IBM Infoprint Manager for Windows NT and
Windows 2000

Planning Guide

Version 1 Release 1

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About This Publication

This publication helps you prepare to use IBM® Infoprint® Manager for Windows NT® and Windows® 2000. It describes the features of this product and compares its functions to those of IBM Print Services Facility™ for OS/2® (PSF for OS/2). It addresses migration from PSF for OS/2 at a high level. Finally, this publication explains the differences between the AIX® and Windows versions of Infoprint Manager.

Audience

This document is for people who are interested in purchasing IBM Infoprint Manager for Windows NT and Windows 2000 and for people who perform the actual installation and configuration of an Infoprint Manager environment.

Most Recent Information

This document is available on the World Wide Web at http://www.ibm.com/printers. Click the link to the IBM Infoprint Manager for Windows NT and Windows 2000 sitelet. Then click **Reference Information —>Planning Guide.**

IBM will update the web version of this document regularly. You can download it in **PDF** format. Consult http://www.ibm.com/printers for the latest information on Infoprint Manager and other products from IBM Printing Systems.

Chapter 1. Verifying Prerequisites

Before installing IBM Infoprint Manager for Windows NT and Windows 2000, you should verify that you have satisfied the hardware and software requirements in this chapter.

Verifying Hardware Prerequisites

Server Hardware Prerequisites

IBM recommends the following hardware configuration for running the IBM Infoprint Manager for Windows NT and Windows 2000 server software:

- 450 MHz Pentium® processor or higher
- 128 MB RAM or more
- 10 GB available hard disk space or more
- CD-ROM drive

Note: A *dedicated* IBM Infoprint Manager for Windows NT and Windows 2000 system that meets the recommended hardware requirements is capable of driving one Infoprint 4000 ID3/ID4 printer at rated speed (1002 pages per minute) with simple text data or with input from PSF Direct. This is a very specific benchmark. Other input data streams amd environments that include several distributed printers often inject a variety of complexitiies that make it impossible for IBM to accurately size the appropriate server for your specific environment. Each additional device you attach to a server causes considerable network overhead and processor overhead.

If you are considering Infoprint Manager as a server for printing PostScript or PCL applications on Intelligent Printer Data Stream™ (IPDS™) printers, you may need a more robust server to obtain optimum results while printing and transforming at production speeds. Given the variation in data stream complexity and hardware performance factors, IBM does not recommend specific server hardware for PCL and PostScript printing on high-speed IPDS printers. Consider the complexity of your data, and purchase a server with added capacity for flexibility and growth.

IBM Infoprint Manager for Windows NT and Windows 2000 will run on common PC systems from various manufacturers.

To use a channel-attached printer, you must install the IBM 4159 Model 001 S/390® Parallel Channel Emulator Card. You should be advised of the following facts:

- Each IBM 4159 supports at most 8 printers or one IBM Infoprint 4000.
- The IBM 4159 requires a long PCI slot. (The dimensions of the card are 13.4 by 4.2 inches.) Therefore, the number of IBM 4159 cards that you can install per Windows NT/Windows 2000 system is the number of available long PCI slots, up to a maximum of 8 cards. Many computers have fewer than 8 long PCI slots.
- The IBM 4159 supports data streaming at either 3.0 Mb per second or 4.5 Mb per second. All printers connected to a computer must be configured for the same data streaming rate.
- The IBM 4159 supports only block multiplex data transfers.

Contact your IBM customer service representative to obtain the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card.

To use TCP/IP-attached printers or to communicate with other systems across a LAN, you must install a suitable token-ring, ethernet, or Fiber Distributed Data Interface (FDDI) adapter card and connect the appropriate cabling. Acceptable network hardware is available from IBM and other vendors.

Client Hardware Prerequisites

IBM recommends the following hardware to run the Infoprint Manager Administration GUI or the Infoprint Manager Operations GUI:

- 300 MHz Pentium processor or higher
- 128 MB RAM or more
- CD-ROM drive
- 3.5–inch diskette drive
- 10 MB available hard disk space or more
- Access to at least one Infoprint Manager server (either on a local system or remotely over a LAN)

The recommended hardware for running the Infoprint Select client software follows:

- 166 MHz Pentium processor or higher
- 32 MB RAM or more
- 3.5–inch diskette drive
- 10 MB available hard disk space
- Access to at least one Infoprint Manager server (either on a local system or remotely over a LAN)

To communicate with other systems across a LAN (including Infoprint Manager server systems), you must install a suitable token-ring, ethernet, or FDDI adapter card and connect the appropriate cabling. Acceptable network hardware is available from IBM and other vendors.

Supported Printers

IBM Infoprint Manager for Windows NT and Windows 2000 supports a wide range of printers, both from IBM and from other vendors.

IBM Printers
The following table provides information about supported IBM printers:

Table 1. Supported IBM Printers

Model	Attachment
IBM Infoprint 20 Printer	TCP/IP, Direct
IBM Infoprint 32 Printer	TCP/IP, Direct
IBM Infoprint 40 Printer	TCP/IP, Direct
IBM Infoprint 60 Printer	TCP/IP, Channel
IBM Infoprint 62 Printer	TCP/IP, Channel
IBM Infoprint 3000 Advanced Function Printer Models ES1 and ED1/ED2	TCP/IP, Channel
IBM 3112 Advanced Function Printer with feature 4140	TCP/IP, Direct, Internal Network Adapter (INA)
IBM 3116 Advanced Function Printer with feature 4140	TCP/IP, Direct, Internal Network Adapter (INA)

Table 1. Supported IBM Printers (continued)

Model	Attachment
IBM 3130 Advanced Function Printer with feature 4120	TCP/IP
IBM 3160 Advanced Function Printer with feature 4120, 4161, 4162, or 4163	TCP/IP, Channel
IBM 3816 Page Printer Models 01D and 01S with feature 7653 or 7654	TCP/IP
IBM 3825 Page Printer	Channel
IBM 3827 Page Printer	Channel
IBM 3828 Advanced Function MICR Printer	Channel
IBM 3829 Advanced Function Printer	Channel
IBM 3835 Page Printer Model 001 (including support for the 3835 MICR Printing Interface RPQ)	Channel
IBM 3835 Advanced Function Printer Model 002 (including support for the 3835 MICR Printing Interface RPQ and for the Set Media Modifications command to drive post-processing devices, such as Beste Bunch spot color printers)	Channel
IBM 3900 Advanced Function Printer Model 001 (including support for the MICR Postprocessing Interface feature, the Set Media Modifications command to drive post-processing devices, such as Beste Bunch spot color printers, and the Interface feature 4720)	Channel
IBM 3900 Advanced Function Printer Models 001, D01, D02, 0W1, 0W3, DW1 and DW2 (including support for the MICR Postprocessing Interface feature, the Set Media Modifications command to drive post-processing devices, such as Beste Bunch spot color printers, and the Interface feature 4720)	TCP/IP, Channel
IBM Infoprint 3900 Model DR1/DR2 Printer	TCP/IP
IBM 3912 Page Printer Models AS0, AS1, NS0, and NS1	Direct
IBM 3916 Page Printer Models AS1 and NS1	Direct
IBM 3930 Page Printer Models 02D and 02S with feature 9217 or 9476	TCP/IP
IBM 3930 Page Printer Models 03D and 03S	TCP/IP, Direct
IBM 3935 Advanced Function Printer with feature 4020, 4121, or 4161	TCP/IP
IBM Infoprint 4000 Model ID1/ID2 Printer	TCP/IP
IBM Infoprint 4000 Model ID3/ID4 Printer	TCP/IP
IBM Infoprint 4000 Model IR1/IR2 Printer	TCP/IP (FDDI only)
IBM Infoprint 4000 Model IR3/IR4 Printer	TCP/IP (FDDI only)

Table 1. Supported IBM Printers (continued)

Model	Attachment
IBM Infoprint 4000 Model IS1 and IS2 Printers	TCP/IP
IBM Infoprint 4005 Model HC2 Hi-Lite Color Printer	TCP/IP
IBM LaserPrinter 4019, all models	TCP/IP, Direct
IBM LaserPrinter 4028 Models AS1 and NS1 (including support for the 4028 with MICR, RPQ S02177)	TCP/IP
IBM LaserPrinter 4029, all models	TCP/IP
IBM LaserPrinter 4037, all models	TCP/IP
IBM LaserPrinter 4039 Models 10D, 10R, 12L, 12R, and 16L	TCP/IP
IBM 4232 Printer	TCP/IP, Direct
IBM 4312 Network Printer 12 (OS Code Release Level 2.23 or above is required. For Intelligent Printer Data Stream (IPDS) printing, the IPDS feature with IPDS Code Level 1.25 or above is required.)	TCP/IP, Direct
IBM 4317 Network Printer 17. (OS Code Release Level 2.23 or above is required. For IPDS printing, the IPDS feature with IPDS Code Level 1.25 or above is required.)	TCP/IP, Direct
IBM 4324 Network Printer 24. (OS Code Release Level 2.35 or above is required. For IPDS printing, the IPDS feature with IPDS Code Level 1.25 or above is required.)	TCP/IP, Direct

You typically accomplish direct attachment through the server system's parallel or serial port by using either the Print Services Facility (PSF) or Passthrough device support system (DSS). However, you may use one of the following alternatives to attaching directly to a port:

- IBM 4033 LAN Connection for Printers and Plotters
- IBM 7318 Serial Communications Network Server
- IBM 8260 Multiprotocol Intelligent Switching Hub

These alternatives allow IBM Infoprint Manager for Windows NT and Windows 2000 to drive printers as if they were directly attached, even when all parallel and serial ports are in use. These alternative attachment methods may also improve system performance.

Hewlett-Packard and Compatible Printers
IBM Infoprint Manager for Windows NT and Windows 2000 supports printers from the Hewlett-Packard LaserJet family of printers. It supports all compatible printers capable of interpreting the Hewlett-Packard Printer Control Languages (HP-PCL4 or HP-PCL5). In addition, Infoprint Manager is capable of driving any printer that accepts the IBM Personal Printer Data Stream (PPDS).

PostScript Printers

IBM Infoprint Manager for Windows NT and Windows 2000 supports printing to PostScript printers by using the driver supplied with the printer or a Windows print command, such as **lpr**. The data format must be PostScript.

Verifying Software Prerequisites

Server Software Prerequisites

The primary software prerequisite for the IBM Infoprint Manager for Windows NT and Windows 2000 server software is one of the following Microsoft® operating systems:

- Windows NT Workstation 4.0 (Service Pack 6a or later)
- Windows NT Server 4.0 (Service Pack 6a or later)
- Windows 2000 Professional
- Windows 2000 Server

  Note: Service Pack 4 or 5 work with Infoprint Manager for Windows NT, but IBM highly recommends using Service Pack 6a.

