Coordinator on the file server from the system console ":" prompt at each desired file server.**

Type `LOAD XDSP` then press <ENTER>.

The Service Coordinator must be loaded to be able to control its printers.

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**12** **Instruct users to either install DS/P to their hard drives following the instructions starting on the next page, or to set up their workstations to run the DS/P software from the file server (if you decompressed these applications on the file server in Step 5).**

An easy way to instruct the users is to complete the DS/P Client Installation Worksheet in *Appendix C*, then photocopy it and distribute it to all users. The Windows Help File contains an alternative Client Installation Worksheet.

*If you installed DS/P on the file server, rather than your local drive, see the README.TXT file.*

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# DS/P Installation for Network Users

These instructions are to be performed after DS/P Installation for Network Administrators (page 2-5) is complete. Following these instructions, the client users can install DS/P from the file server to their workstations.

**1** **Log into the network and access the file server where DS/P is installed.**

**2** **Windows users: In Program Manager, choose Run from the File menu. Type** `[drive]:\[path]\WINSETUP` **then press** `<ENTER>`**.**

**DOS Users: Type** `[drive]:\[path]\DOSSETUP`**, then press** `<ENTER>`**.**

Online help is available by pressing `<F1>` (or clicking **Help**).

**3** **When the DS/P SETUP - Options windows appears, highlight the DS/P programs you want to install and specify your local hard drive as the DS/P Directory, then select Continue.**

SETUP will install the selected DS/P components onto your hard drive.

**4** **Windows users: The program will go to Step 5 on page 2-11, as the SMS TSR is not required to run Windows SMS.**

**DOS users: At the DS/P SETUP - Install TSR Program for SMS window, select the appropriate option to specify how the SMS TSR (CUI.EXE) should be loaded. The TSR is required to run DOS SMS but not the Windows version.**

*SETUP adds a CUI.EXE line to the end of the batch file it modifies.*

- **Select the default option (AUTOEXEC.BAT) if the NetWare shell is loaded directly by AUTOEXEC.BAT on your workstation at power up.**
- **Select the second option if the NetWare shell is loaded by some other batch file, and specify its full path.**
- **Select the last option if you wish to run CUI.EXE manually before using DS/P SMS (press the Help button for more information).**

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**5** **When the DS/P SETUP - NetWare Login window appears, select the Cancel button.**

The DS/P SETUP - Done window appears.

**6** **Select the Exit button.**

After exiting SETUP, you are ready to use SMS and the RUI (if installed). See *Chapter 4: Using the RUI* and *Chapter 5: Using SMS* for more information.

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## Upgrading DS/P 1.x

To upgrade DS/P 1.x to DS/P 2.0, exit all DS/P 1.x applications. Then follow the steps under *"DS/P Installation for Network Administrators"* (page 2-5). Those steps will upgrade your DS/P version 1.x software to DS/P version 2.0 by:

1. Installing the DS/P version 2.0 software from diskette.
2. Converting the DS/P configuration file (XDSP.CFG) to 2.0 format.
3. Converting the DS/P accounting file (PRINTER.LOG) to 2.0 format.

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Chapter 3

# Using DS/P UTILITY and SETUP

*Read Me First* ..... *3-2*
*Running DS/P UTILITY* ..... *3-3*
*Running DS/P SETUP* ..... *3-7*

## Read Me First

Before running either DS/P UTILITY or SETUP verify all of the following:

- Your system meets the memory requirements listed in Table 1.1 on page 1-4.
- NetWare v3.x or 4.x (BEM) is installed and functioning properly.
- An Ethernet network interface card is installed, configured, and is plugged into the network. (See the NetWare installation instructions in the *DNIC-E'NET Configuration Guide* before continuing.)
- DS/P supported printers are on-line.
- You are logged into the network. (System administrators should log in with supervisor privileges.)
- At minimum, version F (2Feb94) of the NetWare CLIB.NLM is running.

  Type `DIR CLIB.NLM` from the SYSTEM directory to verify 2Feb94 date or later date.

  If you are unsure of the CLIB.NLM version, contact your System Administrator before proceeding.

**Caution**

**If your NetWare Operating System's CLIB.NLM patches are not up to revision level F (2Feb94) or later, you must upgrade your file server for DS/P to be operational. (Check your \XDSP directory for the CLIB directory.)**

Before running DS/P UTILITY or SETUP you may find it useful to read *Appendix A: Configuring SMS* first.

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# Running DS/P UTILITY

The DS/P UTILITY allows system administrators to configure networked LN17/LN17ps printers to work with DS/P Status & Management Services (SMS). Use DS/P to:

- Enable DS/P for each directly-connected printer and set (or modify) the Timer Value on the printer's DNIC card. (This process may take up to 3 minutes.)
- Enable SMS Accounting and modify the Cost per Page and Cost per Sheet values it uses. (This updates the configuration file, XDSP.CFG, residing on the SYS:XEROX subdirectory of the file server. See *Appendix A: Configuring SMS* for more information about the SMS configuration file.)
- Name (or rename) a printer. (This step may take up to 5 minutes.)

**Caution**

**Change the printer's values (such as name and timer value) only when the printer is not busy. If you attempt to establish a connection with the printer through the UTILITY while the printer is busy, you will receive the following message:**

**Unable to communicate with this printer**

Follow the instructions below to run the DS/P UTILITY.

**1** **Start the DS/P UTILITY.**

**DOS Users:** Change to the subdirectory where the DS/P UTILITY is located (typically, `[drive]:\XDSP`). Type `DOSUTIL`, then press `<ENTER>`.

**Windows Users:** Load the TES.COM TSR following steps A - D below.

**A** **Exit Windows and return to the DOS prompt, then change to the `[drive]:\XDSP` subdirectory.**

**B** **Type `TES WIN`, then press `<ENTER>`.**

**C** **Start Windows.**

**D** **Double click** **DS/P UTILITY icon, then continue to Step 2.**

**2** **Select a free COM port (required by the DNIC card).**

*Press the `<F1>` function key at any point while running DS/P UTILITY for additional help.*

**3** **Select a file server on which the printer's service coordinator is loaded (or will be loaded) and login.**

**4** **Unload the DS/P NLM (XDSP.NLM) if it is currently loaded on the file server selected in Step 3.**

**5** **To name (or rename) a printer, continue to Step 6. Otherwise skip to Step 9 to enable DS/P for a new printer .**

**6** **Select the printer from the Printer Name combo box, then press the Rename Printer button. (All printers' names will terminate with "_1".)**

*Changing the printer's name also changes the name for TCP/IP and LAT. Any print queues attached to the old name are not automatically attached to the new name. You can use DS/P SETUP to attach these queues to the new name on NetWare.*

*After a printer has been renamed, the old name may still appear for some time.*

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**7** **Enter a new printer name (the name must end with "_1", such as "RM312_1"), then press the OK button and wait for the message to clear.**

This process may take up to 5 minutes.

**Wait at least 45 seconds before attempting another operation on the same printer.**

**8** **Repeat Steps 6 and 7 for each printer you wish to rename. To enable DS/P for a new printer, continue to Step 9. Otherwise, skip to Step 12 on page 3-6.**

**9** **Select the printer you wish to configure for use with SMS from the Printer Name list, and press the Add Printer button. (To release a printer from DS/P control, select the Release Printer button and select the printer from the list.)**

**10** **Using the information on your DS/P Worksheet:**

- Enter a **Printer Description**, if desired.
- Fill the **Enable Accounting** checkbox to enable SMS for the printer.
- Enter a **Cost per Page** value, if desired—that is, a figure which represents per page cost of the toner and printer.
- Enter a **Cost per Sheet** value—that is, a figure which represents the cost of one sheet of paper.

*SMS will use either the DOS default currency in DOS or the Windows default currency in Windows. The* **Cost per Page/Cost per Sheet** *value is in cents, pence, lira, etc.*

- Change the **SMS Timer** value, if desired.

*If Timer = 0, you should define a mirrored backup Service Coordinator—nothing prints through this DNIC unless a Service Coordinator (XDSP.NLM) is loaded.*

*To create a mirrored backup service coordinator —that is, a second Service Coordinator to which a printer is assigned—first copy XDSP.CFG from the current file server to the SYS:XEROX directory of the backup file server, then load XDSP.NLM on the backup server.*

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**11** **Repeat Steps 9 and 10 for all printers you want to configure for use with SMS. Then continue to Step 12.**

**12** **Login to another file server where you want to load the Service Coordinator, and repeat Step 9 on page 3-5 through Step 11 (above). Otherwise, continue to Step 13.**

If more than one service coordinator is to control a single printer, the configuration file—XDSP.CFG—on each file server must contain identical information about that single printer.

After logging onto another file server, enter the same values for **Description**, **Enable Accounting**, **Cost per Page**, **Cost per Sheet**, and **SMS Timer**.

**13** **Press the Exit button.**

**If you are in the process of installing DS/P from diskette**, proceed to Step 2 on page 3-7 under *"Running DS/P SETUP"* (page 3-7). DS/P SETUP is automatically launched when you press the **Exit** button.

**If you have just installed a new printer** run DS/P SETUP to set up the printer for the NetWare environment. See *"Running DS/P SETUP"* (page 3-7).

Otherwise you can load the NLM.

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## Running DS/P SETUP

The DS/P SETUP program allows all users to install DS/P software components. It also allows system administrators to set up printer(s) for the NetWare environment. For example, DS/P SETUP will allow system administrators to create and attach queues for directly-connected networked DS/P supported printers.

**1** **Start DS/P SETUP.**

**DOS users:** Change to subdirectory where DS/P SETUP is located. Type `DOSSETUP`, then press `<ENTER>`.

*You cannot use SETUP to install the printer on a NetWare 4.x file server. Refer to the DNIC-E'NET Configuration Guide.*

**Windows users:** Double-click DS/P SETUP icon.

**2** **When prompted, enter your user name and company name.**

*Press the `<F1>` function key at any point while running DS/P SETUP for additional help.*

**3** **At the Options window, select the DS/P components to install, then press the Continue button.**

By default Status & Management Services is selected.

To configure NetWare without installing DS/P software, press the Skip button until you reach the NetWare Login window.

**4** **At the NetWare Login window, select a File Server, enter your User Name and Password, then select the Log In button.**

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**5** **At the Novell NetWare Printer Settings window select the printer to configure .**

**A** **To update the notify list for the printer (so that the appropriate users receive SMS alert messages), select the file server to which it is attached, then select the Notify... button and follow the instructions on screen. (See *"Receiving Status and Alert Messages"* (page 5-17) for more information.)**

**B** **To create (or delete) queues for the printer, select the Create/Delete... button and follow the instructions on screen.**

**C** **To attach (or detach) the printer to a specific queue, select the Attach/Detach... button and follow the instructions on screen.**

**D** **To modify the NetWare notify list, select the Notify... button and follow the instructions on screen.**

**E** **To support servicing multiple file servers with a single printer, select Other.**

**F** **Repeat Steps A to E to configure additional printers.**

**G** **When finished, select the Continue button.**

**6** **Windows users: The program will go to Step 7 on page 3-9, as the SMS TSR is not required to run Window SMS.**

**DOS users: At the DS/P SETUP - Install TSR Program for SMS window, select the appropriate option to specify how the SMS TSR (CUI.EXE) should be loaded. The TSR is required to run DOS SMS but not the Windows version.**

- Select the default option (AUTOEXEC.BAT) if the NetWare shell is loaded directly by AUTOEXEC.BAT on your workstation at power up.
- Select the second option if the NetWare shell is loaded by some other batch file, and specify its full path.
- Select the last option if you wish to run CUI.EXE manually before using DS/P SMS (press the Help button for more information).

*SETUP adds a CUI.EXE line to the end of the batch file it modifies.*

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**7** In the **Done** window choose the appropriate selection.

- **If you are finishing DS/P installation from diskette**, press the **Exit** button to complete the DS/P installation.
- **DOS users:** If you re-configured your AUTOEXEC.BAT in Step 6 press the **Reboot** button. (If no Reboot button appears, reboot your computer after exiting SETUP.)

**8** **For all newly configured printers, either power each printer Off/On or down its PSERVER from PCONSOLE to re-initialize its DNIC card.**

This step is required to allow print server configurations (such as print queue attachments) to take effect in NetWare.

*Ignore the red NetWare error message if you receive it.*

**9** **DS/P installation on the network workstation is now complete. If the Service Coordinator has not been previously copied and loaded onto the file server, continue to the next step.**

**10** **Copy the Service Coordinator ("XDSP.NLM") from the \XDSP directory on the file server to the SYS:SYSTEM directory on each file server you listed in your DS/P Installation Worksheet (Appendix A).**

**11** **Load the Service Coordinator on the file server from the system console ":" prompt at each desired file server.**

Type `LOAD XDSP` then press `<ENTER>`.

The Service Coordinator must be loaded to be able to control its printers.

# Chapter 4

# Using the RUI


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*RUI Main Screen and Features* ..... *4-3*
*Starting the RUI and Connecting to a Printer* ..... *4-4*
*Changing Printer Settings* ..... *4-7*
*Closing a Printer Connection* ..... *4-8*
*Differences from the Control Panel Menus* ..... *4-9*
*On-line Help* ..... *4-9*

# Overview

This chapter provides instructions for starting and using the Remote User Interface (RUI), and documents the differences between the RUI and the printer's Control Panel.

The RUI allows you to view and change the printer's Control Panel settings for directly-connected printers from your IBM PC or compatible.

Although you can change the printer's settings via the printer's Control Panel, the RUI offers a more convenient way to change the printer's settings when the printer is located away from your PC. For example, the RUI displays many printer settings at a time, and therefore, allows you to change several printer settings at a time, whereas the Control Panel only allows you to change one at a time.

