Printing Systems Division

Infoprint Transform Manager for Linux

Version 1 Release 2

S550-0391-04

Printing Systems Division

Infoprint Transform Manager for Linux

Version 1 Release 2

S550-0391-04

Note

Before using this information and the product it supports, be sure to read the general information in “Notices” in the “Transform Manager overview” section.

Fifth Edition (December 2006)

This edition applies to IBM Infoprint Transform Manager for Linux Version 1 Release 2 (Program Number 5639-P51) with PTF U809897 (also called Service Pack 3) and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. Be sure to use the correct edition for the level of the product.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

The IBM Printing Systems Division welcomes your comments. A form for reader’s comments is provided at the back of this publication. If the form has been removed, you can send your comments to the following address:

INFORMATION DEVELOPMENT
THE IBM PRINTING SYSTEMS DIVISION
DEPARTMENT H7FE BUILDING 004N
PO BOX 1900
BOULDER CO 80301-9191
U.S.A.

If you prefer to send comments electronically, use one of the following methods:

- Internet: printpub@us.ibm.com
- Fax: 1-800-524-1519 or 1-303-924-6873

Internet

Visit our home page at http://www.ibm.com/printers.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 2004, 2006. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

About this publication v
Who should read this publication v
Related information v

Chapter 1. Transform Manager overview 1
Highlights 1
How it works 2
Infoprint Transform Manager user interface 4
Banner area 5
Transform Manager main page 5
Set Transform Server properties for *host* 8
Accessibility 8
System requirements 9
Notices 10
Trademarks 11

Chapter 2. Installing Infoprint Transform Manager for Linux 13
Installing the Transform Manager on xSeries servers using the InstallShield Wizard 13
Installing the Transform Manager on xSeries servers from the command line 14
Installing Infoprint Transform Manager on an IBM eServer BladeCenter 15
Installing a Transform Manager compute node on an IBM eServer BladeCenter 15
Installing an Infoprint Transform Manager head node and user interface on an IBM eServer BladeCenter 15
Logging in to the Transform Manager 16

Chapter 3. Configuring Infoprint Transform Manager 17
Changing passwords 17
Adding a transform server 17
Adding a print server 18
Configuring Infoprint Manager for AIX and Windows for use with Transform Manager 18
Authorizing the Transform Manager user ID 18
Adding the print server for Infoprint Manager 19
Testing the Infoprint Manager print server configuration 19
Configuring Infoprint ProcessDirector for use with Transform Manager 20
Adding a print server for Infoprint ProcessDirector 20
Testing the Infoprint ProcessDirector print server configuration 20
Configuring Infoprint Server for z/OS for use with Transform Manager. 21
Customizing Infoprint Server for z/OS for use with Transform Manager . . . 21
Testing the Infoprint Server for z/OS print server configuration 21

Chapter 4. Working with transform servers 23
Starting transform servers 23
Stopping transform servers 23
Removing transform servers 23
Displaying job information for a transform server 24
Displaying specific messages for a transform server 24
Displaying specific job history for a transform server 24
Changing transform server information 25
Restarting a transform server 25
Managing transform servers 25

© Copyright IBM Corp. 2004, 2006

Understanding file directories. 26

Chapter 5. Working with print servers 27
Removing print servers 27
Changing print server definitions 27
Managing print servers 27

Chapter 6. Updating Infoprint Transform Manager 29
Updating Transform Manager from the IBM Web site 29
Updating Transform Manager from a service CD-ROM with InstallShield 29
Updating Transform Manager with a service CD-ROM from the command line 30

Chapter 7. Uninstalling Infoprint Transform Manager 33
Uninstalling Transform Manager from an IBM xSeries server 33
Uninstalling Infoprint Transform Manager from an IBM eServer BladeCenter 33
Uninstalling Transform Manager from the Linux command line 33

Chapter 8. Troubleshooting Transform Manager 35
Troubleshooting with Infoprint Manager 35
Troubleshooting with Infoprint ProcessDirector 35
Troubleshooting with Infoprint Server for z/OS 35
Configuring a trace for a transform server 35

Chapter 9. Reference information for Transform Manager 37
Using the transforms 37
Transform GIF data to AFP 37
Transform JPEG data to AFP 50
Transform PCL data to AFP 63
Transform PDF or PostScript data to AFP 74
Transform TIFF data to AFP 83
Reading Syntax Diagrams 98
Usage notes for Transform Manager 100
Transform Manager messages. 100
Transform Manager transform IDs 100

Glossary 101

Index 103

About this publication

This publication provides information about the IBM® Infoprint® Transform Manager for Linux™ Version 1 Release 2 licensed program (Program Number 5639-P51) with PTF U809897 (also called Service Pack 3). This edition describes the changes that were made to the product with PTF U809897.

This publication includes an overview of Infoprint Transform Manager for Linux (hereafter referred to as the Transform Manager), getting started information about the product, tasks that can be done with Transform Manager, a description of the transforms and messages included with the product, and the Transform IDs.

Who should read this publication

This publication is for system administrators who need to install, operate, and maintain the Transform Manager. This publication can also be used by job submitters, who want to use the transforms provided with Transform Manager.

Related information

For information about Infoprint Manager, refer to these documents:

- *Infoprint Manager: Reference*, S544-5475
- *Infoprint Manager for AIX: Procedures*, G544-5815
- *Infoprint Manager for Windows: Procedures*, G544-5814

For additional information about IBM printing products, refer to these Web pages:

`http://www.ibm.com/printers`
`http://publib.boulder.ibm.com/infocenter/printer/index.jsp`

© Copyright IBM Corp. 2004, 2006

Chapter 1. Transform Manager overview

This topic gives an overview of Infoprint Transform Manager for Linux, including highlights, how it works, and system requirements.

Infoprint Transform Manager for Linux (hereafter referred to as the Transform Manager) is a scalable system that operates on a Linux workstation. The Transform Manager provides a powerful and cost-effective system for transforming print jobs to Advanced Function Presentation™ (AFP™). When data and image transforms are required for AFP printing, print servers, such as Infoprint Manager for Windows®, Infoprint Manager for AIX®, Infoprint ProcessDirector, or Infoprint Server for z/OS, can send transform requests to the Transform Manager for processing across one or more transform servers.

You configure the print servers so that print jobs that require transformation are sent to the Transform Manager. The Transform Manager user interface lets you define both the print servers that are sending transform requests and the transform servers that are transforming the data. You can also use the user interface to start or stop transform servers, view a transform server message log, or turn tracing on or off for a transform server.

Highlights

This topic describes the features of the Transform Manager.

The Transform Manager represents IBM's strategic transform solution for multiplatforms. This component technology lets you centralize your transform programs in one location, eliminating the possibility of inconsistent transforms running on each platform. The Transform Manager provides a solid architecture for flexible integration of additional transforms.

The Transform Manager:

- Supports these data and raster image transforms to AFP:
  - Printer Control Language (PCL) at PCL6
  - Adobe Portable Document Format (PDF) Version 1.5 or below
  - Adobe PostScript (PS) Level 3
  - Graphics Interchange Format (GIF)
  - Joint Photographic Experts Group (JPEG)
  - Tagged Image File Format (TIFF)

  PDF transform requests are handled in parallel on both a page-by-page and job basis. PS, GIF, JPEG, and TIFF transform requests are handled in parallel on a job basis.
- When the Infoprint Transform Manager: afp2pdf Transform i-listed PRPQ, Program Number 5799-TWL, is purchased, Transform Manager supports the transform of AFP data to PDF data. For information about the **afp2pdf** transform, see *Infoprint Transform Manager: afp2pdf Transform Installation and User's Guide*, G550-0538.
- Improves transform performance of large PDF jobs.
- Provides remote transform processing; Version 1.2 works with Infoprint Manager for AIX, Infoprint Manager for Windows, Infoprint ProcessDirector, and Infoprint Server for z/OS.

© Copyright IBM Corp. 2004, 2006

- Input TIFF files must be less than 2 Gigabytes. That is, the **tiff2afp** transform does not support input files larger than 2 Gigabytes.
- The **gif2afp**, **jpeg2afp**, **pcl2afp**, **pdf2afp**, and **ps2afp** configuration files have been modified to support files larger than 2 Gigabytes.
- Support to install Transform Manager on an IBM eServer BladeCenter. A properly-configured IBM eServer BladeCenter can provide substantial additional transform processing power.
- Is printer independent.

How it works

This topic describes how the Transform Manager works.

The Transform Manager handles data and image transform processing from print servers by balancing and managing transform requests across multiple transform servers. You interact with the Transform Manager through a user interface on a Web browser.

The Transform Manager includes these components:

Coordinator

The coordinator communicates with these print servers:

- Infoprint Manager for AIX and Windows
- Infoprint ProcessDirector
- Infoprint Server for z/OS

The coordinator balances the transform requests across transform servers.

Transform server

The transform server manages these print data and image transforms:

- PCL
- Adobe PDF and PS
- GIF
- JPEG
- TIFF

The transforms convert the print data and image data to AFP data. For more information about the transforms, see “Using the transforms” on page 37.

User interface

The user interface lets you define print servers to the Transform Manager and start, stop, and manage the transform servers.

If you install multiple, separately licensed Transform Manager systems, you can use the user interface from any installation to add and manage the transform servers from the other installations.

Transform Manager accepts transform requests from these print servers in Version 1.2: Infoprint Manager for AIX, Infoprint Manager for Windows, Infoprint ProcessDirector, and Infoprint Server for z/OS (see “System requirements” on page 9 for the applicable versions).

Figure 1 on page 3 shows the Transform Manager components and how the Transform Manager interacts with the print servers.

Note: When you purchase the **afp2pdf** transform that is available as an I-listed PRPQ, 5799-TWL, you can transform AFP data to PDF data.

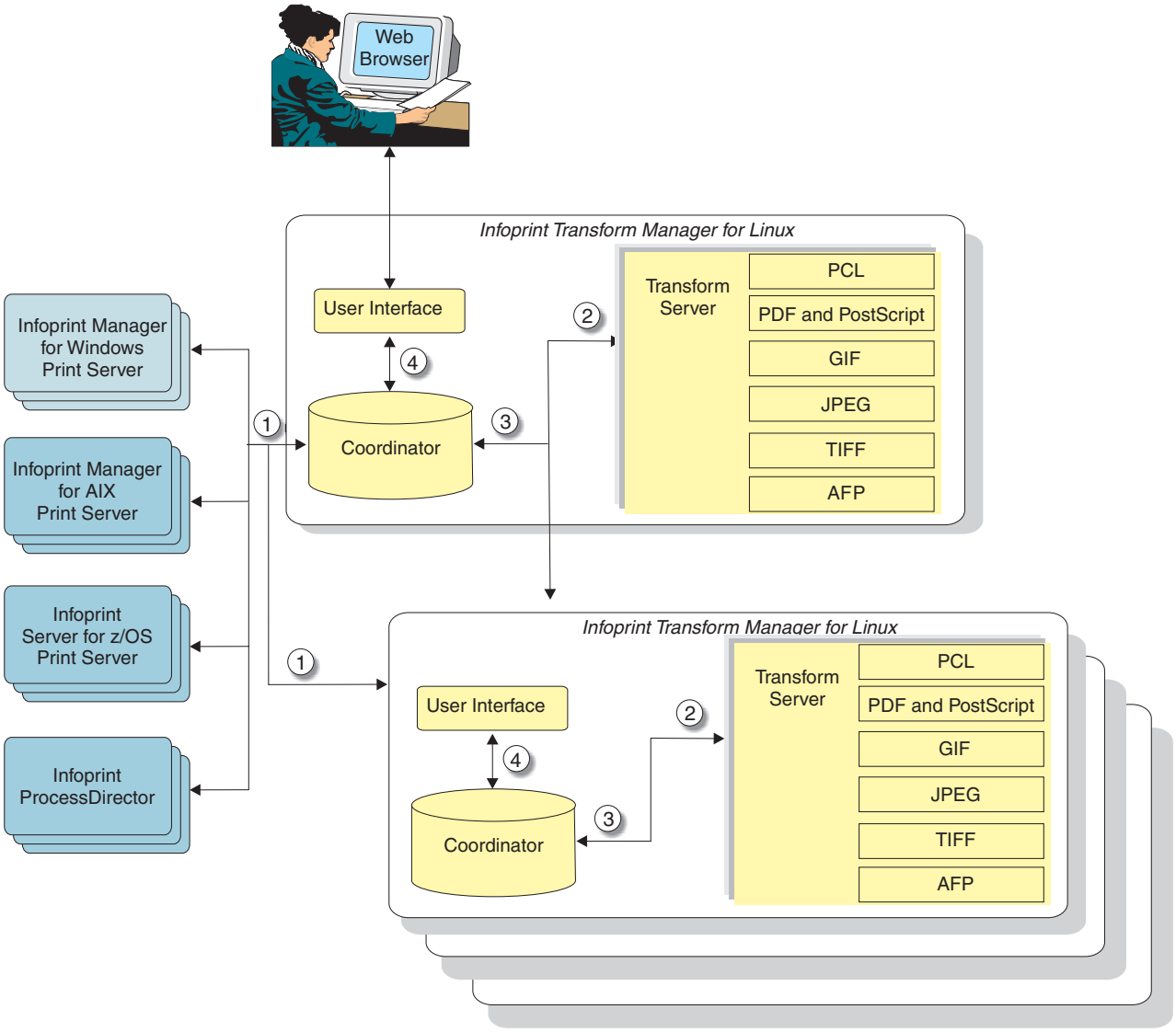


Figure 1. Transform Manager components and the interaction with print servers

The following numbered items correspond to the numbers in Figure 1. They describe how the components operate and interact with each other and the print servers.

1. Print jobs are submitted to one or more print servers that have been configured to send transform requests to the Transform Manager. A print server interface transmits the request to the coordinator. The coordinator component receives the request and information regarding the type of transformation to be performed.
2. The coordinator sends the transform request to a transform server component, which transforms the data with the appropriate transform, such as PostScript to AFP. If you are using more than one transform server, the coordinator sends the request to the transform server with the lowest processing load.

3. To maximize print server performance in sending data to the printers, the transform servers sequence the transformed data in the correct order and return it to the print servers as the data completes processing, instead of waiting for the entire job to finish.
4. The user interface component, which you access from a Web browser, lets you define which print servers and transform servers the Transform Manager communicates with. With the user interface, you can start and stop transform servers, check the operating status of the transform servers, determine the percentage of work pending for a transform server, view the message log, configure a trace to help diagnose a problem (only when requested by IBM Software Support), and see what transforms are installed on a transform server.

Returning transform requests from Transform Manager

If you submit numerous transform requests from a print server through the Transform Manager, those transform requests might not return to the print server in the same order. The order the transformed data returns to the print server depends on the kind of transform (AFP, PDF, PS, GIF, JPEG, or TIFF) and the size of the request.

For example, you send a PS file and then you send a PDF file that is the same size. The PS file can only be transformed on a job basis. The PDF file, on the other hand, can be transformed in parallel on a page-by-page basis over multiple processors. Therefore, the PDF file might be transformed first and the Transform Manager might return it to the print server before the PS file.

Infoprint Transform Manager user interface

The Infoprint Transform Manager for Linux user interface is a Web-based interface that you can access from a workstation. The workstation must have either the Microsoft Internet Explorer Web browser or the Firefox Web browser (also called Mozilla) for either Windows or Linux installed.

The Infoprint Transform Manager interface uses standard interface controls, such as tables, drop-down lists boxes, and buttons.

The Infoprint Transform Manager GUI consists of a Main page and other associated pages.

Banner area

The Infoprint Transform Manager user interface has a banner area at the top, which is always available from any page or task panel in the interface.

The Transform Manager main page

The main page of the Infoprint Transform Manager user interface contains two areas: Transform Servers and Print Servers.

Viewing information on the help system

The online help in the Transform Manager user interface helps you use the pages and complete tasks. To use the help, do one of these:

- Select **Help** in the Banner Area to see a list of links to all of the help.
- Select the question mark on a field for help about that field.

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, use software products successfully.

Banner area

The Infoprint Transform Manager user interface has a banner area at the top of each page, which is always available from any page or task panel in the interface.

The Banner area looks like this when the user is logged into Transform Manager:

From the banner area, you can click on:

Preferences
Opens the **Change Login Password** page.

Help Opens the Infoprint Transform Manager for Linux help system.

About Opens information about Infoprint Transform Manager for Linux.

The About page lets you see the version information for the Transform Manager, including the program number, installed component versions, IBM Software Support contact information, and the product copyright. To view the About page, select **About** on any page in the user interface.

Note: If the user is not logged in, the Banner area only contains the **Help** and **About** choices.

Related tasks

"Changing passwords" on page 17
If you want to change the password for Transform Manager, you need to know the current password.

Transform Manager main page

This page lists the transform servers and print servers you can work with in the Transform Manager.