The following Windows NT/Windows 2000 components must be installed on the system:

- Internet Explorer 4.0 (Service Pack 2 or later) or Internet Explorer 5.0
- TCP/IP support
- For line printer requester/line printer daemon (LPR/LPD) job submission, Microsoft TCP/IP Printing
- For the Passthrough DSS, Generic Text/Only driver

If you use PSF Direct to print from host systems, you must also install IBM SecureWay Communications Server for Windows NT, at version 6.1 or later. Host systems include MVS™, VSE, VM, and OS/400®.

Client Software Prerequisites

To run Infoprint Select or an Infoprint Manager GUI on a client system, you must have one of the following operating systems installed:

- Windows 95
- Windows 98
- Windows NT Workstation 4.0 (Service Pack 6a or later)
- Windows NT Server 4.0 (Service Pack 6a or later)
- Windows 2000 Professional
- Windows 2000 Server
- Windows NT Server 4.0, Terminal Server Edition (Terminal Server Edition Service Pack 6a or later)
- AIX 4.1.2 or later (Infoprint Manager GUI only)

  Note: Service Pack 4 or 5 work with Infoprint Manager for Windows NT, but IBM highly recommends using Service Pack 6a.

To run the Infoprint Manager Management Console on a remote system (a system that does not have Infoprint Manager server software installed), you must use Windows NT Server 4.0, Terminal Server Edition (Terminal Server Edition Service Pack 6a or later).

Supported Data Streams

IBM Infoprint Manager for Windows NT and Windows 2000 accepts the following input data streams:

- Advanced Function Printing™ (AFP™)
- ASCII
- EBCDIC
- Portable Document Format (PDF)
- PostScript
- PCL

Infoprint Manager is capable of producing the following output data streams to send to a printing device:

- IPDS
- PCL
- PostScript (passthrough of input PostScript only)
- PPDS

Infoprint Manager supports Hewlett-Packard Printer Control Languages (PCL4, PCL5, and PCL5c). To provide optimal system performance, the Infoprint Manager server can transform input data and drive printers concurrently. Infoprint Manager can support multiple document formats on the same printer.

Chapter 2. Planning for Configuration

IBM Infoprint Manager for Windows NT and Windows 2000 is a flexible and scalable print management solution, providing you with many choices of how to expand and manage your print environment. Your print environment may be simple, with a few high-speed devices located together; or you may support hundreds of printers dispersed across your enterprise. In either case, Infoprint Manager helps you make the most of your printing resources.

This section briefly introduces IBM Infoprint Manager for Windows NT and Windows 2000 and describes features that may be important to you as you design your Infoprint Manager environment.

Optimizing Your Print Resources

Your print resources are the applications that generate print jobs, your printer devices, and the Infoprint Manager objects that control the jobs as they process and print. Your basic Infoprint Manager configuration includes one Infoprint Manager server, a queue, a logical destination, and an actual destination (physical printer). Before adding more Infoprint Manager objects, consider how Infoprint Manager can help you:

- Manage your printer devices and distribute your printing work load:

  Many print environments have a significant investment in printer devices and a significant printing work load. Infoprint Manager gives you the ability to manage all of your printer hardware centrally. You can establish a configuration that lets you route jobs with common requirements to a particular printer or set of printers that support those types of jobs. This allows you to mitigate situations where some printers are idle while others have a backlog of jobs waiting to print. By optimizing the use of each printer, you can distribute your print demands among all available printers.

- Balance the use of Windows NT/Windows 2000 systems:

  By balancing the printing work load, you can also optimize the use of your Windows NT/Windows 2000 systems that support printing. These systems may use a significant amount of their resources to accept, schedule, and process jobs, and to manage the printers they control. System usage includes processing time, memory, and fixed disk capacity. If you use several Infoprint Manager servers running on several Windows NT/Windows 2000 or AIX systems, you distribute the printing demands of your organization and produce output more efficiently.

- Control print jobs:

  Infoprint Manager provides you with flexibility in specifying defaults for your print jobs. You may want to use different job defaults for specific output devices or for specific types of jobs. When you configure your system, you should consider when and how you plan to use defaults, and how to use them most effectively. Effective use of defaults may influence other configuration decisions you make.

- See significant events when they happen:

  Infoprint Manager supports event notification to inform job submitters, operators, and administrators of conditions that require their attention. For example, Infoprint Manager can notify operators when queues have a backlog of jobs or when the printers they operate are out of paper. Your job submitters can receive notification if Infoprint Manager cannot schedule their jobs at the requested logical destination. Notifications include event messages to help your personnel diagnose and isolate the cause of the problem. When you configure Infoprint

Manager, you select the types of notification you want to ensure that the appropriate people are alerted when significant events occur. The most common form of notification is that a job has completed successfully. For example, when a set of payroll checks has finished printing, someone in the Payroll department might be notified that they are ready.

Continue with the following section that describes the different Infoprint Manager objects and basic configuration considerations for each.

Understanding the Infoprint Manager Server

The Infoprint Manager server runs as a service on Windows NT/Windows 2000. The server manages jobs submitted to it from client applications (including Infoprint Select and Windows applications that support a print function). The Infoprint Manager server contains a number of "objects" that are used to control the processing of submitted jobs. Objects include queues, logical destinations, actual destinations, and any defaults for job and document characteristics. The server administrator creates, deletes, and modifies these software objects to optimize the management and performance of the Infoprint Manager environment.

The Infoprint Manager server may also contain auxiliary sheets and resource-context objects. You can use auxiliary sheets to separate jobs and to print job identification information. Resource-context objects point to the directory locations of Advanced Function Presentation (AFP) resources, such as fonts and overlays, that some jobs require.

Logical Destinations

Logical destinations are the objects in your Infoprint Manager system to which job submitters and applications submit jobs. Your basic Infoprint Manager environment has one default logical destination. You may want to add more logical destinations to support specific types of jobs and specific groups of job submitters. When you create an additional logical destination, you specify a name for the logical destination and associate it with a specific queue. The logical destination and the queue must reside in the same Infoprint Manager server.

You can specify default job and document attributes for a logical destination, so that jobs submitted to that logical destination are automatically assigned certain default values. This saves time for the job submitter, and helps ensure that jobs submitted will not fail because of missing resources. If necessary, the submitter can override the default values by explicitly setting the attributes at submission time.

Printer pooling (or clustering) is a powerful feature of Infoprint Manager. Pooling allows jobs to be submitted to a single *logical destination* and then routed to appropriate physical devices. This feature enables you to distribute your work load evenly among available printing devices and to optimize printer utilization. It prevents bottlenecks where a large number of jobs are queued for a few printers while other equally capable printers sit idle. In short, printer pooling allows you to see your output faster, and logical destinations make printer pooling possible.

Queues

A queue receives jobs from one or more logical destinations and routes jobs to one or more actual destinations. The queue holds a job until an actual destination capable of processing the job becomes available. Your basic Infoprint Manager environment has one default queue. The queue and the actual destination to which

it sends jobs do not have to be in the same server. The actual destination can be in an Infoprint Manager server on a different AIX or Windows NT/Windows 2000 system.

Actual Destinations

An actual destination represents an output device, such as a printer. You create one actual destination for each physical output device that you use with Infoprint Manager. You configure an actual destination to mirror the features and capabilities of the output device, such as the output resolution of a printer. You also configure the actual destination to control the order in which it processes jobs, for example, by job size or by submission time.

If you do not specify values for all of the attributes when you create an actual destination, Infoprint Manager provides default values for many of them. You can make modifications, as required, at a later time.

Documents and Jobs

A job is a unit of work you send to Infoprint Manager for processing. A job may consist of a single file or many files. (To submit multiple files in a single job you must use the **pdpr** command.) In Infoprint Manager terminology, each file in the job and its accompanying attributes is called a document. (Both jobs and documents include attributes that define their respective requirements.)

Job validation is the process of ensuring that there is an actual destination capable of processing the requirements of the job. The values of job and document attributes determine the requirements (such as duplex printing or card-stock media) that the actual destination printing the job must support.

A job may include a complete description of its requirements, or the job submission process can be streamlined through the use of defaults. See "Logical Destinations" on page 8 for details.

Auxiliary Sheets

An auxiliary sheet is a sheet of paper that may print at any or all of the following points during a job:
• At the beginning
• At the end
• Between sections

The auxiliary sheet may have information printed on it, or it may be blank. Infoprint Manager provides five default types of auxiliary sheets, but you can customize your own sheets if necessary. You can also apply a *user-exit program* to control the information printed on an auxiliary sheet.

Resource Contexts

When properly configured, Infoprint Manager automatically locates the AFP resources (fonts, overlays, form definitions, page definitions, and page segments) that print jobs require. You can store the resources in a centrally available location and then use Infoprint Manager resource contexts to identify the location. After you have configured the resource contexts, Infoprint Manager automatically locates the AFP resources required by a job and then uses them for processing.

Sizing Your Infoprint Manager Environment

The number of Infoprint Manager servers you need depends on many factors. In this section, we provide only an overview of the most important performance issues that may influence your server purchase plans. To begin, the features and configurations of each Infoprint Manager server system are extremely important. Important server factors that affect printing system performance include the following:

- Processor speed
- Number of processors
- Available RAM
- Available hard disk space
- Hard disk speed
- Number of hard disk drives
- Balance of Infoprint Manager data sets across available disk drives
- Tuning specifications for hard disk drivers
- Paging space allocations (drive locations and size)
- Number of data paths (single or dual)

The output devices that Infoprint Manager drives are also important:

- Speed and resolution of printers or other output devices
- Number of output devices operating concurrently
- Number of output devices per actual destination

Finally, how you submit print jobs to each Infoprint Manager server is important:

- Number of client systems submitting jobs
- Frequency of job submission from client systems
- Speed of network data transfer
- Size (density) of jobs to be printed
- Complexity of jobs to be printed
- Number and types of input data streams
- Overall network traffic

Sizing your Infoprint Manager environment is a complex task. It may be impossible to determine in advance precisely how many Windows NT/Windows 2000 and AIX systems will adequately serve your printing needs.

Note: You may run only one Infoprint Manager server on a Windows NT/Windows 2000 system.

A *dedicated* IBM Infoprint Manager for Windows NT and Windows 2000 system that meets the recommended hardware requirements is capable of driving one Infoprint 4000 ID3/ID4 printer at rated speed (1002 pages per minute) with simple text data or with input from PSF Direct. This is a very specific benchmark. Each additional device you attach to a server causes considerable network overhead and processor overhead.

Your IBM Printing Systems Sales Representative can help you determine if you have enough physical printing devices to address the printing needs of your enterprise. Essentially, this is a question of how many pages of output must be

produced in how much time. Your estimate of printed output, combined with the rated speeds of your print devices, should give you the information you require to guide printer purchases.

