

Infoprint Manager for Windows



Introduction and Planning Guide

Version 2 Release 1

Infoprint Manager for Windows



Introduction and Planning Guide

Version 2 Release 1

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About this publication

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

This publication helps you prepare to use Infoprint Manager for Windows. 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.

Organization of this publication

This publication contains the following chapters and appendix:

- Chapter 1, "Introduction" on page 1
- Chapter 2, "Planning for configuration" on page 13
- Chapter 3, "Planning to print with host systems" on page 17
- Chapter 4, "Using AFP resources" on page 23
- Chapter 5, "Planning to share printers" on page 25
- Chapter 6, "Verifying prerequisites" on page 31
- Chapter 7, "Migrating to Infoprint Manager for Windows Version 2 Release 1" on page 35
- Chapter 8, "Collecting required information" on page 47
- "Reviewing components" on page 51

Most recent information

The most recent product information (including updates of this manual and the related Infoprint Manager publications), is found on the World Wide Web at the IBM Printing Systems site (<http://www.ibm.com/printers>). From the Printing Systems homepage:

1. Under **Resources For** click **Infoprint Manager**.
2. Under **Products** in the right hand navigation bar click **Infoprint Manager for AIX** or **Infoprint Manager for Windows**.
3. Under **Product Resources** click **Product Library**.
4. Click on the appropriate Infoprint Manager publication.

The Infoprint Publication Library

For the most current information, please go to the IBM Printing Systems website at <http://www.ibm.com/printers>.

Infoprint Manager for AIX Publication Library

Infoprint Manager for AIX provides publications in PDF format on a CD-ROM supplied with the product. You can download PDF versions of these publications or order printed copies of these publications from IBM at the following website:

<http://www.elink.ibm.com/public/applications/publications/cgi-bin/pbi.cgi?CTY=US>

Notes:

1. There is a fee for the printed manuals.
2. You can use the form number specified for a publication to download a PDF version or order a printed version.

Here is the list of publications for Infoprint Manager for AIX:

- *IBM Infoprint Manager for AIX: Introduction and Planning Guide*, G544-5833. This publication gives an overview of Infoprint Manager for AIX, introduces its concepts, and helps you prepare to use it. It addresses migration from previous versions of the product. Finally, this publication explains the differences between the AIX and Windows version of Infoprint.
- *IBM Infoprint Manager for AIX: Getting Started*, G544-5817. This publication helps you install and configure IBM Infoprint Manager for AIX. It focuses primarily on server and client system software configuration.
- *Guidelines for Installing Infoprint Manager for AIX 4.1 in an HACMP Configuration*, G544-5818. This publication helps you install and configure HACMP with IBM Infoprint Manager for AIX. It also tells you how to use HACMP with IBM Infoprint Manager for AIX.
- *IBM Infoprint Manager for AIX: Procedures*, G544-5815. This publication describes the primary tasks necessary for setting up an Infoprint environment, submitting print jobs, scheduling jobs, and managing the print environment. This publication contains all the IBM Infoprint Manager for AIX procedures that are available as topics on the web in book format, including an index and table of contents for ease of retrievability.
- *IBM Infoprint Manager: Reference*, S544-5475. For print administrators, operators, and application programmers with the need to perform command-line functions, this publication describes the commands, utilities, transforms, attributes, and attribute values associated with Infoprint.
- *PSF Direct Network Configuration Guide for System/370*, S544-5486. For system administrators or network specialists responsible for configuring a system for Print Services Facility (PSF) Direct. PSF Direct is a function of IBM Infoprint Manager for AIX that allows another PSF program (PSF/VM, PSF/MVS, or PSF/VSE) to print remotely, using the SNA LU 6.2 protocol, on printers supported by Infoprint. The PSF program sends the print data stream directly to the Infoprint printer.
- *IBM PSF for AIX: AFP Upload Configuration Guide Using SNA Server/6000*, S544-5422. For system administrators, this publication describes how to configure AFP Upload on both AIX (client) and MVS (server) to send files to the JES spool on the MVS server, using a SNA Server/6000 protocol.
- *IBM PSF for AIX: AFP Upload Configuration Guide Using TCP/IP*, S544-5423. For system administrators, this publication describes how to configure AFP Upload on both AIX (client) and MVS (server) to send files to the JES spool on the MVS server, using a TCP/IP protocol.

Infoprint Manager for Windows Publication Library

Infoprint Manager for Windows provides publications in PDF format on a CD-ROM supplied with the product. You can download PDF versions of these publications or order printed copies of these publications from IBM at the following website:

<http://www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi?CTY=US>

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| Here is the list of publications for Infoprint Manager for Windows:

- | • *IBM Infoprint Manager for Windows: Introduction and Planning Guide*, G544-5716. This publication gives an overview of Infoprint Manager for Windows, introduces its concepts, and helps you prepare to use it. It describes 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 version of Infoprint.
- | • *IBM Infoprint Manager for Windows: Getting Started*, G544-5717. This publication helps you install and configure Infoprint Manager for Windows. It focuses primarily on server and client system software configuration, but it also includes information for the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card.
- | • *IBM Infoprint Manager for Windows: Procedures*, G544-5814. This publication contains all the Infoprint Manager for Windows procedures that are available as topics on the web in book format, including an index and table of contents for ease of retrievability.
- | • *IBM Infoprint Manager: Reference*, S544-5475. For print administrators, operators, and application programmers with the need to perform command-line functions, this publication describes the commands, utilities, transforms, attributes, and attribute values associated with Infoprint.

| For information on the use of PSF Direct with Infoprint Manager for Windows,

| visit the Product Library page for Infoprint Manager for Windows at

| <http://www.ibm.com/printers/R5PSC.NSF/Web/impntrefinfo>.

Chapter 1. Introduction

IBM Infoprint Manager for the Windows Operating System, hereafter called Infoprint Manager for Windows, 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 many printers dispersed across your enterprise. In either case, Infoprint Manager helps you make the most of your printing resources.

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 default 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 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, media, resource-context, and transform 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.

Basic print flow

You can submit print jobs to the Infoprint Manager server in a variety of ways. Various print submission methods are described in detail in Chapter 3, “Planning to print with host systems” on page 17 and Chapter 5, “Planning to share printers” on page 25. No matter which method you use, your jobs will travel similar paths once they get to the server.

In the most common configuration, you submit jobs to an Infoprint Logical Destination (LD). The LD forwards the job to a print queue, and the print queue forwards the job to an Infoprint Actual Destination (AD). The AD then sends the job to the printer. See **Job B** in Figure 1 on page 3 for an illustration. This configuration is especially useful if you have multiple printers and want to balance the workload between them.

Another common configuration is to submit jobs directly to the AD. The AD then forwards the job to the LD that is associated with it. The LD sends the job to a print queue, and the print queue sends the job back to the AD where it started. Then, the AD sends the job to the printer. See **Job A** in Figure 1 on page 3 for an illustration. This configuration is particularly useful when you need to make sure jobs are sent to a specific printer.

Notes:

1. If you submit jobs directly to an AD, the AD and LD that you associate with it must reside on the same server.
2. If you use the Distributed Print Facility (DPF) to print from a host system, you must submit directly to an AD.

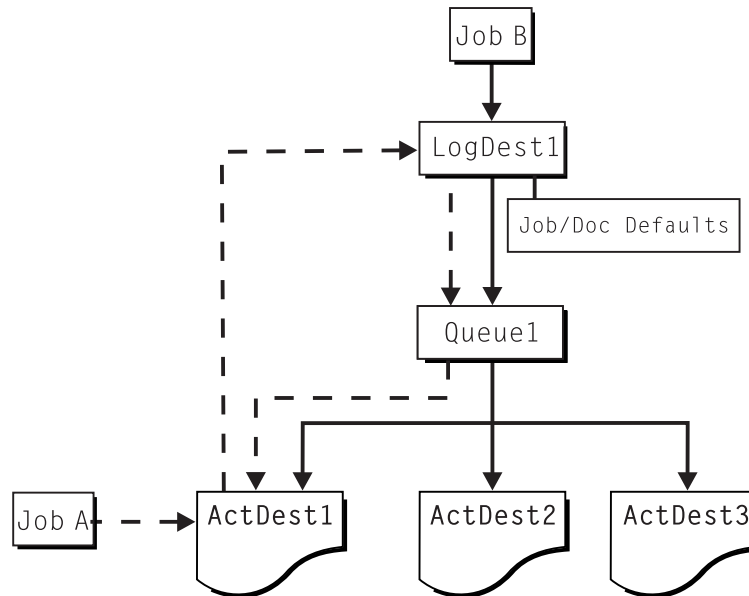


Figure 1. Infoprint Manager print flow. Job B is submitted directly to a logical destination, while Job A is submitted to an actual destination

The following sections provide more information about the different kinds of Infoprint objects and what happens to your print job at each step of the process.

Logical destinations

Logical destinations are objects in your Infoprint Manager system that you can submit jobs to. Your initial 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 all 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 initial 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. In general, you create one actual destination for each physical output device that you use with Infoprint Manager. It is possible to create more than one actual destination for a device, but that configuration is not common. You configure the 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.

Host receivers

A host receiver provides the point of connection between Infoprint Manager and a host system. The host system connects with the host receiver and downloads print jobs.

There are three kinds of host receivers: PSF Direct host receivers, DPF host receivers, and MVS Download receivers. You create the type of host receiver you need, depending on the host print method you choose. All three host receivers receive print jobs from MVS and submit them to Infoprint Manager.

Refer to Chapter 3, “Planning to print with host systems” on page 17 for additional information about host printing.

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 3 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.

Media

A medium represents the type of media, that is, paper, envelopes, transparencies, or multi-part forms, on which an actual destination prints. You can configure a medium to describe its dimensions, color, purpose, or any other useful information.

Infoprint Manager uses the names of media as values for actual destination attributes, such as **media-supported**. Actual destination attributes that reference media can use any name as long as the name is within syntax limits.

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.