**Note**

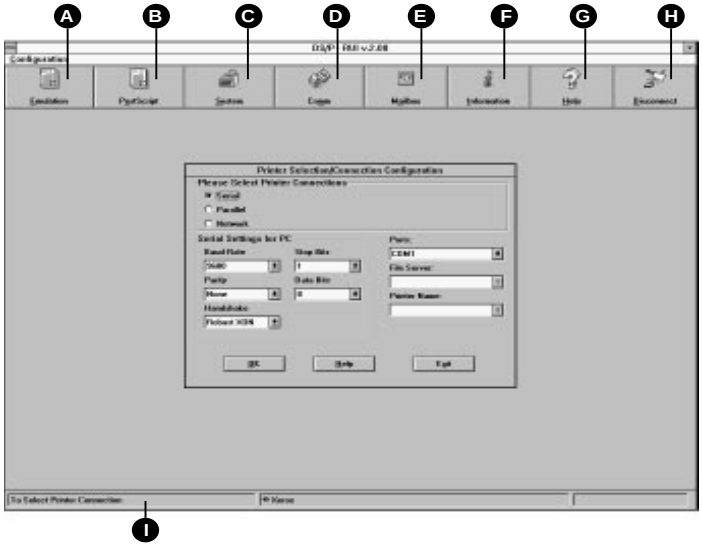
*Only the NetWare supervisor can change the printer's settings. NetWare users without supervisor privileges can use the RUI only to view the printer's settings.*

*In order to use the RUI on NetWare, the selected printer must have been installed on a file server either through SETUP or PCONSOLE.*

# RUI Main Screen and Features

The RUI main screen, as shown in Figure 4.1, (along with the **Printer Selection / Connection Configuration** window) appears when you start the RUI, and is present at all times while you are using the RUI.

**Figure 4.1 Remote User Interface main screen**




**A** Click this button to get to the PCL Emulation Configuration windows.

**B** Click this button to get to the PostScript Configuration window.

**C** Click this button to get to the System Configuration window.

**D** Click this button to get to the Communication Interface Configuration windows.

**E** Click this button to get to the Mailboxwindow.

**F** Click this button to reveal the Information window.

**G** Click this button for help.

**H** Click this button to disconnect from the current printer.

**I** The contents of the Help Bar change as you select an item in a window.

Clicking a main screen button other than **Information** or **Help** provides access to the configuration windows which display the printer's current settings. It is through the configuration windows that you also change printer settings.

# Starting the RUI and Connecting to a Printer

Before starting the RUI, turn Disk Spooling OFF (if you have an optional hard disk installed on the printer) and enable your mouse for use in DOS—a mouse is required to access the settings in the **Serial Settings for PC** group on the **Printer Selection/Connection Configuration** window.)

**Caution**

**Change the printer's settings only when the printer is not busy. If you attempt to establish a connection with the printer through the RUI while the printer is busy, you will receive the following message:**

**Unable to establish communication with this printer!**

Follow the instructions below to start the RUI.

**1** **Windows RUI Users:**

A **Exit Windows and return to the DOS prompt, then change to the** `[drive]:\XDSP\XRUI` **subdirectory.**

B **Type** `TES WIN`**, then press** `<ENTER>`**.**

C **Start Windows, then double-click** **DS/P RUI icon in the DS/P program group.**

**DOS RUI users:**

A **Change to the subdirectory where the RUI is located (default directory is** `[drive]:\XDSP\XRUI`**).**

B **Type** `RUI`**, then press** `<ENTER>`**.**

The RUI main screen, along with the **Printer Selection/Connection Configuration** window, appears (as shown at left).

The RUI must be able to both send and receive information from the printer. Therefore, you must tell the RUI how to communicate with the printer via the **Printer Selection / Connection Configuration** window.

**2** **Choose Parallel, Serial, or Network as the connection between your computer and the printer.**

**Disk spooling must be set to *Off* to allow the RUI to function.**

**If you select Parallel as the communication port for the RUI, Bidirectional must be set to *On* at the printer's Control Panel before starting the RUI.**

**A If you choose Parallel, you must also indicate the port to which the parallel cable is attached. Choose LPT1, LPT2, LPT3, or LPT4 in the Ports box.**

*If you select* **Parallel** *as the RUI communication port here, you cannot change any of the values in the* **Parallel Configuration** *window.*

**B If you choose Serial, you must select a port (COM1 - COM4) that is connected to the printer, and also indicate the serial settings for your computer. Set Baud Rate, Data Bits, Handshake, Parity, and Stop Bits.**

Your computer's serial port settings must match those on the printer. (The printer's Control Panel may display a "Comm. Error" message if the settings do not match.)

**Do not choose the same serial port that the mouse is using.**

*If you select Serial as the RUI communication port here, you cannot change any of the values in the Serial Configuration window. Additionally:*

- *RS232 is the only serial interface the RUI supports.*
- *19,200 is the highest baud rate the RUI supports.*

**C If you choose Network as the printer connection, you must also choose a setting for Ports, File Server, and Printer Name.**

Under Ports, choose a serial (COM) port not already in use.

Under File Server, choose the file server through which the printer that is directly connected to the network is served. The RUI will take a moment to find all printers installed on that server, then list them under Printer Name.

Under Printer Name, choose the printer whose settings you wish to view (or change, if you have NetWare supervisor privileges).

*The RUI may take approximately 30 seconds to establish connection with a network printer.*

**3 Click OK to connect to the printer, then change its configuration via the configuration windows.**

See *"Changing Printer Settings"* (page 4-7).

## Changing Printer Settings

After connecting to a printer (via the **Printer Selection / Connection Configuration** window):

- Select the PCL Emulation button to change the printer's PCL Emulation option settings.
- Select the PostScript button to change the printer's PostScript option settings.
- Select the System button to change the printer's System option settings.
- Select the Communication Interface button to change settings for the printer ports.
- Select the Mailbox button to change settings for the optional Mailbox / Collator.

An hourglass will appear on your screen while the RUI is receiving the selected information from the printer.

After changing settings in a configuration window, select **OK** to transmit new settings to the printer. An hourglass icon will appear on your screen while the RUI is sending the new settings to the printer.

**Note**

*The **OK** button on configuration windows is "grayed out" if you do not have supervisor privileges, and therefore, disables your ability to change printer settings.*

The configuration window closes once the new settings are sent to the printer. To configure another printer first close the connection to the current printer (See *"Closing a Printer Connection"* (page 4-8)).

# Closing a Printer Connection

Follow the instructions below to close the connection to the current printer.

1. **Click the Disconnect icon from the toolbar (or select Disconnect from the Configuration pull down menu).**

   **A dialog box appears asking if you are done configuring the printer.**

2. **Select Yes to close the current printer session.**

   **The Printer Selection / Connection Configuration** window appears—use it to connect to another printer. See Step 2 on page 4-5 (under *"Starting the RUI and Connecting to a Printer"*) for assistance.

   If you do not wish to configure another printer, exit the RUI by selecting the Exit button.

## Differences from the Control Panel Menus

Printer Control Panel options in the RUI are grouped almost identically to the way they are in the printer's Control Panel menus. For example:

- To locate an option found in the Control Panel's PostScript Menu, select the RUI PS button.
- To locate an option found in the Control Panel's Parallel Menu, select the RUI Interface button, then the Parallel tab.

There are two major differences between the RUI and the Control Panel menu system:

- Options located under the printer's Control Panel's Language and System menus are grouped together in the RUI's System Configuration window.
- The RUI does not include a Test Menu nor a Reset Menu. Therefore no Test Menu functions (such as printing a Configuration Sheet or initiating a Memory Check), nor Reset Menu functions (such as initiating Reset Printer) can be initiated through the RUI.

## On-line Help

Select the **Help** button (or press the <F1> key) on any RUI window to receive on-line help.

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Chapter 5

# Using SMS


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# Overview

Status & Management Services (SMS) software puts printer and job status information at your fingertips. When SMS is active, you have access to a variety of information to let you know what's happening at the printer. For example:

- The SMS printer mimic on the SMS main screen that looks like your printer tells you what size paper is currently loaded in each paper tray, and immediately notifies you when there is a paper jam, when a tray is out of the printer, and when the top cover is open.

- The minimized SMS application icon (shown at left) comes to the foreground and flashes to alert you to printer conditions that require your attention (such as paper jams).
- SMS sends you a message when your job has completed printing. You'll never again have to wait at the printer while your job finishes printing. Wait until SMS tells you it is finished, then go pick it up.

Use SMS to help you get the results you need. For example, use SMS to:

- Find a printer that has no jobs in its queue (or only a few jobs in its queue).
- Find a printer that is loaded with the correct paper size you need to print your job.
- Find a printer with sufficient memory to process jobs with numerous complex graphics.
- Delete the last several jobs you sent to the printer.

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## Main Screen Features

Both the DOS and Windows versions of SMS are provided with the Digital Ethernet network interface card. The DOS and Windows versions of SMS are functionally identical—only the appearance of the screens differ. For example, the Windows version (as shown in Figure 5.1 on page 5-5) includes pull-down menus, menu buttons, icons, and the printer mimic icon. The DOS version uses pull-down menus and menu buttons. There is no printer mimic icon in the DOS version.

The SMS main screen (Figure 5.1) provides you with job and printer status information. You will use this screen often. Notice the six buttons on the SMS main screen (five in DOS SMS). Each button opens a window (or series of windows) that allows you to control your printing environment.

The **Options** menu allows you to set preferences to control the look of the SMS windows. The **View** menu allows you to set the order in which servers and queues are displayed. The **Jobs** menu allows you to place multiple jobs on hold, release jobs from hold, and to delete multiple jobs from the print queue.

**Caution**

**Run only one version of SMS at a time; either the Windows version or the DOS version. Also do not run the DOS version of SMS from Windows.**

**Note**

**DOS users**: *The DOS version of SMS does not include a Help button. Help is located on the menu bar.*

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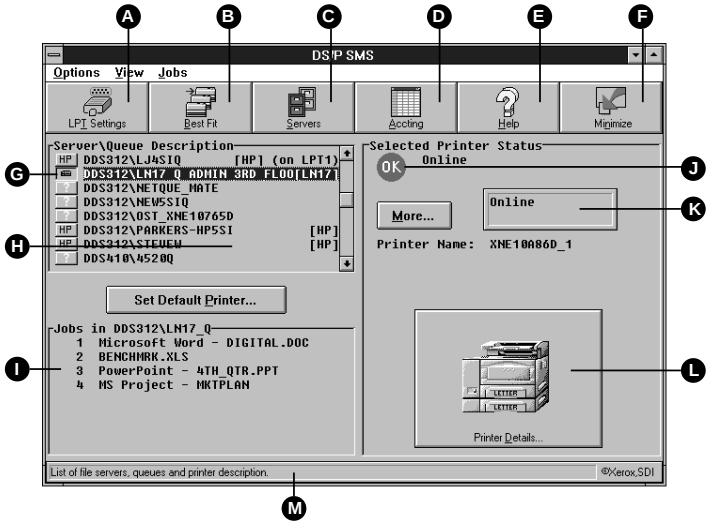
**Figure 5.1 SMS main screen (Windows version) example**




**A** Click here to set LPT settings for future print jobs.

**B** Click here to find a printer that meets the printing requirements of your job.

**C** Click here to attach and detach servers.

**D** Click here to generate SMS reports, and to export SMS accounting data.

**E** Click here (or press F1) to access help.

**F** Click here to minimize the main screen (Windows only).

**G** Currently selected printer.

**H** Look here to see a list of Servers\Queues (Printers) to which you are logged-in.

**I** Look here to see a list of all jobs in the Queue for the currently selected printer. Double-click a job to place it on hold, release it, or delete it from the queue.

**J** This icon and its corresponding message change with the status of the printer.

**K** This display shows you what the printer's Control Panel displays.

**L** The printer mimic shows you when a paper tray is out of the printer, when a cover is open and what size paper is loaded in the tray(s). Click the mimic for additional printer information.

**M** This Help Bar displays dynamic help information as you move the mouse (or cursor) around the screen.

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# Using SMS for the First Time

When using SMS for the first time, you'll want to set it up to provide you with information about the printer (or printers) you use most often. Follow the steps below when using SMS for the first time.

**1** **Start SMS.**

**Windows SMS users:** Double-click DS/P SMS icon in the DS/P program group. You will be presented with the option to have SMS automatically started everytime you enter Windows.

**DOS SMS users:** Holding down <CTRL> and <ALT> press <P>. If SMS does not start, manually load the TSR (CUI.EXE). See page 5-22.

If you logged into a particular server on the network before starting SMS, that server and all its available queues are listed in the Server\Queue\Description group on the main screen.

Continue to Step 2 if there is nothing listed in the Server\Queue\Description group, or if you wish to see more queues. Otherwise, skip to Step 6.

**2** **Choose Server Selection... from the menu, or click the Servers icon.**

The Server Selection screen appears.

**3** **Highlight a server in the Available File Servers group, then select Attach.**

The Login Name & Password dialogue box for that server appears.

**4** **Enter your Login Name and User Password, then press OK.**

If the network accepts your Login Name and Password, you are returned to the Server Selection screen where you can log into additional servers.

*You will receive an error message when you have entered an inaccurate Login Name or User Password, or when the maximum number of users are logged into the server.*

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**5** **Select Close to return to the main screen.**

**6** **Select View to choose the sort method by which you would like Server\Queue\Description information displayed.**

**7** **Choose Preferences... from the Options menu.**

The Preferences window appears.

**8** **Choose a setting for Default Capture Port, then select OK.**

This setting tells NetWare which port it should use to capture output from your software applications. The **Default Capture Port** setting is LPT2 unless you change it.

Software applications generally assume a printer is connected to your computer. Consequently, they require a port setting to which output is directed—typically LPT1. LPT1 is typically used to parallel connect a printer to a PC.

NetWare uses the SMS **Default Capture Port** setting as a redirection device. Each time it sees this port setting in a data stream, it captures the data, then redirects it to the Server\Queue of your choice—likely the server that spools jobs to an LN17 printer.

**9** **Select the default printer to which to send your jobs.**

- **Windows SMS users:** skip to Step 11 on page 5-8.
- **DOS SMS users:** continue to Step 10.

**10** **DOS SMS users: Highlight the Server\Queue\Description name to which you want all captured print jobs directed, then select Set Default Printer....**

That queue and, therefore, the printer it serves are set as the default.

*Before sending a job, make sure that you are using the correct printer driver for the default printer specified here.*

Skip to Step 14 on page 5-8.

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**11** **Windows SMS users: Highlight the Server\Queue\Description name to which you want all captured print jobs directed. Then select Set Default Printer...**

That queue, and the printer it serves, are set as the default printer, and the **Select Installed Printer Driver** screen appears.

**12** **In the Installed Printer Drivers list box, select the printer driver for the default printer. (New printer drivers can be added by clicking Install New Printer.)**

When running the Windows version of SMS, SMS changes the default printer driver in Windows to make sure all Windows jobs are formatted for your default printer. Therefore, you must tell SMS which printer driver to use as the default.