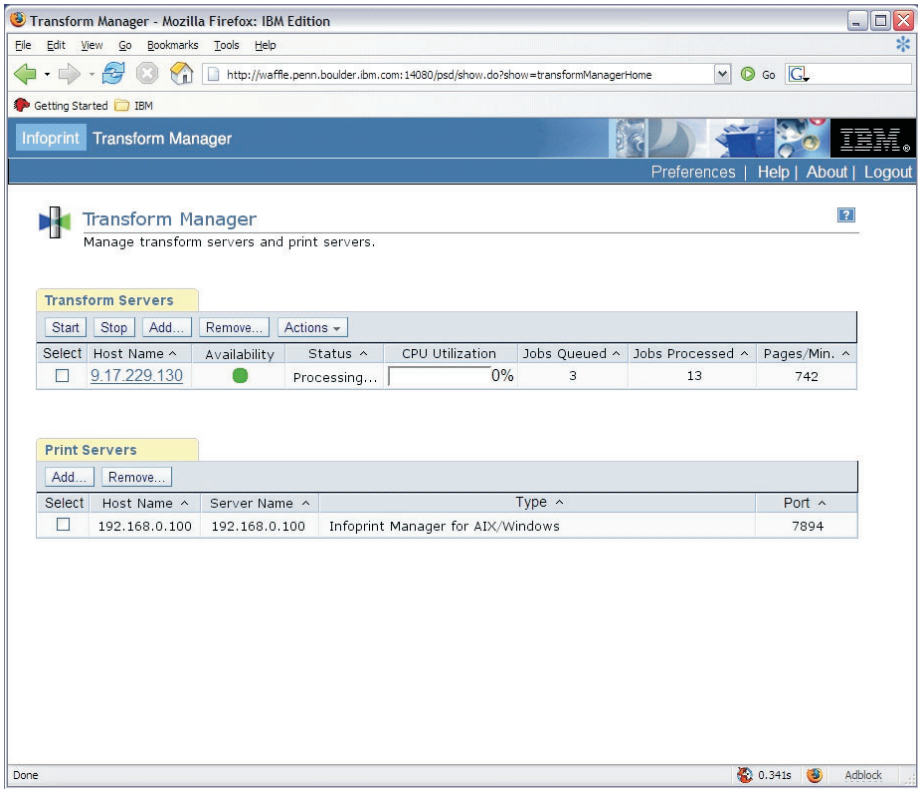


Figure 2. Transform Manager user interface main page.

The **Transform Servers** section lists the transform servers that are defined to the Transform Manager.

The actions you can perform from the **Transform Servers** section are:

Start Initialize the selected transform server so it can start accepting new transform requests.

Stop Let the selected transform server complete processing current requests and then become unavailable to accept new transform requests.

Add Define a new transform server to the Transform Manager.

Remove
Remove the selected transform servers from the Transform Manager.

Actions
From the **Actions** drop-down menu, select **View Log** to display the Job Log for a transform server or **View History** to display the Job History for a transform server.

The **Transform Servers** section contains these headings:

Select Indicates whether the transform server is selected for an action.

Host Name
Specifies a host name that is a hyperlink to the host name or IP address of the transform server. When you click on the hyperlink, you open the **Set Transform Server properties for *host***, where *host* is the host name or TCP/IP address of a transform server.

Availability
This row contains an icon that is either a green light or a red light. Green indicates that the transform server is running. Red indicates that the transform server is not running.

Status
This row contains a text string of the current server status: Starting, Ready, Transforming, Stopping, Stopped, or Lost Connection.

Starting
The transform server is initializing to accept a new transform request.

Ready The transform server is waiting for a transform request.

Transforming
The transform server is currently processing a transform request.

Stopping
The transform server is completing the transform request it is currently processing, and it is not accepting any new transform requests.

Stopped
The transform server has stopped accepting new transform requests.

Lost Connection
The Transform Manager has lost the connection with the transform server.

CPU Utilization
Indicates a percent bar that shows how much of the CPU is being used. The CPU usage refers only to the machine that the Transform Server is running on.

Jobs Queued
Indicates the number of jobs waiting in the queue to be transformed. Jobs that are transforming are not included in the jobs queued count.

Jobs Processed
Indicates the number of jobs that have been processed by the server since the server was started.

Pages/Min.
Indicates the number of pages per minute for the jobs that are already completed.

The **Print Servers** section lists the print servers that are defined to the Transform Manager. The print server actions you can perform are:

Add Define a new print server to the Transform Manager.

Remove
Remove the selected print servers from the Transform Manager.

The **Print Servers** section contains these headings:

Select Indicates whether the print server is selected for an action.

Host Name
Indicates the host name or IP address of the print server.

Server name
Indicates the name of the print server, which might be the same as the host name.

Type Indicates the type of the print server, that is, Infoprint Manager, Infoprint ProcessDirector, or Infoprint Server.

Port Indicates the port number for the print server.

You can sort the tables on this page in ascending or descending order by selecting a column header.

The Transform Manager main Page is refreshed periodically in the background to display the latest statistics. Message boxes might appear at the top of the page to inform you about the result of some actions that needed time to complete or about changes in the status of the transform servers, print servers, or the coordinator.

Note: If the communication with the coordinator fails, the two tables are replaced by an error message. When this happens, you need to reboot the system in order to restart Transform Manager.

Set Transform Server properties for *host*

The **Set Transform Server properties for *host*** (where *host* is the Host Name or TCP/IP address of a Transform Server) contains a list of the properties and values for the Transform Server. To access the properties page, click on the Host Name on the **Transform Manager** main page.

You can change any of the information on these pages that has an entry field except the entry fields that are grayed-out because they are read-only.

Properties are grouped on three tabs: General, Status, and Trace. You can view all of the properties at once by clicking **Show all tabs** in the left pane. After you have clicked **Show all tabs**, you can click **F5** to collapse the three tabs and display the **General** tab.

General

You use the fields on this page to change properties for the Transform Server identified by *host* in the title of the page.

Status

You use the fields on this page to view status information about the Transform Server identified by the *host* in the title of the page.

Trace

You use the fields on this page to enable or disable tracing for the Transform Server identified by the *host* in the title of the page. However, you should use the **Trace** page only when IBM Software Support asks you to run a trace to help diagnose a problem.

Accessibility

Accessibility features are an important part of Infoprint Transform Manager for Linux.

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, use software products successfully. The major accessibility features in the Transform Manager let users:

- Use assistive technologies such as screen-readers and screen magnifier software.
- Operate specific or equivalent features using only the keyboard.
- Customize display attributes such as color, contrast, and font size.

Using assistive technologies

Assistive technology products, such as screen-readers, function with the user interfaces found in the Transform Manager. Consult the assistive technology documentation for specific information when using it to access the Transform Manager.

Keyboard navigation of the user interface

The Transform Manager user interface complies with the accessibility guidelines for HTML. Users can use keyboard shortcuts or function keys (PF keys) to access the Transform Manager user interface. Refer to your browser documentation for keyboard shortcuts and default settings for the PF keys and for explanations about how to modify their functions.

System requirements

This topic describes the hardware and software requirements for using the Transform Manager.

Hardware requirements

IBM recommends you use an IBM xSeries® server that supports SUSE Linux Enterprise Server 9.0 SP3 (Service Pack 3) for x86. The server requirements are:

- Intel® 32-bit platform
- Two 3.0 GHz or faster processors
- Minimum of 2 GB RAM
- CD-ROM drive

The IBM eServer BladeCenter requirements are:

- HS20 blade server that supports SUSE Linux Enterprise Server 9.0 SP3
- Minimum of 1 GB RAM
- CD-ROM drive

Software requirements

The Transform Manager requires this software:

Software	Installed on
SUSE Linux Enterprise Server 9.0 SP3 for x86 with automount feature enabled	Transform Manager server
Infoprint Manager for AIX 4.2 with PTF U807769	Print server
Infoprint Manager for Windows 2.2 with PTF UO00352	Print server

Software	Installed on
Infoprint ProcessDirector, V1R2	Print server
Infoprint Server for z/OS V1R4 and higher. When you run Infoprint Server for z/OS V1R4 through V1R8 APAR OA18410 is required.	Print server
X Window System if you want to use the InstallShield MultiPlatform Wizard to install the Transform Manager (recommended)	Transform Manager server
Microsoft Internet Explorer Web browser.	Workstation
Mozilla 1.7 or above Web browser from Firefox.	Workstation
Usage considerations: 1. You must have at least one print server, but you can have more than one. 2. If you use the Firefox Web browser with Infoprint ProcessDirector, you will be asked to log in whenever you switch between the Transform Manager GUI and the Infoprint ProcessDirector GUI and want to perform an action. This does not occur with Microsoft Internet Explorer. 3. When you install PTF U809395, you must also install Mozilla 1.7 or above. 4. The help system for Infoprint Transform Manager for Linux has been converted to the IBM Eclipse Help System with PTF U809395. This help system requires approximately 1.2 G of memory.	

Notices

This section provides legal and trademark information about Infoprint Transform Manager for Linux.

This information was developed for products and services offered in the U.S.A.

IBM might not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service can be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right can be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM might have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM can make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

IBM can use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation
Department 11PA, Building 002S
P.O. Box 1900
Boulder, CO; 80301
U.S.A.

Such information might be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Trademarks

Lists trademarks of IBM and other companies used with Infoprint Transform Manager for Linux

These trademarks and registered trademarks of the IBM Corporation are used in this publication:

- Advanced Function Presentation
- AFP
- AIX
- IBM
- Infoprint

- xSeries
- z/OS

These terms appear in this publication and are trademarks of other companies:

- Intel is a trademark of Intel Corporation in the United States, other countries, or both.
- Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation.
- Linux is a trademark of Linus Torvalds in the United States, other countries, or both.
- Portable Document Format (PDF) is a trademark of Adobe Systems Incorporated.
- PostScript is a trademark of Adobe Systems Incorporated.
- UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, and service names might be trademarks or service marks of others.

Chapter 2. Installing Infoprint Transform Manager for Linux

Before you can use Transform Manager, you need to install it to set up the Transform Manager User Interface.

You need to install Transform Manager on xSeries Servers or an IBM eServer BladeCenter. Next, you can log into Transform Manager and work with the Transform Manager User Interface.

Installing the Transform Manager on xSeries servers using the InstallShield Wizard

Before you can use the Transform Manager, you need to install it on an xSeries server.

Make sure all required hardware and software is available (see System requirements for information). If you are installing Transform Manager on an xSeries server that has Infoprint ProcessDirector already installed on it, the job submission from Infoprint ProcessDirector must be stopped before installing Transform Manager.

Use the following procedure to install the Transform Manager on a Linux workstation with the InstallShield Wizard. If you have problems installing with the InstallShield Wizard, see the release notes file on the product CD for information about installing from the Linux command line.

1. Log in as a root (administrator) user.
2. Insert the product CD (LCD4-5611-03) in the CD-ROM drive. Mount the CD if it does not mount automatically by specifying: **`mount/media/cdrom`**.
3. Select the **install.sh** file in the **`/bin`** directory. You see a product window with the copyright statement and then you see a welcome window.
4. Click **Next** on the Infoprint Transform Manager Welcome screen. You see a list of tasks.
5. Select **View the release notes** for information about installing the Transform Manager.
6. Select **Install Infoprint Transform Manager** and then click **Next**. The InstallShield Wizard steps you through the installation.
7. When you see the license screens, select the button next to **I accept the terms of the license agreement** and click **Next**.
8. In the Installation summary information window, click **Install**.
9. When asked to enter an administrator password for Infoprint Transform Manager, enter a password and click **Next**.
10. Click **Finish**. The installation summary includes information about accessing the user interface with a Web browser.

When the installation is complete, you must configure one or more print servers to communicate with the Transform Manager.

Keep in mind: If you install multiple, separately licensed Transform Manager systems, you can use the user interface from any installation to add and manage the transform servers from the other installations.

© Copyright IBM Corp. 2004, 2006

Installing the Transform Manager on xSeries servers from the command line

In addition to installing Transform Manager with the GUI, you can also install it from the command line.

Make sure all required hardware and software is available (see System requirements for information). If you are installing Transform Manager on an xSeries server that has Infoprint ProcessDirector already installed on it, the job submission from Infoprint ProcessDirector must be stopped before installing Transform Manager.

Use the following procedures to install the Transform Manager on a Linux workstation from the command line.

1. Log in as a root (administrator) user.
2. Insert the product CD (LCD4-5611-03) in the CD-ROM drive.
3. Enter this command from the CD directory: `./setuplinux.bin -console`
4. If you see a list of supported languages, do this:
   a. Enter the option for the appropriate language. You see an **X** next to the selected language.
   b. Enter **0**.
   c. Enter **1** to continue.

   You see welcome information for the installation.
5. Enter **1** to continue. You see a list of tasks.
6. Enter the option for **Install Infoprint Transform Manager**. You see an **X** next to the selection.
7. Enter **0** and then enter **1**. You see the IBM license agreement.
8. Read the license agreement and then enter **1** to accept the agreement. You see an **X** next to the selection.
9. Enter **0** and then enter **1**. You see information that indicates where the Transform Manager will be installed on the workstation.
10. Read the summary information and then enter **1**. The installation begins and you see several bars that indicate the progress of the installation.
11. Enter **1** to continue. You see another progress bar.
12. When the installation completes successfully, you see the Web address for the Transform Manager user interface and directions for accessing the user interface on the Linux workstation.
13. Record the Web address and then bookmark it in the Web browser you are using to access the user interface. For information about using the user interface, refer to the online help and *Infoprint Transform Manager for Linux*, S550-0391, on the publications CD, SK3T-9915.
14. Enter **1** to continue. You see a message.
15. If errors are listed in the message, contact IBM Software Support for help.
16. Enter **3** to finish and exit form the installation program.
17. Eject the CD.
18. Log out as root and log in as another user.

Installing Infoprint Transform Manager on an IBM eServer BladeCenter

This topic describes the procedure for installing Infoprint Transform Manager on an IBM eServer BladeCenter.

Before installing Infoprint Transform Manager on an IBM eServer BladeCenter, you need to determine which blade will be the head node (the head node is the coordinating or arbitrating node) and which blades will be the compute nodes (compute nodes transform the datastreams) and how many compute nodes you need. You must install the compute nodes before you install the head node.

You use Infoprint Transform Manager for Linux: Blade (CD1), LCD4-5614-01, for the compute nodes.

You use Infoprint Transform Manager for Linux: Blade (CD2), LCD4-5615-01, and Infoprint Transform Manager for Linux, LCD4-5611-03, for the head node.

Installing a Transform Manager compute node on an IBM eServer BladeCenter

If you are installing Transform Manager on an IBM eServer BladeCenter that has Infoprint ProcessDirector already installed on it, the job submission from Infoprint ProcessDirector must be stopped before installing Transform Manager.

Use the following procedures to install a Transform Manager compute node on an IBM eServer BladeCenter with the InstallShield Wizard. The InstallShield Wizard steps you through the installation.

1. Log in as a root (administrator) user.
2. Insert the CD labeled Infoprint Transform Manager for Linux: Blade (CD 1), LCD4-5614-01, in the CD-ROM drive. When you insert the CD, it mounts automatically and displays the contents of the CD.
3. Launch **`/media/cdrom/installnodes.sh`** file.
4. On the Welcome screen, click **Next**.
5. The Select option windows displays the following choices:**View Release notes**, **Install IBM Infoprint Transform Manager** and **Contact us**. Select **Install IBM Infoprint Transform Manager** and click **Next**.
6. When you see the license screens, select the button next to **I accept the terms of the license agreement** and click **Next**.
7. When the installation summary display, click **Install**. At the end of the installation, a summary of the installation status displays.
8. Click **Finish**.
9. Repeat all steps for each compute node that you need.

Installing an Infoprint Transform Manager head node and user interface on an IBM eServer BladeCenter

If you are installing Transform Manager on an IBM eServer BladeCenter that has Infoprint ProcessDirector already installed on it, the job submission from Infoprint ProcessDirector must be stopped before installing Transform Manager.

Use the following procedures to install an Infoprint Transform Manager head node and user interface on an IBM eServer BladeCenter with the InstallShield Wizard. The InstallShield Wizard steps you through the installation.

1. Log in as a root (administrator) user.
2. Insert the CD labeled Infoprint Transform Manager for Linux: Blade (CD 2), LCD4-5615-01, in the CD-ROM drive. When you insert the CD, it mounts automatically and displays the contents of the CD.
3. Launch **/media/cdrom/installblades.sh** file.
4. On the Welcome screen, click **Next**.
5. The Select option windows displays the following choices:**View Release notes**, **Install IBM Infoprint Transform Manager** and **Contact us**. Select **Install IBM Infoprint Transform Manager** and click **Next**.
6. When you see the license screens, select the button next to **I accept the terms of the license agreement** and click **Next**.
7. When prompted by the InstallShield Wizard, insert the CD labeled Infoprint Transform Manager, LCD4-5611-03, in the CD-ROM drive.
8. Enter the IP address or IP ranges for all the compute nodes. You see a Summary screen.
9. When prompted for the administrator password, enter a password, then enter the same password in the **Confirm password** field, and click **Next**.
10. When the installation summary displays, click **Install**. At the end of the installation, a summary of the installation status displays.
11. Click **Finish**.

Logging in to the Transform Manager

This topic describes how to log in to the Transform Manager.

To log in:

1. Bring up the Transform Manager user interface in a Web browser by entering this address: **http://{*target server host name or ip address*}:{*port determined at install*}/psd**. The default port number is 14080. If Transform Manager is installed on a host with this TCP/IP address **127.0.0.1** with the default port, the address to access the user interface would be: **http://127.0.0.1:14080/psd**. In the browser window, you see the **Log in to Transform Manager** page.
2. Type the Transform Manager password.
3. Select **Log in**. You see the Transform Manager main page.

   Remember: If you do not use the Transform Manager for 30 minutes or more, you must log in again.

   When you first log in to the Transform Manager, you see one transform server that has been added by default during the installation.

Chapter 3. Configuring Infoprint Transform Manager

Before you can use Infoprint Transform Manager, you need to add a Transform Server and the appropriate print servers.

You might also want to specify a unique password instead of using the default **nopassword**.

Depending on which print servers you use, there are unique configuration tasks to be completed as well, such as authorizing a User ID for use with Infoprint Manager.

Changing passwords

If you want to change the password for Transform Manager, you need to know the current password.