Transforms

Transforms are Infoprint objects (like queues and destinations) that you create and configure in Infoprint Manager. Transforms receive data in a particular format or formats, process the data in some way, and output the changed data. When you create a transform, you have complete control over what data format or formats it operates on and what type of processing it does. The processing that the transform performs can be anything from simply copying the data to a different place on disk, to filtering the data stream that the transform receives (for example, to remove a particular PostScript order), to transforming the data to a completely different format (for example, converting PCL to AFP).

In addition, you can specify whether or not you want the file that the transform produces to be printed. If the transform doesn't submit the file to be printed (for example, if the transform completes its processing and saves the file to a different location), it is called a *terminating transform*.

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/Windows 2000 system that meets the **Minimum** recommended hardware requirements (see Table 2 on page 31 for details on hardware configurations) 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” on page 13, 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 workload balancing. You can also use these logs to determine billing procedures or simply to determine how resources are being used at your installation.

Note: The Infoprint Manager server provides standard accounting logs, and you can also get customized accounting and audit logs with printers that use the PSF DSS.

Infoprint Manager interfaces

The main Infoprint Manager interfaces are the Infoprint Manager Administration GUI and the Infoprint Manager Operations GUI, collectively known as the Infoprint Manager GUIs. To administer your Infoprint Manager environment, you will primarily use the Infoprint Manager Administration GUI. You can use this Java™-based interface to create, delete, or modify most Infoprint objects. Printer creation wizards make it easy for you to create Infoprint actual destinations.

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. In the Infoprint Manager Operations GUI, you can release jobs for printing and disable actual destinations. You cannot, however, modify the fundamental configuration of the Infoprint Manager environment; you cannot delete or add logical destinations, for example.

Both of the Infoprint Manager GUIs are installed on the Windows system that the Infoprint Manager server is installed on. In addition, they can both be installed on remote systems. As a result, administrators and operators can manage the Infoprint Manager system without going to the Windows NT/Windows 2000 system that Infoprint Manager is installed on.

The third interface that you will use for some administrative tasks is the Infoprint Manager Management Console. These tasks include the following:

- Stopping and restarting the Infoprint Manager server
- Submitting test jobs
- Creating non-shared PSF Direct destinations
- Managing PSF Direct host receivers
- Managing DPF host receivers
- Managing MVS™ Download receivers
- Viewing and deleting resources in the DPF Resource Database
- Managing security
- Viewing server and destination logs
- Controlling tracing

The Management Console only runs on the Windows NT/Windows 2000 system where the Infoprint Manager server is installed. If you want to be able to use the Management Console on a remote system, you must either:

- Install the Infoprint Manager server on a system running Windows NT Server 4.0, Terminal Server Edition, then install the Windows Terminal Server Client on the remote system
- Install the Infoprint Manager server on a system running Windows 2000 Server and use the built-in Terminal Server capabilities

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 while Infoprint Manager for AIX and Infoprint Manager for Windows support many of the same features and functions, each product has unique features not available in the other.

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
 - GIF
 - JPEG
 - Line data (EBCDIC)
 - PCL
 - PDF Version 1.4
 - PostScript (level 2 or 3)
 - TIFF
 - SAP ABAP and OTF
- Adobe PostScript transform
- PCL transform
- Full event notification
- Infoprint Manager Notifications to enable client systems to receive messages from Infoprint Manager Server systems
- 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
- IBM Page Printer Formatting Aid (PPFA)
- The **pdaccount** command, which you can use to generate comma-delimited reports of print server data to be fed into spreadsheets
- Configurable transform support (through transform objects)

Understanding Infoprint Manager for 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
- Separate features for print-on-demand customers include the following:
 - A simplified “basic” version of the Infoprint Manager server that defaults to one-to-one mapping of logical and actual destinations.
 - Variable data support
 - Impositioning support
 - Infoprint Submit client support
- Support for the following input document formats:
 - DITROFF
 - PPML
- Infoprint E-Mail output support
- Infoprint Fax input and output support
- Infoprint SAP Print Feature, which includes the **sap2afp** transform and callback support and sapconnect support
- Support for printers that use standard AIX printer backend programs (**piobe** and some versions of **rembak**)
- Impositioning support
- InfoColor 70 support
- Infoprint Color 100 support
- Infoprint Color 130 Plus support
- AFP Upload:
 - Upload-SNA
 - Upload-TCP/IP
- SMIT interface for performing tasks not supported by the Infoprint Manager Administration GUI, including PPO and security administration
- 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.

Understanding Infoprint Manager for Windows features

This release of IBM Infoprint Manager for Windows includes the following features that 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
- Distributed Print Facility (DPF) for host printing
- Infoprint SAP Print Feature, which includes the **sap2afp** transform
- 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.)
- Customization of MVS Download without programming
- Graphical administration of the Non-DCE Group and Access Control List (ACL) with the Infoprint Manager Management Console

Supported printers

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

PCL printers

Infoprint Manager for Windows supports all compatible printers capable of interpreting the Hewlett-Packard Printer Control Languages (PCL4, PCL5, PCL5c, PCL5e, PCLXL, and PCL6). Infoprint Manager is capable of converting all kinds of datastreams to PCL4, PCL5, PCL5c, or passing through any version of PCL to your PCL printer.

PostScript printers

Infoprint Manager for Windows supports printing to PostScript printers by passing your PostScript directly to your PostScript printer.

PPDS Printers

In addition, Infoprint Manager for Windows is capable of driving any printer that accepts the IBM Personal Printer Data Stream (PPDS). Infoprint Manager is capable of converting all kinds of datastreams to PPDS or passing through any version of PPDS to your PPDS printer.

Note: Infoprint Manager only supports non-impact PPDS printers as PSF Other-driver and PSF Command devices.

IBM Printers

The following lists supported IBM printers:

- IBM Infoprint 20 Printer
- IBM Infoprint 32 Printer
- IBM Infoprint 40 Printer
- IBM Infoprint 60 Printer
- IBM Infoprint 62 Printer

- IBM Infoprint 1116 Printer
- IBM Infoprint 1120, 1125, 1130, 1140, and 1145 Printers
- IBM Infoprint Color 1220 and 1228 Printers
- IBM Infoprint 2000 Printer SCS and AFP Models
- IBM Infoprint 2085 and 2105 Printers
- IBM Infoprint 3000 Advanced Function Printer Models ES1 and ED1/ED2
- IBM Infoprint 3112 and 3116 Advanced Function Printers with Feature 4140
- IBM 3130 Advanced Function Printer with Feature 4120
- IBM 3160 Advanced Function Printer with Feature 4120, 4161, 4162, or 4163
- IBM 3816 Page Printer Models 01D and 01S with Feature 7653 or 7654
- IBM 3825 Page Printer
- IBM 3827 Page Printer
- IBM 3828 Advanced Function MICR Printer
- IBM 3829 Advanced Function Printer
- IBM 3835 Page PRinter Model 001 (including support for the 3835 MICR Printing Interface RPQ)
- IBM 3835 Page Printer Model 002 in 3835 (including support for the 3835 MICR Printing Interface RPQ and for the Set Media Modificatinos command to drive post-processing devices, such as Beste Bunch spot color printers)
- IBM 3900 Advanced Function Printer Models 001, D01, D02, 0W1, 0W3, DW1, and DW2 (including support for the MICR Post-Processing Interface Feature, the Set Media Modifications command to drive post-processsing devices, such as Beste Bunch spot color printers, and the Interface Feature 4720)
- IBM 3912 Page Printer Models AS0, AS1, NS0, and NS1
- IBM 3916 Page Printer Models AS1 and NS1
- IBM 3930 Page Printer Models 02D and 02S with Feature 9217 or 9476
- IBM 3930 Page Printer Models 03D and 03S
- IBM 3935 Advanced Function Printer with Feature 4020, 4121, or 4161
- IBM Infoprint 4000 Model ID1/ID2 Printer
- IBM Infoprint 4000 Model ID3/ID4 Printer
- IBM Infoprint 4000 Model IR1/IR2 Printer
- IBM Infoprint 4000 Model IR3/IR4 Printer
- IBM Infoprint 4000 Model IS1 and IS2 Printers
- IBM Infoprint 4005 HC2 Hi-Lite Color PrinterPrinter
- IBM LaserPrinter 4019, all models
- IBM LaserPrinter 4028 Models AS1 and NS1 (including support for the 4028 with MICR, RPQ S02177)
- IBM LaserPrinter 4029, all models
- IBM LaserPrinter 4037, all mdoels
- IBM LaserPrinter 4039 Models 10D, 10R, 12L, 12R, and 16L
- IBM 4100 Printer
- IBM 4232 Printer
- IBM 4312 Network Printer 12. 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.

- 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.
- 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.
- IBM 4400 Thermal Printer
- IBM 6400 Printer with IPDS coax feature V3R1 or higher
- IBM 6408 Model CTA Printer with IPDS coax feature V3R1 or higher
- IBM 6412 Model CTA Printer with IPDS coax feature V3R1 or higher

You typically accomplish Other-driver or Command attachment for printers such as the IBM Infoprint 1116 or IBM Infoprint Color 1220 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 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.

Supported data streams

Infoprint Manager for Windows is capable of converting the following datastreams to IPDS, PCL4, PCL5, PCL5c, or PPDS:

- Advanced Function Printing™ (AFP)
- ASCII
- DBCS ASCII
- CompuServe Graphics Interchange format (GIF)
- EBCDIC
- Joint Photographic Experts Group image (JPEG)
- PCL (PCL 6 and below)
- PDF (1.4 and below)
- PostScript (level 3 and below)
- Personal Printer Data Stream (PPDS)
- SAP ABAP and OTF (with purchase of the Infoprint Manager: SAP Print Feature)
- S/370 line data, also known as line data
- Tagged Image File Format (TIFF)

In addition, Infoprint Manager will pass through any datastream including PostScript, PCL5e, PCL6, and PCLXL.

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

This chapter describes destination configuration models that may be important to you as you design your Infoprint Manager environment.

Understanding destination configuration models

Destination configuration models show the relationships among logical destinations, job- and document-attribute defaults, queues, and actual destinations. A default 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 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.) You must configure the actual destinations to enable direct submission.