**When using SMS with a directly-connected network printer, always change the default printer driver through SMS, not through Windows or a Windows application. Printed output is unpredictable when you change the default printer in Windows (or a Windows application) and you are also using SMS.**

**13** **Select OK to save the setting.**

You are returned to the SMS main screen.

**14** **DOS SMS users: Exit SMS.**

To exit SMS, either:

- Choose **Exit** from the **Options** menu.
- Click the **Exit** button.
- Hold <ALT> and press <X>.
- Press <ESC>

(To re-display the SMS main screen, hold down <CTRL> and <ALT> and press <P>.)

**Windows SMS users: Minimize SMS.**

Use <ALT><TAB> to switch to another application, or click the minimize icon. SMS must be active for you to receive alert messages. (To re-display the SMS main screen, double-click the minimized SMS icon.)

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**15** **Now you are ready to return to your software application and continue working as usual.**

**Before submitting a print job,** activate SMS to either:

- Check the status of the default printer and find out how many jobs are already in its queue, or
- Find a printer that best fits the needs of your job.

**To print a job,** either select "Print" within your application, or drag the file from the Windows File Manager to the SMS main screen (or minimized icon). ("Drag-and-Drop" printing saves time.)

**After submitting a print job,** you can bring up the SMS main screen and see your job in the queue, as well as view the printer's status.

*If your job is the only one in the queue, you may not see it listed on the SMS screen because the job has already gone to the printer. You will, however, see the name of your job in: 1) the* **Selected Printer Status** *group underneath* **Printing Job Name** *if you're using the DOS version of SMS; or 2) in the* **Jobs** *tab folder of the* **Printer Details** *window. (Click the printer mimic to get to the* **Printer Details** *window.)*

SMS will send you an alert message when your job has finished printing, provided **PopUp On Alert Messages** and **Notify at End of Job** (in the Preferences window) are set ON. (Select **Preferences** from the **Options** menu to access the **Preferences** window.)

**Sometimes there is interference between DOS SMS and other DOS applications. Therefore it is best not to bring DOS SMS up over other applications, and to disable the "Pop-Up on Alert Messages" setting in the DOS version of SMS (because receiving alert messages may cause interference).**

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## Activating and Exiting DOS SMS

To activate SMS, exit your current application. Then hold down both <CTRL> and <ALT> and press <P>. You can also change to the subdirectory where SMS is located (typically [*drive*]:\XDSP\XSMS), type DOSSMS, and press <ENTER>.

To exit SMS, either:

- Choose **Exit** from the **Options** menu.
- Click the **Exit** button.
- Hold <ALT> and press <X>.
- Press <ESC>

Exiting SMS removes the SMS main screen from your monitor and leaves the *TSR* portion of SMS running in memory. This ensures that you will receive SMS printer and job status information and SMS alert messages.

**Caution**

**Sometimes there is interference between DOS SMS and other DOS applications. Therefore it is best not to bring DOS SMS up over other applications, and to disable the "Pop-Up on Alert Messages" setting in the DOS version of SMS (because receiving alert messages may cause interference).**

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## Activating and Minimizing Windows SMS

To activate SMS, double-click **DS/P SMS** icon in the DS/P program group.

Minimize the SMS screen while working in other applications. Minimizing SMS removes the SMS main screen from your monitor and, therefore, frees memory.

You will receive SMS printer and job status information and SMS alert messages, and be able to use drag-and-drop printing from the Windows File Manager regardless of whether you minimize the SMS main screen or leave it maximized.

**Caution**

You will not receive SMS status information or alert messages if you close the SMS application.

## Attaching and Detaching Servers

To set a default printer, view jobs in a queue, view printer status information, or receive SMS alert messages, you must log into at least one server on the network. SMS offers you a convenient method for attaching and detaching one or more servers.

When you log into a particular server on the network before activating SMS, the **Servers\Queues\Description** group on the SMS main screen displays the available queues on that server. When the **Servers\Queues\Description** group is empty, you need to attach a desired server(s).

To attach (or detach) a server, select **Servers** on the SMS main screen. Then select a server listed in the **Available File Server** group, then select **Attach** or **Detach**.

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## Changing a Printer Name/ Description

To change a printer's name or description, run the DS/P UTILITY. (See *"Running DS/P UTILITY"* (page 3-3) for instructions.) Then unload and immediately reload the *Service Coordinator* to allow the changes take effect. The changes affect future jobs only. See *"Effects of DS/P UTILITY Changes"* (page 5-13) before changing the printer name or description.

## Adding/ Releasing a Printer from DS/P Control

To add a printer to SMS (so that you can use SMS with the printer), run the DS/P UTILITY. (See *"Running DS/P UTILITY"* (page 3-3) for instructions.) Then unload and immediately reload the *Service Coordinator* to allow the changes to take effect. The changes affect future jobs only.

## Adding a New User to the SMS Notify List

To add a a new user to the SMS notify list (so that he/she receives SMS alert mesages), run DS/P SETUP. (See *"Running DS/P SETUP"* (page 3-7) for instructions.)

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## Effects of DS/P UTILITY Changes

Changes made to SMS through DS/P UTILITY affect future jobs only. Therefore, you may find it necessary to manually revise the SMS *Accounting File* (PRINTER.LOG) when *Enable Accounting* is set ON and you have changed the Printer Name or Description, SMS Timer value, Cost per Page or Cost per Sheet values. Consider the following, for example:

- If you change a printer's **Name** and SMS collects accounting data for the printer, you will have two sets of data for the printer: one data set using the printer's previous name and a second data set using the printer's new name.
- If you change a printer's **SMS Timer** value, you are changing the SMS time-out period—the amount of the time the printer will wait for the SMS *Service Coordinator* to establish a link with its DNIC.

  Note that if you set SMS Timer = 0, the printer will not pull jobs from the print queue until the link is established with the *Service Coordinator*. And because no jobs will be printed, no accounting data is lost.

  Digital recommends you set SMS Timer = 0 **ONLY** if accurate accounting data is required. For more information about SMS Timer, see page A-10.
- If you change a printer's **Cost per Page** or **Cost per Sheet** value, and SMS collects accounting data for that printer, the new value is used only with future print jobs. When you generate User Chargeback reports, SMS may be using data that contains two **Cost per Page** values: jobs printed before the **Cost per Page** value change and jobs printed after.

You may use the SMS PURGE utility to eliminate printer records containing the old name, description, cost per page, etc. from the accounting file. See *"Purging Old Accounting Data"* (page 5-30) for instructions.

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## Drag-and-drop Printing

After activating the Windows version of SMS, you can "drag-and-drop" a file from the Windows File Manager to either the SMS minimized icon, or the SMS main screen, and the file will be directed to the default printer.

The mouse pointer's appearance changes when it is over the SMS minimized icon or main screen. "Drop" your "dragged" file when the mouse pointer's appearance changes.

Drag-and-drop printing generally has the advantage of being faster than starting an application and printing from within the application.

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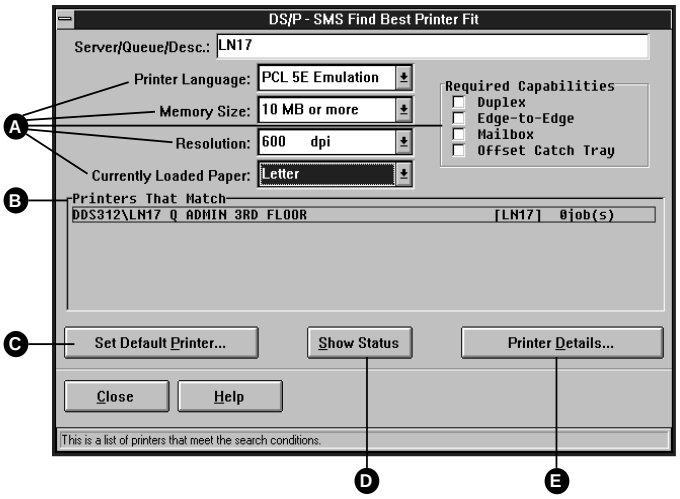
# Finding the Best Fit Printer

Using SMS, you can locate printers whose features support the needs of your print job(s). For example, use the Best Fit feature to find printers that support print job requirements such as:

- ISO B5 (176x250mm) paper and printing resolution of 600 dpi
- Duplex capability and 1200x600 dpi print resolution

Select **Best Fit** on the SMS screen and the **Find Best Printer Fit** window appears (as shown in Figure 5.2).

**Figure 5.2 Find Best Printer Fit window (Windows version)**




**A** Change the search parameters to find printers that meet the requirements of your print jobs.

**B** SMS automatically searches and displays a list of all printers that meet the search criteria. Each printer's status is indicated by either a green "online" or red "offline" icon. The number of jobs in each printer's queue is also displayed.

**C** Highlight a selection under **Printers That Match**, then click **Set Default Printer...** to change the best fit printer to the default printer.

**D** Click **Show Status** to view the status of the printers listed under **Printers That Match**.

**E** Highlight a selection under **Printers That Match**, then click **Printer Details...** to obtain more information about the printer.

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Change the Best Fit search parameters—**Server/Queue/Description**, **Printer Language**, **Memory Size**, **Resolution**, **Currently Loaded Paper**, and **Required Capabilities** —and SMS displays a list of printers that match.

Highlight a printer in the **Printers That Match** group, then select:

- The **Printer Details...** button to find out more about that printer, such as how many jobs are in the printer or which tray is loaded with the appropriate paper
- The **Show Status** button to view the current status of the displayed printer

Once you find the Best Fit printer for your job(s), simply highlight it in the **Printers That Match** group, then select **Set Default Printer...**

- **DOS SMS users:** Be sure to select the correct printer driver for the new default printer within your application.
- **Windows SMS users:** SMS will prompt you to select the printer driver for the new default printer when **Always Prompt for Windows Printer Driver** (in the **Options** menu, on the **Preferences** window) is ON. (See *"Always Prompt for Windows Printer Driver"* (page 5-19) to set this feature on.

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## Receiving Status and Alert Messages

One of the useful features of SMS is its messaging capability. When SMS is not active, you receive standard NetWare messages. When SMS is active, SMS provides two kinds of "messages:"

1. **Job and printer status information**: Job and printer status is displayed in the **Selected Printer Status** group on the SMS main screen for the printer selected in **Server\Queue\Description** (and displayed in the **Printer Details** window).

   — Printer status information for DS/P supported directly-connected network printers (in PSERVER emulation) is updated as soon as there is a change in status.

   — Job status and printer status information for other printers (as described in the note below) is updated at the time interval you specify for **Non-DS/P Printer Update Interval** in the **Preferences** window.

**Note**

*The information displayed in the selected printer status group varies by printer connection type.*

- *Full status information is available for directly-connected DS/P supported printers in PSERVER emulation only. SMS draws information directly from the service coordinator.*
- *Printer status and control panel display information is available for Hewlett-Packard printers directly connected via the JetDirect card (running PSERVER—referred to as QSERVER in Hewlett-Packard documentation—emulation mode).*
- *A subset of information is displayed for directly-connected printers in RPRINTER emulation and indirectly-connected printers. SMS draws information from NetWare.*

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2. **Alert messages** "pop up" on your screen when the **PopUp on Alert Messages** feature in the **Preferences** window is ON. SMS provides two kinds of alert messages:

   — **End of Job**: End of Job alert messages tell you that your job has completed printing. You will receive the End of Job alert message only when both the **Notify at End of Job** and **PopUp on Alert Messages** features in the **Preferences** window are on.

   — **Error Condition**: Error Condition alert messages notify you of an error at the printer. You will receive Error Condition alert messages only when **PopUp on Alert Messages** is ON and you are in the NetWare error notify list developed by the system administrator.

**Note**

*SMS alert messages provide printer and job information above and beyond those provided by NetWare, and therefore, replace standard NetWare messages.*

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## Setting a Default Printer

There are two advantages to setting a default printer through SMS:

- Print jobs are automatically captured and redirected to the default printer. There is no need to issue a NetWare CAPTURE command because SMS generates it for you when you set a default printer.
- Drag-and-drop printing from the Windows File Manager is enabled.

Set a default printer by selecting an item from the **Server\Queue\Description** group on the SMS main screen, then selecting the **Set Default Printer...** button.

**Caution**

**DOS SMS users: After setting (or changing) the default printer in SMS, make sure your application is using the correct printer driver for that printer.**

## Always Prompt for Windows Printer Driver

If you want SMS to always prompt you for the Windows printer driver whenever you change the default printer, set the **Always Prompt for Windows Printer Driver** feature (in the **Preferences** window) to ON.

The first time you set a printer as your default, SMS prompts you to select the appropriate printer driver. The next time you specify this printer as your default:

- SMS prompts you to select the appropriate driver when **Always Prompt for Windows Printer Driver** is set ON.

  You may want to set **Always Prompt for Windows Printer Driver** ON when, for example, you submit both PCL and PostScript print jobs to the same printer.

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— To print the PCL job, SMS needs to use the Windows PCL printer driver.

— To print the PostScript job, SMS needs to use the Windows PostScript printer driver.

- SMS does not prompt you to select the appropriate driver when **Always Prompt for Windows Printer Driver** is set OFF. Instead, SMS uses the printer driver you selected the last time you set this printer as your default. Do not set this feature OFF if you plan to submit both PCL and PostScript jobs to the same printer.

**Caution**

**When SMS is active, always use SMS to change the default printer. Printed output is unpredictable when you change the default printer through Windows or a Windows application.**

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## Setting NetWare CAPTUREs with SMS

Using SMS, you will never have to type another NetWare CAPTURE command because SMS facilitates this procedure.

- Via the **Preferences** window, you set a **Default Capture Port**. This is the port from which data is captured and redirected when you set a default printer.

  Choose **Preferences** from the **Options** menu to access the **Preferences** window.

- Via the **LPT Settings** window, you can capture data from other ports, and direct the data to the default printer's queue or to another queue.

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# Unloading (and Manually Loading) the SMS TSR

When using the DOS version of SMS, the SMS *TSR* is loaded into your computer's memory each time you boot your system, unless you selected to manually load it when you installed the software. (The TSR program is what establishes a communication link with the printers and conveys status information to the SMS program.) You can unload it from memory if necessary (for example, if you need to free memory). However, you will not be able to use the DOS version of SMS when the TSR has been unloaded from memory.