Determining how many servers you need to drive your printing devices, however, requires experimentation and patience. Consult with your IBM Printing Systems Sales Representative to agree on a reasonable number with which to start. We recommend setting up your environment one server at a time, one printer at a time. (Draw diagrams similar to those in "Understanding Destination Configuration Models", but realize that these diagrams are subject to change.) After adding each printer to a server, perform a stress test. Try to drive the printers at rated speed with the types and number of jobs expected during peak periods. Also, try to have the server system perform all other activities it will have to perform while processing the jobs. In short, make your stress test as realistic as possible. If the server system handles the work load without a problem, consider attaching an additional printer. If the addition of a printer degrades performance to an unacceptable level, add an additional server to your network to drive this printer. You might also consider upgrading system and network hardware.

Finally, it is important to monitor the performance of your printing environment regularly to see how the system reacts to actual usage and the changing needs of your business. Infoprint Manager provides useful tools to make such monitoring easy. You may use standard accounting and audit logs to collect statistical data on jobs processed by any printing device in your environment. You may even customize these logging activities to suit the needs of your business. These logs provide invaluable information on work-load balancing. You can also use these logs to determine billing procedures or simply to determine how resources are being used at your installation.

Understanding Destination Configuration Models

Destination configuration models show the relationships among logical destinations, job- and document-attribute defaults, queues, and actual destinations. A basic Infoprint Manager destination configuration has a one-to-one relationship between a logical destination and an actual destination, and provides minimal job- and document-attribute default settings. As you customize your Infoprint Manager environment to support your printing needs, you may want to consider a more advanced destination configuration model.

Note: In multiple Infoprint Manager server environments, the logical destination and the queue it sends jobs to must reside in the same Infoprint Manager server. The actual destination, however, may reside in a different Infoprint Manager server, unless you want to submit jobs directly to the actual destination. For direct submission, the actual destination must reside in the same server as the logical destination and queue.

The Default Model

The default model has a one-to-many relationship between a logical destination and two or more actual destinations. It also allows you to submit jobs directly to properly configured actual destinations. (In this way, the default model is similar to the desktop model described below, but it requires you to create and manage fewer objects.) To support direct submission to actual destinations, the default model requires the actual destination to be associated with a logical destination. A job submitted to an actual destination is rerouted to the associated logical destination.

At the logical destination, the job derives its job and document defaults. The job is then routed through the associated queue and back to the actual destination.

IBM Infoprint Manager for Windows NT and Windows 2000 uses this destination configuration model by default. (A single queue and a single logical destination are created automatically when you install IBM Infoprint Manager for Windows NT and Windows 2000.) You must configure the actual destinations to enable direct submission.
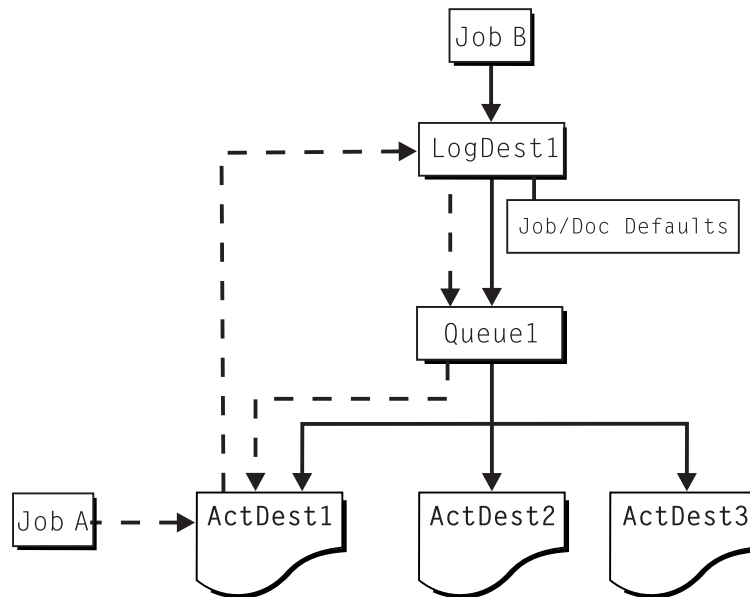

Figure 1. Default Destination Configuration Model. Job A (submitted to an actual destination) prints on that actual destination. Job B (submitted to the logical destination) prints on the first actual destination that can support it.

This is a very flexible model that allows you to enjoy the benefits of printer pooling, while retaining complete control over where certain jobs print.

The Pool Model

Like the default destination configuration model, the pool destination configuration model has a one-to-many relationship between a logical destination and two or more actual destinations. The pool model, however, does not allow you to submit jobs directly to actual destinations.
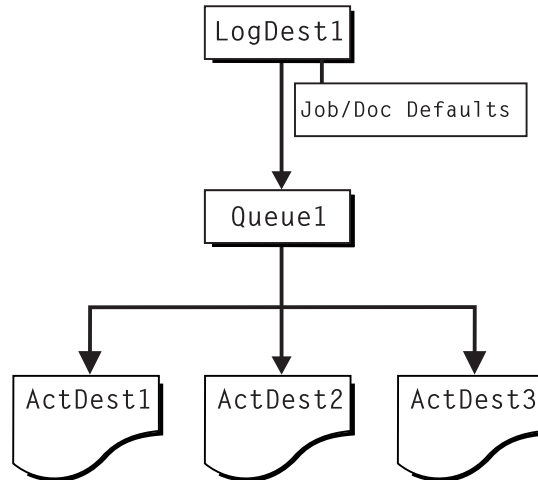
```
        ┌─────────┐
        │LogDest1 │
        └─────────┘
            │  ┌──────────────┐
            │  │Job/Doc Defaults│
            │  └──────────────┘
            ▼
        ┌─────────┐
        │Queue1   │
        └─────────┘
            │
    ┌───────┼───────────┐
    ▼       ▼           ▼
┌─────────┐ ┌─────────┐ ┌─────────┐
│ActDest1 │ │ActDest2 │ │ActDest3 │
└─────────┘ └─────────┘ └─────────┘
```

Figure 2. Pool Destination Configuration Model

This model is very effective when you have output devices that you want to group together based on factors such as location, capability, speed, and capacity. You may also want to group them based on who uses them or who manages the output they generate. For example, access to a specific group of printers may be restricted to members of the billing department. Moreover, different types of statement jobs might use different sets of job- and document-attribute defaults, such as the form on which they print or the overlay they require. The pool model allows these different jobs to be submitted to a single logical destination. It then automatically routes each job to the first available printer capable of processing it. In this way, the pool model helps with work-load balancing.

The Desktop Model

The desktop destination configuration model has a one-to-one relationship between a logical destination and an actual destination. The desktop model represents the way you typically manage and use a workstation printer. This model should be familiar to you if you have an existing printing system to which you are adding Infoprint Manager. The capabilities of the actual destination directly control the types of jobs that your users can successfully submit with this destination configuration.
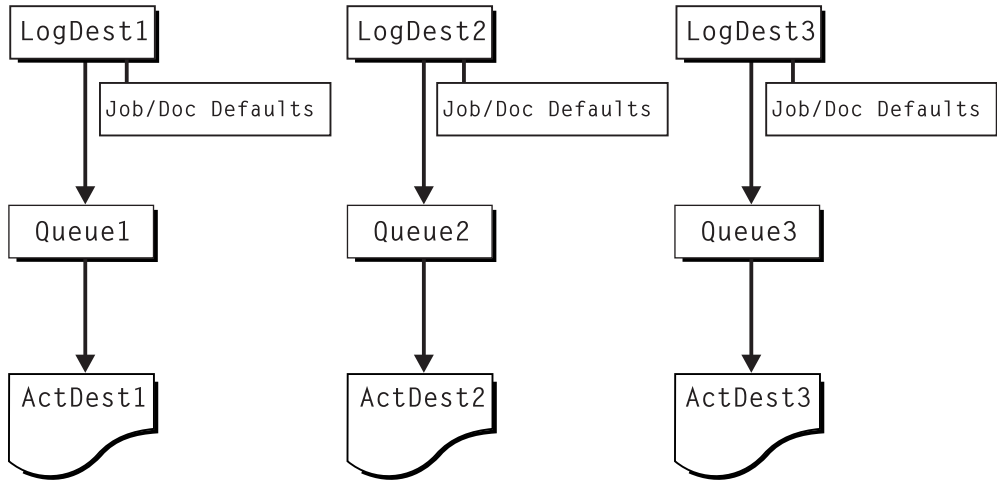
```
┌──────────┐        ┌──────────┐        ┌──────────┐
│ LogDest1 │        │ LogDest2 │        │ LogDest3 │
└────┬─────┘        └────┬─────┘        └────┬─────┘
     │  ┌──────────────┐ │  ┌──────────────┐ │  ┌──────────────┐
     │  │Job/Doc Defaults│ │  │Job/Doc Defaults│ │  │Job/Doc Defaults│
     │  └──────────────┘ │  └──────────────┘ │  └──────────────┘
     ▼                   ▼                   ▼
┌──────────┐        ┌──────────┐        ┌──────────┐
│  Queue1  │        │  Queue2  │        │  Queue3  │
└────┬─────┘        └────┬─────┘        └────┬─────┘
     │                   │                   │
     ▼                   ▼                   ▼
┌──────────┐        ┌──────────┐        ┌──────────┐
│ ActDest1 │        │ ActDest2 │        │ ActDest3 │
└──────────┘        └──────────┘        └──────────┘
```

Figure 3. Desktop Destination Configuration Model

The Funnel Model

The funnel destination configuration model has a many-to-one relationship between two or more logical destinations and one actual destination.
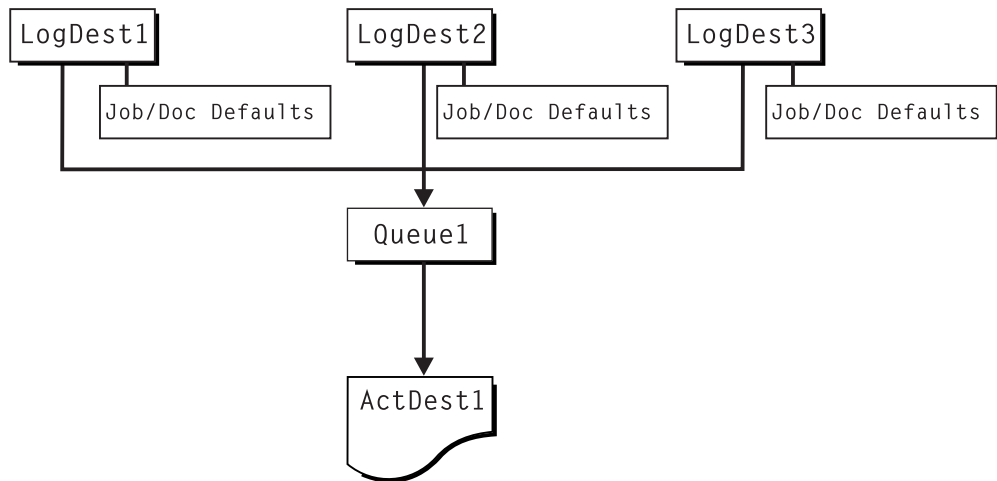
```
┌──────────┐        ┌──────────┐        ┌──────────┐
│ LogDest1 │        │ LogDest2 │        │ LogDest3 │
└────┬─────┘        └────┬─────┘        └────┬─────┘
     │ ┌──────────────┐  │ ┌──────────────┐  │ ┌──────────────┐
     │ │Job/Doc Defaults│ │ │Job/Doc Defaults│ │ │Job/Doc Defaults│
     │ └──────────────┘  │ └──────────────┘  │ └──────────────┘
     └─────────────────┐ │ ┌─────────────────┘
                       ▼ ▼ ▼
                   ┌──────────┐
                   │  Queue1  │
                   └────┬─────┘
                        │
                        ▼
                   ┌──────────┐
                   │ ActDest1 │
                   └──────────┘
```

Figure 4. Funnel Destination Configuration Model

The funnel model is a flexible configuration model that allows you to more closely control setting job and document defaults for jobs. For example, you may configure one logical destination to print on the pink paper stored in tray 2 and another logical destination to print duplex from tray 1 with an overlay.