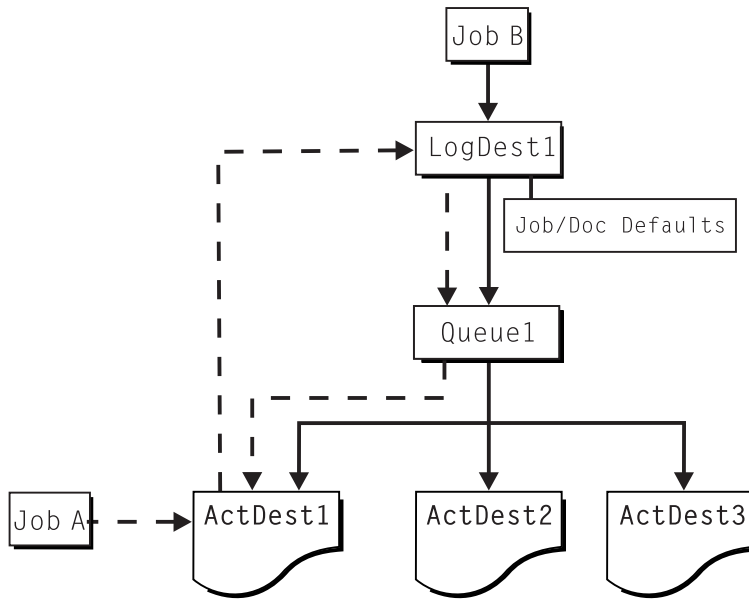


Figure 2. Default Destination Configuration Model. Job A (submitted to an actual destination) prints on that actual destination. Job B (submitted to the logical destination) prints on the first actual destination that can support it.

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.

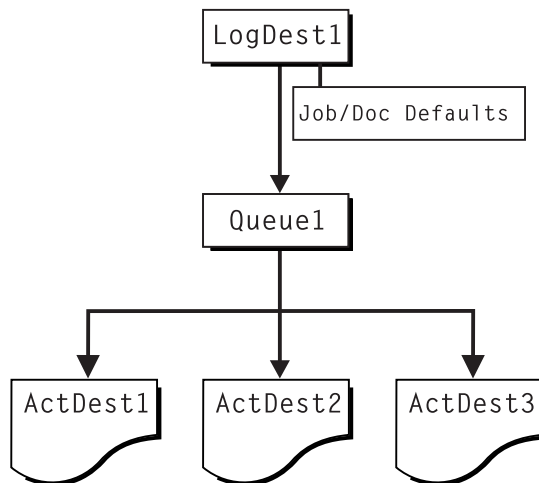


Figure 3. Pool Destination Configuration Model

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 workload balancing.

Note: You can submit a job directly to an actual destination with the Pool destination configuration model, but you won't achieve a pooling effect; the job will only be scheduled to the actual destination you submitted it to.

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.

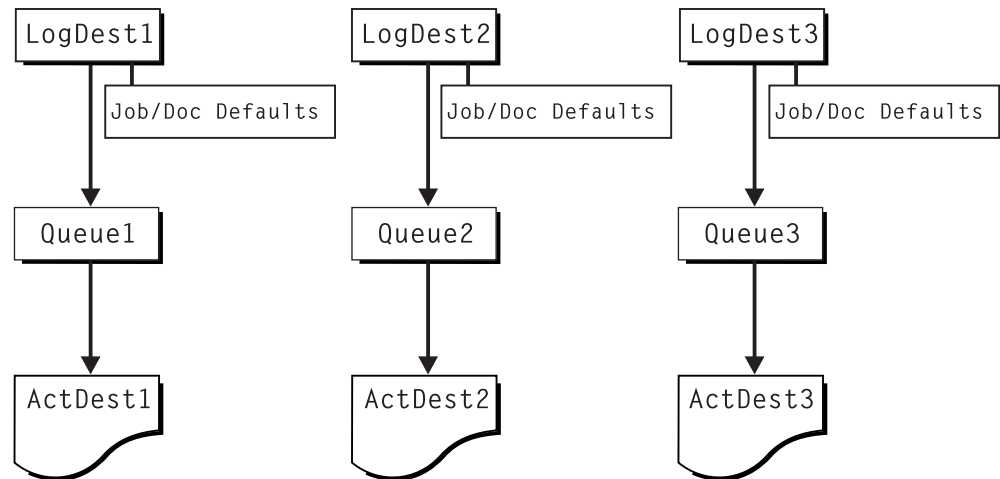


Figure 4. Desktop Destination Configuration Model

The funnel model

The funnel destination configuration model has a many-to-one relationship between two or more logical destinations and one actual destination.

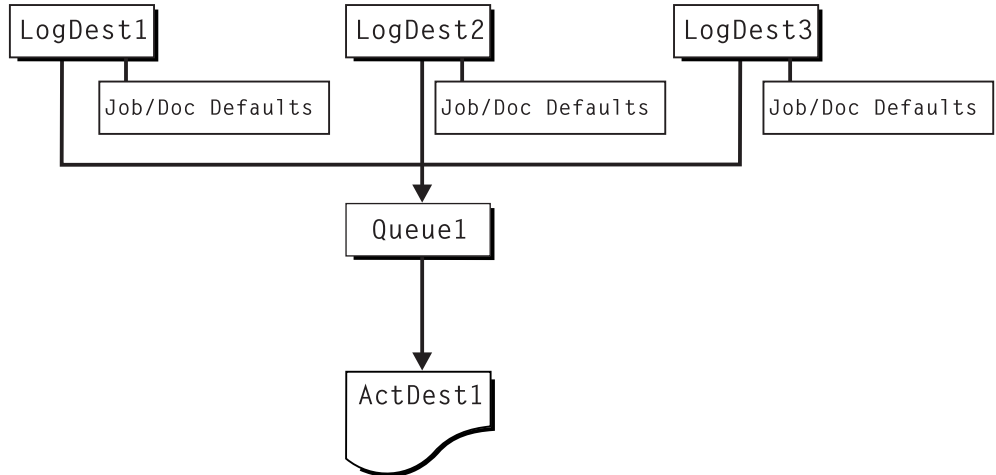


Figure 5. Funnel Destination Configuration Model

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 workload 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.

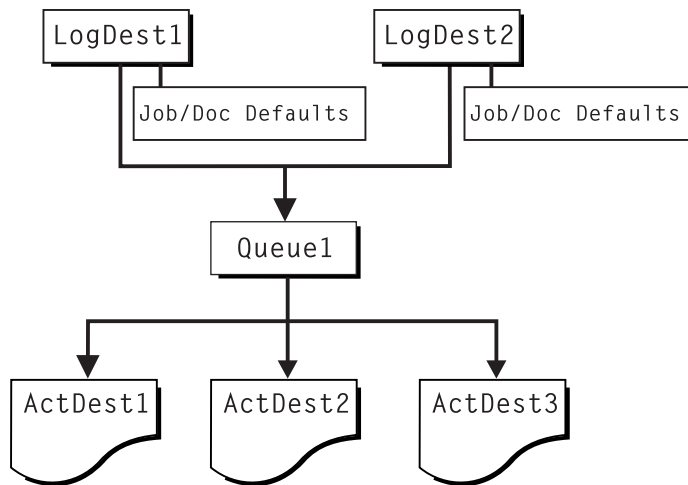


Figure 6. Hourglass Destination Configuration Model

Chapter 3. Planning to print with host systems

Infoprint Manager provides several options for printing to or from host systems, depending on how much functionality you need and where you want to control printing from (the host system or Infoprint Manager). All of the options allow you to share printers between host and LAN applications, though some require more configuration than others. Available host printing options include:

- **PSF Direct**

If you use PSF on z/OS¹, MVS, VM, VSE, or OS/400, and you want to manage and control printing from the host console, you can use PSF Direct.

- **Distributed Print Function (DPF)**

If you use PSF on z/OS, OS/390, VM, VSE, or OS/400, you can use DPF to receive IPDS print jobs and their resources, then manage them using Infoprint Manager.

- **MVS Download**

If you use the MVS Download feature of PSF on z/OS or OS/390, you can use MVS Download to spool jobs to remote locations so that the remote print operator can control printing.

- **LPR**

If you want to use IP Printway to submit jobs using the **lpr** command, you must run the Infoprint Manager LPD utility on your Infoprint Manager server. On your Windows systems, the Infoprint Manager LPD replaces the Microsoft TCP/IP Printing LPD, however it submits the files it receives directly to an Infoprint destination, not a Windows printer. It also supports the -o options that are available with some LPR clients. (-o options allow you to specify advanced Infoprint print options, such as form definitions and page definitions.)

- **IPP**

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

- **IP Printway**

If you use the IP Printway feature of PSF on z/OS or MVS, you can use IP Printway to spool jobs to a remote Infoprint Manager Server so that the remote print operator can control printing.

PSF Direct, DPF, and MVS Download are the most powerful host print options. If you use an IBM PSF on your host system, use this information in this chapter to help you decide which of the three is best for you.

Note: If you currently use PSF for OS/2, read “Migrating from PSF for OS/2” on page 35 for information about making a smooth transition to Infoprint Manager.

Once you have decided which method you want to use, refer to *IBM Infoprint Manager for Windows: Getting Started* for configuration information.

1. You can print to Infoprint Manager from both z/OS and OS/390.

Comparing PSF Direct, DPF, and MVS Download

The following table outlines some of the key differences among the three main host printing options that Infoprint Manager provides. Use this information to determine which option best meets the needs of your print installation.

Table 1. Comparing PSF Direct, DPF, and MVS Download

PSF Direct	DPF	MVS Download
IBM Infoprint Manager for Windows 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 acts as a full print spool system for Intelligent Printer Data Stream (IPDS) input, or converting from IPDS to the PCL or PPDS data stream.	IBM Infoprint Manager for Windows 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, 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 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.	Communicates through TCP/IP from the PSF host to Windows.
Resource management is performed at the PSF host.	Resource management is performed at the PSF host and resources are downloaded automatically with jobs. Refer to “Managing resources with DPF” on page 21 for additional information.	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. Refer to “Managing resources with MVS Download” on page 21 for additional information.
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.	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.