Listed below are instructions for:

- Unloading the SMS TSR from memory
- Preventing the SMS TSR from being loaded into memory when booting the PC
- Manually loading the SMS TSR into memory

## Unloading the TSR From Memory

To unload the SMS TSR from the PC's memory activate the DOS version of SMS. Then choose **Unload** from the **Options** menu.

**Windows SMS users:** Exit Windows, and activate the DOS version of SMS; see *"Activating and Exiting DOS SMS"* (page 5-10). Then choose **Unload** from the **Options** menu.

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## Preventing the TSR From Being Loaded Into Memory

To prevent the TSR from being loaded when you boot your computer, you must edit the AUTOEXEC.BAT file (or the alternate batch file specified in DS/P SETUP) on the PC.

Consulting your DOS manual, if necessary, remove the following line from your AUTOEXEC.BAT file:

`[`*drive*`]:\XDSP\XSMS\CUI.EXE`

SETUP typically installs the SMS software to `[`*drive*`]:\XDSP\XSMS` on your hard drive. The drive and path may be different if you installed DS/P to a custom location.

## Manually Loading the TSR Into Memory

You cannot use DOS SMS unless the TSR is loaded in memory. (Windows SMS does not require the TSR.) You must manually load the TSR if you want to use DOS SMS and you:

- Previously removed the TSR from memory.
- Edited the AUTOEXEC.BAT file (or the alternate batch file specified in DS/P SETUP) to prevent the TSR from being loaded in memory.

Follow the instructions below to manually load the TSR:

1. **Change to the subdirectory where SMS is located, typically,** `[drive]:\XDSP\XSMS`
2. **Type** `CUI`.
3. **Press** `<ENTER>`.

**Note**

**Windows users:** *Unload the TSR before starting Windows.*

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# Using SMS Accounting

The SMS *Service Coordinator* collects statistics about directly-connected network printers and jobs printed on them. SMS uses this data to:

- Generate load balancing and chargeback reports.
- Export data to a data file.

SMS collects printer and job statistics for jobs received through the DNIC-E'NET port in PSERVER emulation from clients on a NetWare network running NetWare 3.x or 4.x BEM (Bindery Emulation Mode). (Data for jobs received through the DNIC-E'NET port are stored as separate printers in the accounting file.)

SMS also collects accounting data for DS/P supported printers that receive:

- NetWare jobs submitted through the DNIC-E'NET port in RPRINTER emulation. However, SMS collects less data on these jobs than for NetWare PSERVER jobs. For example, SMS cannot determine which users submitted these jobs.
- TCP/IP, LAT, and EtherTalk jobs submitted through the DNIC-E'NET port. However, SMS collects less data on these jobs than for NetWare PSERVER jobs. For example, accounting data of EtherTalk jobs would not include "Queue Name."

SMS is not able to collect accounting data for:

- Jobs submitted through the parallel or serial port
- Jobs submitted through the LocalTalk port
- Indirectly-connected network printers

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## Managing the Accounting File

An SMS Accounting file can grow quite large over time. Therefore, it may be necessary to establish a plan for managing it (for example, creating multiple accounting files).

Creating multiple accounting files is accomplished by renaming the SMS-created accounting file, "PRINTER.LOG," to another name—a name that represents the data contained within. (PRINTER.LOG is located in the \XEROX directory on the SYS volume. And remember that more than one file server can have a DS/P NLM loaded on it. Therefore each file server will have a PRINTER.LOG file.)

**Note**

*Before renaming the accounting file, you must unload the DSP NLM. Any jobs sent to the printer while the NLM is unloaded will not be captured in the accounting file. Therefore, if accurate accounting data is required, you must either stop users from sending jobs or rename the accounting file when the printer is not busy.*

When establishing a renaming convention, consider how often you will generate SMS reports and what data those reports will contain. For example, you may collect data for each month, and therefore, rename your accounting files with names such as "FEB-96.LOG," "MAR-96.LOG," "APR-96.LOG."

Allow SMS to collect the data during the chosen time period, then rename the PRINTER.LOG file to a representative name, for example, "FEB-96.LOG." SMS will create a new PRINTER.LOG file the next time a job is sent to the printer, and SMS will store new data there.

To generate a report or export data, SMS looks for the PRINTER.LOG file. Therefore, if you want SMS to use the appropriate accounting file, for example, "FEB-96.LOG," you must:

- First, rename the current PRINTER.LOG to another name, for example, PRINTER.OLD.

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- Then, rename “FEB-96.LOG” to “PRINTER.LOG.”

  After using “PRINTER.LOG” (that contains the data for February 1996) either delete the file or change the name back to “FEB-96.LOG.” Then change the name of PRINTER.OLD back to PRINTER.LOG, or simply allow SMS to create another new accounting file.

**Caution**

**While using an accounting file other than the current one, for example, “FEB-96.LOG,” and a user sends a job to the printer, the data for that job will be stored in the current accounting file—that is “FEB-96.LOG” renamed to “PRINTER.LOG.” Therefore, you must make sure no jobs are printed while you are creating reports using an older data file.**

## Generating SMS Management Reports

SMS can generate six pre-formatted management reports: two graphical bar charts (Windows only) and four tabular reports. Each report is described in Table 5.1 on page 5-27. A report varies depending on whether it is generated by a client user or the system administrator (NetWare Supervisor).

**Caution**

**All the Service Coordinators controlling a printer need to be running before you create an accounting report. Otherwise, accounting information could be omitted in the report.**

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To generate a report, select **Accting** on the SMS main screen, then select **Generate Reports** when SMS prompts you to select an accounting function. When the **Generate Report** window appears:

1. **Select the report to generate.**
2. **Specify the data to be used (for which printer(s), during what time frame, and for which user(s)).**
3. **Select the output mode for the report:**
   - Graphs can be displayed on screen and printed (graphs will display on screen before printing).
   - Bar charts can be saved to a file and printed.

*Multi-screen graphs will print as separate jobs.*

**Table 5.1 SMS management reports**

| Report Name | Description (Client User) | Description (Supervisor) |
|---|---|---|
| **Pages Printed Graph**† This report/data can be: Displayed Printed | This report is generated in graphical bar-chart format. It plots the number of pages printed on each selected printer for your jobs ONLY. | This report is generated in graphical bar-chart format. It plots the number of pages printed for selected users and printers. |
| **User ChargeBack Graph**† This report/data can be: Displayed Printed | This report is generated in graphical format. It uses the Cost per Page and Cost per Sheet values (set by the supervisor in the DS/P UTILITY) to determine printing cost associated with your print jobs on selected printers. | This report is generated in graphical format. It uses the Cost per Page and Cost per Sheet values (set in the DS/P UTILITY) to calculate each selected user's printing costs on selected printers. |

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**Table 5.1 SMS management reports** *(continued)*

| Report Name | Description (Client User) | Description (Supervisor) |
|---|---|---|
| **Job Completion By Date**<br>This report/data can be:<br>Printed<br>Saved to a file | This report is generated in tabular form only and lists all jobs you printed on each selected printer, sorted by date. It also lists the printing charge associated with each printer, as well as a total for all your jobs, calculated from the Cost per Page and Cost per Sheet values the supervisor specified in the DS/P UTILITY. | This report is generated in tabular form only. It lists all jobs printed on each selected printer for all selected users, and is sorted by date. It also lists the printing charge associated with each printer, as well as a total for all jobs, calculated from the Cost per Page and Cost per Sheet values you specified in the DS/P UTILITY. |
| **Job Completion By User**<br>This report/data can be:<br>Printed<br>Saved to a file | This report is generated in tabular form only. It lists all jobs you have printed on each selected printer and is sorted by date. It also lists the printing cost associated with jobs printed on each printer, as well as the total printing cost across all printers. | This report is generated in tabular form only. It lists all jobs printed by each selected user for each selected printer, and is sorted by user. It also lists the printing charge associated with each selected printer for each selected user, as well as a total printing cost for all jobs for each selected user, calculated from the Cost per Page and Cost per Sheet values you specified in the DS/P UTILITY. |
| **Printer Tracking History**<br>This report/data can be:<br>Printed<br>Saved to a file | This report is not available to users. | This report lists the starting and ending time(s) that each printer came under control of the *Service Coordinator*. It is organized by printer by date. |
| **Error Log**<br>This report/data can be:<br>Printed<br>Saved to a file | This report is not available to users. | This report lists all errors encountered by a printer during the period selected. It is organized by printer by date. |
| | | Table 5.1 Page 2 of 2 |

† This feature available only for Windows SMS users.

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## Exporting SMS Accounting Data

SMS can export four types of SMS history data (as listed and described in Table 5.2) to a SDF (Standard Data Format) file. (Appendix B describes SDF files in detail.) Use exported SMS accounting data to generate custom SMS reports. Exported data files can be imported to any application that reads SDF files.

To export data, select **Accting** on the SMS main screen, then select **Export Data** when SMS prompts you to select an accounting function. When the **Export Data** window appears:

1. **Select the type(s) of data to export.**
2. **Specify which data sets to include (for which printer(s), during what time frame, and for which user(s)).**
3. **Enter a file name for the exported data.**

A sample of each data file type is presented in Appendix B.

**Table 5.2 SMS export data file types and their contents**

| Export Data (History) File Types | Export Access | Data Contained In Each Export Data File Type |
|---|---|---|
| Printer Connection | Supervisor | This file lists the date and time each selected printer makes a connection with a *Service Coordinator*, such as when you power-on the printer. (See Table B.1 on page B-4.) |
| Printer Termination | Supervisor | This file lists the date, time, and the reason for each occurrence of *Service Coordinator* termination (for example, if the printer was powered-off). (See Table B.2 on page B-5.) |
| Print Job Records | Supervisor<br>Client users | This file provides data for jobs printed by selected users for each selected printer, and indicates, for example, when the job was placed on the queue, the banner name printed on the banner page, the time the printer started printing and stopped printing, the number of pages printed, and whether the job ended normally. When a client user generates this export data file, only data about the user's jobs are included in the file. (See Table B.3 on page B-7.) |
| Printer Error Events | Supervisor | This file provides data for errors occurring on each selected printer, and includes, for example, the name of the job during which an error occurred and the user who submitted the job. (See Table B.4 on page B-11.) |

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## Purging Old Accounting Data

Using the SMS PURGE utility, you can delete old accounting records from the accounting file. To delete old accounting records:

1. **Unload XDSP.NLM from the file server.**
2. **At the DOS prompt, change to the \XDSP directory (or the directory where DSP software is loaded).**
3. **Type:**

   `SMSPURGE [`*`drive`*`]:\SYS:XEROX\PRINTER.LOG [`*`drive`*`]:\[`*`path`*`]:\PRINTER.NEW [`*`purge_date`*`]`

   The purge date should be entered in your country's normal date format. In the USA it's "mm/dd/yy".
4. **Press** `<Enter>`**.**

   All records older than the date specified ([*purge_date*]) will not be written to the new accounting file.
5. **Rename PRINTER.NEW to PRINTER.LOG.**

   Type `REN PRINTER.NEW PRINTER.LOG` then press `<ENTER>`.
6. **Load XDSP.NLM.**

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## Purging Corrupted Accounting Data

Using the SMS PURGE utility, you can purge corrupt accounting records. To purge corrupted accounting records:

1. **Unload XDSP.NLM from the file server.**
2. **At the DOS prompt, change to the \XDSP directory (or the directory where DSP software is loaded).**
3. **Type:**

   `SMSPURGE [drive]:\SYS:XEROX\PRINTER.LOG [drive]:\[path]:\PRINTER.FIX`
4. **Press** `<Enter>`.

   The SMS PURGE utility will purge the corrupt accounting records.
5. **Rename PRINTER.FIX to PRINTER.LOG.**

   Type `REN PRINTER.FIX PRINTER.LOG` then press `<ENTER>`.
6. **Load XDSP.NLM.**

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## Changing Cost Per Page/Cost per Sheet Value

To change a printer's **Cost per Page** or **Cost per Sheet** value, run the DS/P UTILITY. (See *"Running DS/P UTILITY"* (page 3-3) for instructions.) Then unload and immediately reload the *Service Coordinator* to allow the changes to take effect. The changes affect future jobs only. See *"Effects of DS/P UTILITY Changes"* (page 5-13) for more information.

## Changing SMS Timer

To change a printer's **SMS Timer** value, run the DS/P UTILITY. (See *"Running DS/P UTILITY"* (page 3-3) for instructions.) Then unload and immediately reload the *Service Coordinator* to allow the changes to take effect. The changes affect future jobs only. See *"Effects of DS/P UTILITY Changes"* (page 5-13) for more information.

## Enabling/Disabling SMS Accounting

To enable SMS accounting for a newly installed printer, or disable accounting for an existing printer, run the DS/P UTILITY. (See *"Running DS/P UTILITY"* (page 3-3) for instructions.) Then unload and immediately reload the *Service Coordinator* to allow the changes to take effect. The changes affect future jobs only. See *"Effects of DS/P UTILITY Changes"* (page 5-13) for more information.

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## Viewing and Controlling Jobs in the Queue

After selecting a printer from the **Server\Queue\ Description** group on the SMS main screen (as shown in Figure 5.1 on page 5-5), SMS displays jobs in that queue; either all jobs or your jobs only. (The **Preferences** window under the **Options** menu allows you to select the **Job Preferences** display mode: either **Show All Queue Jobs** or **Show Your Jobs Only**.)

To the left of each job listed in the selected printer's queue is either a number (such as "1", "2", or "10") or the word "PRINT" or "HELD."

- A number to the left of a print job in the queue indicates the job's position in the queue.
- The word "PRINT" to the left of a print job in the queue indicates the job is being sent to the printer. Once the job starts printing, you will see that job name listed either: 1) underneath **Printing Job Name** in the **Selected Printer Status** group on the SMS main screen for the DOS version of SMS; or 2) in the **Jobs** folder of the **Printer Details** window for the Windows version of SMS. (Click the printer mimic to get to the Printer Details window.)
- The word "HELD" to the left of a print job in the queue indicates the job has been placed on hold.

While a job is still in the queue, double-click it and the **Change Job** window appears.

**Note**

**Mouse Users:** *To select a job in the queue, simply double-click the job.*

**Keyboard Users:** *To select a job in the queue, press* <TAB> *to move to the* **Jobs in <Server\Queue>** *group, press* <↑> *or* <↓> *to highlight the appropriate jobs, then press* <ENTER>.