To change the password that is used to authenticate any user who tries to log in to the Transform Manager user interface:

1. Click **Preferences** in the Banner area on the Transform Manager main page. This opens the **Change Login Password** screen.
2. Type your current password in the **Current password** entry field.
3. Type a new password in the **New password** entry field. Passwords can only be alphanumeric characters (a-z A-Z 0-9) and the special characters (! @ # $ % ^ & * ( )) on the keyboard accessed by pressing the shift key for the numbers 0-9. Passwords are limited to 128 characters. Zero-length passwords are allowed. The default password is an empty string, which means you do not need to specify a password.
4. Type the new password again in the **Confirm the new password** entry field. The password you type here must match the new password you typed in the **New password** entry field. The password automatically takes effect the next time you log in to the Transform Manager user interface.
5. Click **Change** to change the password. This message is displayed on the Transform Manager main page: The Login password was changed successfully.

Adding a transform server

Before you can add a transform server, you need to determine the host name or IP address for the transform server and the port number to use for the transform server. You can use the default port number.

To add a transform server:

1. On the *Transform Manager* page, select **Add...** for the transform server action. You see the *Add Transform Server* page.
2. Type the host name or IP address for the transform server.
3. Use the default port number or type another port number for the transform server.
4. Select **OK**. You see a message in the message box and then you see the *Transform Manager* page. When the add action is complete, you see the transform server in the list.

© Copyright IBM Corp. 2004, 2006

Adding a print server

Before you can add a print server, you need to determine the host name or IP address for the print server and the port number to use for the print server. You can use the default port number.

To add a print server:

1. On the *Transform Manager* page, select **Add...** for the print server action. You see the *Add Print Server* page.
2. Select the appropriate server type from the **Server Type** pull-down list.
3. When you select Infoprint Manager, complete these steps:
   a. Type the server name for the print server.
   b. Type the host name or IP address for the print server. The host name can be the same as the server name.
   c. Use the default port number or type another port number for the print server.
4. When you select Infoprint ProcessDirector or z/OS Server, type the host name or IP address for the print server. The host name can be the same as the server name.
5. Select **OK**. You see a message in the message box and then you see the *Transform Manager* page. When the add action is complete, you see the print server in the list.

Configuring Infoprint Manager for AIX and Windows for use with Transform Manager

In order for a print server to send transform requests to the Transform Manager, you must authorize the Transform Manager User ID and configure the print server to communicate with the Transform Manager.

To configure Infoprint Manager for AIX and Windows for use with Transform Manager, complete these tasks:

- Authorize the Transform Manager User ID
- Add Infoprint Manager as a print server to the Transform Manager, which results in changes in Infoprint Manager.
- Test the resulting print server configuration.

Authorizing the Transform Manager user ID

During the Transform Manager installation, a user ID, **ibmitm**, is created on the Linux workstation. The Transform Manager uses this user ID to access print servers. You must configure Infoprint Manager to authorize this Transform Manager user ID with administrator access to the print server. The way you authorize access in Infoprint Manager depends on the operating system you are using:

- If you are using Infoprint Manager for AIX without DCE:
  1. Access the System Management Interface Tool (SMIT).
  2. Select **Infoprint Printing System-->Security-->Groups-->Add User to Group**.
  3. Add **ibmitm@*workstation*** to the **admin** group, where *workstation* is either the fully-qualified host name or IP address of the Transform Manager workstation (such as: mytm1.boulder.ibm.com or 195.168.1.242) or the wildcard character (*) that represents any Transform Manager workstation.

To learn more about authorizing access in Infoprint Manager for AIX, refer to managing non-DCE security in *Infoprint Manager for AIX: Procedures*, G544-5815.

- If you are using Infoprint Manager for AIX with DCE:

  You need to manually set the **transform-manager-host** and **transform-manager-port** attributes on the Infoprint Manager Server with the **pdset** command. For example, if **itm** is the name of the system running Infoprint Transform Manager and **ipm4aix** is the name of the Infoprint Manager Server, type:

  ```
  pdset -c server -x "transform-manager-host=itm" ipm4aix
  pdset -c server -x "transform-manager-port=6874" ipm4aix
  ```

- If you are using Infoprint Manager for Windows:

  1. Access the Infoprint Manager Management Console.
  2. Select **Security-->Groups**.
  3. Add **ibmitm@*workstation*** to the **admin** group, where *workstation* is either the fully-qualified host name or IP address of the Transform Manager workstation (such as: mytm1.boulder.ibm.com or 195.168.1.242) or the wildcard character (*****) that represents any Transform Manager workstation.
  4. From Transform Manager, be sure to specify the server name in case-sensitive form.

  To learn more about authorizing access in Infoprint Manager for Windows, refer to managing security in *Infoprint Manager for Windows: Procedures*, G544-5814.

Adding the print server for Infoprint Manager

In order for the Transform Manager to transform Infoprint Manager print jobs, you must add the print server with the Transform Manager user interface. Adding a print server in the Transform Manager sets these two attributes in Infoprint Manager:

transform-manager-host
transform-manager-port

When you define the print server, the **transform-manager-host** attribute is set to the Transform Manager host name or IP address and the **transform-manager-port** attribute is set to the default Transform Manager port, which is 6986. You must add a print server for each Infoprint Manager server you want to use. If these attributes are not set, the transforms in the Infoprint Manager print server are used.

Note: Do not set these attributes when you submit a print request. If you specify these attributes in Infoprint Manager on the job request instead of adding the print server in the Transform Manager, the print server is not displayed in the list of print servers on the Transform Manager user interface page.

Related tasks

"Adding a print server" on page 18

Testing the Infoprint Manager print server configuration

After you have added a print server for use with Infoprint Manager, you need to test the print server configuration.

To test the print server configuration for Infoprint Manager with Transform Manager:

1. Submit a non-AFP print job to the print server and view the status of the transform request on the Transform Manager main page to verify that you configured the print server correctly. You might need to watch closely in case the processing happens quickly.
2. To check that your job was transformed successfully from the Transform Manager user interface, click on the **Actions** pull-down list of the Transform Server main page to display the Job Log for the transform server you are working with. Look for the entry that contains your test job's name.

Related tasks

"Adding a print server" on page 18

Configuring Infoprint ProcessDirector for use with Transform Manager

In order for Infoprint ProcessDirector to send transform requests to the Transform Manager, you need to configure a print server and customize Infoprint ProcessDirector.

To configure Infoprint ProcessDirector for use with Transform Manager, use these procedures to:

- Add Infoprint ProcessDirector as a print server to the Transform Manager.
- Test the resulting print server configuration.

For more information about the steps you do on Infoprint ProcessDirector, see Infoprint ProcessDirector online help.

Note: If you use the Firefox Web browser with Infoprint ProcessDirector, you will be asked to log in whenever you switch between the Transform Manager GUI and the Infoprint ProcessDirector GUI and want to perform an action. This does not occur with Microsoft Internet Explorer.

Adding a print server for Infoprint ProcessDirector

To configure Infoprint ProcessDirector with Transform Manager, you need to add a print server for Infoprint ProcessDirector's use.

Once you have added the print server for Infoprint ProcessDirector and identified the Transform Server that you will use, you need to configure Transform Manager within Infoprint ProcessDirector. Record the Transform Server IP address or DNS name and the Transform Server port number, so that you have it available when you configure Infoprint ProcessDirector to send jobs to Transform Manager.

For more information about the steps you do on Infoprint ProcessDirector, see Infoprint ProcessDirector online help.

Related tasks

"Adding a print server" on page 18

Testing the Infoprint ProcessDirector print server configuration

This topic describes how to test the Infoprint ProcessDirector print server configuration for Transform Manager.

To test the print server configuration:

1. On the Infoprint ProcessDirector system, submit a request to transform a non-AFP document to AFP format.
2. Check the AFP output.

3. Review Transform Manager Server job log by selecting **Actions** and then clicking **View Job Log**.

Configuring Infoprint Server for z/OS for use with Transform Manager

This topic describes how to configure your system to use Infoprint Server for z/OS as a print server for transform output.

In order for Infoprint Server for z/OS to send transform requests to the Transform Manager, you need to configure a print server. Use these procedures to:

- Add Infoprint Server for z/OS as a print server to the Transform Manager.
- Customize Infoprint Server for z/OS to use the Transform Manager.
- Test the resulting print server configuration.

For more information about the steps you do on the z/OS system, see the Infoprint Server for z/OS documentation.

Related tasks

"Adding a print server" on page 18

Customizing Infoprint Server for z/OS for use with Transform Manager

This topic describes how to customize the Infoprint Server for z/OS so that it can do transforms on the Linux system when requested.

1. In the remote transform configuration file, **aoprxf.conf**, provide the host name or IP address and the port number of the Linux system.
2. In the Infoprint Server for z/OS Printer Inventory, customize the PSF printer definitions to do transforms to AFP on the Linux system.

Testing the Infoprint Server for z/OS print server configuration

This topic describes how to test the Infoprint Server for z/OS print server configuration for Transform Manager.

To test the print server configuration:

1. On the z/OS system, submit a request to transform a non-AFP document to AFP format.
2. Check the AFP output.
3. Review Transform Manager Server job log by selecting **Actions** and then clicking **View Job Log**.

Chapter 4. Working with transform servers

Once you have installed and configured Transform Manager, tasks that apply to transform servers can be completed within the Transform Manager User Interface.

Starting from the Transform Manager main page, you can complete these tasks for a transform server:

- Start a transform server.
- Stop a transform server.
- Add a transform server.
- Remove a transform server.
- Display job information about a transform server.
- Change information for a transform server.
- Restart transform manager.
- Manage print servers.
- Use Transform Manager file directories.

Note: Adding additional transform servers might require configuration. Therefore, the information about adding a transform server is included with the configuration information. See “Adding a transform server” on page 17.

Starting transform servers

To start transform servers:

1. On the *Transform Manager* main page, check one or more transform servers in the Transform Server Select column.
2. Select **Start** for the selected transform servers. When a transform server’s state is **Ready** or **Transforming**, it is ready to accept a transform request.

Stopping transform servers

To stop transform servers:

1. On the *Transform Manager* main page, check one or more transform servers in the Transform Server Select column.
2. Select **Stop** for the selected transform servers. These transform servers complete any transform requests in progress and do not accept any more requests.

Removing transform servers

To remove transform servers from the Transform Manager:

1. On the *Transform Manager* main page, check one or more transform servers in the Transform Server Select column.
2. Select **Remove** for the selected transform servers. You see the *Confirm Removal of Transform Servers* page.
3. Select **Yes**. You see a message in the message box and then you see the *Transform Manager* page. When the remove action is complete, you see the list without the selected transform servers.

© Copyright IBM Corp. 2004, 2006

Displaying job information for a transform server

To view the job information for a transform server:

1. On the Transform Manager main page, click **Actions**. You see two choices: **View Log** and **View History** in the drop-down menu.
2. Select **View Log**. The **Job Log for Transform Server: *n.nn.nnn.nnn*** opens, where *n.nn.nnn.nnn* is the transform server you selected on the Transform Manager main page.
3. Select **View History**. The **Job History for Transform Server: *n.nn.nnn.nnn*** opens, where *n.nn.nnn.nnn* is the transform server you selected on the Transform Manager main page.

Displaying specific messages for a transform server

To display specific messages:

1. On the Job Log for the transform server, select or enter data for one or more of the criteria fields. With the **Issued within:** field, you can specify the messages to include for **1-7** days or specify **All** to specify all messages, or you can specify the messages to include for **1-24** hours or specify **All** to specify all messages.
2. Select **Refresh**. The list of messages is updated based on the criteria you selected.
3. Select **Export**. When you select the **Export** button, a message is issued stating that the export might take time to process. Next, the system **Export Log** dialog appears where you can save the log to disk.
4. Click **OK** after entering the location where you want to save the log.
5. Select **Close**. You see the *Transform Manager* page.

Note: Paging controls appear at the bottom of the Job Log. You can use these controls to move forward, backward, and jump to a specific page of the log. You can also specify the number of entries shown in the log by changing the number in **Display**.

Displaying specific job history for a transform server

To display specific job history:

1. On the Job History for the transform server, select or enter data for the **Started within:** criteria field. You can specify the messages to include for **1-7** days or specify **All** to specify all messages, or you can specify the messages to include for **1-24** hours or specify **All** to specify all messages. The **Job ID** field contains a number that Transform Manager generates and is only relevant to Transform Manager. This **Job ID** number does not start at **1** and might not be consecutive.
2. Select **Refresh**. The list of messages is updated based on the criteria you selected.
3. Select **Export**. The system **Export History** dialog appears where you can save the history to disk.
4. Click **OK** after entering the location where you want to save the log.
5. If you want to clear the history, select **Clear**. The **Clear jobs history** message appears.
6. When the **Clear jobs history** message appears, click **OK** to clear the message or click **Cancel** to return to the job history page.
7. Select **Close**. You see the *Transform Manager* page.

Note: Paging controls appear at the bottom of the Job History. You can use these controls to move forward, backward, and jump to a specific page of the log. You can also specify the number of entries shown in the log by changing the number in **Display**.

Changing transform server information

You use the Properties Pages to change the information for a transform server.

To access the Properties Pages for a specific transform server:

1. Click the hyperlink for the specific transform server on the Transform Manager main page. The **Properties Page for Transform Server: *n.nn.nnn.nnn*** opens, where *n.nn.nnn.nnn* is the Host Name or TCP/IP address of a Transform Server you selected.

   Properties are grouped on three tabs: General, Status, and Trace. You can view all of the properties at once by clicking **Show all tabs** in the left pane.
2. You can change any of the information on these pages that has an entry field.
3. Click the **?** button next to each entry field for information about it.
4. Click **OK** to save any changed properties and return to the Transform Manager main page.

Restarting a transform server

If a transform server stops processing, you can use the Transform Manager user interface to start the transform server. If the Transform Manager stops, you must restart the system. However, before restarting the Linux workstation, you should contact IBM Software Support so they can diagnose the problem that caused processing to stop.

1. After you restart the computer, log into the Transform Manager system again.
2. From the Transform Manager main page, click the **Select** box for the transform server.
3. Select **Start** for the transform server action. When a transform server's state is **Ready** or **Transforming**, it is ready to accept a transform request.
4. If you have problems bringing up a transform server after a restart of the system, contact IBM Software Support.

Related tasks

"Logging in to the Transform Manager" on page 16
This topic describes how to log in to the Transform Manager.

Managing transform servers

To manage transform servers, do this on the *Transform Manager* main page:

1. To start, stop, add, or remove transform servers, check one or more transform servers in the Transform Server Select column.
2. Select one of these actions:

Action	Description
Start	Initialize the selected transform servers so they can start accepting new transform requests.

Action	Description
Stop	Let the selected transform servers complete processing current requests and then become unavailable to accept new transform requests.
Add	Define a new transform server to the Transform Manager.
Remove	Remove the selected transform servers from the Transform Manager.

If you select the Add action, you see the *Add Transform Server* page. If you select the Remove action, you see the *Confirm Removal of Transform Servers* page. Otherwise, the Transform Manager performs the action and a message box indicates the status of the action.

Understanding file directories

This topic describes the directories containing the Transform Manager files.

The Transform Manager is installed on the Linux workstation in these directories:

Transform Manager persistent data
`/opt/IBM/itm`

Transform Manager workspace data
`/var/IBM/itm`

Transform Manager user interface
`/opt/IBM/ejz`

Chapter 5. Working with print servers

Once you have installed and configured Transform Manager, tasks that apply to print servers can be completed within the Transform Manager User Interface.

Starting from the Transform Manager main page, you can complete these tasks for a print server:

- Add a print server.
- Remove print servers.
- Change a print server.
- Managing print servers.

Note: Because you need to add a print server when you are configuring Transform Manager, the information about adding a print server is included with the configuration information. See “Adding a print server” on page 18.

Removing print servers

To remove print servers from the Transform Manager:

1. On the Transform Manager main page, check one or more print servers in the Print Server Select column.
2. Select **Remove** for the print server action. You see the *Confirm Removal of Print Servers* page.
3. Select **Yes**. You see a message in the message box and then you see the Transform Manager page. When the remove action is complete, you see the list without the selected print servers.

When you remove an Infoprint Manager print server, Transform Manager reconfigures Infoprint Manager to stop sending transform jobs to Transform Manager. When you remove an Infoprint Server or an Infoprint ProcessDirector print server, Transform Manager removes the print server from the list of print servers.

Changing print server definitions

To change the definitions for a print server, you cannot edit the existing print server definition. You must first remove the print server from the Transform Manager and then add the print server to the Transform Manager with a new definition.

1. “Removing print servers.”
2. Add a print server.

Managing print servers

To manage print servers, do this on the *Transform Manager* page:

1. To remove print servers, check one or more print servers in the Print Server Select column.
2. Select one of these actions:

Action	Description
Add	Define a new print server to the Transform Manager.

© Copyright IBM Corp. 2004, 2006

Action	Description
Remove	Remove the selected print servers from the Transform Manager.

If you select the Add action, you see the *Add Print Server* page. If you select the Remove action, you see the *Confirm Removal of Print Servers* page.

Related tasks

Adding a print server
Changing print server definitions
Removing print servers

Chapter 6. Updating Infoprint Transform Manager

When Service Packs, which are also called PTFs, are released for Infoprint Transform Manager, you need to access the code to update the base product.

Service Packs contain new function and program fixes that will enhance your experience with the product. For example, Service Pack 2 contains a revised user interface that simplifies your interaction with Transform Manager.

You can access the code in two ways:

- Go out to the IBM Web site for the Service Pack, create a CD of the code as instructed, and then install the code from the CD you created.
- Obtain a Service CD-ROM from your IBM representative and install it.

Updating Transform Manager from the IBM Web site

When a Service Pack is made available for Transform Manager, you need to determine the FTP Web site where the Service Pack is available for downloading.

These Service Packs are available for Transform Manager:

- Service Pack 1, also called PTF U806504, is located at http://www-1.ibm.com/support/docview.wss?uid=psd1P4000470
- Service Pack 2, also called PTF U809395, is located at http://www-1.ibm.com/support/docview.wss?uid=psd1P4000495
- Service Pack 3, also called PTF U809897, is located at http://www-1.ibm.com/support/docview.wss?uid=psd1P4000516

Note: You can not install a Service Pack unless you have already installed the base code for Transform Manager.