The Hourglass Model

The hourglass destination configuration model has a many-to-many relationship between logical destinations and actual destinations. The hourglass model provides both the work-load balancing of the pool model and the automatic assignment of job

and document defaults of the funnel model. The hourglass model is the most flexible of the destination configuration models.
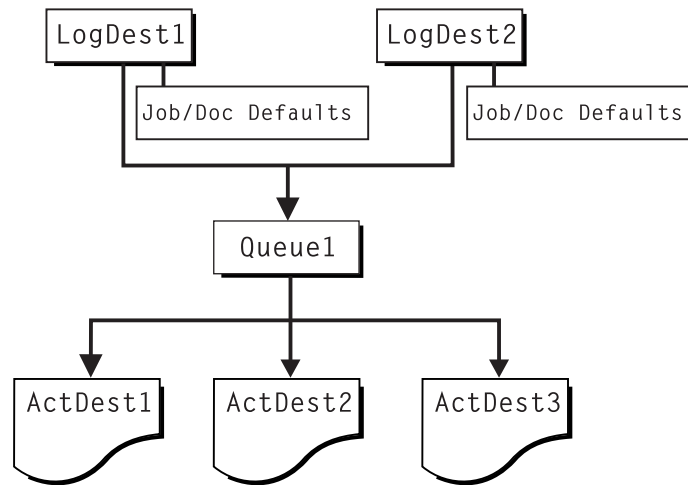

Figure 5. Hourglass Destination Configuration Model

Understanding Destination Support Systems (DSS)

The software that the actual destination uses to send jobs to the output device is called the destination support system (DSS). IBM Infoprint Manager for Windows NT and Windows 2000 supports the following DSSs:

PSF DSS

The PSF DSS permits Infoprint Manager to use the IBM Print Services Facility (PSF) printing subsystem. This DSS allows communication with output devices that have Intelligent Printer Data Stream (IPDS) functionality or that have PCL functionality. The PSF DSS is therefore the most flexible DSS. It provides a single point of control and tracking for print jobs. Infoprint transforms jobs submitted to PSF destinations to the IPDS or PCL data stream before sending them to the output device.

The way in which Infoprint communicates with the output device depends on the type of actual destination. For PSF DSS actual destinations, it also depends on the attachment type. (See "Understanding Attachment Types for PSF Actual Destinations" on page 17.)

Passthrough DSS

The Passthrough DSS permits IBM Infoprint Manager for Windows NT and Windows 2000 to use the Windows print-spooling subsystem. This DSS supports non-IPDS (PostScript or PCL) printers by using standard Windows NT/Windows 2000 ports and port monitors.

Before you create an Infoprint Manager Passthrough actual destination, you must perform these tasks:

- Attach the printer device as specified by its documentation
- Use the Infoprint Manager Management Console to create a Windows port to communicate with the printer device
- Install the Windows Generic/Text Only Driver from the Windows CD

BSD DSS

The BSD DSS permits Infoprint Manager to use remote printers or printing

subsystems. Infoprint Manager sends jobs submitted to BSD physical printers as separate print requests to a remote print queue.

Infoprint Manager typically uses the **lpr** command to send jobs to a printer device or to another system. The target can be any device or system that supports the **lpd** protocol and that connects to the network with TCP/IP.

Refer to the printer configuration documentation of the remote device or system for details on how to set up a remote queue.

IPP DSS

Infoprint Manager uses the IPP DSS to communicate with destinations through the Internet Print Protocol (IPP). This DSS allows Infoprint Manager to access a printer by means of a Uniform Resource Indicator (URI) string.

If you send intelligent printer data stream (IPDS) to your printer, you should create PSF printers. Check Table 5 on page 18 to see which attachment type to create. Otherwise, the type of destination you create primarily depends on where your print jobs are coming from. The appropriate DSS is different for each of the following job submitters:

- PC-based applications
- A host system (through PSF Direct)
- Both PC-based applications and a host system (through either PSF Direct or MVS Download)

Refer to the sections below for assistance in making the decision.

Selecting a DSS for Printing from PC-based Applications

If you do not use PSF Direct or MVS Download to submit jobs, use Table 2 to see which type of destination fits your needs.

Table 2. Selecting a DSS for Printing from PC-based Applications

If the data stream that your applications send to Infoprint Manager is:	AFP data stream	PostScript, PCL, or any non-AFP data stream		
and you are going to submit jobs to Infoprint Manager using:	Any method	A Windows defined port	A command such as **lpr**	The IPP protocol
Create this kind of actual destination:	PSF[1]	Passthrough[2]	BSD	IPP

Notes:

1. See Table 5 on page 18 to determine the attachment type for PSF actual destinations.
2. If you are printing PCL data to a Windows NT-defined printer, you may want to consider creating a PSF (other-driver or command) destination instead. A Passthrough destination uses fewer processing resources, but a PSF destination provides much more functionality, such as accounting and automatic data stream transforms.

Selecting a DSS for Printing from Host Systems Using PSF Direct

If you send print jobs to your printers from a host system using PSF Direct and you do not plan to allow job submission to those destinations through any other paths (such as the IPP gateway), use Table 3 on page 17 to see which type of destination fits your needs.

Table 3. Selecting a DSS for Printing from Host Systems Using PSF Direct

If the data stream that your applications send to Infoprint Manager is:	AFP data stream	AFP, ASCII, DBCS ASCII, line data, PCL, PS, PDF	
and the data stream that you send to your printer is:	IPDS	IPDS	PCL or PPDS
Create this kind of actual destination:	PSF Direct only (TCP/IP- or channel-attached)[1]		PSF Direct only (non-IPDS)
Note: See Table 5 on page 18 to determine the attachment type for PSF actual destinations.			

Selecting a DSS for Printing from Both PC-based Applications and Host Systems

If you will be sending jobs to this destination from both PC-based applications and host systems, use Table 4 to see which type of destination fits your needs.

Table 4. Selecting a DSS for Printing from Both PC-based Applications and Host Systems

If the data stream that your applications send to Infoprint Manager is:	AFP data stream	AFP, ASCII, DBCS ASCII, line data, PCL, PS, PDF	
and the data stream that you send to your printer is:	IPDS	IPDS	PCL or PPDS
Create this kind of actual destination:	PSF (TCP/IP or channel)[1]		PSF (other-driver or command)[1]
Note: See Table 5 on page 18 to determine the attachment type for PSF actual destinations.			

Understanding Attachment Types for PSF Actual Destinations

The attachment type for an actual destination defines how the printer device attaches to the Windows NT/Windows 2000 system and communicates with IBM Infoprint Manager for Windows NT and Windows 2000. Based on the printer device, the attachment type is one of the following:

- **TCP/IP**. The printer device communicates using IPDS and attaches to the Windows NT/Windows 2000 system through the TCP/IP network. To create the actual destination, you must specify the Internet Protocol (IP) address of the printer device and the port number through which Infoprint Manager communicates with the device. The port number for TCP/IP-attached printers is an integer from 5001 to 65535. For printers attached using the i-data 7913 IPDS Printer LAN Attachment, you must use **5001** as the port number.

- **Channel**. The Intelligent Printer Data Stream (IPDS) printer device attaches to the Windows NT/Windows 2000 system through an IBM 4159 Model 001 S/390 Parallel Channel Emulator Card (with S/390 bus/tag cables). Before creating the actual destination, you must identify the number of the slot that contains the card and the hexadecimal control unit address of the printer device.

  Note: If you plan to attach printers through an IBM 4159 Model 001 S/390 Parallel Channel Emulator Card, consider the following limitations:
  - Each IBM 4159 supports at most 8 printers or one IBM Infoprint 4000.
  - The IBM 4159 requires a long PCI slot. (The dimensions of the card are 13.4 by 4.2 inches.) Therefore, the number of IBM 4159 cards that

you can install per Windows NT/Windows 2000 system is the number of available long PCI slots, up to a maximum of 8 cards. Many computers have fewer than 8 long PCI slots.

– The IBM 4159 supports data streaming at either 3.0 Mb per second or 4.5 Mb per second. All printers connected to a computer must be configured for the same data streaming rate.

– The IBM 4159 supports only block multiplex data transfers.

- **Other-Driver**. The PCL or PPDS printer device communicates using TCP/IP or attaches directly to the Windows NT/Windows 2000 system through a parallel or serial port. (It can also attach through a hardware alternative to direct attachment, as described in "Supported Printers" on page 2). To create the actual destination, you must specify the port associated with a port monitor needed to operate the PCL or PPDS printer.

- **Command**. Before you create a PSF command actual destination, you must perform these tasks:
  – Attach the printer device as specified by its documentation
  – Create a Windows port to communicate with the printer device

Use Table 5 to determine the appropriate attachment type for PSF actual destinations.

Table 5. Selecting an Attachment Type for PSF Actual Destinations

If you are sending this data stream to the printer:	IPDS		PCL, PPDS	
and you are going to attach the printer to the system where Infoprint Manager is running this way:	Over the TCP/IP network	Using the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card	Over the TCP/IP network or directly through a parallel or serial port	Using a command such as **lpr**
Select this attachment type:	TCP/IP	Channel	Other-driver	Command

Interfacing with Infoprint Manager

To administer your Infoprint Manager environment, you will primarily use the Infoprint Manager Administration GUI. This Java™-based interface provides you with a means to manipulate (create, delete, or modify) most Infoprint Manager objects graphically. It also provides wizards to make the creation of actual destinations easier.

To oversee the day-to-day operation of your Infoprint Manager environment, you will use the Infoprint Manager Operations GUI. This interface includes a subset of the functionality available in the Infoprint Manager Administration GUI. (Collectively, these two interfaces are known as the Infoprint Manager GUI.) The Infoprint Manager Operations GUI allows users to release jobs for printing and disable an actual destination. It does not, however, allow the user to modify the fundamental configuration of the Infoprint Manager environment. The user cannot, for example, delete or add logical destinations.