Via the **Change Job** window you can perform two types of functions:

1. Hold, release, or delete the selected job.
   - — To place a job in the queue on hold, select a job in the queue; then press **Hold** when the **Change Job** window appears.
   - — To release a job, select the job in the queue with the word "HELD" in front of it, then press **Release** in the **Change Job** window.
   - — To delete a job in the queue, select a job in the queue; then press <DEL>, or press **Delete** when the **Change Job** window appears.
2. Change SMS printing options for the selected job.

   When you select a job in the queue, the **Change Job** window appears. The current settings for **Print Banner Page**, **Notify at End of Job**, **Form Number/ Type**, and **DOS Options** are shown in this window. Change a setting in this window to control printing for the currently selected job only.

**Note**

*The* **Change Job** *window (accessed by selecting a job shown in the queue) contains features also located on the* **LPT Settings** *window (accessed by selecting* **LPT Settings** *on the main screen). Settings in the* **Change Job** *window are in effect for the current job only, whereas settings in the* **LPT Settings** *window affect all future print jobs.*

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## Controlling Multiple Jobs in the Queue

To hold, delete, or release multiple jobs in the queue at the same time:

1. **Select multiple jobs by either:**
   - A **Clicking first on the top most job you want to control, then holding down <SHIFT> and clicking the last job in the queue you want to control; or**
   - B **Clicking on the top most job and dragging to the last job you want to control.**
2. **Select Hold, Release, or Delete from the Jobs menu.**

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Chapter 6

# Troubleshooting

*Overview* ..... *6-2*
*Running SETUP and UTILITY* ..... *6-2*
*Using RUI* ..... *6-4*
*Using SMS* ..... *6-7*

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## Overview

This chapter provides you with specific troubleshooting procedures as they relate to installing and using DS/P components.

Should you experience a problem with DS/P, first consult the README.TXT file on **DS/P SETUP and RUI diskette #1**, then consult this chapter.

## Running SETUP and UTILITY

Consulting Tables 6.1 and 6.2, find a description of the problem you have encountered while running SETUP (or the DS/P UTILITY), then follow the corrective action(s).

**Table 6.1 SETUP problems**

| SETUP Problem | Corrective Action(s) |
|---|---|
| Problems encountered while running SETUP under third-party environments. | Use Windows' Program Manager desktop. |
| The file server list does not show the expected or intended file server. | Make sure the expected/intended file server(s) is running. |

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**Table 6.2 UTILITY problems**

| UTILITY Problem | Corrective Action(s) |
|---|---|
| An "Out Of Memory" error occurred while trying to run SETUP (or the DS/P UTILITY). | For SETUP and DS/P UTILITY memory requirements, refer to the README.TXT file on the DS/P diskette #1, or in the XDSP directory, or use the Readme icon. |
| Error Message 2 while using UTILITY (CONNECTION_FAILED). | 1. Printer is not powered on — turn printer on.<br>2. Printer is busy, e.g., printing, someone else is using RUI or UTILITY to this printer. Wait until printer is available. |
| Error Message 3 while using UTILITY (LOGIN_FAILED). | DNIC password changed. Reset password back to "SU". Refer to the *DNIC-E'NET Configuration Guide*. |
| Error Message 4 or greater while using UTILITY. | DNIC problem — power printer off/on. |

## Using RUI

Consulting Table 6.3, find a description of the problem you have encountered while starting or using the RUI. Then follow the corrective action(s). Problems are grouped into four categories:

- Problems starting the RUI
- Display and mouse-related problems
- Problems using the RUI with a stand-alone or locally-connected printer
- Problems using the RUI with a directly-connected network printer

**Table 6.3 RUI problems**

| RUI Problem | Corrective Action(s) |
|---|---|
| **Problems starting the RUI** | |
| An "Out of Memory" error occurs when trying to start the RUI. | For RUI memory requirements, refer to the README.TXT file on the diskette #1, or in the XDSP directory, or use the Readme icon. |
| "RUI out of memory. Please press YES to exit." | This message appears on large networks with many servers. Close other applications or add more memory to your PC. |
| **Display and mouse-related problems** | |
| After starting the RUI, the main RUI window does not display. | 1. Look at the contents of the subdirectory where the RUI is located (usually [drive]:\XDSP\XRUI). Make sure that the data file and executable file are both present<br><br>LN17 data file: "DIGITAL.DAT"<br>LN17 executable file: "WINRUI.EXE"<br>2. If "DIGITAL.DAT" is located in another subdirectory, move it to the same subdirectory as the RUI (typically `\XRUI`). Otherwise, run SETUP to re-install the RUI. |
| After starting the RUI, the mouse cursor does not move as usual, or does not work at all. | Enable the mouse driver for DOS. (Windows users: load your mouse driver before starting Windows.) |

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**Table 6.3 RUI problems** *(continued)*

| RUI Problem | Corrective Action(s) |
|---|---|
| **Problems using the RUI with a stand-alone or locally-connected printer** | |
| The RUI cannot connect to the printer when I choose "**Parallel**" in the **Printer Selection / Connection Configuration** window. | 1. Make sure the parallel cable attaching the PC to the printer is securely fastened at both ends. The cable should be IEEE 1284 compliant.<br>2. At the printer's Control Panel access the Parallel menu. Set Bidirectional ON.<br>3. In the printer's Parallel menu turn Port Enable ON.<br>4. Make sure no job is currently printing on the LPT port the RUI uses for communication.<br>5. If an optional hard disk is installed, turn Disk Spooling (located in the printer's System Menu) off. |
| The RUI cannot connect to the printer when I choose "**Serial**" in the **Printer Selection / Connection Configuration** window. | 1. Make sure the serial cable attaching the PC to the printer is securely fastened at both ends. A null modem may be needed.<br>2. Set **Baud Rate**, **Parity**, **Handshake**, **Stop Bits**, and **Data Bits** in the RUI **Printer Selection / Connection Configuration** window to match the settings for the same features in the printer's Serial Menu.<br>3. In the printer's Serial menu turn Port Enable on.<br>4. Make sure no job is currently printing on the COM port the RUI uses for communication.<br>5. If an optional hard disk is installed, turn Disk Spooling (located in the printer's System Menu) off. |
| Not able to change settings for local printer when the RUI is using the parallel port for communication. (And the RUI commands are going to a network printer.) | Make sure the local port is not captured by SMS (or NetWare CAPTURE command). Check which **Ports** are being captured by selecting **LPT Settings** on the SMS Main Screen. |

Table 6.3 Page 2 of 3

**Table 6.3 RUI problems** *(continued)*

| RUI Problem | Corrective Action(s) |
|---|---|
| **Problems using the RUI with a directly-connected network printer** | |
| I am running the RUI with a network printer and I received a message that says:<br>**"Unable to establish communication with this printer."** | The RUI cannot communicate with the printer if:<br>1. The printer is busy printing a job or is offline.<br>2. The DNIC is DS/P enabled with Timer = 0 and the Service Coordinator has not established a connection.<br>3. The DNIC is DS/P enabled with Timer not = 0 and the Service Coordinator has not established a connection OR the timer has not expired.<br>4. An optional hard disk is installed and disk spooling is on.<br>Corrective Action:<br>1. Wait until the printer stops printing or is returned to online status.<br>2. Contact your System Administrator to ensure that the Service Coordinator is loaded.<br>3. Wait until timer value has expired after power on (maximum of about 4 minutes).<br>4. Turn disk spooling (located in the printer's System Menu) off. |
| The RUI cannot connect to the printer when I choose "**Network**" in the **Printer Selection / Connection Configuration** window. | 1. Make sure the network cable attaching the PC to the network is securely fastened at both ends.<br>2. Make sure that NetWare is installed properly on the network and the appropriate network port is enabled.<br>3. Start the RUI.<br>4. In the RUI, make sure the free COM port selected in the **Printer Selection / Connection Configuration** window is not used by any other application—that is, no job is currently printing on the port the RUI uses for communication.<br>5. Be sure to select **OK** after selecting a new setting in the RUI. |
| | Table 6.3 Page 3 of 3 |

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## Using SMS

Consulting Table 6.4, find a description of the problem you have encountered while activating or using SMS. Then follow the corrective action(s). Problems are grouped into five categories:

- Problems activating SMS
- Missing information on the SMS main screen
- SMS-related printing and queue management problems
- Not receiving job complete and alert notices
- Problems with accounting reports

**Table 6.4 SMS problems**

| SMS Problem | Corrective Action(s) |
|---|---|
| **Problems activating SMS** | |
| An "Out of Memory" error occurred when trying to activate SMS (Client Software). | For SMS Client Software memory requirements, refer to the README.TXT file on the DS/P diskette #1, or in the XDSP directory, or use the Readme icon. |
| Workstation crashes after receiving a DOS SMS alert message, or when you try to activate DOS SMS over another application. | There is interference between DOS SMS and your DOS application. Disable SMS "Pop-Up on Alert" and do not activate SMS over other applications. |
| This message appears when trying to run SMS in Windows:<br>**"WINSMS cannot be loaded if the version (CUI.EXE TSR) has been loaded. Please exit Windows and unload CUI before trying to load WINSMS again."** | Follow directions on screen. Exit Windows and unload CUI.EXE using the DOS version of SMS. See page 5-22 for instructions. |
| This message appears when trying to run SMS:<br>**"EMM386 has detected error #06 in an application at memory address XXXX:XXXX."** | Obtain the latest NetWare workstation drivers. |

Table 6.4 Page 1 of 6

**Table 6.4 SMS problems** *(continued)*

| SMS Problem | Corrective Action(s) |
|---|---|
| This message appears when trying to run Windows SMS:<br>**"WINSMS caused a GP fault in module KRL386.EXE at XXXX:8914."** | Obtain the latest NetWare workstation drivers. |
| This message appears when trying to run SMS:<br>**"Fatal error 286.2230: Load program failed—Out of Memory."** | Edit the CONFIG.SYS file with the following line:<br>`DEVICE=EMM386.EXE FRAME=NONE X=A000-C7FF`<br>Do not add "NO EMS" to end of the DEVICE line above. |
| Only a portion of the DOS SMS Main Screen is displayed. | SMS cannot recognize which type of video adapter is in your PC. You must determine which video adapter option you should use, then update the CUI program execution statement in your AUTOEXEC.BAT file.<br>Follow the instructions below:<br>1. Change to the subdirectory where SMS is located (typically [*drive*]:\XDSP\XSMS).<br>2. Type `CUI /?`<br>3. Press `<ENTER>`.<br>Several CUI command options display on the screen.<br>The `/Ax` command specifies the type of video adapter you have, where x =M (Monochrome),<br>H (Hercules), or<br>V (VGA).<br>4. Choose the `/Ax` command that applies and update the CUI program execution statement in your AUTOEXEC.BAT file.<br>For example, when SMS is installed, the CUI program execution statement in the AUTOEXEC.BAT file may read:<br>`C:\XDSP\XSMS\CUI`<br>If you have a VGA monitor, edit the execution statement so it reads:<br>`C:\XDSP\XSMS\CUI /AV` |

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**Table 6.4 SMS problems** *(continued)*

| SMS Problem | Corrective Action(s) |
|---|---|
| **Missing information on the SMS main screen** | |
| The **Servers\Queues\ Description** group on the SMS main screen is empty and I cannot select a printer. | Select **Servers**, and log into a server. |
| Nothing is displayed in the **Selected Printer Status** group on the SMS main screen when I select a printer in the **Servers\Queue\Description** group. | 1. Make sure the *Service Coordinator* is loaded. (Contact your system administrator.)<br>2. Make sure the printer is defined as running PSERVER emulation in SETUP. (Contact your system administrator.)<br>3. Make sure that you selected **Add Printer...** in the DS/P UTILITY. |
| **SMS-related printing and queue management problems** | |
| Printer's Control Panel displays "Ready" but will not print after power-on or reset. | 1. Make sure that, in the DS/P UTILITY, you selected **Add Printer...** and that **SMS Timer** is set to a value greater than 0. (See *Appendix A: Configuring SMS*, page A-10 for more information about SMS Timer.)<br>2. Make sure that the assigned *Service Coordinator* is running. (Contact your system administrator.) |
| Jobs submitted to the queue are displayed in the **Jobs in Queue** group on the SMS main screen, but they do not print. | 1. Make sure the printer is On-line and Ready.<br>2. Make sure that you selected **Add Printer...** in the DS/P UTILITY and that the assigned *Service Coordinator* is running.<br>3. Take corrective measures for NetWare print problems. |
| After setting a new default printer SMS does not ask for the default printer driver (Windows only). | Go to the **Preferences** window (in the **Options** menu), and set **Always Prompt for Windows Printer Driver** ON. |
| Default printer is being captured on the wrong port—that is, the wrong jobs are being captured and directed to the default printer. | Check the settings for **Ports**, **Enable Capture**, and **Queue Name** in the SMS **LPT Settings** window. |
| Drag-and-drop printing does not work properly. | Make sure the file you are trying to print is a supported file type. If you can drag-and-drop the file to the minimized Windows Print Manager icon, the file is an SMS supported file. |
| I cannot delete a job in the queue. | Only the job owner and the supervisor can delete jobs from the queue. |

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**Table 6.4 SMS problems** *(continued)*

| SMS Problem | Corrective Action(s) |
|---|---|
| The **Available File Servers** group in the **Server Selection** window does not show the expected/intended file server. | Make sure the expected/intended file server is running and is connected to the network. |
| **Not receiving job complete and alert notices** | |
| I am not notified when my job has finished printing. | Select **LPT Settings** on the SMS Main screen. Then set both **Notify at End of Job** and **PopUp on Alert Messages** (in the **Preferences** window under the **Options** menu) ON. |
| Printer problems (for example, "Cover Open") are not displayed on the SMS main screen. | Make sure the SMS *Service Coordinator* for the default printer is running. (Contact your System Administrator.) |
| I do not receive alert messages when there is a problem at the printer (for example, "Paper Jam"). | 1. Contact your System Administrator to make sure you are in the NetWare Notify List, and to verify that the *Service Coordinator* for the printer is running. If you are in the notify list as "job owner," you will only get the alert message if the problem occurs on your job.<br>2. Set **PopUp on Alert Messages** (in the **Preferences** window under the **Options** menu) ON. (Contact your system administrator.) |