Table 1. Comparing PSF Direct, DPF, and MVS Download (continued)

PSF Direct	DPF	MVS Download
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 both the host PSF and Infoprint Manager, as well as PCL and PPDS devices that are not supported on the host, except IBM 6400 series printers. Some IPDS function is not supported; refer to "IPDS support" on page 38 for more information.	Supports all printers supported by IBM Infoprint Manager for Windows.
Requires no additional disk space on Infoprint Manager system.	Requires additional Infoprint Manager disk space to spool jobs.	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.	Prints job only after the entire job has been received by Infoprint Manager and scheduled to print by the Infoprint Manager spool.
Uses host (for example SMF/6) accounting records.	Uses both host (for example, SMF/6) and Infoprint Manager accounting.	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 through host systems and Infoprint Manager.	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 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 spooling of IPDS data from host PSF for later printing.	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.	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 Infoprint Manager for

Windows 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: option one

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 iSeries server. 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 iSeries server and the LAN, using timers to detach the PSF Direct and printing from the LAN during idle moments.

Printing from the LAN and the host: option two

A medium-sized company wants to print to a pool of three Infoprint 60 printers from both their iSeries system and the local LAN. Print jobs can come from either place at any time of day. In fact, the company would like to keep the connection between the host system and the print queue open all the time. They decide to use DPF to submit their host print jobs because the host receiver can be connected to Infoprint Manager constantly without completely taking over a printer. The Infoprint Manager queue can accept both LAN and host print jobs as they arrive and print them in order of priority.

Spooling jobs to be printed later

The payroll department of a large company generates pay checks for 10,000 employees every two weeks. The checks are created on a host system in San Jose, and need to be printed at the print center in Oakland. To save network bandwidth on those days, the checks are downloaded at night. However, for security reasons, they can't be printed until the print operators arrive in the morning. The print administrator decides to use DPF to download the IPDS print jobs and resources used in them to Infoprint Manager, where they are held until the print operators arrive. Because the resources used need to be kept secure (signatures), **Save resources** is turned off at the host receiver. Resources are deleted after the jobs print.

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 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 “Setting up to use MVS
| Download” with the Administrator procedures on your Infoprint Manager
| Publications CD-ROM or on the IBM Printing Systems website at
| <http://www.ibm.com/printers>. On the Printing Systems homepage, click Infoprint
| Manager under **Resources for**, then click Infoprint Manager for Windows on the
| Infoprint Manager Family homepage. Select **Product Library** from the drop-down
| list in the right hand navigation bar, then click the link for **Administrator**
| **Procedures**.

Managing resources with DPF

When you submit a print job using DPF, both the job files and the required IPDS resources are sent to your Infoprint Manager system. However, you can reduce traffic on your network by using the **Save resources** function of the DPF host receivers.

Note: The **Save resources** function only works with PSF for VSE, MVS, and z/OS systems. You cannot use **Save resources** if you are using DPF to print from a VM or an OS/400 system.

All DPF Resources that are downloaded with jobs are stored in the DPF Resources database. However, some resources stay in the database for reuse, while others are deleted as soon as they are no longer needed. What happens to the resource depends on how you mark the resources on the host system and on how you have the **Save resources** option set on your DPF host receivers.

On your host system, you can use the PSF resource-marking utility (APSRMARK on MVS or APTRMARK on VSE) to mark your resources as **private** or **public**. Private resources are downloaded to the DPF Resources database with a job and used for that job. When the host receiver disconnects from Infoprint Manager and the job that uses the resource is purged from the print queue, the resource is deleted from the database. Public resources are downloaded to the DPF Resources database with a job, used for that job, then kept in the database to be reused later. If you don't mark resources, they are treated like private resources.

When you create a DPF host receiver, you can select **Save resources** or you can leave it unselected.

- When **Save resources** is selected, the DPF host receiver acknowledges the public/private mark on the resource. Public resources are downloaded and

stored in the database for reuse later; private resources are downloaded and used for one job, then deleted. Unmarked resources are treated as private resources.

- When **Save resources** is not selected, all DPF resources (font, overlays, and page segments) are treated as private resources, even if they have been marked public on the host.

When a job starts to download, the DPF host receiver checks to see what resources it requests, looking for an internal ID and a public/private designation (both set on the host).

- If the resource doesn't have an internal ID, it is downloaded and treated as a private resource.
- If the resource has an internal ID, the receiver checks to see if it is marked **public** or **private**.
 - If the resource is marked private, it is downloaded and used with the job, then deleted.
 - If the resource is marked public, the host receiver checks to see if it is already stored in the database. If it is, Infoprint Manager will use it from there when it processes the job. If it isn't, the host receiver tells the host to download it. The resource is stored in the database and used for the current job, then it remains in the database for future use.

Chapter 4. Using 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. The different types of AFP resources follow:

Data object resources

Data object resources are a type of AFP resource; they can be an EPS, PDF, or IOCA file. In addition, if you use the transforms that come with Infoprint Manager to convert TIF, GIF, and JPEG images into AFP first, those types of files can be used as data object resources as well. In Infoprint Manager, data object resources are grouped with BCOCA and GOCA objects, and they are collectively known as presentation object containers.

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.

You may also purchase additional resources or even create your own custom resources. To create page definitions and form definitions, you can purchase the Page Printer Formatting Aid (PPFA) for Windows, which is an optional feature of Infoprint Manager for Windows.

Note: The DPF function of Infoprint Manager uses IPDS resources, not AFP resources. As a result, DPF resources can only be used with jobs that are

submitted using DPF. However, AFP versions of those resources should exist on your host system. If you need to use the DPF resources with a different job submission method (such as MVS Download), you can transfer the AFP versions from the host to your Infoprint Manager server.

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. If you ever need to reinstall or update Infoprint Manager, your custom resource files could be corrupted or deleted.

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.

Chapter 5. Planning to share printers

In many environments, sharing printers allows you to get the most benefit from your printers. One of the primary benefits of using Infoprint Manager is the ability to have various host and client systems share printing resources at a variety of levels. The level of sharing used depends on the requirements of the environment.

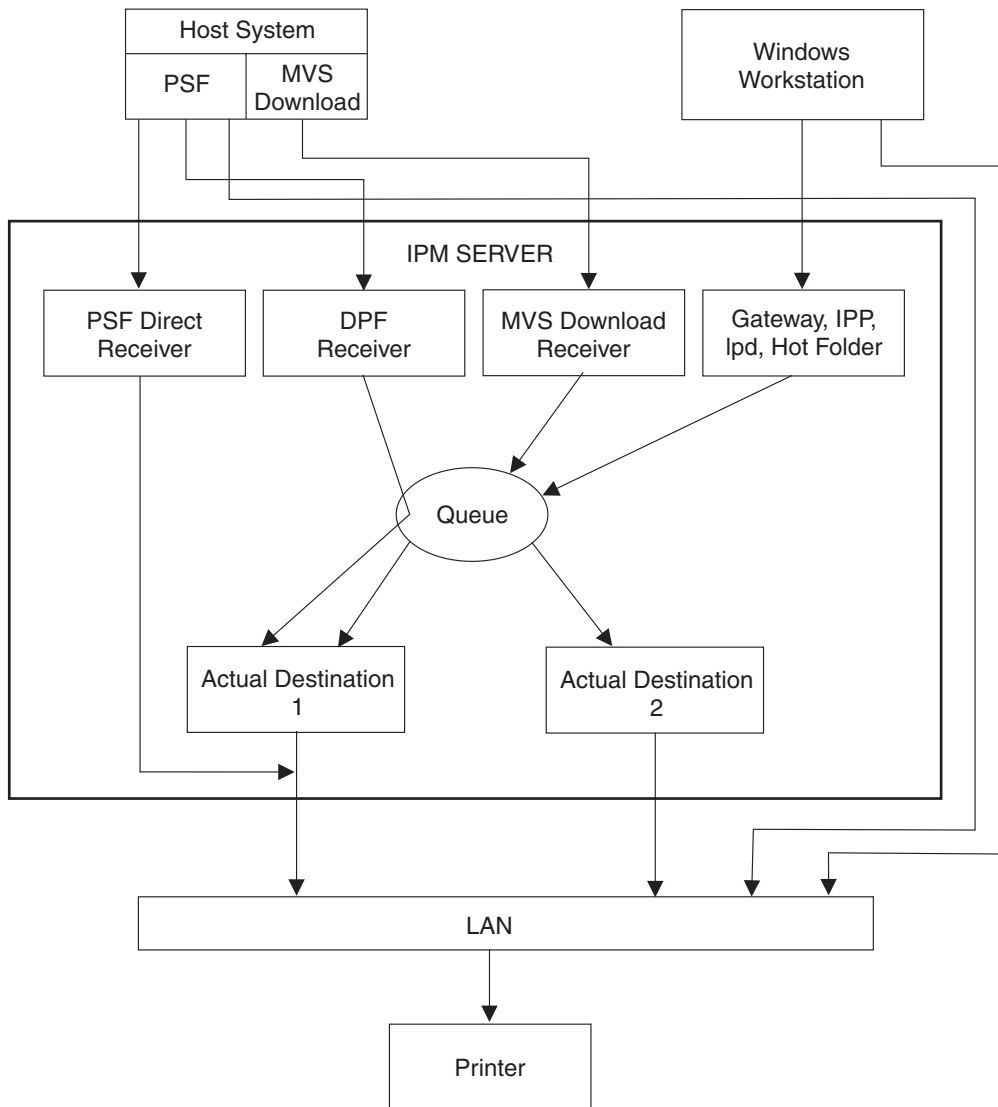


Figure 7. Sharing printers

Methods for sharing printers

You can share printers by having the print drivers share the communication link with the printer or by having various clients submit jobs to the same print queue. Print drivers communicate directly to printers. Print drivers include host PSF printers, Infoprint Manager actual destinations, and PSF Direct destinations.

Sharing the communication link with IPDS printers

Since only one print driver can have an open communication link with an IPDS printer at a time, management of multiple print drivers is necessary. This can be done in one of two ways:

- Manually start and stop the Infoprint Manager actual destinations and Host PSF printers to control the print driver operating the printer
- Configure the print drivers to wait for the printer to become available and to release the communication link when the print drivers have nothing to print.