Both the Infoprint Manager Administration GUI and the Infoprint Manager Operations GUI can run on remote systems. This convenient feature allows

administrators and operators to perform their duties without being physically located in front of the Windows NT/Windows 2000 system on which Infoprint Manager is installed.

For some administrative tasks, you will use the Infoprint Manager Management Console. These tasks include the following:

- Stopping and restarting the Infoprint Manager server
- Submitting test jobs
- Creating nonshared PSF Direct destinations
- Creating PSF Direct host receivers
- Managing MVS Download receivers
- Managing security
- Viewing server and destination logs
- Controlling tracing

The Management Console must run on one of these systems:

- The local Windows NT/Windows 2000 system where Infoprint Manager is installed
- A remote system running Windows NT Server 4.0, Terminal Server Edition

Chapter 3. Planning to Print from Host Systems

Infoprint Manager allows you to choose how to manage your printed output. It allows you to drive both TCP/IP and channel attached printers or to use a single printer for both host and LAN applications. If you print from OS/390®, MVS, VM, VSE, and AS/400®, you can use PSF Direct to manage and control printing from the host console. If you print from OS/390 or MVS, you can use MVS Download to spool jobs to remote locations so that the remote print operator can control printing. Also, IP Printway allows you to use the **lpr** command to submit jobs to other Windows NT or Windows 2000 systems.

If you have an IPP client on your host system, you can use it to submit jobs to Infoprint Manager through the IPP Gateway.

Migrating from Distributed Print Function (DPF)

If you use the DPF feature of PSF/2 for printer sharing from multiple hosts, but do not require remote spooling, migrate to PSF Direct with Infoprint Manager. PSF Direct allows you to manage all resources from the OS/390 or MVS host system. For example, your print operators can manage jobs using the same System Display and Search Facility (SDSF) panels that they would use on the host.

If you use DPF to collect jobs for printing at a later time (remote spooling) from an OS/390 or MVS host, use MVS Download with Infoprint Manager. MVS Download gives you the ability to download jobs from the JES spool and have those jobs print as printers become available. It also allows you to hold those jobs in an Infoprint Manager queue and release them at a later time. Resources (fonts, overlays, form definitions, and page definitions) must reside on the Infoprint Manager server. Customers using SMF6 records for accounting must also be aware that PSF for OS/390 does not create page-level accounting records when you use MVS Download. If you require page level accounting, you can use accounting information available from Infoprint Manager.

Comparing PSF Direct to MVS Download

This topic describes the differences between PSF Direct and MVS Download, so you can determine which option best meets the needs of your print installation.

Table 6. Comparing PSF Direct to MVS Download

PSF Direct	MVS Download
IBM Infoprint Manager for Windows NT and Windows 2000 acts as an intermediary passthrough point for Intelligent Printer Data Stream (IPDS) input, or converting from IPDS to the PCL or PPDS data stream.	IBM Infoprint Manager for Windows NT and Windows 2000 acts as a full print spool system. MVS provides the mechanism for transferring jobs from the JES spool to the Infoprint Manager spool.
Use this feature with PSF for OS/390, PSF/MVS, PSF/VM, PSF/VSE, and PSF/400.	Use this feature with PSF for OS/390 or PSF/MVS only.
Requires installation and configuration of IBM eNetwork™ Communications Server for NT Version 6.01 and a Print Services Facility (PSF) software program on the host system.	Requires purchase and configuration of the MVS Download feature of PSF.
Communicates through SNA from the PSF host to Windows.	Communicates through TCP/IP from the PSF host to Windows.

Table 6. Comparing PSF Direct to MVS Download (continued)

PSF Direct	MVS Download
Resource management is performed at the PSF host.	Resource management is performed at Infoprint Manager: all print resources must either reside on the Infoprint Manager server where the job prints or be transmitted inline in an Advanced Function Presentation (AFP) job.
Both the printer and the print spool are managed on the host PSF system.	The host print spool is managed on the host PSF system; the Infoprint Manager spool and printer are managed from Infoprint Manager. The job is managed on the host until it is downloaded, then from Infoprint Manager.
Supports all printers supported by the host PSF, as well as PCL and PPDS devices that are not supported on the host.	Supports all printers supported by IBM Infoprint Manager for Windows NT and Windows 2000.
Requires no additional disk space on Infoprint Manager system.	Requires additional Infoprint Manager disk space to spool jobs.
Prints job as it is received by Infoprint Manager (if the printer is not busy).	Prints job only after the entire job has been received by Infoprint Manager and scheduled to print by the Infoprint Manager spool.
Uses MVS (SMF/6) accounting records.	Uses Infoprint Manager accounting information.
Provides printer sharing through host systems, the PSF Direct feature, the host printer support, and Infoprint Manager (as long as only one PSF Direct Host Receiver attempts access at a time).	Provides printer sharing and printer support through Infoprint Manager.
Supports printing of multi-data set jobs as a single print job.	Supports printing of multi-data set jobs as multiple print jobs.
Does not support spooling of jobs on Infoprint Manager for printing later.	Supports the downloading of AFP or line data from the JES spool to Infoprint Manager for printing later.
Jobs are not retained by Infoprint Manager; they must be resubmitted for printing from the host PSF.	Jobs may be retained on Infoprint Manager where they can be resubmitted for printing later.

Print Shop Scenarios

To see how Infoprint Manager can best manage your particular print environment, consider the following sample scenarios.

A Black Box Shop

A data center located on the East coast of the United States provides billing statements to five regional offices around the country, submitting IPDS output to a set group of printers. Because these users want to keep all resource management on their MVS systems, they can use the PSF Direct feature in IBM Infoprint Manager for Windows NT and Windows 2000 as a black box solution. They never have to move resources, and they can send jobs to their remote offices to print immediately. All print job and resource management takes place at the central host.

Printing from the LAN and the Host

This print shop wants to spend the day shift printing staff reports from the local LAN. On the night shift, it wants to use the same IBM Infoprint 4000 printer to print billing statements from the AS/400 host. By creating the destination through the Infoprint Manager Administration GUI rather than through the Management Console, the print administrator can ensure that the same destination can print jobs from both the LAN and the host.

This print administrator also has the option of interleaving jobs from the AS/400 host and the LAN, using timers to detach the PSF Direct and printing from the LAN during idle moments.

Distributed Print Shop Using Remote Spooling

A data center prints a monthly series of in-house reports. The jobs that generate the output are run during the evening off-shift (so they do not interrupt other work during the day), then held on the system. The shop saves bandwidth costs by sending the print files once, then printing them at rated speed as many times as needed. Although this data center only has a 56 KB link, MVS Download prevents performance problems caused by inefficient line speed. MVS Download does not wait for the entire job to be spooled before starting to print it on a high-speed continuous forms printer. Because this shop wants to integrate all their print servers while retaining the ability to send jobs once and print them many times, the MVS Download feature of Infoprint Manager best meets their needs by allowing them to control all jobs locally.

Managing Resources with MVS Download

When you use the MVS Download function, all print resources must reside on the Windows NT/Windows 2000 system where the Infoprint Manager server resides. You can manage these resources in one of three ways:

- Download these resources to Infoprint Manager through a standard file transfer protocol (FTP). This method works best when resources do not change often.
- Use the Network File System (NFS) **mount** command to make OS/390 or MVS systems containing resources accessible to the NT server on which Infoprint Manager is running. Because this solution can cause a great deal of network traffic, you should be careful when choosing this solution if your resources change frequently.
- Use MVS Download to submit a resource instead of a print job and send it to all print resource libraries defined on your Infoprint Manager server. This method requires you to customize your MVS Download exits and configuration.

For more information on these methods, refer to the *Configuration Guide* and the administrative procedures documented on the Web.

Chapter 4. Managing AFP Resources

After creating the text for your document, you will probably want to format it to make it more readable and interesting. You may want to use images—such as charts, graphs, logos, boxes, and lines—to illustrate or to separate various sections. You may wish to use fonts to emphasize different areas of text. You might like to draw from a catalog of predefined graphic and text elements created for your enterprise. You might like to combine text and graphic elements into segments (such as footers, headers, or side bars) that you can position as single units on the page. To ensure consistency, you may also wish to specify common elements and layout for documents of the same type.

Advanced Function Presentation (AFP) resources provide powerful tools for controlling the appearance of your documents. Infoprint Manager includes a number of AFP resources. You may also purchase additional resources or even create your own custom resources. The different types of AFP resources follow:

Form definitions
> Form definitions provide instructions on how output devices position data on the page. Form definitions can specify overlays, a paper source for cut-sheet printer devices, duplexed printing, text suppression, data position, and the number and modifications of pages.

Page definitions
> Page definitions contain the formatting controls for line data. Page definitions can include controls for the number of lines per logical page, font selection, print direction, and the mapping of individual fields to positions on the logical page.

Page segments
> Page segments contain text and images that you can include at any addressable point on a page or an electronic overlay.

Overlays
> Overlays are collections of predefined data—such as lines, shading, text boxes, or logos—that can merge with variable data on a page or a form during printing or transmission.

Fonts A font is a single size and typeface in a particular type family, including letters, numerals, punctuation marks, special characters, and ligatures.

Infoprint Manager provides several methods for accessing AFP resources. If the only AFP resources available are those that shipped with Infoprint Manager, they are accessed automatically when a job needs them. If, however, you are using other AFP resources, you must specify the location of these resources. There are also ways to specify resource locations through job submission parameters and environment variables. Finally, each document within a job can specify the path to each of the AFP resource types it requires. You may elect to handle these specifications with a document default associated with a logical destination.

Important: Do not store custom AFP resources in the same directory with the AFP resources included with Infoprint Manager. Doing so could lead to the corruption or deletion of your custom resources.

You can use resource-context objects to access your AFP resources. Resource-context objects identify the locations of different types of AFP resources that jobs sent to PSF actual destinations can reference. Resource-context objects

let you encapsulate the directory path name in one place. You then specify the resource-context object name rather than a directory name when specifying where to find resources. Later, if the location of a resource changes, you only need to modify the path name specified in the corresponding resource-context object.

You must use the **pdcreate** command (at a DOS command prompt) to create a resource-context object. You then reference this object when you create or modify a PSF actual destination in the Infoprint Manager Administration GUI. Jobs can also reference resource-context objects through their contained documents. Both the actual destination and the resource-context objects that are referenced must reside in the same Infoprint Manager server. See "The Search Order for AFP Resources" to learn more about the order in which Infoprint Manager searches for resources.