To update Transform Manager with a Service Pack from one of the IBM Web Sites, also called a PTF or SP, complete these steps:

1. Access the appropriate Web Site. The appropriate download page opens. For example, Infoprint Transform Manager for Linux PTF U809897.
2. Follow the download instructions on the page for the format of the Transform Manager server and the Transform Manager blade code.

Updating Transform Manager from a service CD-ROM with InstallShield

When a Service Pack is made available for Transform Manager, you can obtain a service CD-ROM from your IBM representative.

Note: You can not install a Service Pack unless you have already installed the base code for Transform Manager.

To update Transform Manager with a Service Pack on a CD-ROM, also called a PTF or SP, complete these steps:

1. Log in as a root (administrator) user.
2. Insert the service CD in the CD-ROM drive. Mount the CD if it does not mount automatically by specifying: **`mount/media/cdrom`**.
3. Select the **install.sh** file in the **`/bin`** directory. You see a product window with the copyright statement and then you see a welcome window.

© Copyright IBM Corp. 2004, 2006

4. Click **Next** on the Infoprint Transform Manager Welcome screen. You see a list of tasks.
5. Select **View the release notes** for information about installing the Transform Manager.
6. Select **Install Infoprint Transform Manager** and then click **Next**. The InstallShield Wizard steps you through the installation.
7. When you see the license screens, select the button next to **I accept the terms of the license agreement** and click **Next**.
8. In the Installation summary information window, click **Install**.
9. When asked to enter an administrator password for Infoprint Transform Manager, enter a password and click **Next**.
10. When prompted, enter the number of compute nodes that you want to install on the next screen. The number shown is the default for your Server. If you want more compute nodes, you need to install more processors and then install the Service Pack again. The number of compute nodes must be equal to or less than the number of processors on the machine.
11. Click **Finish**. The installation summary includes information about accessing the user interface with a Web browser.

Updating Transform Manager with a service CD-ROM from the command line

When a Service Pack is made available for Transform Manager, you can obtain a service CD-ROM from your IBM representative.

Note: You can not install a Service Pack unless you have already installed the base code for Transform Manager.

Use the following procedures to install the service CD-ROM for Transform Manager on a Linux workstation from the command line.

1. Log in as a root (administrator) user.
2. Insert the service CD-ROM in the CD-ROM drive.
3. Enter this command from the CD directory:`./install_sp.sh -console`
4. If you see a list of supported languages, do this:
   a. Enter the option for the appropriate language. You see an **X** next to the selected language.
   b. Enter **0**.
   c. Enter **1** to continue.

   You see welcome information for the installation.
5. Select from the following options:
   a. Type **1** if you want to read the Release Notes and press Enter.
      1) Type **0** and press Enter when finished.
      2) Type **1** and press Enter for the next dialog.
      3) Press Enter for next page.
      4) Type **q** or **Q** and press Enter when finished.
      5) Type **2** and press Enter for the previous dialog.
   b. Type **3** if you want to read the Contact information and press Enter.
      1) Type **0** and press Enter when finished.
      2) Type **1** and press Enter for the next dialog.
      3) Type **2** and press Enter for the previous dialog.

c. Type **2** if you want to continue with the installation and press Enter.
   1) Type **0** and press Enter when finished.
   2) Type **1** and press Enter for the next dialog.

6. Type the number of compute nodes that you want to install on the machine. If the number you specified is less than two or greater than the number of processors that are installed on that machine, Transform Manager issues error messages. If you want more compute nodes, you need to install more processors and then install the Service Pack again.
7. Press Enter for the next page from the License Agreement.
8. Type **q** or **Q** and press Enter when finished.
9. Enter **1** and press enter if you accept the terms of the License Agreement.
10. Enter **0** and press Enter when finished.
11. Type **1** and press Enter for the next dialog. The installation begins and you see several bars that indicate the progress of the installation.
12. Type **3** to continue and press Enter.
13. Enter **3** to finish and exit form the installation program.
14. Eject the service CD-ROM.
15. Log out as root and log in as another user.

Chapter 7. Uninstalling Infoprint Transform Manager

When you want to uninstall Infoprint Transform Manager, you need to uninstall it from the xSeries server, the eServer BladeCenter, and the Linux server, as appropriate.

Uninstalling Transform Manager from an IBM xSeries server

This topic describes the procedure for uninstalling Infoprint Transform Manager from an IBM xSeries server.

Use this procedure to uninstall Infoprint Transform Manager from an IBM xSeries server.

1. Go to the **Start** menu, select **Infoprint Transform Manager**, and then select **Uninstall Transform Manager**. You see the Welcome to the uninstall program screen.
2. Click **Next**. You see the Summary Screen stating that the InstallShield Wizard will be uninstalled Infoprint Transform Manager.
3. Click **Uninstall**. You see the screen stating that Infoprint Transform Manager has successfully uninstalled.
4. Click **Finish** to exit the wizard.

Uninstalling Infoprint Transform Manager from an IBM eServer BladeCenter

This topic describes how to uninstall Infoprint Transform Manager from the head node on an IBM eServer BladeCenter.

Use this procedure from the blade that is acting as the head node.

When Infoprint Transform Manager is uninstalled from the head node, it is also automatically uninstalled from the compute nodes.

1. Go to the **Start** menu, select **Infoprint Transform Manager**, and then select **Uninstall Transform Manager**. You see the Welcome to the uninstall program screen.
2. Click **Next**. You see the Summary Screen stating that the InstallShield Wizard has successfully uninstalled Infoprint Transform Manager.
3. Click **Uninstall**. You see the screen stating that Infoprint Transform Manager has successfully uninstalled.
4. Click **Finish** to exit the wizard.

Uninstalling Transform Manager from the Linux command line

If you need to uninstall Transform Manager from the Linux command line, use this procedure.

1. Log in as a root (administrator) user.
2. Go to **`/opt/IBM/ejz/bin/uninstall`**
3. Enter **`./uninstall.sh`** When the uninstall is finished, Transform Manager displays this message on the command line: **`Done with uninstall!`**

© Copyright IBM Corp. 2004, 2006

Chapter 8. Troubleshooting Transform Manager

As you use Transform Manager, you might need to diagnose error messages or work with IBM Software Support to request trace information.

Transform Manager issues error messages as you work with the product. The location of these messages varies according to which print server is being used for transforms.

If you have determined that there is a problem based on error messages that have been issued, you might need to work with IBM Software Support to request a trace of your Transform Manager system.

Troubleshooting with Infoprint Manager

Errors encountered when the Transform Manager is processing transform requests from Infoprint Manager are logged in the Transform Server Job Log or the Infoprint Manager error log. To access the Transform Manager Job Log, see “Displaying job information for a transform server” on page 24

Related reference

“Transform Manager messages” on page 100
This section lists the Transform Manager messages.

Troubleshooting with Infoprint ProcessDirector

Linux end users can see transform error messages. Diagnosticians can find transform error messages in the Linux system log and in the Transform Manager Transform Server log.

Related reference

“Transform Manager messages” on page 100
This section lists the Transform Manager messages.

Troubleshooting with Infoprint Server for z/OS

z/OS end users can see transform error messages on a trailer page that Infoprint Server for z/OS adds to the document as an option. Diagnosticians can find transform error messages in the z/OS system log and in the Transform Manager Transform server log.

Related reference

“Transform Manager messages” on page 100
This section lists the Transform Manager messages.

Configuring a trace for a transform server

The Properties Page for Transform Server Trace page lets you enable or disable tracing for the specified transform server. You only use this page when IBM Software Support asks you to run a trace to help diagnose a problem.

To configure a trace:

© Copyright IBM Corp. 2004, 2006

1. Click the hyperlink for the specific transform server that you want to trace on the Transform Manager main page. The **Properties Page for Transform Server: *n.nn.nnn.nnn*** opens, where *n.nn.nnn.nnn* is the TCP/IP address for the transform server you selected.

   Properties are grouped on three tabs: General, Status, and Trace. You can view all of the properties at once by clicking **Show all tabs** in the left pane.
2. Click **Trace** to open the Trace page for the selected server.
3. On the Trace page, select the **Enabled** or **Disabled** from the **Tracing** drop-down menu. **Enabled** activates tracing, and **Disabled** deactivates tracing. The default is **Disabled**.
4. If tracing is **Enabled**, you can::
   - Check one or more of the choices in the **Trace Settings** list box.
   - Enter a custom trace setting as directed by IBM Software Support.
5. Select **OK**. You see a message in the message box and then you see the *Transform Manager* page.

Click the **?** button next to each entry field for information about it.

Chapter 9. Reference information for Transform Manager

As you use Transform Manager, you might want to refer to the details about the transforms it contains, usage notes, and messages.

Reference information that supports Transform Manager includes:

- Transforms available with Transform Manager
- Guidelines for reading the syntax diagrams
- Usage notes for the print servers
- Messages issued by Transform Manager
- Transform IDs used by Transform Manager

Using the transforms

This section describes the transforms and the possible options and values that Transform Manager uses:

- GIF to AFP transform
- JPEG to AFP transform
- PCL to AFP transform
- PDF to AFP and PostScript to AFP transforms
- TIFF to AFP transform

Note: When the Infoprint Transform Manager: afp2pdf Transform i-listed PRPQ, Program Number 5799-TWL, is purchased, Transform Manager supports the transform of AFP data to PDF data. For information about the **afp2pdf** transform, see *Infoprint Transform Manager: afp2pdf Transform Installation and User's Guide*, G550-0538.

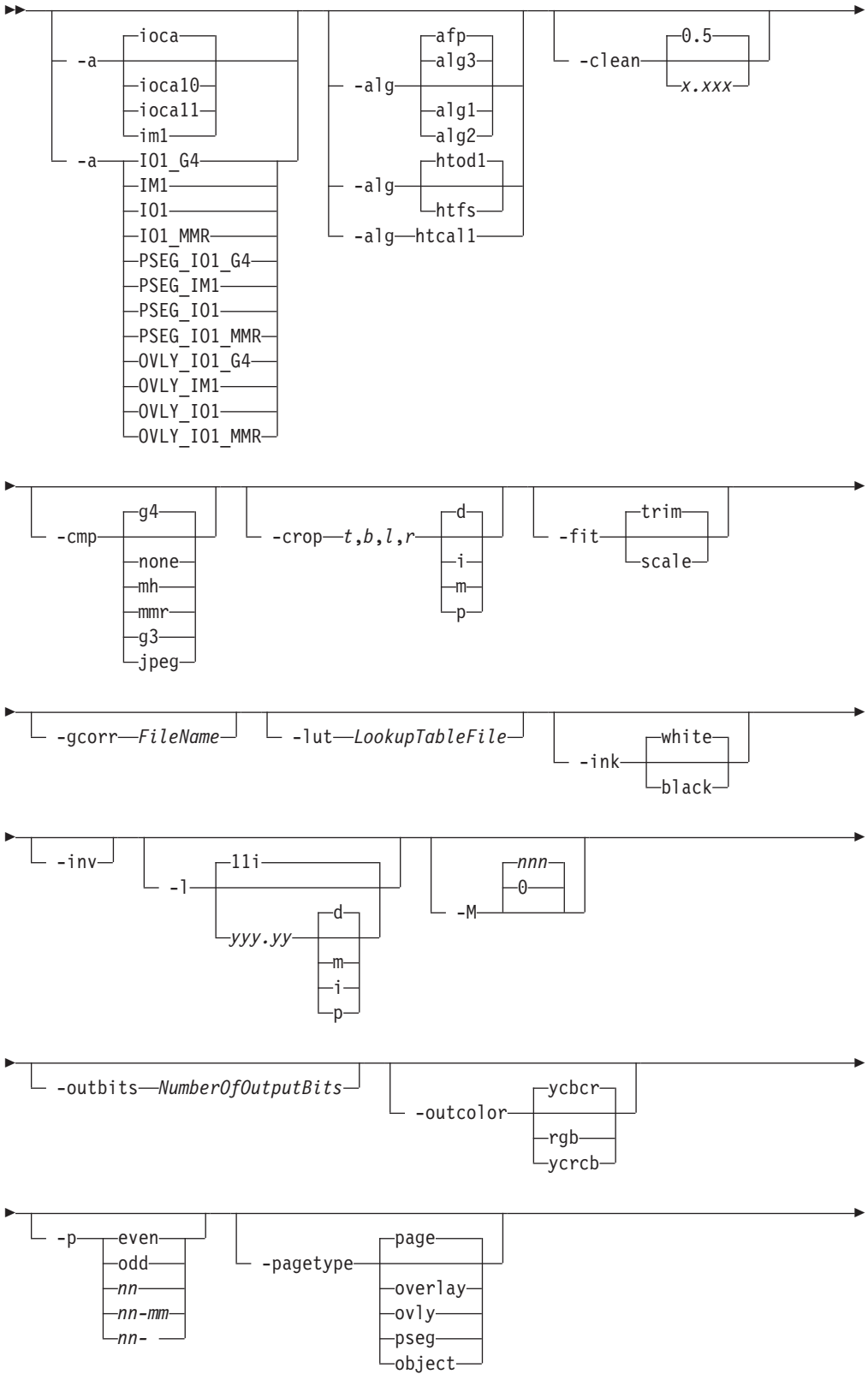
Infoprint Manager for AIX and Windows or Infoprint Server for z/OS users can specify the transform options when they submit transform jobs and print jobs. For a description of exceptions or additional options and values that are available when using Infoprint Manager for AIX and Windows or Infoprint Server for z/OS, see the publications for these products.

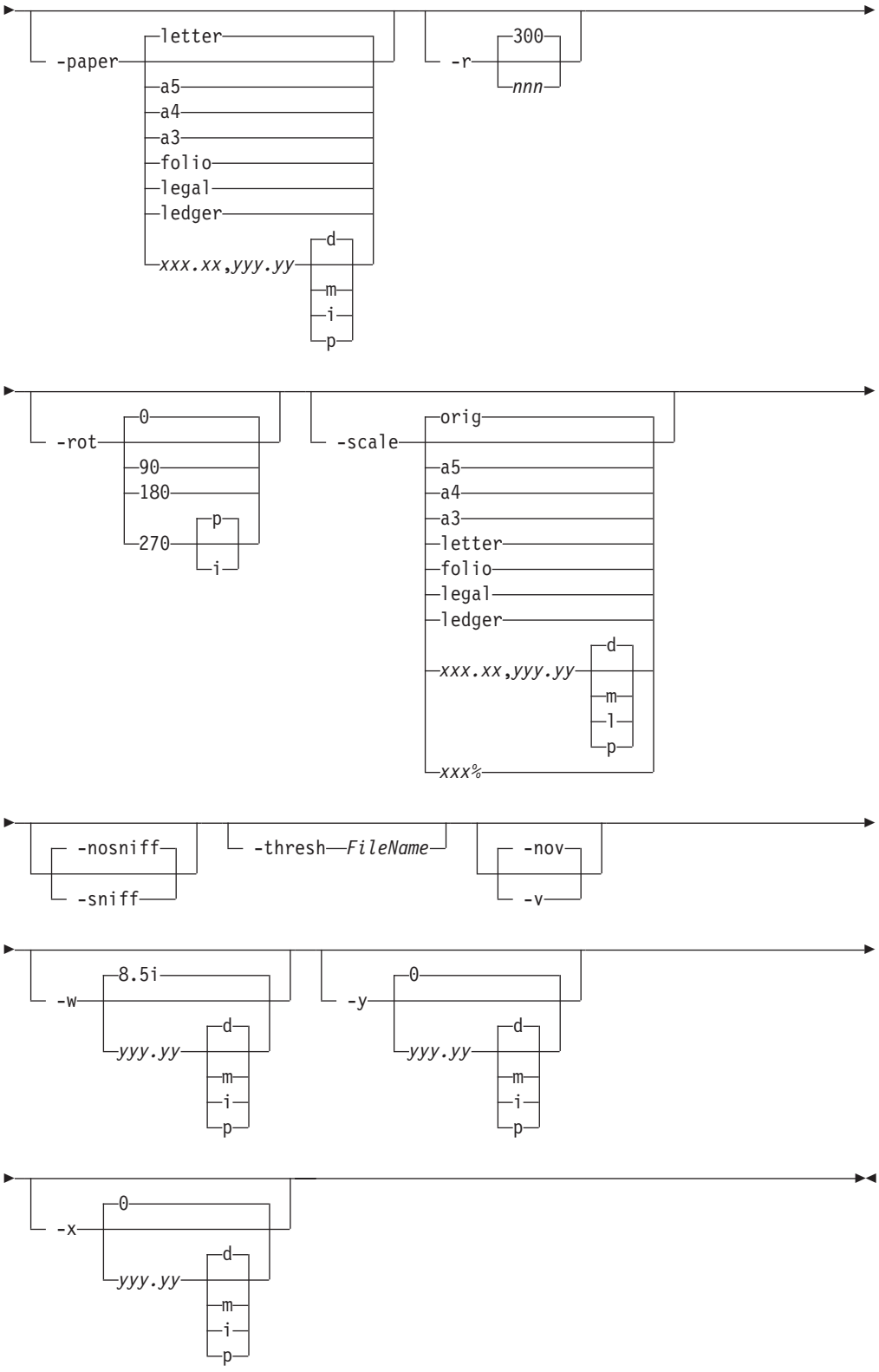
Transform GIF data to AFP

This section describes the **GIF to AFP** transform and includes its syntax and options and values.