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**Table 6.4 SMS problems** *(continued)*

| SMS Problem | Corrective Action(s) |
|---|---|
| **Problems with accounting reports** | |
| Printer accounting reports appear to have too little activity. | Generate a Printer Tacking History Log and look for gaps in *Service Coordinator* control during the time period selected for the accounting report. And ensure that all Service Coordinators (NLM) on all file servers are up and running for at least 10-15 minutes before running reports. |
| Printer accounting reports show jobs from an unknown source. | The printer is probably receiving jobs through multiple enabled ports and/or over protocols others than Novell NetWare 3.x or 4.x BEM.<br><br>*SMS collects printer and job statistics for jobs received through the DNIC-E'NET port in PSERVER emulation from clients on a Novell network running NetWare 3.x or 4.x BEM (Bindery Emulation Mode). (Data for jobs received through the DNIC-E'NET port are stored as separate printers.)*<br><br>*SMS also collects accounting data for LN17/LN17ps printers that receive:*<br>• *NetWare jobs submitted through the DNIC-E'NET port in RPRINTER emulation. However, SMS collects less data on these jobs than for NetWare PSERVER jobs. For example, SMS cannot determine which users submitted these jobs.*<br>• *TCP/IP, LAT, and EtherTalk jobs submitted through the DNIC-E'NET port. However, SMS collects less data on these jobs than for NetWare PSERVER jobs. For example, accounting data of EtherTalk jobs would not include "Queue Name."*<br><br>*SMS is not able to collect accounting data for:*<br>• *Jobs submitted through the parallel or serial port (stand-alone/local printers)*<br>• *Jobs submitted through the LocalTalk port*<br>• *Network-indirect printers*<br><br>Also can occur if the file server that the queue is on runs out of connections when a service coordinator on another file server tries to get the user's name. To recover, clear some connections on the file server that has the queue. |

Table 6.4 Page 5 of 6

**Table 6.4 SMS problems** *(continued)*

| SMS Problem | Corrective Action(s) |
|---|---|
| "No Sessions Available" when trying to use accounting. | Access to accounting is limited to 16 users at one time. You must wait until a user stops using accounting. |
| Printer Tracking History report's session end times are incorrect. | May occur if the times on file servers are different. Synchronize times on file servers. |
| | Table 6.4 Page 6 of 6 |

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# Appendix A

# Configuring SMS

*Introduction* ..... *A-2*
*Question 1* ..... *A-6*
*Question 2* ..... *A-7*
*Question 3* ..... *A-8*
*Question 4* ..... *A-10*
*Question 5* ..... *A-12*
*DS/P Installation Worksheet* ..... *A-14*

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## Introduction

When installing DS/P from diskette for use with LN17/LN17ps networked printers (in PSERVER emulation), the installation program will launch you into the DS/P UTILITY where you can rename the printer and set several Status & Management Services (SMS) usage parameters.

Before starting the DS/P installation process you must make five decisions about how SMS will be used, and then record these decisions on the DS/P Installation Worksheet provided on the last page of this appendix.

To make these SMS usage decisions you need a little background about how SMS operates.

SMS software resides on the client PC and the network file server.

- The SMS *Client Software* is the user interface portion of SMS installed on the client PC by DS/P SETUP. When a NetWare client wants to use SMS, it is this portion of SMS that is activated.

  (The *Client Software* files are installed by DS/P SETUP to [*drive*]:\XDSP\XSMS.)

- The SMS *TSR*, a Terminate and Stay Resident program required to run the DOS version of SMS, is installed on the client PC by DS/P SETUP and is loaded into memory each time the user boots the client PC. The *TSR* is always running, even when the *Client Software* is not active.

  (The *TSR* file name is "CUI.EXE" and is installed to [*drive*]:\XDSP\XSMS by DS/P SETUP. It is not loaded when you install the Windows version of SMS.)

- The SMS *Service Coordinator* is a NetWare Loadable Module ("XDSP.NLM"). It must be copied and loaded on the network operating system (NOS) at the file server by the NetWare supervisor prior to activating SMS at a client. (The *Service Coordinator* file name is "XDSP.NLM".)

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For SMS to operate, it must establish links between:

- The *Service Coordinator* and the printer's Digital Network Interface Card (DNIC).
- The *Service Coordinator* and the *Client PC*.

The *Service Coordinator* is the program that obtains job and status information from the printer and reports it to the user when the *Client Software* is activated.

Figure A.1 on page A-4 illustrates the location of the SMS *Service Coordinator, TSR* (DOS SMS only), and *Client Software* with respect to the network configuration.

When running the DS/P UTILITY, you can assign each directly-connected network printer (in PSERVER emulation) to a *Service Coordinator*. The DS/P UTILITY creates and stores the relationship between a printer and the *Service Coordinator* in the **Configuration File**. (The configuration file name is "XDSP.CFG.") When the *Service Coordinator* is loaded, it reads the configuration file and uses the settings specified in the DS/P UTILITY.

Once the relationship between the *Service Coordinator* and printer is established, the *Service Coordinator*:

- Routes printer and job status information to the SMS client software main screen. (The SMS main screen is shown and described in Chapter 5.)
- Collects printer statistics and writes them to the **Accounting File** when SMS Accounting is enabled in the DS/P UTILITY. (The accounting file name is "PRINTER.LOG." Details about managing the accounting file are provided in *Chapter 5: Using SMS*.)

Given this brief introduction to the components of SMS, you are now ready to begin. Continue to *"Question 1"* (page A-6).

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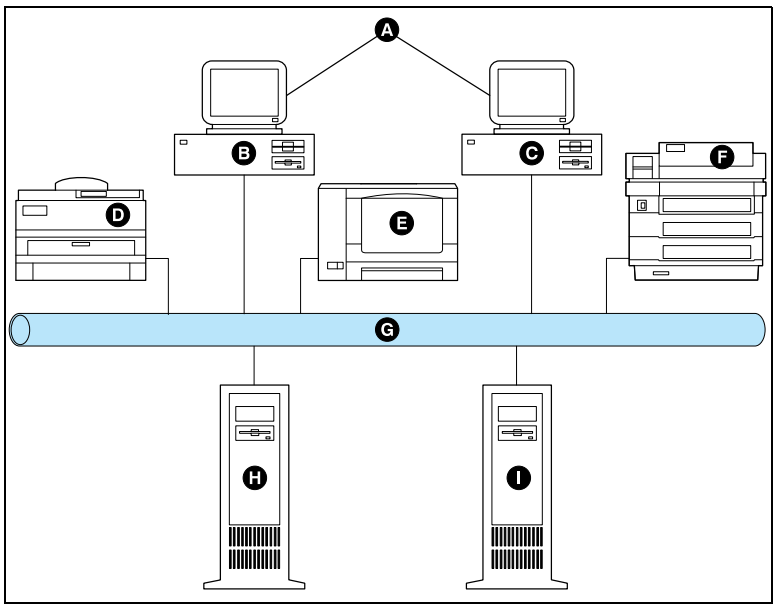
**Figure A.1 Service coordinator configuration and usage**




**A** SETUP installs both the TSR (for DOS SMS only) and the Client Software portions of SMS on client PCs.

**B** Client 1

**C** Client 2

**D** Printer #1 (running in PSERVER emulation mode)

**E** Printer #2 (running in PSERVER emulation mode)

**F** Printer #3 (running in PSERVER emulation mode)

**G** Ethernet network

**H** File Server H. The SMS Service Coordinator is loaded on the file server. Assume that configuration file for the Printer #2 and the Printer #3 printers is created by DS/P on this file server. An accounting file is also created.

**I** File Server I. The SMS Service Coordinator is loaded on the file server. Assume that configuration file for the Printer #1 and the Printer #3 printers is created by DS/P on this file server. An accounting file is also created.

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**Note**

*The* **DS/P Installation Worksheet***, located at the end of Appendix A, is provided to assist you in recording your SMS usage decisions.*

*You are prompted five times in the next several pages to record information on the DS/P Installation Worksheet—each time you see this graphic prompt:*

**DS/P Installation Worksheet**

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## Question 1

**What name will be given to each LN17/LN17ps directly-connected network printer (in PSERVER emulation)?**

Each Digital network interface card (DNIC) has a default name "DNE*xxxxxx*_1" where "*xxxxxx*" represents the last six characters of the card's unique Ethernet address. In essence, this is the printer name.

The DS/P UTILITY allows NetWare supervisors to rename directly-connected network printers in PSERVER emulation. (If you already named the printer during the DNIC installation, you can either keep that name or change it with the DS/P UTILITY). A valid printer name: 1) cannot start with "DSP", 2) must terminate with "_1", and 3) must not contain more than 16 characters.

Digital strongly recommends you rename the printer now with a limit of 12 characters to make accounting graphs more readable. Give it a meaningful name for your organization; a name that allows you to identify and distinguish among printers. For example, you might name printers based on room locations, such as: "RM312_1," RM204_1," and "RM2216_1".

**Note**

*SMS captures the printer name in the Accounting File (PRINTER.LOG) each time it writes a record for a selected printer. If you do not rename the printer now, SMS will collect printer statistics using the default name. You can change the name of the printer in the future; however, the data collected for the printer will include the printer's new name. Therefore, two data sets would have been created for the printer, and SMS reports generated after the name change would only include the data under the printer's new name.*

**DS/P Installation Worksheet**

Record the "Printer Default Name" and the "New Name" you will change it to on the **DS/P Installation Worksheet**.

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## Question 2

**How should each directly-connected network printer be described for use with the SMS "Best Fit" feature?**

Via the "Best Fit" feature, you can search for printers that match the printing requirements of your job. For example, you can search for printers with ISO B5 (176x250mm) paper, or for printers that support 1200x600 dpi printing. You can also search for printers by a description you specify in the DS/P UTILITY.

In the DS/P UTILITY, you are asked to input a "Description" of each directly-connected network printer (in PSERVER emulation) up to 19 characters long. By developing a description standard, then distributing that standard to all SMS users, you make it easier for users to find specific printers (using the SMS Best Fit feature).

You may find it useful to describe printers by their location, by the size paper loaded, by the color paper loaded, by the workgroup who uses it, or by some other factor. Consider the following example:

- If printers are located in various departments and/or workgroups, you could standardize a description format that allows users to locate printers in various workgroups, such as:

  *Dept_Floor_Room*

  where "Dept" is a four-letter abbreviation for "Department", "_" is a space, "Floor" is the floor on which the printer resides, and "Room" is the room number where the printer is located.

  Using that standard, you might describe your printers as *Actg_2_213* or *Engr_12_1201*.

DS/P Installation Worksheet

On the **DS/P Installation Worksheet** record a "Printer Description" for each printer listed.

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## Question 3

**Should SMS collect accounting data for each directly-connected network printer?**

SMS accurately collects printer and job statistics for jobs received through the DNIC-E'NET port in PSERVER emulation from clients on a Novell network running NetWare 3.x or 4.x BEM. The DS/P UTILITY allows you to enable or disable SMS accounting for each directly-connected network printer.

- When **SMS Accounting** is **disabled**, no data is collected and, therefore, the accounting file (PRINTER.LOG) does not contain any data for jobs printed on the printer.
- When **SMS Accounting** is **enabled**, the *Service Coordinator* obtains and stores printer and job data in the accounting file. It is this data that SMS uses to generate reports. Export data files are created from this data, too.
  - SMS includes the ability to generate load balancing and user chargeback reports. These reports tell you, for example, on which printers selected users submitted jobs, how many pages and sheets were printed for each job, and the printing cost attributable to each user for each printer. If you plan to generate these reports, you must set **Cost per Page and Cost per Sheet** values in the DS/P UTILITY.

    Determine **Cost per Page** and **Cost per Sheet** values based on the following:

    - **Cost per Page** represents the cost of ownership plus toner costs. You might calculate this number as (printer cost/estimated lifetime prints) + (toner cartridge cost/prints per cartridge).
    - **Cost per Sheet** is simply the cost of one sheet of paper (or other print media).

    Costs must be rounded to the nearest whole number (for example, cent).

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The DS/P UTILITY will allow you to set one **Cost per Page** and **Cost per Sheet** value per printer, and that value may be different for each printer. For example, if "*Printer #1*" is used only for printing ISO B5 (176x250mm) jobs and "*Printer #2*" is used for printing A4 or 8.5"x11"jobs, the **Cost per Page** and **Cost per Sheet** values for the "*Printer #2*" would probably be different than that for the "*Printer #1*". If, however, a third printer prints A4 or 8.5"x11" and Folio or Legal jobs, you must decide whether or not to spread the cost of the more expensive paper over all users.

Note

**Compatibility with DS/P version 1.x:** *Printers configured using DS/P version 1.x will not have a Cost per Sheet value set. DS/P version 2.0 assumes that the Cost per Sheet value for those printers is "0"—there is no need to reconfigure SMS for those printers. To continue using your DS/P v1.x accounting convention for newly installed printers, specify a Cost per Page value and set Cost per Sheet to zero.*

Note

*You can change the* **Cost per Page** and **Cost per Sheet** *values at any time by running the DS/P UTILITY again. However, the new values are used only for jobs printed after the change, and only after you unload, then reload the* Service Coordinator.

DS/P Installation Worksheet

On the **DS/P Installation Worksheet** record whether "SMS Accounting" is "Enabled" or "Disabled" for each printer. If "SMS Accounting" is "Enabled," record a "Cost per Page" and "Cost per Sheet" value.

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## Question 4

**Should the printer pull jobs from the queue when it cannot collect accounting data—that is, when the link between the printer and the SMS Service Coordinator is not established?**

One of the useful features of SMS is its ability to gather job and printer statistics for generating load balancing and user chargeback reports. SMS can only gather this data when the link between the *Service Coordinator* and the printer is established.

The time-out value you set for **SMS Timer** (in the DS/P UTILITY) dictates whether or not the printer pulls jobs from the print queue when the link between the *Service Coordinator* and the printer is not established (or when it is lost). The value you specify for **SMS Timer** determines how many seconds the printer will wait for the SMS *Service Coordinator* to establish a link—this is referred to as a "time-out" period.

- If you set **SMS Timer = 0**, the printer will not pull jobs from the print queue until the link is established with the *Service Coordinator*. And because no jobs will be printed, no accounting data is lost.

  Digital recommends you set **SMS Timer = 0** if accurate accounting data is required.

- If you set **SMS Timer to any value greater than 0**, the *Service Coordinator* tries to establish a link with the printer during the time-out period specified.

  — When the *Service Coordinator* establishes a link within the time-out period, jobs are printed and accounting data is collected.