The Search Order for AFP Resources

Using a resource-context object is an easy way to ensure that Infoprint Manager locates the AFP resources required to process a job. However, there are a number of ways to override the specifications of the resource-context object and direct Infoprint Manager to use different resources for a given job. The following describes the order in which IBM Infoprint Manager for Windows NT and Windows 2000 searches for AFP resources:

1. The path specified by the **resource-context-user** document attribute.
2. The paths specified by one of the following document attributes, depending on the type of resource:
   - **resource-context-font**
   - **resource-context-form-definition**
   - **resource-context-overlay**
   - **resource-context-page-definition**
   - **resource-context-page-segment**

   Note: If one of these document attributes contains a value, Infoprint Manager ignores any location specified by the same attribute of a default document object.
3. The path specified by the **resource-context** document attribute.
4. The path specified by the **PSFPATH** environment variable.
5. The paths specified by the resource-context attributes of the actual destination. These attributes have the same names as the document attributes identified in step 2.
6. The default resource search path directory, as specified in the Management Console (by clicking **Edit—>Service Configuration** on the menu). The installation program initially sets this value to the **reslib** subdirectory in the directory where IBM Infoprint Manager for Windows NT and Windows 2000 is installed.
7. For fonts, the directory where the IBM AFP Font Collection: Fonts for AIX, OS/2, Windows NT, and Windows 2000 is installed.
8. For fonts, the default font search path, as specified in the Management Console (by clicking **Edit—>Service Configuration** on the menu). The installation program initially sets this value to the **fontlib** subdirectory in the directory where IBM Infoprint Manager for Windows NT and Windows 2000 is installed.

Once a resource is located, the search ends, and the located resource is used to process the job. If Infoprint Manager ultimately cannot find a required resource, it

prints an error message advising you of the missing resource. Infoprint Manager reports that the job completed successfully.

The preceding information may make planning for resource-context objects in your Infoprint Manager environment appear complicated. But in most cases, it is actually quite simple. If the only AFP resources you use are the AFP resources that shipped with Infoprint Manager, there is no need to use resource-context objects. All of your resources are located automatically because these resources reside in the **reslib**, **fontlib**, and AFP Font Collection directories described above. If, on the other hand, you have custom AFP resources, make sure that you *do not* store them in the **reslib**, **fontlib**, or AFP Font Collection directories. These directories are controlled by Infoprint Manager, and any custom resources stored in these locations may be corrupted by installing, deinstalling, or servicing Infoprint Manager software. To put it more simply, store any custom AFP resources in a separate directory structure and use resource-context objects to provide access to them. For more information on resource-context objects, go to the World Wide Web at http://www.ibm.com/printers and click the link to IBM Infoprint Manager for Windows NT and Windows 2000, then click the link to **Reference Information—>Administrative Procedures**.

Chapter 5. Planning to Share Printers

The ability to have various client systems share printing resources is one of the primary benefits of using Infoprint Manager. You should consider two important areas of printer sharing in planning your Infoprint Manager environment. The first area involves allowing both LAN and host applications to access the same printing device. The second involves the crucial ability to submit LAN print jobs from existing applications.

Sharing Printers with LAN and Host Applications

To get the most out of integrated host and LAN printing, you may wish to share printers among LAN applications, PSF Direct, and MVS Download. The first step is to create an actual destination with the Create Printer Wizard in the Infoprint Manager Administration GUI. When you create this actual destination, you associate it with the appropriate queue and logical destination objects to allow LAN applications to access the printer. You then create an MVS or PSF Direct host receiver object through the Management Console and associate this host receiver with the actual destination just created.

Exactly how the competing print processes share the actual destination depends on whether you use MVS Download or PSF Direct for host connectivity. If you are using MVS Download, an Infoprint Manager queue is used to spool the jobs submitted from MVS. The scheduling preferences specified for the associated actual destination determine the order in which LAN and host jobs print.

If you are using PSF Direct, sharing between host and LAN jobs is controlled by the **Inactivity limit** value and the **Release time (sec)** value associated with the actual destination. You specify the **Inactivity limit** value when you create the host receiver. You set the **Release time (sec)** value in the Infoprint Manager Administration GUI (on the **Tuning** page of the **Properties** notebook for the actual destination). Essentially, the destination is shared on a session-by-session basis. When PSF Direct has control of the destination, the inactivity limit of the host receiver determines how long PSF Direct waits for jobs from connected hosts before it disconnects from the host and relinquishes control over the destination. Similarly, when an Infoprint Manager queue is actively feeding jobs to the destination, it continues to do so as long as the interval between job submissions is not longer than the specified release time. If no job arrives within this specified time, Infoprint Manager releases control of the destination and gives host systems a chance to use the destination.

Note: Control over the destination remains with either PSF Direct or the Infoprint Manager server until the flow of jobs sufficiently slows. The inactivity limit and release time values are very important to ensure that the destination is shared equally between host and LAN applications.

If you are sharing a printer between PSF Direct and MVS Download processes, the same parameters that control sharing between PSF Direct and LAN applications apply.

Printing from Existing LAN Applications

It is extremely important in many networked environments to allow existing applications to submit print jobs. PC users expect to be able to select **Print...** from the **File** menu when they want to produce printed output. There are three methods available for making a destination controlled by IBM Infoprint Manager for Windows NT and Windows 2000 available to users running workstation applications:

- Use the Infoprint Select client
- Create a Windows gateway printer
- Enable an Internet Printing Protocol (IPP) gateway

Using Infoprint Select

To use Infoprint Select (available for Windows 3.1, Windows 95, Windows NT, Windows 2000, and OS/2) to enable job submission from applications, you must install and configure the Infoprint Select client. During this configuration, you must make a destination controlled by Infoprint Manager known to the client system. On Windows clients, the user accomplishes this by running the standard Windows **Add Printer Wizard**. Through the wizard, the user adds a local printer, loads the appropriate driver, and ensures that a unique port is assigned to each Infoprint Manager destination.

With Infoprint Select in place, the user receives relevant event notifications generated by Infoprint Manager. Typically, this notification simply informs the user that a job has completed successfully. If, however, an error occurs in the processing of a job, the event notifications include information to help you diagnose the problem. With Infoprint Select, the user is also provided access to the Infoprint Manager command-line interface, including the **pdpr** command. This provides client-application access to all the AFP print attributes that can control such jobs. Finally, the Infoprint Select user may submit jobs to destinations controlled by either IBM Infoprint Manager for Windows NT and Windows 2000 or IBM Infoprint Manager for AIX.

Using a Windows Gateway Printer

With the Windows gateway printer, there is nothing additional to install on the client system, and the bulk of the configuration work is handled at the server. Basically, the Infoprint Manager administrator makes destinations (logical or actual) available to workstation applications by creating a Windows gateway printer in the Management Console and associating it with a destination. The Infoprint Manager Administration GUI allows you to create an associated Windows gateway printer by default when you create a destination. After this, client users simply run the standard Windows **Add Printer Wizard** to access a printer managed by a remote printer server, just as they would to access any shared network printer. The only information they need is the name of the Infoprint Manager server system and the shared name of the gateway printer.

The Windows gateway printer provides the Infoprint Manager administrator with straightforward control over which destinations are accessible to applications. This, coupled with its ease of deployment, may make the Windows gateway printer an attractive choice. This feature does not provide detailed event notification from Infoprint Manager, but users can receive detailed notification if they install Infoprint Manager Notifications on their workstations.

Using an IPP Gateway

Infoprint Manager includes an IPP gateway that allows users anywhere in the network to submit jobs through Infoprint Manager, even to printers that are not IPP-enabled. The Infoprint Manager administrator enables the IPP gateway in the Management Console and associates it with a destination. Users install IPP client software on their workstations, then follow the instructions provided with the IPP client to access a printer managed by a remote printer server.

Like the Windows gateway printer, the IPP gateway provides the Infoprint Manager administrator with straightforward control over which destinations are accessible to applications. This feature does not provide detailed event notification from Infoprint Manager, but users can receive detailed notification if they install Infoprint Manager Notifications on their workstations.

Chapter 6. Comparing Infoprint Manager on Different Platforms

If you are trying to choose a platform (AIX or Windows NT/Windows 2000) on which to run your Infoprint Manager server, be advised that this release of IBM Infoprint Manager for Windows NT and Windows 2000 does not include all functions available in the IBM Infoprint Manager for AIX product. However, a significant subset of the AIX version's functionality is available for Windows NT/Windows 2000. IBM Infoprint Manager for Windows NT and Windows 2000 also introduces a number of features unique to the Windows platform.

Understanding Common Features

The following Infoprint Manager features are available on both platforms:
- Fully functional non-DCE (Distributed Computing Environment) version of the Infoprint Manager server
- Interoperability with other non-DCE Infoprint Manager servers (AIX or Windows NT/Windows 2000)
- BSD and PSF device support systems
- Support for the following input document formats:
  - AFP
  - ASCII
  - DBCS ASCII
  - Line data (EBCDIC)
  - PCL (version 5 or earlier)
  - PDF
  - PostScript (level 2 or 3)
- Adobe PostScript transform

  Note: The Adobe PostScript transform runs under Windows NT only, and IBM intends to provide support for the Windows 2000 environment at a later date.
- PCL transform
- Full event notification
- The Infoprint Manager Administration GUI for performing most administrative tasks
- The Infoprint Manager Operations GUI for performing operator tasks
- Infoprint Select client for job submission
- A powerful command-line interface to all Infoprint Manager features
- Simple Network Management Protocol (SNMP) support
- PSF Direct for job submission from mainframe (AS/400, MVS, VM, VSE, OS/390) host systems
- MVS Download for job submission from OS/390 and MVS host systems

Understanding Windows NT/Windows 2000 Features

This release of IBM Infoprint Manager for Windows NT and Windows 2000 introduces the following features, which are unique to the Windows platform:

- The Infoprint Manager Management Console interface for performing administrative tasks not supported by the Infoprint Manager Administration GUI
- Interaction between Infoprint Manager and the Windows print spool to expand Infoprint capabilities
- Support for the Internet Print Protocol (IPP) to allow Infoprint Manager to access a printer using a Uniform Resource Indicator (URI) string
- The IPP Gateway to allow you to print from an IPP client system to printers that are not IPP-enabled
- The Windows gateway printer to allow job submission to Infoprint Manager without using an Infoprint Manager client. (The destinations appear as shared printers on the Windows network.) Client systems simply use the standard Windows **Add Printer Wizard** to make the printers accessible to all Windows applications that support a printing function.
- Infoprint Manager Notifications to enable client systems to receive messages from Infoprint Manager server systems
- Customization of MVS Download without programming
- Non-DCE Group and Access Control List (ACL) support
- Configurable transform support (through transform objects)

Understanding AIX Features

The following features are currently only available in IBM Infoprint Manager for AIX:

- A DCE version of the Infoprint Manager server for improved security and scalability
- Special features for print-on-demand customers include the following:
  - A simplified "basic" version of the Infoprint Manager server enforcing a one-to-one mapping of logical and actual destinations.
  - Variable data support
  - Impositioning support
  - Scan support
  - "Save pages" support
- Support for the following input document formats:
  - DITROFF
  - GIF
  - JPEG
  - SAP
  - TIFF
- Infoprint Submit client support
- Infoprint Manager for the Web (RPQ #8A8084 support)
- IBM Page Printer Formatting Aid (PPFA)
- IBM Infoprint Library
- Infoprint SAP Print Feature (OTF, ABAP transforms, SAP certification, and callback support)
- Infoprint E-Mail input and output support
- Infoprint Fax input and output support

- Support for printers that use standard AIX printer backend programs (**piobe** and some versions of **rembak**)
- InfoColor 70 support
- The following PSF attachment types:
  - Upload-SNA
  - Upload-TCP/IP
- Tape input

If you require the features currently only available on IBM Infoprint Manager for AIX, but prefer the Windows NT/Windows 2000 platform, consider a mixed environment of AIX systems and Windows NT/Windows 2000 systems. In many cases, a mixed environment provides you with immediate access to all Infoprint Manager features.