The **connection** timer identifies how long to wait for the printer to become available. The **release** or **inactivity** timer identifies how long the print driver should maintain the communication link when it has no work to do. When a print driver is actively feeding jobs to the printer, the print driver continues to do so as long as the interval between job submissions is not longer than the specified release or inactivity time. The print driver controls the printer until the flow of jobs sufficiently slows. The release or inactivity time values ensure that the destination is shared equally between the printer drivers, which is important. For detailed information on setting these values in Infoprint Manager, see “Sharing actual destinations with a host” in *Infoprint Manager for Windows: Procedures*.

You must configure the print drivers when one or more of the following are configured to drive the same printer:

- Infoprint Manager actual destinations
- PSF Direct Receivers
- Host PSF printers

When you configure the print drivers, the following apply:

- There is no single point of control and auditing for all jobs printer. Multiple interfaces must be used to determine all pending jobs for a printer.
- There is no automated job prioritization between jobs from different print drivers. Manual actions are required to force an active print driver to release the printer to allow another waiting print driver to use it.
- Aside from the printer and network, there is not a single point of failure.

If the printer is S/390 channel-attached to the Infoprint Manager server, automated printer sharing can be used between one or more Infoprint Manager actual destinations and PSF Direct receivers on the same server. Printer sharing with a host system requires manual actions to switch the printer connection.

Sharing the communication link with PostScript, PCL, or PPDS printers

When Infoprint Manager sends PostScript, PCL, or PPDS to a printer, no configuration is necessary to allow print sharing between:

- Infoprint Manager actual destinations
- PSF Direct Receivers
- Windows workstations
- Lpr clients submitting directly to the printer

Most printers will automatically print jobs in the order that the jobs are received. Some configuration options may be available on some printers.

Submitting jobs to the same print queue

When you submit jobs to the same print queue, only one actual destination communicates with the printer, and all jobs are managed by one Infoprint Manager queue. You can use the following ways to submit jobs to one Infoprint Manager queue:

- DPF Receivers when jobs are received from Host PSF print drivers
- MVS Download Receivers when jobs are received from Host MVS Download drivers
- Windows gateway when jobs are received from Windows shared printers
- **lpd** when jobs are received from **lpr** clients on any platform
- IPP when jobs are received from IPP clients on any platform
- Hot Folder when jobs are received from a Windows shared folder
- Infoprint Manager Select client when jobs are received directly from the Windows client

When you submit print jobs to the same queue, the following apply:

- There is a single point of control and auditing for all jobs printed. A single interface can be used to determine all pending jobs for the printer.
- There is automated job prioritization between jobs. Several methods of prioritization are available.
- There is a single point of failure.

Sharing printers between host and LAN applications

To get the most out of integrated host and LAN printing, you may wish to share them among your host and LAN applications

Printing from existing host applications

There are several ways that you can submit jobs from host applications to Infoprint Manager:

- Host PSF sends jobs to a PSF Direct Receiver.
- Host PSF sends jobs to a DPF Receiver.
- MVS Download sends jobs to an MVS Download Receiver.
- The **lpr** client sends jobs to the **lpd** on the Infoprint Manager server.

Note: As described in “Methods for sharing printers” on page 25, the method used affects how the printer is shared.

For more information, see Chapter 3, “Planning to print with host systems” on page 17.

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 four ways that users can use to submit print jobs to Infoprint Manager for Windows destinations from their workstations. Choose the one that best suits your environment.

- Install Infoprint Select on all client workstations

- Create a Windows gateway printer on the Infoprint Manager server and connect to it from client workstations
- Enable the Internet Printing Protocol (IPP) gateway on the Infoprint Manager server and create IPP client printers on client workstations
- Create an Infoprint hot folder that automatically submits files that are stored in it to an Infoprint Manager destination.

Using Infoprint Select

To use Infoprint Select (available for Windows 98, Windows ME, Windows NT, Windows 2000, and Windows XP) to enable job submission from applications, you must install and configure Infoprint Select on the workstation. During this configuration, you must make a destination controlled by Infoprint Manager known to the client system. On Windows clients, you use the Windows **Add Printer Wizard** to add a local printer, load the appropriate driver, and assign a unique port to each Infoprint Manager destination. The Infoprint Select client is available on the Infoprint Manager Common Clients CD-ROM. Installation instructions are included in the Infoprint Select readme file and in *IBM Infoprint Manager for Windows: Getting Started*.

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 or IBM Infoprint Manager for AIX.

Using a Windows Gateway Printer

With the Windows gateway printer, you do not have to install any software on the client system; you perform the majority of the configuration work at the server. First, you create Infoprint destinations (logical or actual) using the Infoprint Manager Administration GUI. Then, you use the Management Console to create a Windows gateway printer that points to one of those destinations.

Note: When you create a destination using the Infoprint Manager Administration GUI, you have the option of creating an associated Windows gateway printer at the same time.

Once the Windows gateway printer is created, users simply use the Windows **Add Printer Wizard** to add a printer managed by a remote printer server to their desktops, 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.

Using Infoprint Manager hot folders

An Infoprint Manager *hot folder* is a directory that is associated with a logical destination. When you copy or move a file to the hot folder, Infoprint Manager automatically submits the job to that logical destination. The hot folder directory can be created on any system that the Infoprint Manager server and all job submitters can access, including the system that the Infoprint Manager server is installed on. The directory should then be shared so that all of the users who need to copy files to it can access it. To submit files to the hot folder, users copy their files to that directory from their local systems.

If you set the **notification-profile** attribute in an attributes file, and submit that file along with your print file, you can receive notification messages about the print jobs you submit using hot folders.² Otherwise, this feature does not provide detailed event notification from Infoprint Manager.

2. Additional information about using hot folders, including creating attribute files, is available in the *IBM Infoprint Manager for Windows: Getting Started*.

Chapter 6. Verifying prerequisites

Before installing IBM Infoprint Manager for the Windows Operating System, hereafter called Infoprint Manager for Windows, you should verify that you have satisfied the hardware and software requirements in this chapter.

Verifying hardware prerequisites

Server hardware prerequisites

Select the configuration that best suits your environment from the following:

Table 2. Minimum Recommended Hardware Configurations

Type:	Processors		Memory		Disks			Example
	Number	Type/speed	MBytes	Type	Number	Type	Capacity (GB)	
PSF Direct Only	1	450 Mhz/PII	128	Non-parity	1	E-IDE	9.1	PC300PL
Minimum	1	550 Mhz/PIII	256	Non-parity	1	SCSI	9.1	PC300PL
Recommended	2	600 Mhz/PIII	1 GB	ECC	2	SCSI	9.1	Netfinity 3500
High-end	4	700 Mhz/PIII	1 GB	ECC	4	RAID	9.1	Netfinity 7100 or 7600

Notes:

1. A *dedicated* Infoprint Manager for Windows 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 and environments that include several distributed printers often inject a variety of complexities 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.
2. 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.
3. For large installs of Infoprint Manager for Windows, RAID (Redundant Array of Inexpensive Drives) drives are recommended.
4. To install this product, your system must have a greater than standard VGA driver.

Infoprint Manager for Windows 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. However, if you are using the card to attach high-speed printers (such as an IBM Infoprint 4000 or an IBM Infoprint 4100), you should use one card per printer.
- You should plan to install the IBM 4159 in a long PCI slot. As a result, the number of long PCI slots you have available in either your Infoprint AIX server or Windows NT/Windows 2000 system determines how many IBM 4159 cards you can install, 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
- CD-ROM drive
- 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.

Verifying software prerequisites

Server software prerequisites

The primary software prerequisite for the IBM Infoprint Manager for Windows 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

Notes:

1. Windows NT Workstation and Windows 2000 Professional operating systems have strict limitations on the number of connections. Ensure that an adequate version of Windows is used on your Infoprint Manager Server to meet your connection requirements.
2. Service Pack 4 or 5 work with Infoprint Manager for Windows NT, but IBM recommends using Service Pack 6a for printing support.

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

- Internet Explorer 5.0
- TCP/IP support
- Generic Text/Only printer driver (if you plan to use the Passthrough DSS)

If you use PSF Direct to print from host systems, you must also install IBM Communications Server for Windows NT and Windows 2000 at Version 6.1.1. Host systems include MVS, VSE, VM, and OS/400®.

Client software prerequisites

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

- 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)
- Windows ME
- Windows XP

Note: Service Packs 4 and 5 work with Infoprint Manager for Windows NT/2000, but IBM highly recommends using Service Pack 6a on NT only.

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

- 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)
- Windows XP

| **Note:** Service Packs 4 and 5 work with Infoprint Manager for Windows NT/2000,
| but IBM highly recommends using Service Pack 6a on NT only.

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

Chapter 7. Migrating to Infoprint Manager for Windows Version 2 Release 1

Migrating from Infoprint Manager for Windows NT and Windows 2000 Version 1 Release 1

To migrate from Infoprint Manager for Windows NT and Windows 2000 Version 1 Release 1 to Infoprint Manager for Windows Version 2 Release 1, insert the CD-ROM entitled Infoprint Manager for Windows Base Server, Version 2.1.0, into your CD-ROM drive and follow the screen prompts.

Migrating from PSF for OS/2

IBM Infoprint Manager for Windows is a functional replacement product for IBM Print Services Facility for OS/2 (PSF for OS/2). Most of the functionality that was available in PSF for OS/2 is also available in Infoprint Manager for Windows. 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.

Like PSF for OS/2, Infoprint Manager for Windows supports integrated host and LAN printing. Host platforms that Infoprint Manager supports include: OS/400, VM, VSE, MVS, and z/OS.

If you are replacing your PSF for OS/2 system with Infoprint Manager, there are some differences that you need to know about. "Important Information for PSF for OS/2 Users" provides descriptions of the most important differences. "Collecting Information from your PSF for OS/2 System" on page 39 will help you collect the information you need to recreate your printing environment on a Windows NT/Windows 2000 system. It also provides information about other tasks you will have to perform, such as moving your AFP resources and understanding the differences in printer definitions between PSF for OS/2 and Infoprint Manager.

Important Information for PSF for OS/2 Users

If you are replacing your PSF for OS/2 system with Infoprint Manager for Windows, you must be aware of the following differences between the two products.