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— When the *Service Coordinator* does not establish a link within the time-out period, jobs are printed, but no accounting data is collected, nor is any SMS status information provided. Between each job, the SMS *Service Coordinator* can again try to establish the link. SMS reports will not include data about the jobs printed during this time.

When accurate accounting data is not required—that is, when printing jobs is more important than capturing data for each job—Digital recommends setting **SMS Timer** to at least **120 seconds** to allow the printer and SMS sufficient time to establish a link.

DS/P Installation Worksheet

On the **DS/P Installation Worksheet** record a value for "SMS Timer" for each printer listed.

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## Question 5

**Which Service Coordinator(s) will support each directly-connected network printer (in PSERVER emulation)?**

When a printer powers-on or is reset, a *Service Coordinator* establishes a link with each printer listed in its *Configuration File*. If the link between the *Service Coordinator* and the printer is lost and another *Service Coordinator* (loaded onto another file server) has this printer in its configuration file, it will establish a link with the printer, virtually eliminating any disruptions in printing.

Only one *Service Coordinator* can be copied and loaded on a file server, and it can establish links with up to 16 printers at a time. And each printer may be assigned to more than one *Service Coordinator* (on different file servers). However, only one *Service Coordinator* at a time can "control" a printer. In the DS/P UTILITY you can assign a printer to more than one *Service Coordinator.*

Consider the following example, as depicted in Figure A.1 on page A-4:

- The *Service Coordinator* on *File Server H* has printers Printer #2 and Printer #3 in its *Configuration File*. The *Service Coordinator* on *File Server I* has printers Printer #1 and Printer #3 in its *Configuration File*.
- When printer "Printer #2" powers on, the *Service Coordinator* on *File Server H* will try to establish a link with printer "Printer #2" using the settings specified in the DS/P UTILITY—perhaps SMS Timer was set to 120 seconds. This means that the *Service Coordinator* must establish a link with the printer within 120 seconds. If it does not, the current job is printed, but no status information is available, nor is any data collected in the *Accounting File* for that job. Between jobs, the *Service Coordinator* can again try to establish a link with the printer.

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- When printer "Printer #3" powers on, the *Service Coordinator* on either file server establishes the link with printer "Printer #3," using the SMS settings specified in the DS/P UTILITY. (It is not possible to determine which *Service Coordinator* will establish control.) Should printer "Printer #3" lose its connection with the original *Service Coordinator*, the other *Service Coordinator* tries to establish a link.

  If printer "Printer #3" were assigned only to one *Service Coordinator* and lost its connection, all printing would stop if *SMS Timer* was set to 0. In addition, no status information for printer "Printer #3" would be available.

**DS/P Installation Worksheet**

Digital recommends you assign all printers whose *SMS Timer = 0*, to at least two service coordinators (if available). On the **DS/P Installation Worksheet**, identify the "Service Coordinator Location(s)" of each *Service Coordinator* that will control the printer—write the name of each file server where you intend to load *Service Coordinators*.

**Caution**

**If you use the DS/P UTILITY again in the future to change SMS Usage Parameters, first consult *"Effects of DS/P UTILITY Changes"* (page 5-13).**

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## DS/P Installation Worksheet

After completing the DS/P Installation Worksheet, see *Chapter 2: Quick Start Installation / Upgrading to DS/P 2.0* for instructions on installing DS/P from diskette, .

If you are installing many printers, first make several photocopies of the worksheet on page A-15. Use the example below to help you complete your worksheet.

**Printer Default Name:**

DNE123456_1

*(for example, DNE00024E_1)*

**SMS Accounting:** *(choose one)*

☒ Enabled (*Specify cost in whole number.*)

Cost per Page: 5

Cost per Sheet: 2

❑ Disabled

**SMS Timer:**

0

*(specify a time-out value in seconds)*

**New Name** *(up to 16 characters)*:

RM312_1

*(must not start with the letters "DSP", and must terminate with the characters "_1")*

**Printer Description** *(up to 19 characters)*:

ACNT_BLDG_105_RM200

**Service Coordinator** ("XDSP.NLM") **Location:**

ACCOUNTING

*(name of the file server where the Service Coordinator for this printer is located)*

**Other Service Coordinator Location(s):**

ENGINEERING

*(name of file server(s) where another Service Coordinator for this printer is located)*

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**Printer Default Name:**

*(for example, DNE00024E_1)*

**New Name** *(up to 16 characters)*:

*(must not start with the letters "DSP", and must terminate with the characters "_1")*

**SMS Accounting:** *(choose one)*

❑ Enabled (*Specify cost in whole number.*)
Cost per Page:
Cost per Sheet:

❑ Disabled

**SMS Timer:**

*(specify a time-out value in seconds)*

**Printer Description** *(up to 19 characters)*:

**Service Coordinator** ("XDSP.NLM") **Location:**

*(name of the file server where the Service Coordinator for this printer is located)*

**Other Service Coordinator Location(s):**

*(name of file server(s) where another Service Coordinator for this printer is located)*

**Printer Default Name:**

*(for example, DNE00024E_1)*

**New Name** *(up to 16 characters)*:

*(must not start with the letters "DSP", and must terminate with the characters "_1")*

**SMS Accounting:** *(choose one)*

❑ Enabled (*Specify cost in whole number.*)
Cost per Page:
Cost per Sheet:

❑ Disabled

**SMS Timer:**

*(specify a time-out value in seconds)*

**Printer Description** *(up to 19 characters)*:

**Service Coordinator** ("XDSP.NLM") **Location:**

*(name of the file server where the Service Coordinator for this printer is located)*

**Other Service Coordinator Location(s):**

*(name of file server(s) where another Service Coordinator for this printer is located)*

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# Appendix B

# Sample SMS Export Data Files

*Explanation of Export Data File Formats* ..... *B-2*
*Printer Connection Record* ..... *B-4*
*Printer Termination Record* ..... *B-5*
*Print Job Record* ..... *B-7*
*Printer Error Events Record* ..... *B-11*
*Error Codes* ..... *B-14*

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# Explanation of Export Data File Formats

SMS graphs, reports, and export data files are produced from accounting data stored in the accounting file (PRINTER.LOG) with each *Service Coordinator* (XDSP.NLM). The accounting file is automatically created by the *Service Coordinator* when:

- The *Service Coordinator* is loaded for the first time, or
- After an existing accounting file is deleted or renamed.

The *Accounting File* can contain up to four types of event records which capture information about different events on the printer. The four event record types are:

- **Printer Connection record:** This record is written each time the *Service Coordinator* takes control of a printer.
- **Printer Termination record:** This record is written each time the *Service Coordinator* loses the link with the printer.
- **Print Job record:** This record preserves the job details and statistics of a job that was handled by the system.
- **Printer Error Events record:** This record captures the numeric code for the most severe printer error when errors occur.

SMS uses data from a combination of records to generate its user chargeback graphs and printer reports.

Using the Export Data feature, you can export each of the four record types above from the SMS accounting file. See *Chapter 5: Using SMS, "Exporting SMS Accounting Data"* (page 5-29) for instructions to export data.

SMS extracts data from the accounting file and stores it in Standard Data File (SDF) format under the name you specify.

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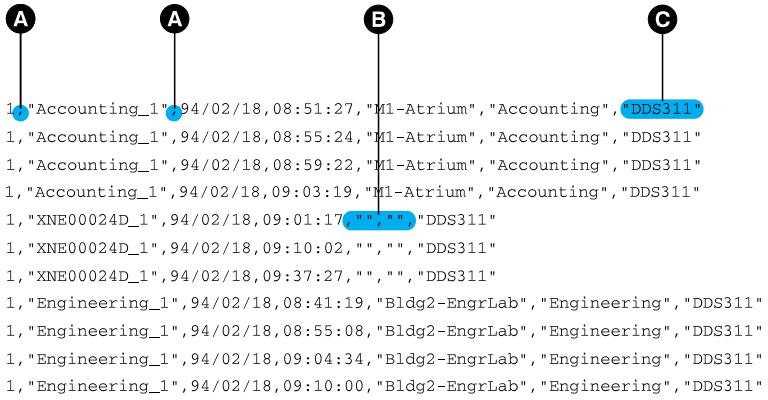
Characteristics of SMS SDF export data files include:

- Variable length data fields (data elements)
- Data elements separated by a comma
- Logical records terminated with a carriage return
- Data strings contained within quotation marks

Records in an SMS export data file, such as the Printer Connection export data file, would appear as shown in Figure B.1.

**Figure B.1 Example of SMS export data file**




**A** Data elements are separated (delimited) with a comma.

**B** An absence of data between commas indicates missing data.

**C** Data elements reported as *strings*—that is, nouns such as Printer Name, Printer Description, Printer File Server Name, etc.— appear in the record contained within quotation marks.

The exported data file can be imported to any application that reads SDF files.

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## Printer Connection Record

Table B.1 lists and describes the data elements (fields) in the Printer Connection record. This record is written each time the *Service Coordinator* takes control of a printer.

**Table B.1 Printer Connection record data elements**

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Record Type | 1 | The value in this field is always "1." A "1" in this field identifies this record as a Printer Connection record. |
| Printer Name | 16 | The printer name the supervisor assigned in the DS/P UTILITY, or the printer default name if you did not assign one with DS/P UTILITY.<br>Each printer name will terminate with "_1" |
| Creation Date | 8 | The date the record was written. The date is displayed as follows: yy/mm/dd. |
| Creation Time | 8 | The time the record was written. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Printer Description | 19 | The description of the printer the supervisor assigned in the DS/P UTILITY.<br>If no Printer Description is assigned in the DS/P UTILITY, no information is displayed for this field. |
| Print Server Name | 47 | Name of the print server this printer is using. |
| Service Coordinator Location | 47 | Name of the file server on which the Service Coordinator for the printer resides. |

A record in a Printer Connection export data file might look like the following:

```
1,"Accounting_1",94/02/18,08:51:27,"M1-Atrium","Accounting","DDS311"
```

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## Printer Termination Record

Table B.2 lists and describes the data elements (fields) in the Printer Termination record. This record is written each time the *Service Coordinator* loses the link with the printer.

**Table B.2 Printer Termination record data elements**

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Record Type | 1 | The value in this field is always "2." A "2" in this field identifies this record as a Printer Termination record. |
| Printer Name | 16 | The printer name the supervisor assigned in the DS/P UTILITY, or the printer default name if you did not assign one with DS/P UTILITY.<br>Each printer name will terminate with "_1" |
| Creation Date | 8 | The date the record was written. The date is displayed as follows: yy/mm/dd. |
| Creation Time | 8 | The time the record was written. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Printer Description | 19 | The description of the printer the supervisor assigned in the DS/P UTILITY.<br>If no Printer Description is assigned in the DS/P UTILITY, no information is displayed for this field. |
| Print Server Name | 47 | Name of the print server this printer is using. |

Table B.2 Page 1 of 2

**Table B.2 Printer Termination record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Reason Description | 64 | The reason the link was lost between the printer and the Service Coordinator. Five reason description types are possible:<br>**Reason Type** — **Description Definition**<br>Received Stop — The printer's DNIC-E'NET terminated the communication session with the Service Coordinator.<br>Failed Interrogation — The printer's DNIC-E'NET failed to provide information back to the Service Coordinator.<br>NLM Unloaded or Downed, or Sent Stop — The Service Coordinator ("XDSP.NLM") on the file server was unloaded or the file server was taken down.<br>Timed Out or Advertising — The Service Coordinator lost connection with the printer. Most likely, the printer was turned off.<br>DS/P Protocol Error — Service Coordinator detected an unrecoverable error. |
| Service Coordinator Location | 47 | Name of the file server on which the Service Coordinator for the printer resides. |
| | | Table B.2 Page 2 of 2 |

A record in a Printer Termination export data file might look like the following:

```
2,"Accounting_1",94/02/18,14:55:24,"M1-Atrium","Accounting","Timed Out","DDS311"
```

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## Print Job Record

Table B.3 lists and describes the data elements (fields) in the Print Job record. This record preserves the job details and statistics of a job that was handled by the system.

**Table B.3 Print Job record data elements**

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Record Type | 1 | The value in this field is always "4." A "4" in this field identifies this record as a Print Job record. |
| Printer Name | 16 | The printer name the supervisor assigned in the DS/P UTILITY, or the printer default name if you did not assign one with DS/P UTILITY. Each printer name will terminate with "_1" |
| Creation Date | 8 | The date the record was written. The date is displayed as follows: yy/mm/dd. |
| Creation Time | 8 | The time the record was written. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Printer Description | 19 | The description of the printer the supervisor assigned in the DS/P UTILITY. If no Printer Description is assigned in the DS/P UTILITY, no information is displayed for this field. |
| Job Source code | 1 | The code indicating the source of the job. Seven job source codes are possible:<br>0: Unknown or parallel/serial job<br>1: LAT job<br>2: TCP/IP job<br>3: NetWare RPRINTER job<br>4: NetWare PSERVER job<br>5: Apple EtherTalk job<br>6: Apple TokenTalk job |
| Queue Name | 47 | For NetWare jobs, the Server\Queue the job came from.<br>For jobs from other sources, a string indicating the job source (usually the node or TCP address). |
| Client ID | 8 | Identification of the job submitter. |
| Scheduled Print Date | 8 | Target print date or creation date if the print job is to be printed ASAP (NetWare only). |
| Scheduled Print Time | 8 | Target print time for the NetWare print job. |

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**Table B.3 Print Job record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Job Entry Date | 8 | Date the NetWare job was placed on the queue (spooled). The date is displayed as follows: yy/mm/dd. |
| Job Entry Time | 8 | Time the NetWare job was placed on the queue (spooled).The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Form Type | 4 | Type of NetWare form used for the job. |
| Job Description | 49 | Description of the job supplied by the client. |
| Tab Size | 3 | Tab size for NetWare DOS file print jobs. |
| Number of Copies | 4 | Number of times the file in the queue will be printed (NetWare only). |
| Maximum Lines | 4 | Maximum number of lines of print for NetWare DOS file print jobs. |
| Maximum Characters | 4 | Maximum characters on a line of print for NetWare DOS file print jobs. |
| Form Name | 16 | Name of the NetWare form to be used for the print job. |
| Banner Name | 12 | Name to be printed on the banner page for the NetWare print job, usually the first 12 characters of the User Name. |
| Banner File Name | 12 | First line of text to be printed on the banner page for the NetWare print jobs. Usually the Banner Name the user specifies in SMS. |
| User Name | 47 | Name of the user who submitted the job. |
| Transmission Start Date | 8 | Date the job began transmission from the queue to the printer. The date is displayed as follows: yy/mm/dd. |
| Transmission Start Time | 8 | Time the job began transmission from the queue to the printer. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Transmission Complete Date | 8 | Date the job completed transmission from the queue to the printer. The date is displayed as follows: yy/mm/dd. |