Syntax

© Copyright IBM Corp. 2004, 2006


-a
ioca
ioca10
ioca11
im1
-a
IO1_G4
IM1
IO1
IO1_MMR
PSEG_IO1_G4
PSEG_IM1
PSEG_IO1
PSEG_IO1_MMR
OVLY_IO1_G4
OVLY_IM1
OVLY_IO1
OVLY_IO1_MMR
-alg
afp
alg3
alg1
alg2
-alg
htod1
htfs
-alg
htcal1
-clean
0.5
x.xxx
-cmp
g4
none
mh
mmr
g3
jpeg
-crop
t,b,l,r
d
i
m
p
-fit
trim
scale
-gcorr
FileName
-lut
LookupTableFile
-ink
white
black
-inv
-l
11i
yyy.yy
d
m
i
p
-M
nnn
0
-outbits
NumberOfOutputBits
-outcolor
ycbcr
rgb
ycrcb
-p
even
odd
nn
nn-mm
nn-
-pagetype
page
overlay
ovly
pseg
object



Description

Use the **GIF to AFP** transform to transform a GIF (Graphical Interchange Format) data stream into an AFP (MO:DCA-P).

The transform can process GIF images, including bilevel, gray scale, and color images. The output can be bilevel (IM1 or IOCA FS10), 4-bit or 8-bit grayscale, or 24-bit YCbCr color (IOCA FS11). The transform automatically uses halftoning to convert the grayscale and color images to bilevel.

Data transformations

If the input image is gray scale or color, and the output image type is bi-level (IOCA FS10 or IM1), the transform internally scales the image to the desired size, then uses a halftoning algorithm (ordered dither, the default, or Floyd-Steinberg) to convert it to bi-level. In converting the image to bi-level, the characteristics of the output device such as dot shape and dot gain must be taken into consideration. The **-gcorr** option can be used to specify a different mapping of gray levels.

For very light or very dark images, the halftoning algorithms can be automatically recalibrated to preserve details that would be lost using the default calibration. See the **-alg** option for more information.

To maintain the image quality, scaling must be done prior to halftoning. The halftoning algorithm is very computation-intensive. Unless the images are small, **GIF to AFP** cannot process the color images fast enough to feed even a slow printer.

The size and position of the output image depend on several factors:

- The size specified to the transform
- The form map specified at print time
- The forms and options loaded in the printer

If the image is too large to fit on the page, it is trimmed to size by default. Use the **-fit scale** option to instruct the printer to scale the image to the paper size. If the paper size is not specified explicitly via the **-paper** option, the paper size defaults to US letter size (8.5 by 11 inches). If the image is larger than this, the paper dimensions are increased as necessary. If the paper size is specified explicitly, it is not increased if the image does not fit on paper. The options **-l** and **-w** have the same effect as **-paper**.

The size of the actual image (as opposed to the paper size) is controlled by the **-scale** option. You can either specify a value of **orig** for the **-scale** option or give an actual size. If you specify **orig**, the output image is the same size as the input image. If you specify **-scale** with an actual size, the output image is scaled to the desired size. You can also specify a percentage for enlargement or reduction.

Even if you specify **-scale orig**, the image might still have to be scaled if the input file specifies non-square pixels. By default, the transform leaves scaling to the printer. The exceptions are:

- Images that are being halftoned, which are always scaled in the transform
- Images that have different resolutions in X and Y directions (non-square pixels)

Note: Because GIF files do not specify resolutions, the image is assumed to have the resolution of the output device.

You can use the **-alg** option to instruct the transform to perform internal image scaling. Options **-alg**, **-clean**, and **-ink** choose and configure various scaling algorithms.

GIF images are compressed using the LZW algorithm. Because LZW compression is not part of any current IOCA function set, **GIF to AFP** always reads and decompresses the image.

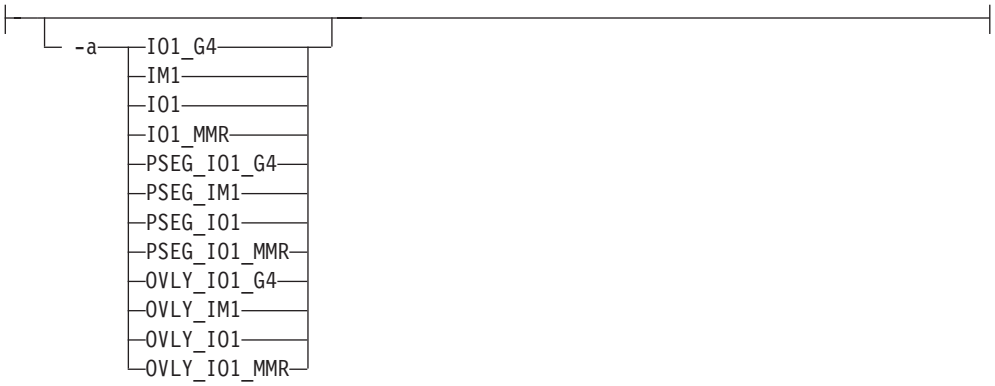
Limitations

- Timing data from GIF animation sequences is ignored.
- Animation sequences are processed as unrelated images.

Acknowledgments

This software is partially based on the Independent JPEG Group's JPEG compression and decompression code.

Options and values



- Choice of the output image type. The first syntax chooses between the IOCA FS 10 (**ioca**, **ioca10**), IOCA FS11 (**ioca11**), and IM1 output. IOCA FS10 and IM1 yield bi-level images, while IOCA FS11 results in 4-bit or 8-bit gray or 24-bit color output (see option **-outbits**). Currently, the only product that supports IOCA FS11 is AFP Workbench. The output compression algorithm is set using the option **-cmp**. To set the page type (page, overlay, page segment or object), use the **-pagetype** option.
- The second syntax is to maintain compatibility with the **PostScript to AFP** transform, and sets the image type (**IO1** for IOCA FS10 or **IM1** for IM1 output), compression (**G4** for Group 4 or **MMR** for Group 3), and page type (**PSEG** for page segment or **OVLY** for overlay). If **PSEG** or **OVLY** is not specified, the output is a printable page. If no compression algorithm is specified, the output is not compressed. The second syntax cannot be used for IOCA FS11 output.
- Some older printers do not support IOCA images. In such cases, the IM1 output type should be chosen. IM1 images are uncompressed and thus use more space. The processing might also take longer since the IM1 image cannot be scaled by the printer and so internal scaling algorithms must be used. See option **-alg**.
- The default is **ioca** for IOCA FS10 output compressed using Group 4 algorithm.

- Choice of the scaling and halftoning algorithms. You can specify multiple choices, separated by commas, for one **-alg** option. The effect is the same as specifying multiple **-alg** options. For example, `-alg htfs,htcal` is equivalent to `-alg htfs -alg htcal`.

  The scaling algorithms are:

  – If **afp** is chosen, the scaling is done using the default algorithm in the printer. This makes the transform much faster. If the image must be reduced, however, this algorithm might drop some information from the image, such as thin lines.

  – **alg1** activates the internal scaling algorithm to scale the image explicitly to the specified size. This algorithm does not to discard any ink. “White space” in the image, however, might be lost (that is, features close to one another might merge). This algorithm makes the transform run longer, and might occasionally make for a “dirty” image, since the occasional “noise pixels” in the scanned images tend to be amplified.

  – **alg2** activates the more flexible version of **alg1**. If this algorithm is selected, option **-clean** can be used to specify the amount of ink “cleanup” to be performed. Option **-clean 0.0** makes the algorithm **alg2** perform like **alg1** (although more slowly). Increasing the value specified in **-clean** discards more and more ink, until **-clean 1.0** results in a blank page.

  – **alg3** activates a scaling algorithm that works by deleting or duplicating rows and columns in the image. This is a fast general-purpose algorithm.

  – For bi-level images, the default is **afp** if the output image type is IOCA and **alg3** if the output image type is IM1. For color images with bi-level output, the scaling is always done prior to the halftoning algorithm. If a grayscale or color output is chosen (**-a ioca11**), this option is ignored and the algorithm is set to **afp**.

    The halftoning algorithms are:

    - **htod1** uses an ordered dither with a screen derived from the value of the **-thresh** option. The default is an 85 line per inch screen.
    - **htfs** uses the Floyd-Steinberg algorithm.
    - **htcal1** recalibrates the halftoning algorithm for each image. **htcal1** forces the transform to read the whole image into memory and requires an additional pass through the image. It should be used only for very light or very dark images.

  - The default is **htod1**. Each halftoning algorithm uses a different internal default calibration curve. If the automatic calibration is turned on, a different set of calibration curves is used.
  - See options **-clean**, **-gcorr**, **-ink**, **-paper**, **-scale**, **-thresh**, **-l**, **-w**, **-x**, and **-y**.

- The internal scaling algorithm **alg2** allows for variable thresholding. The scaled pixel is declared painted if the fraction of its area greater than the threshold is painted in the original image. The value *x.xxx* is a real number between zero and 1 inclusive and gives this threshold.
- If the option **-clean 0.0** is issued, **alg2** behaves like **alg1** and turns on a pixel as long as any part of the pixel has been painted in the original image. **-clean 1.0** results in a blank image because the output pixels are never painted.
- The setting **-clean 0.95** and **0.9999999** turns on the pixels that had essentially all the area painted in the original picture. Depending on the data, most of the image will probably be preserved. Increasing **-clean** by a small amount to **1.0** erases the image. If the scaling algorithm is not **alg2**, this option is ignored. The default is **-clean 0.5**.

- Choice of the output image compression algorithm:

  none Uncompressed output

  mh ITU-T T.4 G3 Modified Huffman

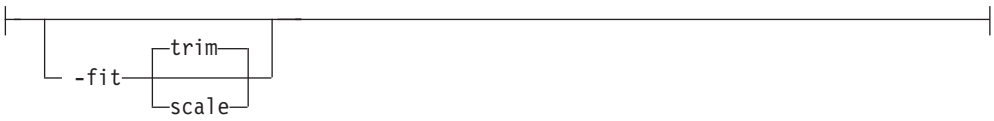
  mmr IBM Modified Modified Read

  g3 ITU-T T.4 G3 Modified Read

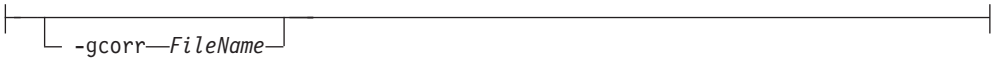
  g4 ITU-T T.6 G4

  jpeg JPEG non-differential Huffman coding with baseline DCT. The output image data should be compressed to reduce the file sizes and increase the printing speed.
- The default compression is ITU-T T.6 Group 4 for bi-level images and no compression for gray scale or color images. Some printers might not support Group 4 compression algorithm and require use of the **-cmp** option to choose a different one. The JPEG algorithm can compress only 8-bit gray scale and 24-bit color images. 4-bit gray scale images cannot be compressed.

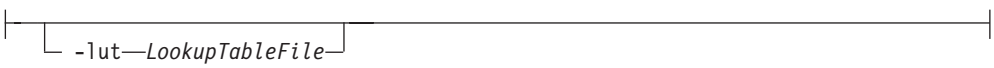
- Image cropping. *t,b,l,r* specify how much should be cropped from the image top, bottom, left edge, and right edge. The numbers are floating point and can be either positive or negative. Negative numbers indicate that a blank space should be inserted. The units are inches, millimeters, points, and dots (pels). The default is dots. The cropping is specified in the context of the output page, so that "top" means the top of the output page and so on, regardless of the **-rot** option. To crop, the transform enlarges the image by the amount to be cropped, then crops the specified amount by manipulating the actual bitmap. The resulting image has the size as specified by the explicit (or implicit) **-scale** option. See also option **-j**.
- If **-fit trim** is specified, the right and the bottom edge of the image are not cropped. Instead, the image grows as necessary. Because **-fit trim** causes the output data stream to contain the "position and trim" specification, the printer discards any extra image.



Determines whether the printer behavior will be position-and-trim or scale-to-fit if the image is too large to fit on the paper. The default is **trim**.



- Specifies a *FileName* with a gray scale mapping table for halftoning of the gray scale and color images to bi-level for output. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- The mapping table must be provided to compensate for the printing characteristics of the particular output device and paper type, such as dot gain. This file must contain either:
  - 256 real numbers, one for each level of gray in the 8-bit gray scale image
  - The PostScript **settransfer** operator
- The algorithm converts every image to 8-bit gray scale before applying the halftoning algorithm. The default might not produce the halftone image quality that your printer is capable of. Mapping tables for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model. See also options **-alg** and **-thresh**. PostScript code submitted via the **-thresh** option can have the same effect as **-gcorr**.



- Specifies the *FileName* for the color conversion lookup table file. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Fast and accurate conversion between color spaces can be implemented as a multidimensional lookup with an interpolation algorithm for missing nodes. The file specified with the **-lut** option must contain a valid lookup table for the conversion between the input and output color spaces. The lookup tables currently come in either ASCII (.lut) or binary formats (.lutbin).

- This option is used only with scaling algorithm **alg1** or **alg2**. The GIF images can be either black on white or white on black. The internal scaling algorithm must know which, because “ink” is preserved at the expense of “non-ink”. The default value, “black”, indicates that the image is black on white.
- If the option **-inv** is used to print the reversed image, the inversion is done as the data is read by the transform, before any processing is done. The black or white must thus be specified in the terms of the printed image, not in the terms of the input GIF image.

Reverses the image. Areas that are black in the original image become white and vice versa. The reversed image might be either black on white or white on black, depending on the original image.

- Specifies the paper length. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. If the unit is dots, decimals (if any) are ignored. The default paper length is 11 inches.
- See options **-w** to set the paper width or **-paper** to set both dimensions at the same time.

Limits the amount of memory available to **GIF to AFP**. *nnn* is the maximum amount of memory in kilobytes. A value of **0** means there is no memory limit. *nnn* can be set from **0** to the maximum value that the operating system allows. The default is **0**.

-nosniff
See **-sniff**.

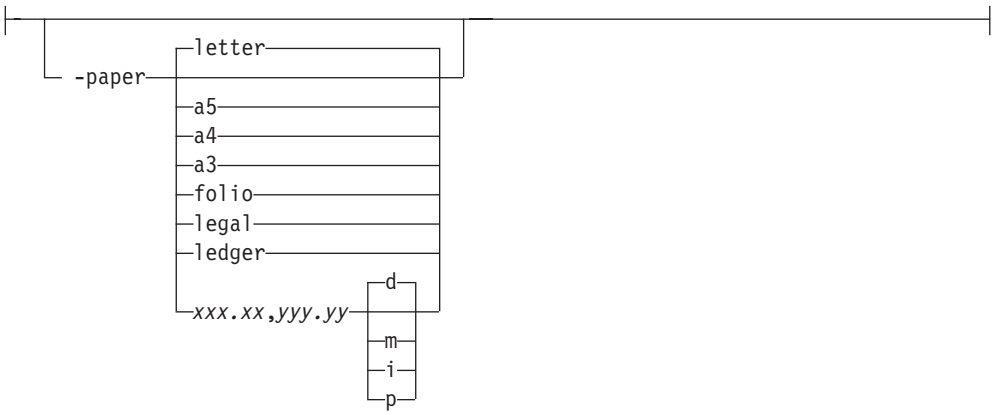
-nov See **-v**.

Sets the number of bits per pel in output. This value must be **1**, **4**, **8**, or **24**. If the output image type is IOCA FS10 or IM1, the number of output bits is set to **1** and this option is ignored. For IOCA FS11 output, the default is **24**. This number represents the maximum number of bits used per pel. Thus, even if the number of bits is set to **24**, a 4-bit grayscale image is still displayed in 4-bit format.

Sets the output color model to RGB, YCbCr, or YCrCb if the image type is IOCA FS11 and the number of output bits is 24. Otherwise, this option is ignored. The default is **ycbcr**.

- Specifies that the output should only contain the specified pages. If no **-p** option is given, all the pages are output. Multiple **-p** options can be specified. Their effect is cumulative. Regardless of the order in which the pages are specified, they are always printed in ascending order. The recognized values are:
  even Print all even pages
  odd Print all odd pages
  nn Print page *nn*
  nn-mm
  Print pages *nn* to *mm*, inclusive
  nn- Print all pages starting with page *nn*
- Pages are numbered starting with 1.
- You can use **-p** when the **GIF to AFP** transform is processing one file at a time. This flag is ignored if you specify multiple files within the same job. transform is processing one file at a time.

- Sets the output page type to be page, overlay, page segment or object. The same page type is set for every page in the output. Thus, unless option **-p** is used to select a single page, multiple page segments or overlays are stored in the output file.
- The default is **page**.
- See option **-a**.



Specifies the output paper size. The supported values are:

a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

letter 8.5 by 11 inches (216 by 279 mm)

folio 8.5 by 13.0 inches (216 by 330 mm)

legal 8.5 by 14.0 inches (216 by 356 mm)

ledger 11.0 by 17.0 inches (279 by 432 mm)

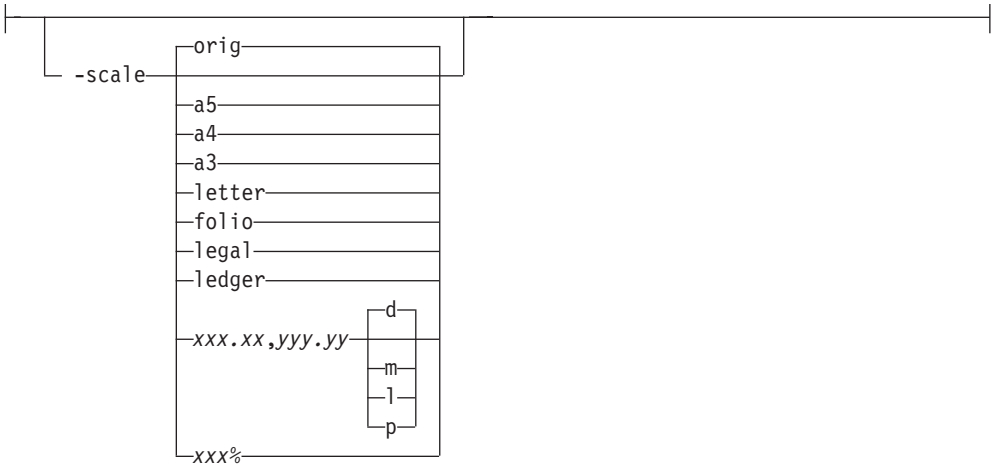
xxx.xx,yyy.yy
Horizontal and vertical page dimensions. The optional units are: **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.