- Infoprint Manager does not support SNA-connected printers or IBM model 3820 printers.
- The Upload-n-Print function of PSF for OS/2 (the direct submission of print jobs from LAN applications to host-attached printers) is not available in Infoprint Manager.
- If you currently use the Distributed Print Function (DPF) of PSF for OS/2, the resource files you use for printing are in Intelligent Printer Data Stream (IPDS) format. If you plan to use the DPF function of Infoprint Manager, you can still use those resources. However, if you want to switch to MVS Download for your host printing, you will need to use the Advanced Function Presentation (AFP) versions of those files on the Windows NT/Windows 2000 system that Infoprint Manager is installed on. You can find the AFP versions on your host system.
- If you currently submit print jobs to PSF for OS/2 from a Netware server, you can submit them to Infoprint Manager as well. However, the netware.exe feature of Infoprint Manager can only accept jobs from a Netware server running

version 4.1 or higher. If you currently use netware.cmd in PSF for OS/2, you already have the correct version of Netware. If you use nwqinfo.dll or nwpsf2.exe in PSF for OS/2, you will need to upgrade your Netware server.

DPF in Infoprint Manager

The DPF function of Infoprint Manager replicates almost all of the features that were available in DPF in PSF for OS/2, with three important differences. The most important differences between the two versions are the communications protocol they use, the way you configure the print spool, and the interfaces you use to manage the system.

Communications protocol: In Infoprint Manager, the DPF host receiver emulates a TCP/IP printer instead of an SNA printer.

Spool configuration: The spool configuration in Infoprint Manager is much more versatile than it was in PSF for OS/2. In PSF for OS/2, each host receiver had its own spool and print queue. In addition, if you wanted to accept print from the LAN, you had to configure a separate spool. Refer to Figure 8 for an illustration.

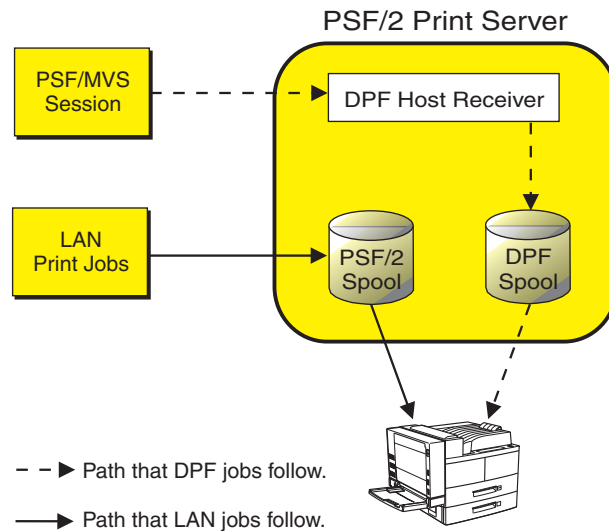


Figure 8. Job flow in PSF for OS/2 Print Server for DPF and LAN print jobs

In Infoprint Manager, the DPF host receiver submits print jobs to an Infoprint Actual Destination (AD). The AD routes the job through the Logical Destination (LD) associated with it, which places the job in the queue. The job eventually returns to the AD where it started and is sent to the printer. Different DPF host receivers can submit jobs to the same AD, which means they are all sent to the same LD and queue. LAN print jobs (and jobs from other host print methods) can use the same ADs, LDs, and queues as well. Refer to Figure 9 on page 37 for an illustration.

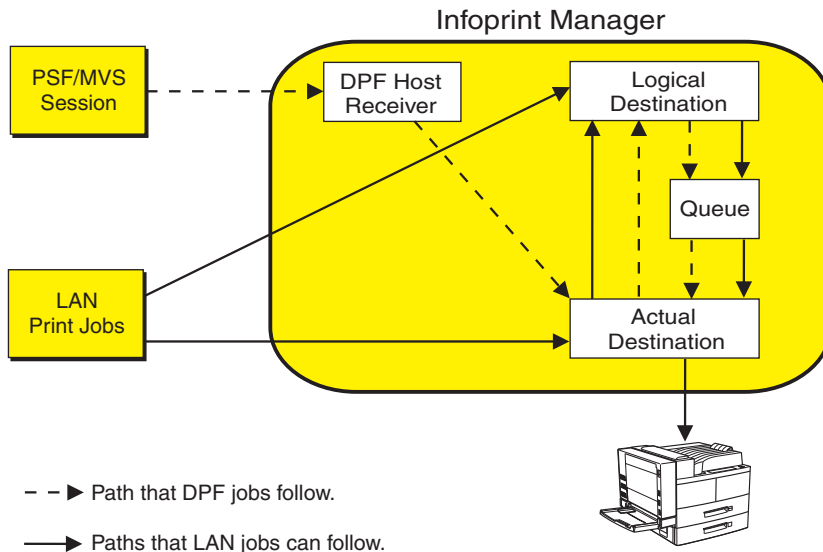
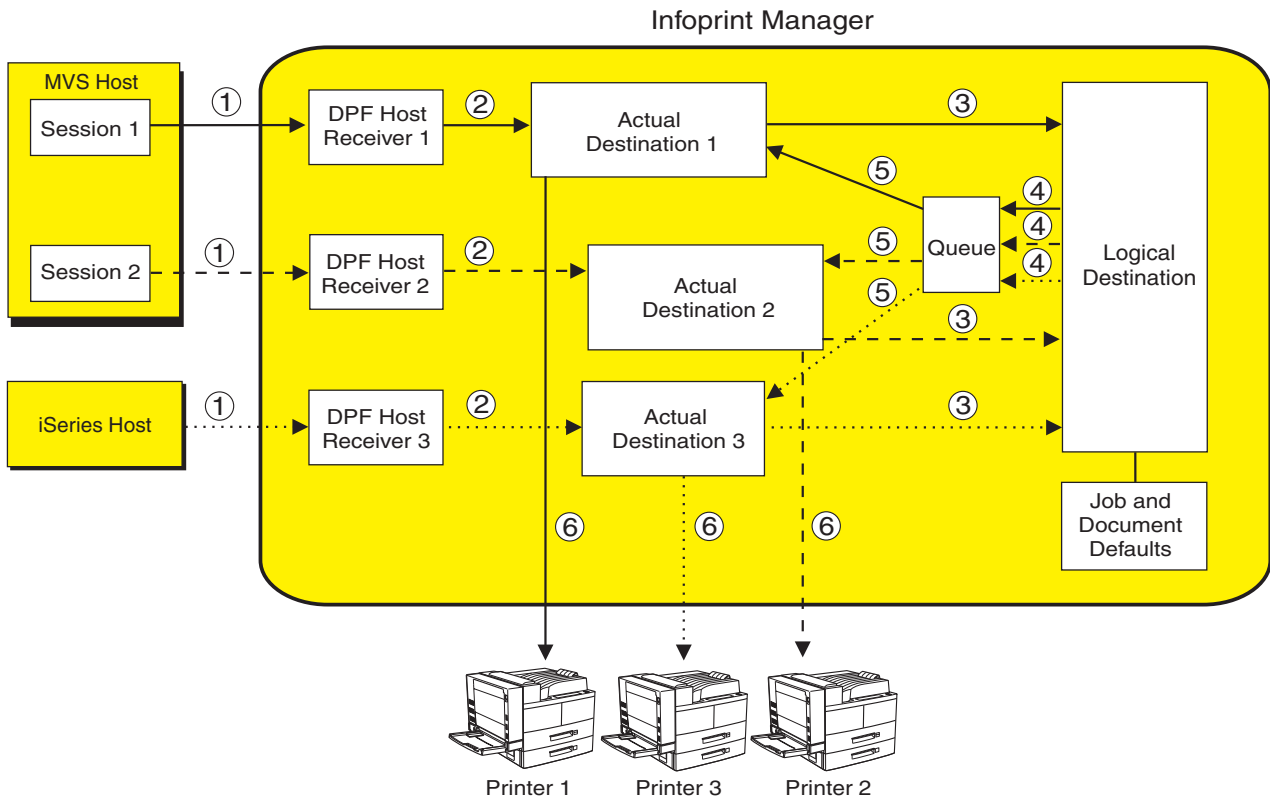


Figure 9. Job flow in Infoprint Manager for DPF and LAN print jobs

Because the DPF host receivers submit jobs directly into the Infoprint Manager print flow (not to their own queues), you have much more flexibility when you plan your configuration. In fact, you can use any of the configurations described in "Understanding destination configuration models" on page 13.

Figure 10 on page 38 shows an example of how you can set up the Default model in a DPF environment. In this case, three host sessions connect to three host receivers. Each host receiver submits its jobs to a different AD, but all three ADs share one LD and queue. For all three host sessions, the print job follows this path:

1. The host system connects to the DPF host receiver and downloads the print job.
2. The DPF host receiver submits the job to the AD that is associated with it.
3. The ADs forward their jobs to the LD, which applies any default attributes that you have set to the jobs. In this case, all three ADs forward their jobs to the same LD, so the same defaults are applied to all jobs.
4. The LD sends the job to the queue.
5. The queue sends each job back to the AD that it started in.
6. The ADs submit the jobs to the printers that they represent.



- - ► Path that DPF jobs from MVS session 1 follow.
- Path that DPF jobs from MVS session 2 follow.
-► Path that DPF jobs from iSeries host follow.

Figure 10. Infoprint Manager print flow using the default model with multiple DPF host receivers

Again, you can use any of the configuration models with DPF. The most important points to remember when you consider different configurations are:

- The DPF host receiver must submit jobs to the AD, not to the LD.
- Multiple host receivers can point to the same AD. (So multiple host systems can submit jobs to the same AD.)
- An AD can only forward jobs to one LD.
- Multiple ADs *can* send jobs to the same printer. However, this configuration is only really applicable in specific environments. If you think you need to create multiple ADs for one printer, consult with your IBM Service representative for additional information.

Interfaces: In Infoprint Manager, you use the Management Console to create and monitor DPF host receivers and the DPF Resources database. You use the Infoprint Manager Administration GUI and the Infoprint Manager Operations GUI to manage actual destinations, queues, and jobs (once the host receiver has submitted them).