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**Table B.3 Print Job record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Transmission Complete Time | 8 | Time the job completed transmission from the queue to the printer. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Job Start Date | 8 | Date the job started printing. The date is displayed as follows: yy/mm/dd. |
| Job Start Time | 8 | Time the job started printing. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Job End Date | 8 | Date the job finished printing. The date is displayed as follows: yy/mm/dd. |
| Job End Time | 8 | Time the job finished printing. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Number of Pages | 4 | Number of pages (images) printed for the job. |
| Completed Normally | 1 | If the job ended normally—that is, it finished printing without encountering any errors—"1" appears in this field.<br>If the job does not end normally—that is, it either 1) finishes printing but encounters an error while printing; or 2) does not finish printing—"0" appears in this field. |
| Error Code | 5 | If the job ended normally—that is, it finished printing without encountering any errors—"0" appears in this field.<br>If the job does not end normally—that is, it either 1) finishes printing but encounters an error while printing; or 2) does not finish printing—the most severe error's Error Code appears in this field.<br>Many error codes are defined for supported printers that may appear in the Print Job record. Table B.5 on page B-14 lists all possible error codes and the corresponding Control Panel display message that appears when the error occurs. |
| Cost per Page | 5 | The SMS Accounting Cost per Page value the supervisor sets in the DS/P UTILITY. |
| Number of Sheets | 4 | Number of physical pieces of paper printed in this job. |

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**Table B.3 Print Job record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Cost per Sheet | 5 | The SMS accounting Cost per Sheet value the supervisor sets in the DS/P UTILITY. |
| Output Destination | **18** | Describes where the pages of this job were sent to. The following are the possible destinations:<br>• Unknown<br>• Mailbox N, where N is the mailbox bin<br>• Offset Catch Tray<br>• Standard Tray<br>• Multiple Bins |
| Service Coordinator Location | 47 | Name of the file server on which the Service Coordinator for the printer resides. |
| | | Table B.3 Page 4 of 4 |

A record in a Print Job export data file might look like the following:

```
4,"Accounting_1",94/02/18,09:01:15,"Bldg2-EngrLab",4,
"DDS311\4505Q2",14,94/02/18,09:02:00,94/02/18,09:02:00,25,
"Write - MIKEM.WRI", 8,1,66,132,"","MIKEM","PROJECT
705","MIKEM", 94/02/18, 09:05:00, 94/02/18, 09:06:00, 94/02/18,
09:05:30, 94/02/18, 09:06:30, 7,1,0,4,4,2,"STANDARD TRAY",
"DDS311"
```

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## Printer Error Events Record

Table B.4 lists the data elements (fields) in the Printer Error Events record, and describes the information collected.

**Table B.4 Printer Error Events record data elements**

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Record Type | 1 | The value in this field is always "8." An "8" in this field identifies this record as a Printer Error Events record. |
| Printer Name | 16 | The printer name the supervisor assigned in the DS/P UTILITY, or the printer default name if you did not assign one with DS/P UTILITY. Each printer name will terminate with "_1" |
| Creation Date | 8 | The date the record was written. The date is displayed as follows: yy/mm/dd. |
| Creation Time | 8 | The time the record was written. The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Printer Description | 19 | The description of the printer the supervisor assigned in the DS/P UTILITY. If no Printer Description is assigned in the DS/P UTILITY, no information is displayed for this field. |
| Job Source code | 1 | The code indicating the source of the job. Seven job source codes are possible:<br>0: Unknown or parallel/serial job<br>1: LAT job<br>2: TCP/IP job<br>3: NetWare RPRINTER job<br>4: NetWare PSERVER job<br>5: Apple EtherTalk job<br>6: Apple TokenTalk job |
| Queue Name | 47 | For NetWare jobs, the Server\Queue the job came from.<br>For jobs from other sources, a string indicating the job source (usually the node or TCP address). |
| Client ID | 8 | Identification of the job submitter. |
| Schedule Print Date | 8 | Target print date or creation date if the print job is to be printed ASAP (NetWare only). |

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**Table B.4 Printer Error Events record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Schedule Print Time | 8 | Target print time for the NetWare print job. |
| Job Entry Date | 8 | Date the NetWare job was placed on the queue (spooled). The date is displayed as follows: yy/mm/dd. |
| Job Entry Time | 8 | Time the NetWare job was placed on the queue (spooled).The time is displayed as follows: hh:mm:ss (24-hour clock format). |
| Form Type | 4 | Type of NetWare form used for the job. |
| Job Description | 49 | Description of the job supplied by the client. |
| Tab Size | 3 | Tab size for NetWare DOS file print jobs. |
| Number of Copies | 4 | Number of times the file in the queue will be printed (NetWare only). |
| Maximum Lines | 4 | Maximum number of lines of print for NetWare DOS file print jobs. |
| Maximum Characters | 4 | Maximum characters on a line of print for NetWare DOS file print jobs. |
| Form Name | 16 | Name of the NetWare form to be used for the print job. |
| Banner Name | 12 | Name to be printed on the banner page for the NetWare print job, usually the first 12 characters of the User Name. |
| Banner File Name | 12 | First line of text to be printed on the banner page for the NetWare print jobs. Usually the Banner Name the user specifies in SMS. |
| User Name | 47 | Name of the user who submitted the job. |

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**Table B.4 Printer Error Events record data elements** *(continued)*

| Data Element (Field Name) | Maximum Field Width | Description |
|---|---|---|
| Error Code | 5 | If the job ended normally—that is, it finished printing without encountering any errors—"0" appears in this field.<br>If the job does not end normally—that is, it either 1) finishes printing but encounters an error while printing; or 2) does not finish printing—the most severe error's Error Code appears in this field.<br>Many error codes are defined for supported printers that may appear in the Printer Error record. Table B.5 on page B-14 lists all possible error codes and the corresponding Control Panel display message that appears when the error occurs. |
| Service Coordinator Location | 47 | Name of the file server on which the Service Coordinator for the printer resides. |
| | | Table B.4 Page 3 of 3 |

A record in a Printer Error Events export data file might look like the following:

```
8,"Engineering_1",94/02/18,14:51:27,"Bldg2-EngrLab",4,
"DDS311\4505Q2",14,94/02/18,14:58:00,94/02/18,14:58:00,25,
"Write - MIKEH.WRI",8,1,66,132,"","TPOWERS","Project 705",
"TPOWERS",40022, "DDS311"
```

# Error Codes

Print Job records and Printer Error records capture error codes when a printer error occurs. Only the most severe error's Error Code is stored in the record.

Table B.5 lists all possible error codes and a description of the error code or the corresponding Control Panel display message that appears when the error occurs.

**Table B.5 Error code values**

| Error Code | Description / Control Panel Message |
|---|---|
| 9002 | Job lost in printer |
| 9101 | Connection Lost |
| 9102 | Initializing |
| 9103 | Abnormal End Of Job |
| 10002 | `Offline` |
| 10006 | `Toner Low` |
| 10022 | PJL status code sent to SMS when `Config. Sheet Printing...` appears on the Control Panel display. (This is not an error code.) |
| 10991 | `Reset Menu` |
| 10993 | `Replace Fuser Cartridge` |
| 10994 | `*Prntng Simplex*` |
| 10995 | `*Res& Smplx Chg*` |
| 10996 | `*Pg Protect Off*` |
| 10997 | `*Res. Change*` |
| 11*xyy* | A "11*xyy*" error code appears whenever the printer goes off-line because it is out of paper.<br>• The "*x*" value represents a specific tray on the printer. Table B.6 on page B-17 lists the Tray Codes for LN17 and LN17ps printers.<br>• The "*yy*" value represents the media loaded in the tray. Table B.7 on page B-18 lists the Media Codes for LN17 and LN17ps printers. |
| 30016 | `Out Of Memory` |

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**Table B.5 Error code values** *(continued)*

| Error Code | Description / Control Panel Message |
|---|---|
| 30017 | Page Too Complex |
| 40010 | Install EP Cartridge |
| 40021 | Close Cover |
| 40022 | Clear Paper Path |
| 40038 | Replace EP Cartridge |
| 40840 | Close Bins |
| 40841- 40850 | Close Bin N (where N = 1 to 10) |
| 40920 | Multiple paper jam messages |
| 40930 | Paper jam, wrong size paper |
| 40931- 40940 | Remove output from Mailbox bin N (where N = 1 to 10) |
| 40950 | Remove output from Offset Catch Tray |
| 40960 | Remove output from Standard Tray |
| 40970 | Macro Card Error |
| 40980 | Comm Error |
| 40990 | Disk Failure |
| 41*xyy* | (Tray Name) Load Paper<br>A "41*xyy*" error code appears whenever the printer goes off-line because it is out of paper.<br>• The "*x*" value represents a specific tray on the printer. Table B.6 on page B-17 lists the Tray Codes for LN17 and LN17ps printers.<br>• The "*yy*" value represents the media loaded in the tray. Table B.7 on page B-18 lists the Media Codes for LN17 and LN17ps printers. |
| 50002 | Memory Failure<br>Service Required |
| 50003 | Fuser Failure<br>Service Required |
| 50005 | ROS Failure<br>Service Required |

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**Table B.5 Error code values** *(continued)*

| Error Code | Description / Control Panel Message |
|---|---|
| 50006 | Fan Failure<br>Power Off NOW! |
| 50821 | Main Tray Fail<br>Service Required |
| 50822 | Lower 1 Failure<br>Service Required |
| 50823 | Lower 2 Failure<br>Service Required |
| 50824 | Duplex Unit Fail<br>Service Required |
| 50825 | Env. Feeder Fail<br>Service Required |
| 50827 | Laser Failure<br>Service Required |
| 50828 | Mailbox Failure<br>Service Required |
| 50830 | Motor Failure<br>Service Required |
| 50831 | NV Memory Fail<br>Service Required |
| 50832 | IOT NVM Fail<br>Service Required |
| 50833 | Offset Tray Fail<br>Service Required |
| 50836 | LocalTalk Fail |
| 50837 | Ethernet Fail |

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**Table B.6 Tray codes (“x”) for the “11xyy” and “41xyy” error codes**

| Tray Code | Corresponding Tray |
|---|---|
| | LN17 and LN17ps Printers |
| 0 | Main Tray |
| 1 | Front Tray |
| 2 | Lower 1 (500-sheet Paper Deck and Cassette) |
| 3 | Lower 2 (500-sheet Paper Deck and Cassette) |
| 4 | Envelope Feeder |

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**Table B.7 Media† codes ("yy") for the "11xyy" and "41xyy" error codes**

| Media Code | Media Size |
|---|---|
| | LN17 and LN17ps Printers |
| 00 | Unknown paper |
| 01 | Unknown envelope |
| 02 | Letter |
| 03 | Legal |
| 04 | A4 |
| 05 | Executive |
| 08 | COM-10 envelope |
| 09 | Monarch envelope |
| 10 | C5 envelope |
| 11 | DL envelope |
| 94 | ISO B5 |
| 95 | C6 envelope |
| 96 | A6 |
| 97 | 8.5x5.5" statement |
| 99 | Folio |

† "Media" is the physical material (for example, paper, envelope, etc.) on which the job is printed.

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Appendix C

# DS/P Client Installation Worksheet

Complete the DS/P Client Installation Worksheet (on pages C-2 and C-3) following the instructions below. Then photocopy the completed worksheet and distribute it to network clients so that they may install DS/P onto their workstations from the file server.

- In Step 1, write in the name of the file server on which you installed DS/P.
- In Step 2, write in the directory (and drive, if applicable) where DS/P was installed on the file server.
- In Step 8, check each of the items that client users should install on their workstations.
- In Step 9, select the option clients should choose in SETUP.

Note: The Windows Help File contains an alternative Client Installation Worksheet.

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## DS/P Client Installation Worksheet

Begin the following procedure from the DOS prompt (exit completely out of Windows) after you have logged in to the network from your workstation

**1** **Log in to file server.**

Fileserver: _____

Username: _____

Password: _____

For example, to log in to server Myserver with username Guest: `Login Myserver/Guest`

**2** **The DS/P software has been placed on the file server. To access DS/P, map the next free drive letter to the XDSP directory on the appropriate volume of the file server. Type:**
`MAP N _____\_____:\XDSP` **then press** `<ENTER>`**.**

**For example,** `Map n Myserver\sys:\xdsp`

**From the screen, note the drive letter that has been mapped for you: _____**

**For example,** `Drive J:= Myserver\sys:\xdsp` **means driver letter J has been mapped.**

**3** **Change from your current drive to the drive letter mapped above.**

Type _____:, then press `<ENTER>`.

**4** **Start DS/P installation.**

**DOS users:** Type `dossetup` then press `<ENTER>`.

**Windows users:** Start Windows. Choose **Run** from the **File** menu in the Program Manager. Type *`<mapped drive>`*`:winsetup`, then press `<ENTER>`.

The **DS/P Setup - Welcome** window appears.

**5** **Select the Continue button, and the User Identification window appears.**

**6** **Enter your User Name and Company Name, then select the Continue button.**

The **DS/P Setup - Options** window appears.

**7** **Verify that C:\XDSP is set as the DS/P Directory.**

If it is not, select the **Change** button and set the **DS/P Directory** to **C:\XDSP**.

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**8** **Make sure the following checked items are highlighted on the DS/P Setup - Options window, then select the Continue button.**

___ SETUP and UTILITY
___ Remote User Interface
___ Status and Management Services

**After selecting the DS/P components to be installed, SETUP will install them from the file server to your workstation.**

**Dos users: Please wait until the Install TSR Program for SMS window appears, then continue to Step 9.**

**Windows users: Go to Step 10.**

**9** **Select the checked item below, then select OK.**

**Batch File**
___ AUTOEXEC.BAT (default_
___ Do not modify .BAT files
___ Specified file. Alternate file name: _____

**10** **Exit SETUP. Dos users: If you modified your Auotoexec.bat file, reboot your workstation.**

DS/P installation from the file server to your workstation is complete.

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