Chapter 7. Migrating from PSF for OS/2

IBM Infoprint Manager for Windows NT and Windows 2000 replaces IBM Print Services Facility for OS/2 (PSF for OS/2). Most PSF for OS/2 functions are available in IBM Infoprint Manager for Windows NT and Windows 2000. In addition, Infoprint Manager includes many features that were not available in PSF for OS/2 (such as page-definition support and PostScript Level 3).

This section provides an overview of procedures for migrating existing servers from PSF for OS/2 to IBM Infoprint Manager for Windows NT and Windows 2000. It also describes potential problem areas where Infoprint Manager differs from PSF for OS/2.

Like PSF for OS/2, IBM Infoprint Manager for Windows NT and Windows 2000 supports integrated host and LAN printing. Supported host platforms include AS/400, MVS, VM, VSE, System/370™, and OS/390. For more information about host printing, see "Chapter 3. Planning to Print from Host Systems" on page 21.

Note: Support for the Upload-n-Print feature of PSF for OS/2 (the direct submission of print jobs from LAN application to host-attached printers) is not available in IBM Infoprint Manager for Windows NT and Windows 2000.

Preparing for Migration

Before you migrate from PSF for OS/2 to IBM Infoprint Manager for Windows NT and Windows 2000, you must upgrade your PSF for OS/2 software to the latest CSD service level. To obtain the latest service, go to ftp://ftp.software.ibm.com/printers/products/psfos2/service. You must apply both the latest CSD and the latest ALL20 (interim CSD) to each copy of PSF for OS/2 .

CAUTION:
If you do not upgrade PSF for OS/2 before migrating, you may experience unpredictable problems.

Migrating AFP Resources

In PSF for OS/2, AFP resources are managed using the Resource Librarian. If you have special AFP resources that you want to use with Infoprint Manager, you must first obtain a complete list of the resources and where they are stored. Begin compiling this resource catalog by copying all files ending in **.GRP** in the **PSF2\SYSTEM** directory. You must move each resource file listed in the **.GRP** files to an appropriate location on the Windows NT/Windows 2000 system. In addition, if you have any resources defined outside of the resource library, you must locate these resources and move them to the Windows NT/Windows 2000 system. Your PSF for OS/2 device definitions include explicit paths to these resources, so you can find them when you create the device summaries that you use to migrate printer definitions.

AFP resources used with OS/2 are compatible with Windows NT/Windows 2000. Use the File Transfer Protocol (FTP) in binary mode to transfer these resource files from OS/2 to the target Windows system.

For more information on how IBM Infoprint Manager for Windows NT and Windows 2000 manages AFP resources, see "Chapter 4. Managing AFP Resources" on page 25.

Migrating Printer Definitions

The migration of PSF for OS/2 printer definitions is essentially a manual process. The first step is to print out a printer summary for each "device" defined under PSF for OS/2. After you install IBM Infoprint Manager for Windows NT and Windows 2000, consult these printouts when you use the **Create Printer** wizard in the Infoprint Manager Administration GUI to create destination objects.

When you created printer devices in PSF for OS/2, you had a choice of several attachment types: Communication, Parallel, TCP/IP, Channel, Print Service Adapter (PSA), and none. Varying levels of support are available for each of these attachment types in IBM Infoprint Manager for Windows NT and Windows 2000.

Communication

The communication attachment type was available under PSF for OS/2 to communicate (through IBM Communications Manager for OS/2 or IBM Communications Server for OS/2) with printers linked by Synchronous Data Link Control (SDLC). IBM Infoprint Manager for Windows NT and Windows 2000 does not support this attachment type. Printers that used this attachment type in PSF for OS/2 must use a different means of attaching to Infoprint Manager.

Parallel

The parallel attachment type in PSF for OS/2 could be used to attach a number of printers directly to a parallel or serial port on a PC. In most cases, IBM Infoprint Manager for Windows NT and Windows 2000 can communicate with these same printers as "passthrough destinations" through the Passthrough DSS. Use the information in the PSF for OS/2 printer summary to redefine each parallel-attached printer as an Infoprint Manager passthrough destination.

TCP/IP

The migration of TCP/IP-attached PSF for OS/2 printers to Infoprint Manager is straightforward. Simply use the information contained in the PSF for OS/2 printer summary to redefine the printer as an Infoprint Manager TCP/IP-attached PSF printer.

Channel

Under PSF for OS/2, a channel attachment type was available to allow attachment through the S/370 Channel Emulator/A Adapter. The server systems recommended for IBM Infoprint Manager for Windows NT and Windows 2000 do not support this adapter card. Therefore, to migrate a channel-attached PSF for OS/2 printer to IBM Infoprint Manager for Windows NT and Windows 2000, you must use the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card. Contact your IBM customer service representative to obtain this card.

After you install and configure the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card, use the printer summary report to help you create the new channel-attached destination.

PSA

The PSA attachment type in PSF for OS/2 allows you to attach a number of printers through an IBM Micro Channel® Print Service Adapter. Because Windows does not support this adapter, when you migrate PSA-attached printers from PSF for OS/2, you must attach them to the Infoprint Manager server in some other way.

IBM recommends migrating all PSF for OS/2 PSA-attached printers to the TCP/IP attachment type in IBM Infoprint Manager for Windows NT and Windows 2000. You need an i-data 7913 IPDS Printer LAN Attachment converter, a device that is assigned a TCP/IP address on your network and is connected by a coaxial cable to the printer.

None

Although IBM Infoprint Manager for Windows NT and Windows 2000 does not support the PSF for OS/2 attachment type of none, you can simulate this attachment type by using transform objects (terminating transforms). However, IBM Infoprint Manager for Windows NT and Windows 2000 has no equivalent of the AIN3DNOP function in PSF for OS/2, which redirects IPDS output to fax software.

Migrating Host Receivers

PSF Direct Host Receivers

If you are currently using PSF Direct in your PSF for OS/2 environment, you probably want similar functionality in your new Infoprint Manager environment. You must migrate your PSF Direct host receivers so that the new Infoprint Manager systems communicate through the same channels as their PSF for OS/2 precursors. Collect the following information for each PSF Direct host receiver on your current PSF for OS/2 servers:

- LU alias
- Inactivity Timer
- Device-Busy Timer
- Device

You can collect this information through the PSF Direct GUI on each PSF for OS/2 server. As PSF Direct provides no way to print the output, you need to copy this information to paper by hand. With this information, you can recreate PSF Direct host receivers in the Management Console.

DPF Host Receivers

If you are currently using Distributed Print Function (DPF) for printing from the host, you can migrate your DPF host receivers either to PSF Direct or to MVS Download. For more information about host printing see "Chapter 3. Planning to Print from Host Systems" on page 21.

Host Communication

Under PSF for OS/2, PSF Direct host receivers require either IBM Communications Manager for OS/2 or IBM Communications Server for OS/2. Under IBM Infoprint Manager for Windows NT and Windows 2000, PSF Direct host receivers require a similar product. This product is IBM SecureWay Communications Server for Windows NT at version 6.1 or later. To make the communications configuration on Windows NT/Windows 2000 easier, IBM recommends that you navigate to the **CMLIB** subdirectory under the directory where IBM Communications Manager for

OS/2 was installed. Then you should copy all files ending in **.NDF**. The information in these **.NDF** files is useful for configuring IBM SecureWay Communications Server for Windows NT.

Notes:

1. The most useful **.NDF** file is the one that OS/2 currently uses. To identify this file, open the setup program for IBM Communications Manager for OS/2 or IBM Communications Server for OS/2. The first screen indicates which **.NDF** file is active.

2. If you do not use **.NDF** files to help you perform your host communication configuration, you must obtain all necessary configuration information from your host system administrators.

Migrating Custom Transform Exits

The ability to create and use custom transforms to modify an output stream is a powerful feature of PSF for OS/2. Infoprint Manager provides powerful PostScript and PCL transforms to automatically perform many tasks that custom transform exit programs performed under PSF for OS/2. However, there still may be occasions when customized processing is needed.

To allow this type of customization, the Infoprint Manager server supports *transform objects*. One or more transform objects may be associated with an actual destination. Each transform object is associated with a dynamic link library (DLL) that performs the transform.

To make the creation of transform objects easier, Infoprint Manager ships with the Infoprint Command Line Transform, a DLL roughly equivalent to the XFMFLTR feature that shipped with PSF for OS/2. Using the Infoprint Command Line Transform frees you from having to implement a complete DLL yourself. Instead, you implement your transform as batch files, scripts, or executables. Arguments to this underlying code are passed using control sequences similar to those used in PSF for OS/2 with XFMFLTR.

The process of migrating your PSF for OS/2 custom transform exits should be straightforward. You probably used XFMFLTR with PSF for OS/2. In this case, you should simply modify your OS/2 batch files, scripts, and executables to run under Windows NT. Then use the Infoprint Command Line Transform to access these migrated programs through a transform object. If you used a customized DLL under PSF for OS/2, migrate the DLL to a standalone executable. Access this executable through the Infoprint Command Line Transform.

Note: Infoprint Manager does not support customized Windows DLLs for transform exit functions. To apply custom transform exits, use the Infoprint Command Line Transform.

Use the Infoprint Manager Administration GUI to create transform objects and associate them with actual destinations.

Chapter 8. Collecting Required Information

To configure your Infoprint Manager environment properly, you need to collect configuration information for each of the environment's individual components. Several worksheets are provided to make collecting this information easier.

Planning for a LAN Connection

First, connect your Windows NT/Windows 2000 systems to your local area network (LAN). You can perform this task when you install Windows NT/Windows 2000 or after you finish the installation. In either case, you may find it useful to complete the following worksheet ahead of time for each system that is new to your LAN.

Note: This worksheet is specifically designed for use with Windows NT, but it may be useful for TCP/IP configuration on all Windows systems.

Table 7. LAN TCP/IP Configuration Worksheet

Control Panel Prompt	Description	Value
Computer Name	The (NetBIOS) name of this computer on the Windows network.	
Domain/Workgroup	The group of Windows computers to which this computer belongs.	
Adapter	The physical card used to connect this system to the network. An appropriate driver for this card may need to be added.	
Obtain IP address from DHCP server?	The Dynamic Host Configuration Protocol (DHCP) provides a new IP address for this system each time it is restarted. If DHCP is not in use, a static IP address must be assigned.	__ yes __ no
IP Address	A dotted-decimal address (for example, 9.99.178.17) statically assigned to this system. Not needed if DHCP is in use.	
Subnet Mask	A dotted-decimal number (for example, 255.255.255.0) indicating which part of the IP address identifies the network and which part identifies the system. Not needed if DHCP is in use.	
Default Gateway	The system used by default to allow this network to communicate with other networks. Not needed if DHCP is in use.	