IPDS support: DPF in Infoprint Manager will support the same level of IPDS that DPF in PSF for OS/2 supported. As a result, the following IPDS functions will **not** be available if you print using DPF:

- Media source selection in LCC
- Logical page and object area coloring

- All finishing operations
- All presentation fidelity control
- Saved pages
- Select medium modifications
- Set media size
- End Persistent Nack mode
- Local date and time stamps on AR command (save resources)
- Outline fonts (LF1 or LF3)
- Symbol sets (resident or downloaded)
- N-up
- Cut sheet emulation
- Extended overlays (~32K active)
- Extended page segments (~32k active)
- Microfilm devices (Anacomp)
- All object containers (Color mapping tables, Infoprint 2000 setup files, TIFF, EPS, e-mail and fax setup files)
- Printer setup IDs
- Output bin selection
- Page scaling
- Multiple printer resolution (for example, Auto printer resolution mode)
- Manage IPDS dialog

Collecting Information from your PSF for OS/2 System

Preparing your PSF for OS/2 system

Before you start to collect information and move resources to your Windows NT or Windows 2000 system, it is recommended that you apply the most recent CSD and the latest ALL20 (interim CSD) to your PSF for OS/2 system. Applying this service level makes your AFP resources more accessible, which helps to make the process of changing over to Infoprint Manager for Windows easier. To download the latest service, go to:

<ftp://ftp.software.ibm.com/printers/products/psfos2/service>

In the list that appears, find the most recent CSD and its readme file, and the latest ALL20. Apply these updates to all of your PSF for OS/2 systems.

Note: If you only use PSF Direct in PSF for OS/2, are planning to only use the PSF Direct function of Infoprint Manager, and you never used the OS/2 spools for printing, you do not need to apply these updates.

Moving AFP Resources

Any AFP resources that you used with PSF for OS/2 can be used with Infoprint Manager for Windows. If you have AFP resources that you would like to continue to use in your Infoprint Manager environment, use this procedure to move those files.

Note: If you currently use Distributed Print Facility (DPF), your jobs use IPDS versions of your resources, not AFP versions. If you plan to use the DPF function in Infoprint Manager, you do not have to move those resources. Your host system will download them to Infoprint Manager with your print jobs.

1. Make a list of your AFP resource files and where they are stored.
 - a. Navigate to the **PSF2\SYSTEM** directory on your OS/2 system.
 - b. Find all of the files that end in **.GRP**.

These files are flat text files that list all of your resources and information about them. You can open these files in a text editor or print them to see the contents. When you open or print any of the files, you will see six columns of data. From left to right, the columns list:

 - Resource name
 - Group that the resource belongs to
 - Type of resource
 - Date of the resource
 - Time of the resource
 - Path and file name of the resource
 - c. Print all of the files that end in **.GRP** so you can refer to them later.

You will need to move all of the resources that are listed to your Windows system.
2. If you have any resources defined outside of the resource library (for example, if any of your PSF for OS/2 device definitions include explicit paths to resources), add those resource files to your list. Follow these steps to find these resources:
 - a. Open the PSF for OS/2 Control Panel.
 - b. Highlight a printer.
 - c. Select **Profile** → **Change** → **Default Options**.
 - d. Look at the entry in the **Default Search Order** field.

If there is a directory path listed, there are resources in that directory and they are all used. Make note of that directory path; you will need to move all of the resources in that directory to your Windows system.
 - e. Close the dialog.
 - f. Repeat this process for each of your printers.
3. On the Windows system that your Infoprint Manager server is installed on, create a directory to store your AFP resource files in.

Important: Do not create this directory as a subdirectory of your Infoprint Manager <install path> directory. If you place them in the <install path> directory and you ever have to uninstall Infoprint Manager, your resources may be removed during the uninstall process. It is safer to store your resources outside of the install path. The default <install path> directory is: C:\Program Files\IBM Printing Systems.
4. Copy all of the resource files that you found into the directory you just created on your Windows system.

You can move the files however you like, but the easiest way is to use the File Transfer Protocol (FTP).

Important: When you FTP your resources from your OS/2 system to your Windows system, be sure to send it as *binary* data, not as *ASCII* data.
5. Create a resource context object that points to this directory. For instructions on completing this task, refer to the Administration Procedure *Creating a New Resource-Context Object*.

6. Once you have created Infoprint *actual destinations* to replace your PSF for OS/2 printers, start the Infoprint Manager Administration GUI and open the properties notebook for one of your actual destinations. Click the **PSF Resources** tab and type the path to the directory you created in step 3 in the **Location of Resources** field. Click **OK** to close the properties notebook. Refer to the online help for additional information.

Mapping PSF for OS/2 printer definitions to Infoprint Manager destination types

When you created printer devices in PSF for OS/2, you chose from six attachment types: Communication, Parallel, TCP/IP, Channel, PSA, and None. In Infoprint Manager, some of these attachment types have equivalents and some do not. To recreate your print environment in Infoprint Manager, you will need to do two things:

1. Print the printer summary for each of your PSF for OS/2 printer devices so you can use that information when you create new destinations in Infoprint Manager.
2. Determine which Infoprint Manager destination types you want to replace your PSF for OS/2 printer devices with.

Once you have completed these steps, refer to the *IBM Infoprint Manager for Windows: Getting Started* for additional information about Infoprint Manager destination types and instructions for creating them.

Printing printer summaries:

1. Open the PSF for OS/2 Control Panel.
2. Highlight a printer.
3. Select **Profile** → **Summary**.
4. In the dialog that opens, click **Print**.
5. Close the dialog.
6. Repeat this process for each of your printers.

Determining which Infoprint Manager destination types to replace your PSF for OS/2 printer devices with: Descriptions of the six PSF for OS/2 printer device types are provided below. If there is an equivalent or near-equivalent destination type in Infoprint Manager, it is listed. If there is no equivalent, refer to the *IBM Infoprint Manager for Windows: Getting Started*, and the Administration Procedures to select a destination type that will fit your needs.

Communication: The communication attachment type allowed you to communicate with printers on a Synchronous Data Link Control (SDLC) or SNA 6.2 network using IBM Communications Manager for OS/2 or IBM Communications Server for OS/2. This attachment type has no equivalent in Infoprint Manager.

Parallel: The parallel attachment type allowed you to attach printers directly to a parallel or serial port on a PC. In Infoprint Manager, the closest equivalents are PSF Other-driver printers and PSF command printers.

TCP/IP: TCP/IP-attached printers in PSF for OS/2 received data over the TCP/IP network. You can replace them with TCP/IP-attached PSF printers in Infoprint Manager.

Note: There are two ways to create PSF TCP/IP printers in Infoprint Manager. If you will be using PSF Direct in your Infoprint environment, and you will **only** be using PSF Direct to submit jobs to a particular destination, use the

Management Console to create a PSF Direct only (TCP/IP) destination. In any other case (for example, if the destination will be receiving jobs from both PSF Direct and your LAN), use the Infoprint Manager Administration GUI to create a PSF TCP/IP printer.

Channel: Channel-attached printers in PSF for OS/2 allowed you to send jobs to printers through the S/370 Channel Emulator/A adapter (a microchannel adapter). The server systems that Infoprint Manager for Windows runs on do not support this adapter card. However, Infoprint Manager does support channel-attached printing using the IBM 4159 Model 001 S/390 Parallel Channel Emulator Card (a PCI adapter). Contact your IBM customer service representative to obtain this card.

Once you have the card, you can find instructions for installing it in the *IBM Infoprint Manager for Windows: Getting Started*. Then, you can create a channel-attached PSF printer in Infoprint Manager to replace your channel device.

Note: There are two ways to create PSF channel printers in Infoprint Manager. If you will be using PSF Direct in your Infoprint environment, and you will **only** be using PSF Direct to submit jobs to a particular destination, use the Management Console to create a PSF Direct only (channel) destination. In any other case (for example, if the destination will be receiving jobs from both PSF Direct and your LAN), use the Infoprint Manager Administration GUI to create a PSF channel printer.

PSA: The PSA attachment type in PSF for OS/2 could be used to attach a number of printers through an IBM Micro Channel Print Service Adapter. Because no support is currently available for this adapter under Windows, these printers must be attached to the Infoprint Manager server in a different way.

It is recommended that you change all of your PSA printers to be PSF TCP/IP attached printers in Infoprint Manager. To make this change, you must purchase an i-data 7913 IPDS Printer LAN Attachment, a device that is assigned a TCP/IP address on your network and is connected to the printer itself using a coaxial cable.

None: The None attachment type has no equivalent in Infoprint Manager. You can use the Configurable Transform Subsystem in Infoprint Manager to simulate many of the tasks that you used the None attachment type for, such as terminating transforms. Infoprint Manager does not, however, allow you to redirect IPDS output to fax software as you could using the AIN3DNOP secondary in PSF for OS/2.

Preparing for host-to-server communication

Using PSF Direct: If you are currently using PSF Direct for your host printing and plan to continue to use PSF Direct in Infoprint Manager, you will not need to change any of the configuration on your host system. You will, however, have to install IBM Communications Server for Windows NT and Windows 2000 version 6.01 or higher and all of its APARs (JR13453, JR13599, and JR14098), and then configure it to match the IBM Communications Manager for OS/2 or IBM Communications Server for OS/2 on your existing PSF for OS/2 system.

Note: IBM Communications Server for Windows NT and Windows 2000 version 6.01 does not run on Windows 2000. If you are running your Infoprint Manager server on a Windows 2000 system, IBM Communications Server for Windows NT and Windows 2000 version 6.1 is recommended.

In addition, you will have to create new PSF Direct host receivers in Infoprint Manager that match the host receiver configurations on your existing PSF for OS/2 system. You can collect the information you need from the system that you have PSF for OS/2 installed on.

Collecting Communications Manager/Communications Server configuration information: When you created your PSF for OS/2 configuration on your OS/2 system, a file with the suffix .NDF was created and stored in the CMLIB subdirectory where Communications Manager/Communications Server was installed. This file contains the configuration information for Communications Manager/Communications Server. It is usually named BASIC.NDF, but the name may have been changed.