The default page size is **letter**. If **-paper** is not used, the paper size is increased, if necessary, to contain the output image.

The output device resolution, specified in dots per inch. The default is **300**.

- The image is rotated in the clockwise direction by the amount specified. The default is zero, that is, no rotation.

  If **p** is specified, the transform sets the output datastream in such a way that the printer performs the actual image rotation. If **i** is specified, the transform rotates the output bitmap. When **i** is chosen, the transform takes much longer to run and uses much more memory. If no letter is specified, the default or any previous value remains in force.
- The default is **p**.



Specifies the output image size. The image is scaled to this size and centered in the area defined by the paper size and margin options. The supported values are:

orig Preserve the input image size, regardless of the printable paper area

a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

letter 8.5 by 11 inches (216 by 279 mm)

folio 8.5 by 13.0 inches (216 by 330 mm)

ledger 11.0 by 17.0 inches (279 by 432 mm)

xxx.xx,yyy.yy
Horizontal and vertical page dimensions. The optional units are: **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.

xxx% Magnification relative to the original image size. Numbers below 100% mean reduction, while numbers above 100% mean enlargement. For example, **-scale 200%** causes the output image to be twice as long and twice as wide as the input image.

The default image size is **orig**.

- Turns automatic conversion to black on white for bi-level images on (**-sniff**) or off (**-nosniff**). The automatic conversion algorithm counts the number of 0 and 1 bits in the image. If there are fewer zeros, it assumes the printed features are represented by zeros (white on black), and inverts the image to be black on white. The detection and conversion are done after the conversion specified by the Photometric Interpretation tag is applied (if any).
- This option is ignored if the image is not bi-level. The default is **-nosniff**.

- Specifies a *FileName* that contains a PostScript Type 1 or Type 3 halftone dictionary. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Halftone dictionaries for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in the **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model.
- Alternatively, the PostScript code can specify the **setscreen** operator instead of a Type 1 dictionary. The halftone cell in the dictionary is used to overwrite the default ordered dither clustered dot halftone cell. If the PostScript code contains a transfer function, either in the halftone dictionary or specified by the **settransfer** operator, the current grayscale correction curve is overwritten as if **-gcorr** were used.

- Turns verbose mode on (**-v**) or off (**-nov**).
  - When verbose mode is on, the transform prints a message as it opens each resource file, then echoes the command line, then prints a message for each file name as it is processed.
  - When verbose mode is off, the transform prints only error messages.
- The default is **-nov**.

- Specifies the paper width. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.

- The default unit is dots. The default page width is 8.5 inches.
- See options **-l** to set the paper length or **-paper** to set both dimensions at the same time.

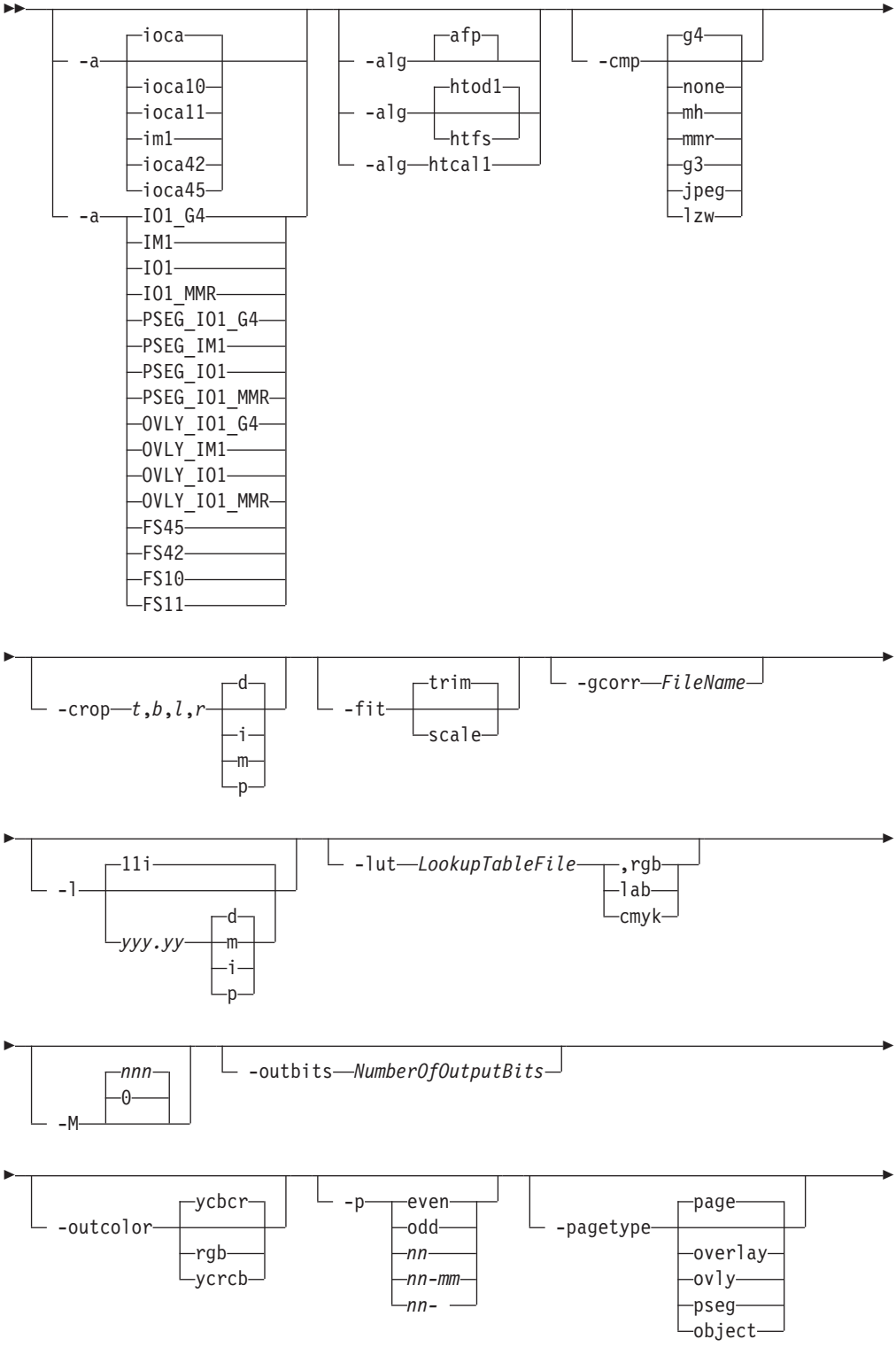
- Specifies the left margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. The default is zero (no margin).

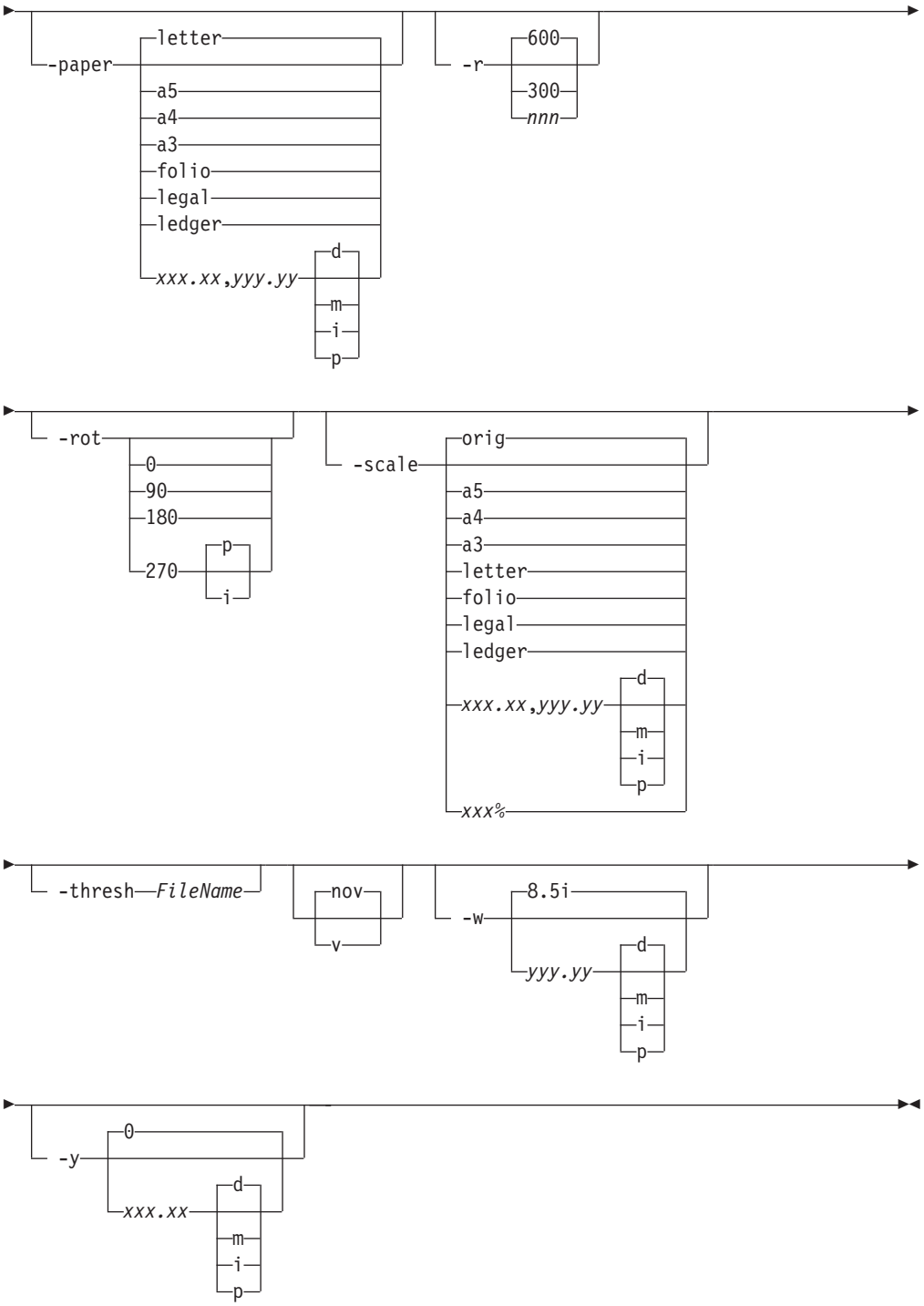
- Specifies the top margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. The default is zero (no margin).

Transform JPEG data to AFP

This section describes the **JPEG to AFP** transform and includes its syntax and options and values.

Syntax


-a
ioca
ioca10
ioca11
im1
ioca42
ioca45
-a
IO1_G4
IM1
IO1
IO1_MMR
PSEG_IO1_G4
PSEG_IM1
PSEG_IO1
PSEG_IO1_MMR
OVLY_IO1_G4
OVLY_IM1
OVLY_IO1
OVLY_IO1_MMR
FS45
FS42
FS10
FS11
-alg
afp
-alg
htod1
htfs
-alg
htcal1
-cmp
g4
none
mh
mmr
g3
jpeg
lzw
-crop
t,b,l,r
d
i
m
p
-fit
trim
scale
-gcorr
FileName
-l
11i
yyy.yy
d
m
i
p
-lut
LookupTableFile
,rgb
lab
cmyk
-M
nnn
0
-outbits
NumberOfOutputBits
-outcolor
ycbcr
rgb
ycrcb
-p
even
odd
nn
nn-mm
nn-
-pagetype
page
overlay
ovly
pseg
object



Description

Use the **JPEG to AFP** transform to transform a JPEG (Joint Photographic Experts Group) data stream into an AFP (MO:DCA-P).

The transform can process images compressed using baseline lossy JPEG compression. Only 8 bits per channel and Huffman coding are supported. The output can be bi-level (IM1 or IOCA FS10), 4-bit or 8-bit gray scale, or 24-bit YCbCr color (IOCA FS11), bi-level or 4-bit banded CMYK image at 1-bit per band (IOCA

FS42), or a superset of FS42 that also contains 32–bit banded CMYK images, compressed with either JPEG or LZW algorithms (IOCA FS45). The transform automatically uses halftoning to convert the gray scale and color images to bi-level.

Data transformations

If the input image is gray scale or color, and the output image type is bi-level (for example, IOCA FS10, or IM1), the transform internally scales the image to the desired size, then uses a halftoning algorithm (ordered dither, the default, or Floyd-Steinberg) to convert it to bi-level. In converting the image to bi-level, the characteristics of the output device, such as dot shape and dot gain, must be taken into consideration. The halftone screen and the calibration are extremely printer dependent. While the transform does contain an internal default (85 LPI screen at 45 degrees), an appropriate screen should be used and the halftone should be calibrated properly for best quality.

Some printers, such as the Infoprint 4000, have two engines, one for each side of the sheet. Each engine commonly has a different calibration. Options **-thresh** and **-gcorr** provide the mechanism to specify halftone screen, gray scale correction curves, and rules for switching calibration based on the engine used to print a particular page. For very light or very dark images, the halftoning algorithms can be automatically recalibrated to preserve detail that would be lost using the default calibration. See option **-alg**.

To maintain the image quality, scaling must be done prior to halftoning. The halftoning algorithm is very compute-intensive. Unless the images are small, **JPEG to AFP** might not be able to process the color images fast enough to feed even a slow printer.

To achieve good image quality for the CMYK output, the input image colors must be converted to CMYK, bearing in mind the characteristics of the particular halftones used to generate the output image. The color conversion is done using a multidimensional lookup table, which is specified with the **-lut** option. If the transform can not determine the appropriate lookup table or the lookup table is missing, a simple conversion of RBG to CMY is performed using the 255- algorithm. This conversion does not use black and generally leads to poor color quality.

The size and the position of the output image on the page depends on several factors. In addition to the size specified to the transform, the result depends on the form map specified at print time and also on the form and options loaded in the printer. If the image is too large to fit on the page, it is trimmed to size by default. Use the **-fit** option to instruct the printer to scale the image to paper size. If the paper size has not been specified explicitly with the **–paper** option, the paper defaults to US letter (8.5 by 11 inches). If the image is larger than this, the paper dimensions are increased as necessary. If the paper size has been specified explicitly, it is not increased if the image will not fit on paper. Options **-l** and **-w** have the same effect as **-paper**.

The size of the actual image, as opposed to the paper size, is controlled by the **-scale** option. The **-scale** option can either specify ″**orig**″, or give an actual size. If **orig** has been specified, the output image has the same size as the input image. If **-scale** with an actual size has been specified, the output image is scaled to the desired size. A percentage enlargement/reduction can also be specified.

Even if **-scale orig** has been specified, the image may still need to be scaled if the input resolution is different from the output resolution. By default, the transform

leaves scaling to the printer. The exceptions are images that are being halftoned, which are always scaled in the transform, and images that have different resolutions on the X and Y directions. The **-alg** option can be used to instruct the transform to perform internal image scaling. Options **-alg** and **-ink** choose and configure various scaling algorithms used by the transform.

Note: Because JPEG files do not specify resolutions, the image is assumed to have the resolution of the output device.

If possible, **jpeg2afp** just rewraps the JPEG raster data in MODCA-P headers. This does not change the compression algorithm used in the data, even though it might be different than the output compression algorithm specified on the command line. The data is rewapped only if no changes are to be made in the image and if the compression algorithm is supported by the IOCA standard. Besides the uncompressed data, the bi-level compression algorithms supported both by JPEG and IOCA are ITU-TSS T.4 Group 3 and T.6 Group 4 algorithms.

For 8-bit grayscale and 24-bit color images, both TIFF and IOCA FS11 support JPEG compression algorithms. However, TIFF and JPEG standards have different subsampling defaults than IOCA FS11. Thus, most 24-bit color images are not suitable for rewrapping, even if they use a JPEG compression algorithm and a color model supported by IOCA FS11. Also, JPEG is a lossy compression algorithm. Decompressing a JPEG image and then recompressing it again for output might result in reduced image quality. For that reason, the default is to use no compression for the gray or color output.

Be aware that not all the printers support all the recognized IOCA compression standards. To make sure that the transform decompresses the data and recompresses it using the specified algorithm, use the **-force** option. If the output image is IM1, the image is always decompressed and scaled in the transform.

The JPEG images are often divided into many segments for efficient memory handling. Some printers will terminate the printing in error if the page is too complex. For that reason, **jpeg2afp** decompresses, repartitions, and compresses the data if it determines there are too many segments in the picture.