Table 7. LAN TCP/IP Configuration Worksheet (continued)

Control Panel Prompt	Description	Value
DNS Host Name	The (Internet) name of this system recognized by the Domain Name System (DNS). If possible, this name should be the same as the Windows computer name.	
DNS Domain	The Internet domain to which this computer belongs.	
DNS Service Search Order	An ordered list of IP addresses of DNS servers. These systems are queried to resolve Internet names into IP addresses.	
Domain Suffix Search Order	An ordered list of TCP/IP domains to search for a given host name.	
Primary WINS Server	The first Windows Internet Name Service (WINS) system to query to resolve a Windows (NetBIOS) system name into an IP address.	
Secondary WINS Server	The second WINS system to query.	
Enable DNS for Windows Resolution?	DNS may be used to resolve Windows (NetBIOS) names into IP addresses.	__ yes __ no
Enable LMHOSTS Lookup?	LMHOSTS files statically associate Windows system names to IP addresses.	__ yes __ no
Scope ID	The set of IP addresses assignable for a Windows domain is a called a *scope*.	
Enable IP Forwarding?	IP Forwarding allows data to be forwarded on a multi-homed system.	__ yes __ no

Planning for a Printer Network Connection

You may wish to create a separate network of printers with higher bandwidth connectivity. In this case, you must configure an additional network adapter on each IBM Infoprint Manager for Windows NT and Windows 2000 server system that controls printers on the independent printer network. Use the following worksheet to assist in this configuration.

Note: This worksheet is specifically designed for use with Windows NT, but it will assist you in performing the necessary TCP/IP configuration on all Windows systems.

Table 8. Printer Network TCP/IP Configuration Worksheet

Control Panel Prompt	Description	Value
Adapter	The physical card used to connect this system to the printer network. An appropriate driver for this card may need to be added.	
IP Address	A dotted-decimal address (for example, 9.99.178.17) statically assigned to this system on the printer network. Required for printer network participation.	
Subnet Mask	A dotted-decimal number (for example, 255.255.255.0) indicating which part of the IP address identifies the network and which part identifies the system. Required for printer network participation.	
Default Gateway	The printer network should not require communication with another network. All communication with the printers is mediated by Infoprint Manager.	none

Planning for Printers

Each actual destination in your Infoprint Manager environment must be configured. The specific information required to perform each configuration varies according to the destination support system (DSS) and attachment type to be used. To determine the appropriate DSS and attachment type, see "Understanding Destination Support Systems (DSS)" on page 15.

A worksheet is available to help you prepare to create each type of printer.

PSF TCP/IP Printer

Before creating a PSF TCP/IP printer, complete the following worksheet.

Table 9. PSF TCP/IP Printer Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	

Table 9. PSF TCP/IP Printer Worksheet (continued)

Wizard Prompt	Description	Value
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
Model	The printer model, such as **InfoPrint60** or **4320**. **Note:** This name is case-sensitive.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	
TCP/IP port	The port used by the printer for communication. (Typically, port 5001 is used.)	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

PSF Channel Printer

Before creating a PSF channel printer, complete the following worksheet.

Table 10. PSF Channel Printer Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	

Table 10. PSF Channel Printer Worksheet (continued)

Wizard Prompt	Description	Value
Model	The printer model, such as **3825** or **3900**. **Note:** This name is case-sensitive.	
Channel device address	The two-digit hexadecimal control-unit address assigned to the physical print device hardware. Consult printer documentation for instructions on how to determine this value.	
Channel slot number	The system slot number where the channel card is installed. If more than one channel card is installed, consult the procedure in *IBM Infoprint Manager for Windows NT and Windows 2000: Getting Started* to determine the correct value. Otherwise, the default value of "1" is appropriate.	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

PSF Command Printer

Before creating a PSF command printer, complete the following worksheet.

Table 11. PSF Command Printer Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	

Table 11. PSF Command Printer Worksheet (continued)

Wizard Prompt	Description	Value
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
Model	The printer model, such as **4340** or **4019**. **Note:** This name is case-sensitive.	
TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Device	The AIX device name. This is not applicable for Windows NT/Windows 2000.	Leave blank.
Printer command	The command string used to send a job to the appropriate Windows printer. For example, `lpr -S serverName - P printerName`. **Note:** This command is case-sensitive.	
Data stream	The data stream expected by the printing device (PCL4, PCL5, PCL5C, or PPDS).	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Note: Prior to using this worksheet to create your Infoprint Manager actual destination, you may need to use the standard Windows **Add Printer Wizard** to make the printer available.		

PSF Other-Driver Printer

Before creating a PSF other-driver printer, complete the following worksheet.

Table 12. PSF Other-Driver Printer Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
Model	The printer model, such as **InfoPrint20** or **4320**. **Note:** This name is case-sensitive.	
TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Device	The Windows port associated with this destination.	
Data stream	The data stream expected by the printing device (for example, PCL4 or PPDS).	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

BSD Printer

Before creating a BSD printer, complete the following worksheet.

Table 13. BSD Printer Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object. **Note:** This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Printer command	The command to issue to submit a job to this remote destination. Typically, this is a call to the **lpr** command. For example, `lpr -S serverName -P printerName`. **Note:** This command is case-sensitive.	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

Passthrough Printer

Before creating a Passthrough printer, complete the following worksheet.

Table 14. Passthrough Destination Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object. For example, the name you will use for the passthrough printer you just attached. **Note:** This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
Windows port name	The name of the Windows port to assign to this destination. Enter the Windows port name that you want to use **exactly** as it appears to Windows.	
TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used for SNMP printers only.	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

IPP Printer

Before creating an IPP printer, complete the following worksheet.

Table 15. IPP Destination Worksheet

Wizard Prompt	Description	Value
Name	The name for the actual destination object. This is the printer URI, for example, np17.prtrm4.bldr.ibm.com. **Note:** This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. **Note:** This name is case-sensitive.	
Windows port name	The name of the Windows port to assign to this destination.	
TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used for SNMP printers only.	
Logical destination	The logical destination that directs jobs to this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **Note:** This name is case-sensitive.	
Queue	The queue that holds jobs destined for this actual destination. **Note:** This name is case-sensitive.	__ Default __ Other:

PSF Direct Only TCP/IP Printer

If you want to set up a TCP/IP-attached printer to accept jobs only from mainframe host systems, you should first complete the following worksheet.

Table 16. PSF Direct Only TCP/IP Printer Worksheet

Management Console Prompt	Description	Value
Destination	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	

Table 16. PSF Direct Only TCP/IP Printer Worksheet (continued)

Management Console Prompt	Description	Value
TCP/IP Internet Address	The dotted-decimal IP address used to access this printer.	
TCP/IP Port Number	The port used by the printer for communication. (Typically, port 5001 is used.)	
Connection Timeout	Number of seconds that the server will try to establish a connection with the destination before terminating the PSF Direct session.	
Intervention Timer	Number of seconds that the server will wait for a problem at the printer (for example, "Printer out of paper") to be resolved before canceling a job.	

PSF Direct Only Channel Printer

If you want to set up a channel-attached printer to accept jobs only from mainframe host systems, you should first complete the following worksheet.

Table 17. PSF Direct Only Channel Printer Worksheet

Management Console Prompt	Description	Value
Destination	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	
Channel Device Address	The two-digit hexadecimal control-unit address assigned to the physical print device hardware. Consult printer documentation for instructions on how to determine this value.	
Channel Slot Number	The system slot number where the channel card is installed. If more than one channel card is installed, consult the procedure in *IBM Infoprint Manager for Windows NT and Windows 2000: Getting Started* to determine the correct value. Otherwise, the default value of "1" is appropriate.	

Table 17. PSF Direct Only Channel Printer Worksheet (continued)

Management Console Prompt	Description	Value
Intervention Timer	Number of seconds that the server will wait for a problem at the printer (for example, "Printer out of paper") to be resolved before canceling a job.	

PSF Direct Only Non-IPDS Printer

If you want to set up a non-IPDS printer to accept jobs only from mainframe host systems, you should first complete the following worksheet.

Table 18. PSF Direct Only Non-IPDS Printer Worksheet

Management Console Prompt	Description	Value
Destination	The name for the actual destination object (8 character limit). **Note:** This name is case-sensitive.	
Data Stream	The data stream expected by the printing device (such as PCL4 or PPDS).	
Command to Print	The command used to submit jobs to this destination. **Note:** This command is case-sensitive.	
Printer Memory	The amount of memory available on the printer itself.	

Planning for Host Receivers

A host receiver is used to accept print jobs submitted from mainframe host systems (such as MVS, VM, VSE, OS/390, or AS/400). You may create an MVS Download receiver or a PSF Direct host receiver.

PSF Direct Host Receiver

Complete the following worksheet to help you set up a PSF Direct host receiver.

Table 19. PSF Direct Host Receiver Worksheet

Management Console Prompt	Description	Value
SNA logical unit alias name	The local alias of the name used to start an SNA conversation with this host receiver.	

Table 19. PSF Direct Host Receiver Worksheet (continued)

Management Console Prompt	Description	Value
Actual destination name	The name of the associated actual destination object. **Note:** This name is case-sensitive.	
Description	Text to describe this receiver (optional).	
Inactivity limit	Number of seconds to wait for jobs from a connected host before disconnecting.	
Device busy limit	Number of seconds for host systems to wait for the printer to become available when it is in use by other print processes.	

MVS Download Receiver

Complete the following worksheet to help you set up an MVS Download receiver.

Table 20. MVS Download Host Receiver Worksheet

Management Console Prompt	Description	Value
Port Number	The port assigned for communication with OS/390 or MVS. This value must be the same as the port assigned during configuration of the host system.	
Target Destination Name	The Infoprint Manager logical destination to which jobs are routed from this receiver by default. This default may be overridden with the appropriate OS/390 or MVS job parameters and printer control file settings. **Note:** This name is case-sensitive.	
Print Control File	The file that contains the appropriate attributes for jobs submited to this receiver. You may use the default file, or you may point to a customized version of this default file.	

Table 20. MVS Download Host Receiver Worksheet (continued)

Management Console Prompt	Description	Value
Exit Program Name	The program that processes jobs submitted to this receiver from the host and passes the jobs to the requested Infoprint Manager destination. Typically, the default program **mvsdsubm.exe** is used.	
Retain command files	Indicate whether to save the command files for jobs that do not print correctly.	__ yes __ no
Process one file at a time	Indicate whether Infoprint Manager should wait for a previous job to complete before starting to process the next job.	__ yes __ no

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