One .NDF file is created for each configuration; you are interested in the one that corresponds to the current active configuration. If you are not sure what your current active configuration is, follow these steps to find out:

1. Find the Communications Manager or Communications Server folder on your OS/2 system.
2. Double-click the Setup icon.
3. Make note of the configuration listed in the default file; it is the current active configuration.
4. Close Setup.

Once you know your current active configuration, find all of the files that end in .NDF in your CMLIB directory, and print the one that corresponds to the current active configuration.

The .NDF file is roughly equivalent to the .acg file that is created on your Windows NT/Windows 2000 system when you install and configure SecureWay Communications Server. The .acg file is stored in <comm server install directory>\ibmcs\private on your Windows system, where <comm server install directory> is the directory that you installed SecureWay Communications Server in. Once you have installed SecureWay Communications Server, it is a good idea to locate the .acg file on your Windows system and compare it to the .NDF from your OS/2 system. If there are discrepancies, you can go back and fix the configuration.

Collecting PSF Direct host receiver configuration information: You will need to collect the following information about each of your PSF Direct host receivers:

- LU alias name
- Inactivity timer value
- Device busy timer value
- Device name

Follow the procedure below to find the information you need. Since there is no way to print the information, you will need to write it down to use when you set up your Infoprint Manager system. "Planning for host receivers" on page 49 provides worksheets that you can use to record the information you find.

1. Open your PSF/2 folder.
2. Double-click the **PSF/2 PSF Direct** icon.
3. In the dialog that opens, highlight a receiver.
4. On the menu bar, select **Receiver—>Change**.
5. Make note of the configuration information listed in the dialog.
6. Repeat from step 3 for each receiver.

Using DPF: If you are currently using DPF for your host printing and plan to continue to use DPF in Infoprint Manager, you will need to create new DPF host receivers in Infoprint Manager that match the host receiver configurations on your existing PSF for OS/2 system. You can collect the information you need from the system that you have PSF for OS/2 installed on.

Collecting DPF receiver configuration information: Use the following procedure to collect the configuration information you will need for your DPF host receivers. Since there is no way to print the information, you will need to write it down to use when you set up your Infoprint Manager system. “Planning for host receivers” on page 49 provides worksheets that you can use to record the information you find.

1. Open your PSF/2 folder.
2. Double-click the **PSF/2 Distributed Print Function** icon.
3. In the **DPF Spool Manager** window, highlight a receiver.
4. With the receiver highlighted, select **Spool** → **Setup queue**.
5. Make note of the **Logical unit alias** and the value of the **Inactivity timer**.

Note: When you re-create this receiver in Infoprint Manager, you won't need to use the LU alias, because the connection between the host and the server is TCP/IP instead of SNA. However, the LU alias may help you determine where the connection was coming from on the host. When you reconfigure the host system to use TCP/IP instead of SNA, you will need to know which connection corresponds to which DPF Host Receiver so that you can complete the configuration correctly.

6. If **Save resources** or **Obtain printer characteristics at start up** is selected, make note of that too.
7. Close the window.
8. With the same receiver highlighted, select **Receiver** → **Set up**.
9. Write down which **Device**, **Classes**, and **Forms** that are highlighted.
10. In the **PSF/2 system pages** box, note which boxes are checked, if any.
11. In the **Class set up** box, you will need to select each class and see if any of the defaults have changed, and write them down. The default values for all of the classes are:
 - **Copies:** 1
 - **Start page:** 1
 - **Disposition:** Print

The defaults are the same in Infoprint Manager.

12. Close the dialog.
13. Repeat this process for each DPF receiver.

Migrating custom transform exits

Note: You cannot use the Infoprint Manager transforms or any transform exits with DPF print jobs.

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.

For additional information on creating and customizing transforms, refer to these Administration Procedures:

- *Understanding Transforms and the Configurable Transform Subsystem*
- *Working with Transforms*
- *Configuring Data Stream Transform Sequences*

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 will assist you in performing the necessary TCP/IP configuration on all Windows systems.

Table 3. 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.	<input type="checkbox"/> yes <input type="checkbox"/> no Note: It is strongly recommended that you specify no for DHCP.
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.	

Table 3. LAN TCP/IP Configuration Worksheet (continued)

Control Panel Prompt	Description	Value
Default Gateway	The system used by default to allow this network to communicate with other networks. Not needed if DHCP is in use.	
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.	<input type="checkbox"/> yes <input type="checkbox"/> no
Enable LMHOSTS Lookup?	LMHOSTS files statically associate Windows system names to IP addresses.	<input type="checkbox"/> yes <input type="checkbox"/> no
Scope ID	The set of IP addresses assignable for a Windows domain is called a <i>scope</i> .	
Enable IP Forwarding?	IP Forwarding allows data to be forwarded on a multi-homed system.	<input type="checkbox"/> yes <input type="checkbox"/> 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 Infoprint Manager for Windows server system that controls printers on the independent printer network. Use the following worksheet to assist in this configuration. For additional information about setting up a separate printer network, refer to the Administrator Procedure *Using Multiple Network Adapter Cards*.

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 4. 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)” in *Infoprint Manager for Windows: Getting Started*.

| A worksheet is available to help you prepare to create each type of printer in
| *Infoprint Manager for Windows: Getting Started*.

Planning for host receivers

A host receiver is used to accept print jobs submitted from mainframe host systems (such as MVS, VM, VSE, z/OS, or OS/400). In Infoprint Manager, there are three kinds of host receivers: PSF Direct host receivers, DPF host receivers, and MVS Download receivers. When you are ready to create your receivers, you will use the Infoprint Manager Management Console.

| A worksheet is available to help you prepare to create each type of host receiver in
| *Infoprint Manager for Windows: Getting Started*.

Appendix. Reviewing components

Infoprint Manager for Windows consists of a number of different hardware and software components.

Note: Some components are included when you purchase Infoprint Manager for Windows, while optional components are additions to the base product that you can purchase and install through additional product CD-ROMs.

The Infoprint Manager for Windows Base Server CD-ROM (LCD4-5583) contains all software for installing an Infoprint Manager server on a Windows NT/Windows 2000 system, including the install program, server code and production components.

Table 5 lists the components that are included on the Common Clients CD-ROM that you receive when you purchase Infoprint Manager for Windows, and Table 6 on page 52 lists the separately orderable features that are available with Infoprint Manager for Windows.

Table 5. Contents of the Common Clients CD-ROM shipped with Infoprint Manager Server

Common Client	Description
Infoprint Select	Infoprint Select allows you to submit jobs to Infoprint Manager from word processors, spreadsheets, and other desktop applications. Its powerful command line also allows you to directly interface with Infoprint Manager and to specify AFP print options.
AFP print driver	The AFP print driver allows you to produce Advanced Function Presentation (AFP) output from desktop applications. Use the AFP print driver in conjunction with Infoprint Select to obtain a high degree of control over the appearance of your printed documents.
Lightning Fax Client for use only with the Infoprint Manager Fax Feature on AIX	The Lightning Fax Client provides fax configuration support for Infoprint Manager for AIX.
Infoprint Manager GUI	The Infoprint Manager GUI includes the Infoprint Manager Administration and Operation GUIs (Graphical User Interfaces) that are used for most of your day-to-day Infoprint Manager tasks. Both GUIs require the IBM Cross Platform Technologies for Windows (CPT) Version 2.0 Runtime Environment.
IBM Cross Platform Technologies (CPT) Version 2.0 Runtime Environment	The IBM Cross Platform Technologies (CPT) Version 2.0 Runtime Environment is used with the Infoprint Manager Administration and Operation GUIs and with Infoprint Manager Notifications.
Infoprint Manager Notifications Client	Infoprint Manager Notifications Client allows your Infoprint Manager Server to receive messages generated by an AIX or Windows Infoprint Manager server. Infoprint Manager Notifications Client requires the IBM Cross Platform Technologies (CPT) Version 2.0 Runtime Environment.

Table 5. Contents of the Common Clients CD-ROM shipped with Infoprint Manager Server (continued)

SAP Clients (AIX and Windows)	The SAP Client resides on an SAP system and a variety of UNIX (including AIX) and Windows servers so you can use the Infoprint Manager SAP Print Feature on either an Infoprint Manager AIX server or an Infoprint Manager Windows server.
AIX Client	The AIX Client allows users to enter Infoprint Manager commands and the lp , lpr , and qprt AIX print commands on the AIX command line for servers where Infoprint Manager for AIX has not been installed.
HP-UX Client	The HP-UX Client installs Infoprint Manager commands on an HP-UX system.
Sun Client	The Sun Client installs Infoprint Manager commands on a Sun Solaris system.
colorRipd for Infoprint Manager for AIX	colorRipd for Infoprint Manager for AIX allows you to print to the InfoColor 70 and the Infoprint Color 100 printers.

Table 6. Separately-Priced Features Available with Infoprint Manager for Windows

Infoprint Manager Features	Description
Infoprint DBCS Font Downloader Feature	The Infoprint DBCS Font Downloader is a utility for downloading double-byte PostScript fonts from a Macintosh to Infoprint Manager.
SAP Print Feature	A business enterprise can use the SAP Print Feature to plan, implement, and print to Infoprint Manager for AIX. The SAP Print Feature contains the SAP Transform for converting both Advanced Business Application Programming (ABAP) data and Output Text Format (OTF) data to AFP for printing.
Page Printer Formatting Aid Feature	Page Printer Formatting Aid (PPFA) allows users of IBM's Advanced Function Presentation (AFP) products to create form definitions and page definitions on a variety of different operating systems.
Workgroup Printer Attachment	This is required to install and use Infoprint-driven printers that print within a range of 0 to 49 pages per minute.
Low Speed Printer Engine Attachment	This is required to install and use Infoprint-driven printers that print within a range of 50 to 89 pages per minute.
Medium Speed Printer Engine Attachment	This is required to install and use Infoprint-driven printers that print within a range of 90 to 116 pages per minute.
High Speed Printer Engine Attachment	This is required to install and use Infoprint-driven printers that print 117 pages per minute or faster.

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EuroReady

Infoprint Manager is capable of processing data containing the euro sign. Font character sets and code pages that contain and map the euro sign consistently with the application must be present either in a host library or in the printer. AFP fonts that support the euro sign are included in the AFP Font Collection (Program Number 5648-B33).

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