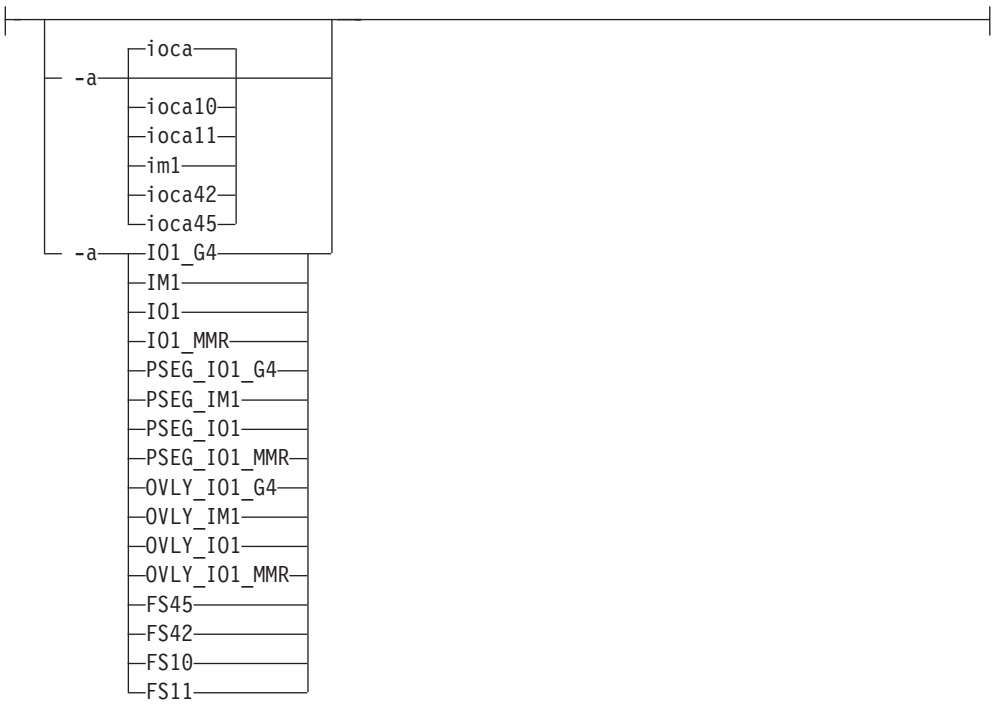
Limitations

- Only Huffman coding with baseline DCT JPEG algorithm is supported.
- At most 8-bit grayscale and 24-bit color are supported.

Acknowledgments

This software is based in part on the work of the Independent JPEG Group.

Options and values

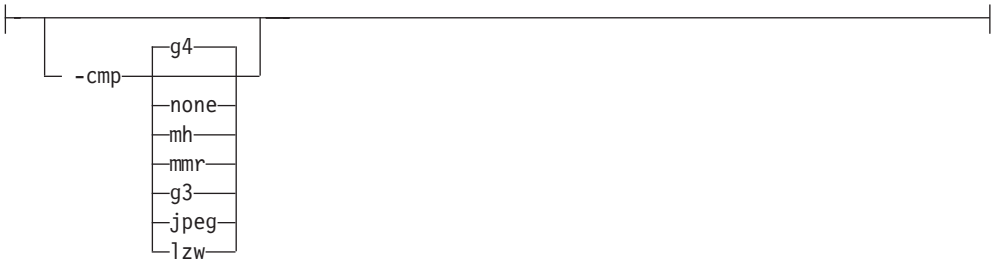


- Choice of the output image type. The first syntax chooses between the IOCA FS 10 (**ioca**, **ioca10**), IOCA FS11 (**ioca11**), IM1, IOCA FS42 (**ioca42**), and IOCA FS45 (**ioca45**) output. IOCA FS10 and IM1 yield bi-level images, while IOCA FS11 results in 4-bit or 8-bit gray or 24-bit color output (see option **-outbits**). Currently, the only product that supports IOCA FS11 is AFP Workbench. IOCA FS42 can contain either bi-level or 4-bit banded CMYK image at 1-bit per band. IOCA FS45 is a superset of FS42 that also contains 32-bit banded CMYK images, compressed with either JPEG or LZW algorithms. The output compression algorithm is set with the **-cmp** option. To set the page type (page, overlay, page segment, or object), use the **-pagetype** option. FS45 produces IOCA FS45 output.
- The second syntax is to maintain compatibility with the **PostScript to AFP** transform, and sets the image type (**IO1** for IOCA FS10 or **IM1** for IM1 output), compression (**G4** for Group 4 or **MMR** for Group 3), and page type (**PSEG** for page segment or **OVLY** for overlay). If **PSEG** or **OVLY** is not specified, the output is a printable page. If no compression algorithm is specified, the output is not compressed. The second syntax cannot be used for IOCA FS11 output.
- Some older printers do not support IOCA images. In such cases, the IM1 output type should be chosen. IM1 images are uncompressed, and thus, use more space. The processing might also take longer since the IM1 image cannot be scaled by the printer, so internal scaling algorithms must be used. See option **-alg**.
- The default is **ioca** for IOCA FS10 output compressed using the Group 4 algorithm.

- Choice of the scaling and halftoning algorithms. You can specify multiple choices, separated by commas, for one **-alg** option. The effect is the same as specifying multiple **-alg** options. For example, `-alg htfs,htcal` is equivalent to `-alg htfs -alg htcal`.

  The scaling algorithms are:

  – If **afp** is chosen, the scaling is done using the default algorithm in the printer. This makes the transform much faster. If the image must be reduced, however, this algorithm might drop some information from the image, such as thin lines.
- For color images with bi-level output, the scaling is always done prior to the halftoning algorithm. If a grayscale or color output is chosen (**-a ioca11**), this option is ignored and the algorithm is set to **afp**.
- The halftoning algorithms are:
  – **htod1** uses an ordered dither with a screen derived from the value of the **-thresh** option. The default is an 85 line per inch screen.
  – **htfs** uses the Floyd-Steinberg algorithm.
  – **htcal1** recalibrates the halftoning algorithm for each image. **htcal1** forces the transform to read the whole image into memory and requires an additional pass through the image. It should be used only for very light or very dark images.
- The default is **htod1**. Each halftoning algorithm uses a different internal default calibration curve. If the automatic calibration is turned on, a different set of calibration curves is used.
- See options **-gcorr**, **-paper**, **-scale**, **-thresh**, **-l**, **-w**, **-x**, and **-y**.



- Choice of the output image compression algorithm:

  none Uncompressed output

  mh ITU-T T.4 G3 Modified Huffman

  mmr IBM Modified Modified Read

  g3 ITU-T T.4 G3 Modified Read

  g4 ITU-T T.6 G4

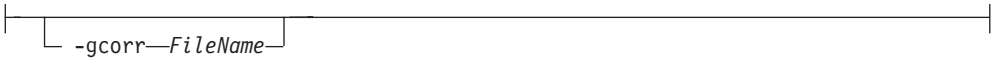
jpeg JPEG non-differential Huffman coding with baseline DCT. The output image data should be compressed to reduce the file sizes and increase the printing speed.

lzw If **lzw** is specified, linework of 600 dpi is produced; otherwise, lossy JPEG at 300 dpi is produced. **lzw** only applies to FS45.

- The default compression is ITU-T T.6 Group 4 for bi-level images and no compression for gray scale or color images. Some printers might not support Group 4 compression algorithm and require using the **-cmp** option to choose a different one. The JPEG algorithm can compress only 8-bit gray scale and 24-bit color images. 4-bit gray scale images cannot be compressed.

- Image cropping. *t,b,l,r* specify how much should be cropped from the image top, bottom, left edge, and right edge. The numbers are floating point and can be either positive or negative. Negative numbers indicate that a blank space should be inserted. The units are inches, millimeters, points, and dots (pels). The default is dots. The cropping is specified in the context of the output page, so that “top” means the top of the output page and so on, regardless of the **-rot** option. To crop, the transform enlarges the image by the amount to be cropped, then crops the specified amount by manipulating the actual bitmap. The resulting image has the size as specified by the explicit (or implicit) **-scale** option. See also option **-j**.
- If **-fit trim** is specified, the right and the bottom edge of the image are not cropped. Instead, the image grows as necessary. Because **-fit trim** causes the output data stream to contain the “position and trim” specification, the printer discards any extra image.

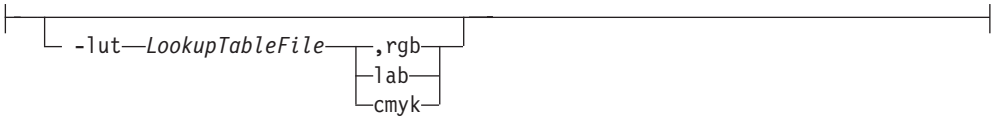
Determines whether the printer behavior will be position-and-trim or scale-to-fit if the image is too large to fit on the paper. The default is **trim**.



- Specifies a *FileName* with a gray scale mapping table for halftoning of the gray scale and color images to bi-level for output. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- The mapping table must be provided to compensate for the printing characteristics of the particular output device and paper type, such as dot gain. This file must contain either:
  - 256 real numbers, one for each level of gray in the 8-bit gray scale image
  - The PostScript **settransfer** operator
- The algorithm converts every image to 8-bit gray scale before applying the halftoning algorithm. The default might not produce the halftone image quality

that your printer is capable of. Mapping tables for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model. See also options **-alg** and **-thresh**. PostScript code submitted with the **-thresh** option can have the same effect as **-gcorr**.

- Specifies the paper length. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. If the unit is dots, decimals (if any) are ignored. The default paper length is 11 inches.
- See options **-w** to set the paper width or **-paper** to set both dimensions at the same time.

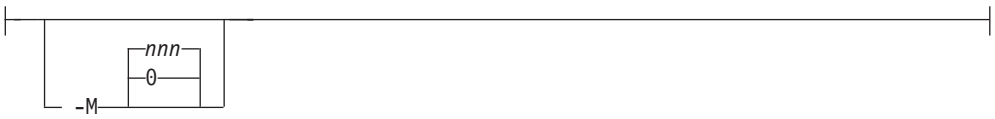


- Specifies the *FileName* for the color conversion lookup table file. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Fast and accurate conversion between color spaces can be implemented as a multidimensional lookup with an interpolation algorithm for missing nodes. The file specified with the **-lut** option must contain a valid lookup table for the conversion between the input and output color spaces. The lookup tables currently come in either ASCII (.lut) or binary formats (.lutbin).
- If the optional colorspace tag is not provided, the table is assumed to match the input image. If there is a serious mismatch between the table and the image (for example, the table is RGB to CMYK and the input image is CMYK), the **-lut** is ignored for the image. Otherwise, it is used to convert the colors and any mismatch (for example, using a **lab** table for **rgb** data) results in corrupted output.
- If the colorspace tag is provided, then the transform uses the lookup table only for the relevant colorspace image. Multiple **lut** tables can be specified if the user is unsure of the input colorspace. If the **lut** files are binary, parsing extra files does not impose much of a performance penalty.

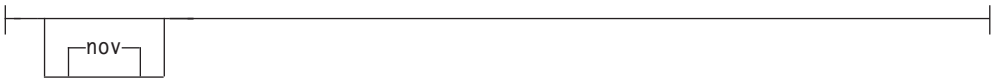
  Example:

  ```
  -lut 3170-005.rgb.cmyk.perceptual.lutbin,rgb
  ```

  Where `3170-005` is the model-type; `rgb.cmyk` is for RGB images; and `perceptual` is the **color-rendering-intent** value.



Limits the amount of memory available to **JPEG to AFP**. *nnn* is the maximum amount of memory in kilobytes. A value of **0** means there is no memory limit. *nnn* can be set from **0** to the maximum value that the operating system allows. The default is **0**.



See **v** or **nov**.

Sets the number of bits per pel in output. This value must be **1**, **4**, **8**, or **24**. If the output image type is IOCA FS10 or IM1, the number of output bits is set to **1** and this option is ignored. For IOCA FS11 output, the default is **24**. This number represents the maximum number of bits used per pel. Thus, even if the number of bits is set to **24**, a 4-bit grayscale image is still displayed in 4-bit format.

Sets the output color model to RGB, YCbCr, or YCrCb if the image type is IOCA FS11 and the number of output bits is 24. Otherwise, this option is ignored. The default is **ycbcr**.

- Specifies that the output should only contain the specified pages. If no **-p** option is given, all the pages are output. Multiple **-p** options can be specified. Their effect is cumulative. Regardless of the order in which the pages are specified, they are always printed in ascending order.
- The supported values are:

  even Print all even pages

  odd Print all odd pages

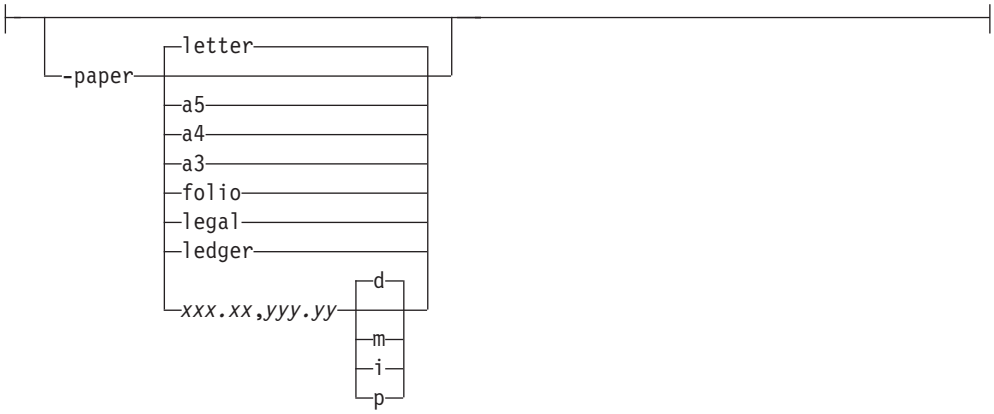
  nn Print page *nn*

  nn-mm
  Print pages *nn* to *mm*, inclusive

  nn- Print all pages starting with page *nn*

- Pages are numbered starting with 1.
- You can use **-p** when the **JPEG to AFP** transform is processing one file at a time. This flag is ignored if you specify multiple files within the same job.

- Sets the output page type to be page, overlay, page segment or object. The same page type is set for every page in the output. Thus, unless option **-p** is used to select a single page, multiple page segments or overlays are stored in the output file.
- The default is **page**.
- See option **-a**.



- Specifies the output paper size. The supported values are:

  a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

  a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

  a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

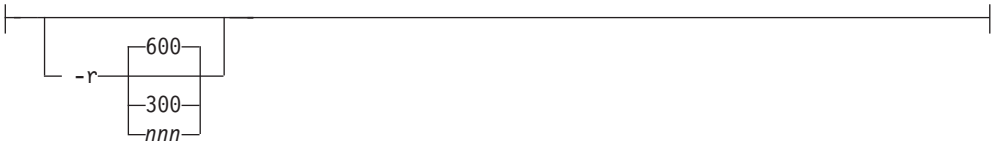
  letter 8.5 by 11 inches (216 by 279 mm)

  folio 8.5 by 13.0 inches (216 by 330 mm)

  legal 8.5 by 14.0 inches (216 by 356 mm)

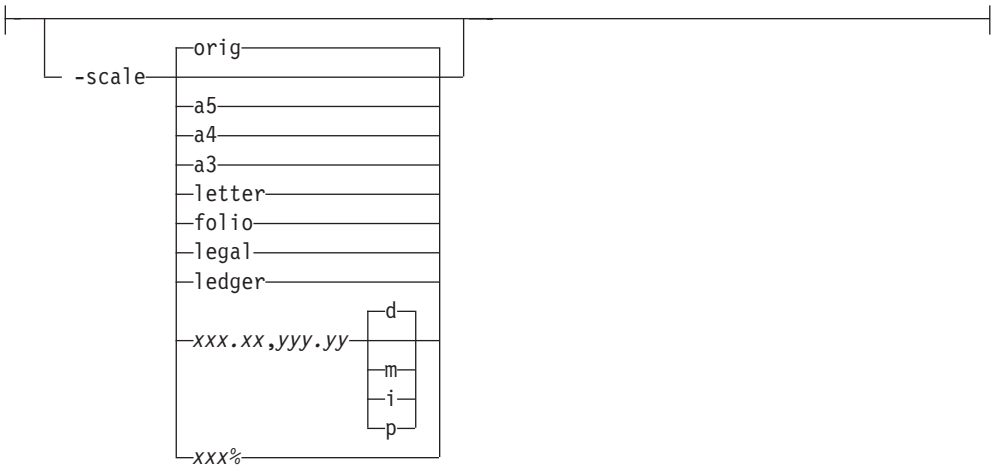
  ledger 11.0 by 17.0 inches (279 by 432 mm)

  xxx.xx,yyy.yy
  Horizontal and vertical page dimensions. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default paper size is letter. If **-paper** is not used, the paper size is increased, if necessary, to contain the output image.
- See options **-l**, **-w**, and **-scale**.



- The output device resolution, specified in dots per inch
- The default is **600**.

- The image is rotated in the clockwise direction by the amount specified. The default is zero, that is, no rotation.
- If **p** is specified, the transform sets the output datastream in such a way that the printer performs the actual image rotation. If **i** is specified, the transform rotates the output bitmap. When **i** is chosen, the transform takes much longer to run and uses much more memory. If no letter is specified, the default or any previous value remains in force.
- The default is **p**.



- Specifies the output image size. The image is scaled to this size and centered in the area defined by the paper size and margin options. The supported values are:

  orig Preserve the input image size, regardless of the printable paper area.

  a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

  a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

  a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

  letter 8.5 by 11 inches (216 by 279 mm)

  folio 8.5 by 13.0 inches (216 by 330 mm)

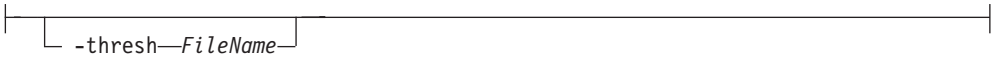
legal 8.5 by 14.0 inches (216 by 356 mm)

ledger 11.0 by 17.0 inches (279 by 432 mm)

xxx.xx,yyy.yy
Horizontal and vertical page dimensions. The optional units are: **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.

xxx% Magnification relative to the original image size. Numbers below 100% mean reduction, while numbers above 100% mean enlargement. For example, **-scale 200%** causes the output image to be twice as long and twice as wide as the input image.

- The default image size is **orig**.



- Specifies a *FileName* that contains a PostScript Type 1 or Type 3 halftone dictionary. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Halftone dictionaries for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in the **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model.
- Alternatively, the PostScript code can specify the **setscreen** operator instead of a Type 1 dictionary. The halftone cell in the dictionary is used to overwrite the default ordered dither clustered dot halftone cell. If the PostScript code contains a transfer function, either in the halftone dictionary or specified by the **settransfer** operator, the current grayscale correction curve is overwritten as if **-gcorr** were used.

- Turns verbose mode on (**-v**) or off (**-nov**).
  - When verbose mode is on, the transform prints a message as it opens each resource file, then echoes the command line, then prints a message for each file name as it is processed.
  - When verbose mode is off, the transform prints only error messages.
- The default is **-nov**.

- Specifies the paper width. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. The default page width is 8.5 inches.

- See options **-l** to set the paper length or **-paper** to set both dimensions at the same time.

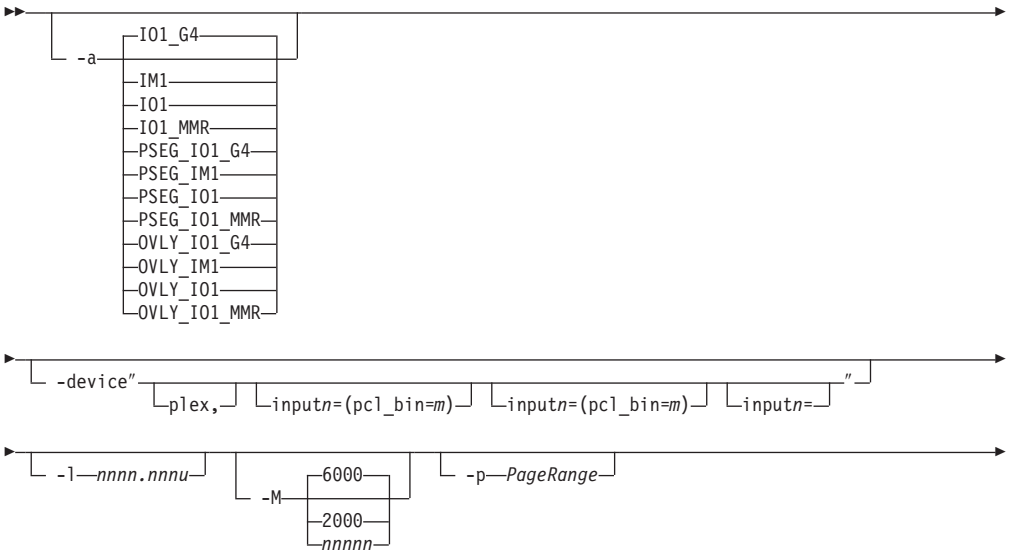
- Specifies the left margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. The default is zero (no margin).

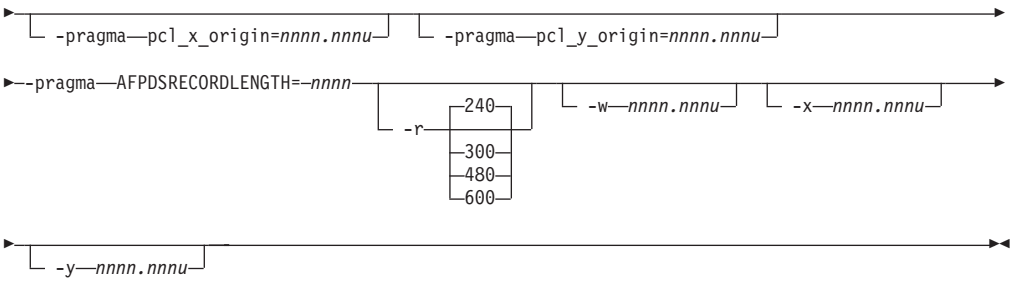
- Specifies the top margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default unit is dots. The default is zero (no margin).

Transform PCL data to AFP

This section describes the **PCL to AFP** transform and includes its syntax and options and values.

Syntax





Description

Use the **PCL to AFP** transform to transform a PCL data stream file into an AFP data stream file.

If you specify multiple values of the same flag, **PCL to AFP** uses the last value specified, with the exception of the **-p** flag. Multiple values of the **-p** flag are accumulated and the pages identified for printing are printed in normal numerical sequence, regardless of the order you specify.

The **PCL to AFP** transform uses these Embedded Microtype Fonts:

- Albertus Medium
- Albertus Extra Bold
- Antique Olive
- Antique Olive Italic
- Antique Olive Bold
- Arial
- Arial Italic
- Arial Bold
- Arial Bold Italic
- Clarendon Condensed Bold
- Coronet
- Courier Italic
- Courier Bold
- Courier Bold Italic
- Garamond Antiqua
- Garamond Kursiv
- Garamond Halbfett
- Garamond Kursiv Halbfett
- Letter Gothic
- Letter Gothic Italic
- Letter Gothic Bold
- Marigold
- CG Omega
- CG Omega Italic
- CG Omega Bold
- CG Omega Bold Italic
- Symbol
- CG Times
- CG Times Italic
- CG Times Bold
- CG Times Bold Italic
- Times New Roman
- Times New Roman Italic
- Times New Roman Bold
- Times New Roman Bold Italic

- Univers Medium
- Univers Medium Italic
- Univers Bold
- Univers Bold Italic
- Univers Condensed Medium
- Univers Condensed Medium Italic
- Univers Condensed Bold
- Univers Condense Bold Italic
- WingDings

The **PCL to AFP** transform also uses the Line Printer embedded bitmap font.

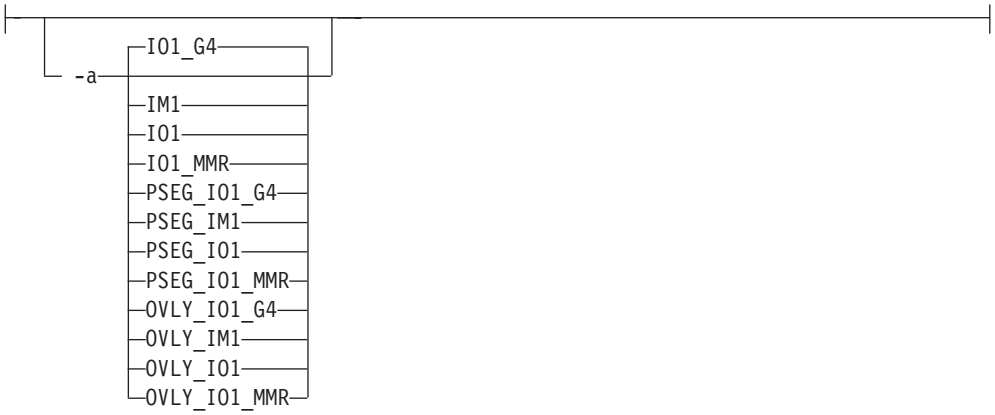
Font substitution occurs when a set of capabilities, such as Symbol Set, Spacing, Pitch, and Typeface, are compared to the fonts available to the rip, and the closest match wins. You cannot disable font substitution. If an error occurs during font substitution, the error is not logged. When a custom font is included in the data stream, and the PCL job refers to it, the custom font is used.

Limitations

- PCL data can contain device commands (for example, to begin or end duplexing or to change the input bin). The AFP architecture defines those device functions in a form definition resource instead of the print data. To access those device functions (such as duplexing, and bin selection), you must specify them in the form definition or attributes file, or on a print command, when you print the job.

  Note: Duplexing is the default.
- Resolution conversion algorithms might yield degraded appearance when used to reduce the resolution of a data stream. For this reason, **PCL to AFP** might degrade the appearance of higher-resolution data streams when used with 240-pel printers. You should verify that print fidelity is satisfactory.
- There are subtle differences between PCL4 and PCL5e when it comes to handling fonts. While many PCL4 files will work with **PCL to AFP**, some might not produce the expected output.

Flags and values



- The **-a** flag determines the type of AFP data stream image to generate for each page in the PCL file.

  Values are:

  IO1_G4
  Compressed Image Object Content Architecture (IOCA) image in

Modified TSS (formerly CCITT) T.6 G4 Facsimile Coding Scheme (G4 MMR) format. This is the recommended output type because it takes up less space on the fixed disk, and it prints faster.

Note: The IBM 3812 and 3816 printers do not support printing with an image type of **IO1_G4**. For these printers, specify an image type of **IO1_MMR** because it is the compressed image type supported by these printers, and it will result in faster printing than uncompressed image types.

PPDS, PCL, and TCP/IP-attached IPDS™ printers can print IOCA images; however, only channel-attached printers that have the Advanced Function Image and Graphics (AFIG) feature installed can print IOCA images. Therefore, if you are printing images on channel-attached printers without the AFIG feature, select the **IM1** value.

IM1 IM1 image. This type of image is not compressed.

1O1 IOCA image. This type of image is not compressed.

IO1_MMR
Compressed IOCA image in Modified Modified Read (MMR) format.

PSEG_IO1_G4
Page segment of the specified image type.

PSEG_IM1
Page segment of the specified image type.

PSEG_IO1
Page segment of the specified image type.

PSEG_IO1_MMR
Page segment of the specified image type.

OVLY_IO1_G4
Overlay of the specified image type.

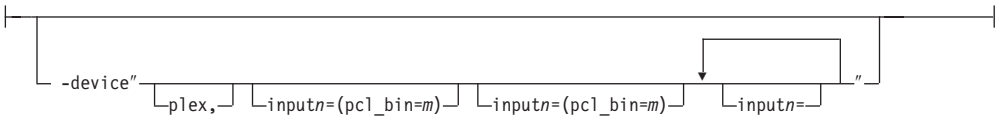
OVLY_IM1
Overlay of the specified image type.

OVLY_IO1
Overlay of the specified image type.

OVLY_IO1_MMR
Overlay of the specified image type.

Note: When generating page segments from multiple-page documents, you might want to use the **-p** flag to select which page is to be made into a page segment; otherwise, multiple page segments will be created, one for each page of PCL.

When generating overlays from multiple-page documents, you might want to use the **-p** flag to select which page is to be made into an overlay; otherwise, multiple overlays will be created, one for each page of PCL.



- The **plex** value specifies whether the transform recognizes or honors the plex commands in the data stream, and optionally, specifies how to associate the AFP input tray (**input*n***, where *n* is a value between 1 to 255) with the pcl bin (**pcl_bin=*m***, where *m* is a value between 0 to 59). When you do not specify **input*n*=(pcl_bin=*n*)** with **plex**, the plex command is used with no tray mappings.
- You can specify **input*n*=(pcl_bin=*m*)** up to twenty times.
- The number (*n*) you specify with **input** is the AFP input bin to be selected when the print description language tray selection characteristics are met.
- If you don't specify **plex**, the plex commands in the data stream are ignored.

- Specifies the maximum amount of time, in minutes, to spend processing the job.
- Values are:

  20 20 minutes, the default

  1 to 9998
  The timer ranges from 1 to 9998 minutes, in one-minute increments

  9999 No time limit

- Specifies the length of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

  Note: If a text margin is already built into the file, try **-l11i** to set the length to 11 inches.
- For 240-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 5280
  The length can be from 16 pels to 5280 pels, 0.067i to 22.002i, or 1.701m to 558.852m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 4000
  ```
- For 300-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 6600
  The length can be from 16 pels to 6600 pels, 0.053i to 22.001i, or 1.346m to 558.842m. For example, the following are all valid:

```
-l 40m
-l 200.5m
-l 13i
-l 5000
```

- For 480-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 10560
  The length can be from 16 pels to 10560 pels, 0.033i to 22.002i, or 0.838m to 558.852m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 8000
  ```

- For 600-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 20400
  The length can be from 16 pels to 20400 pels, 0.0267i to 34.001i, or 0.678m to 863m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 10000
  ```

- Determines the maximum amount of memory, in KB, that the transform can use. This flag might be useful if you are processing large PCL jobs that require a lot of memory.
- Values are:

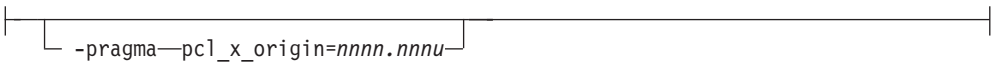
  6000 6000KB (6MB), the default

  2000 to *nnnnn*
  The maximum memory ranges from 2000 to *nnnnn* (where *nnnnn* is the maximum upper limit the operating system allows) up to 64MB.

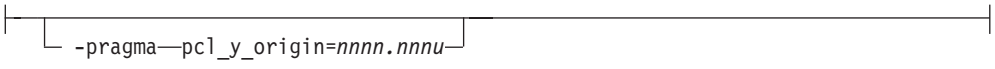
- Specifies that the output should only contain selected pages. When you specify multiple **-p** flags, the **PCL to AFP** transform accumulates them and prints the identified pages in normal numerical order, regardless of the order you specify. Examples of values include:
- Examples of values include:

  -p 1-10
  Output pages 1 through 10.

  -p 10- Output pages from page 10 until the end of the job.
- You can use **-p** when the **PCL to AFP** transform is processing one file at a time. This flag is ignored if you specify multiple files within the same job.



Specifies an X presentation page origin of the generated image; *nnnn.nnnu* is a number that can optionally contain a decimal point, and *u* is the units in inches (i) or millimeters (m). If you do not specify a unit (i or m), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values, that is, you cannot use a decimal point, for pels. If this value is unspecified, zero is presumed.



Specifies an Y presentation page origin of the generated image; *nnnn.nnnu* is a number that can optionally contain a decimal point, and *u* is the units in inches (i) or millimeters (m). If you do not specify a unit (i or m), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values, that is, you cannot use a decimal point, for pels. If this value is unspecified, zero is presumed.

Use *nnnnn* to specify the maximum number of bytes in a record. For example, `-pragma AFPDSRECORDLENGTH=8000` limits the record length to 8K.

The default is 32000, and the value range is 8000 to 32000.

- Specifies the resolution of the output image. Select the resolution based on the printer on which you will be printing the image.
- Values are:

  240 240 pels-per-inch (for example, IBM 3812, 3825, 3827, 3835, and 3900 printers), the default

  300 300 pels-per-inch (for example, IBM 3112, 3116, 4019, 4028, 4029, and 4039 printers and Hewlett-Packard printers)

  480 480 pels-per-inch

  600 600 pels-per-inch (for example, IBM 4100 printers)

  Note: If you specify a resolution that the printer does not support, the image is printed under most conditions, but with degraded results. Specify the correct resolution for the printer on which you will print the PCL job.

- Specifies the width of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

Note: If a text margin is already built into the file, try **-w8.5i** to set the width to 8.5 inches.

- For 240-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 4080
  The width can be from 16 pels to 4080 pels, 0.065i to 17.002i, or 1.641m to 431.852m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 3300
  ```

- For 300-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 5100
  The width can be from 16 pels to 5100 pels, 0.052i to 17.001i, or 1.313m to 431.842m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 5000
  ```

- For 480-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 8160
  The width can be from 16 pels to 8160 pels, 0.065i to 17.002i, or 1.641m to 431.852m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 6600
  ```

- For 600-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 10200
  The width can be from 16 pels to 10200 pels, 0.052i to 17.001i, or 1.313m to 431.842m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 10000
  ```

- Specifies an X offset (horizontal offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.
- An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. An X-offset value specifies the left and right margins of the generated image.
- For all printers, values are:

0.167i 0.167 inches, the default

0 to 8.5i
The X offset must be less than half of the width (**-w**) of the generated image. For example, if you specify a width of 13i, then the X offset can be no larger than 6.5i.

Note:

1. The X offset specified with **-x** must be less than half of the width specified with **-w**. If the **-x** value is greater than or equal to the **-w** value, a blank page is printed.
2. The X-offset value specifies margins on *both* the left and right sides of the page. If you have a width of 8.5 inches and specify an X offset of 5 inches, a blank page will also result because the margins on the left and right sides of the paper exceed the width of the paper.
3. PCL processing is slower when you use the **-x** flag.

- Specifies a Y offset (vertical offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PCL to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.
- An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. A Y-offset value specifies the top and bottom margins of the generated image.
- For all printers, values are:

  0.167i 0.167 inches, the default

  0 to 8.5i
  The Y offset must be less than half of the length (**-l**) of the generated image. For example, if you specify a length of 14i, then the Y offset can be no larger than 7.0i.

Note:

1. The Y offset specified with **-y** must be less than half of the length specified with **-l**. If the **-y** value is greater than or equal to the **-l** value, a blank page is printed.
2. The Y-offset value specifies margins on *both* the top and bottom edges of the page. If you have a length of 11 inches and specify an Y offset of 6 inches, a blank page will also result because the margins on the top and bottom of the paper exceed the length of the paper.
3. PCL processing is slower when you use the **-y** flag.

Transforming PCL image data

The output of the **PCL to AFP** transform is AFP image data for any type of PCL input, whether it is text or images. The image created by the **PCL to AFP** transform minimizes white space within an image block by defining the image block size to be exactly the right size to contain all of the black pels of the image. A PCL image might not print if any part of the image lies outside of the valid printable area. In

addition, be aware that using form definitions that specify a non-zero logical page origin might move a valid PCL image out of the printable area; thus, the image won't print.

The **PCL to AFP** transform lets you specify the length and the width of PCL images. Before you use the **-l** and **-w** flags of the **PCL to AFP** transform, it's helpful to understand how PCL images are placed on the page.

Figure 3 shows an example of a PCL image. This image is 8.5 inches high and 11 inches wide, measured from the lower-left corner of the image.

If you want to print the entire image, specify a length of 11i and a width of 8.5i. When the image is printed, the upper-left corner of the image is placed at the point on the page called the logical page origin, which is specified in the form definition. The logical page origin is the point on the form where the page of data is positioned, and it is specified as an offset from the top-left corner of the sheet. Therefore, if the form definition has a logical page origin of 0.165 inches from both the left and top sides of the sheet, then the top-left corner of the image is placed 0.165 inches down and to the left of the upper left corner of the sheet.

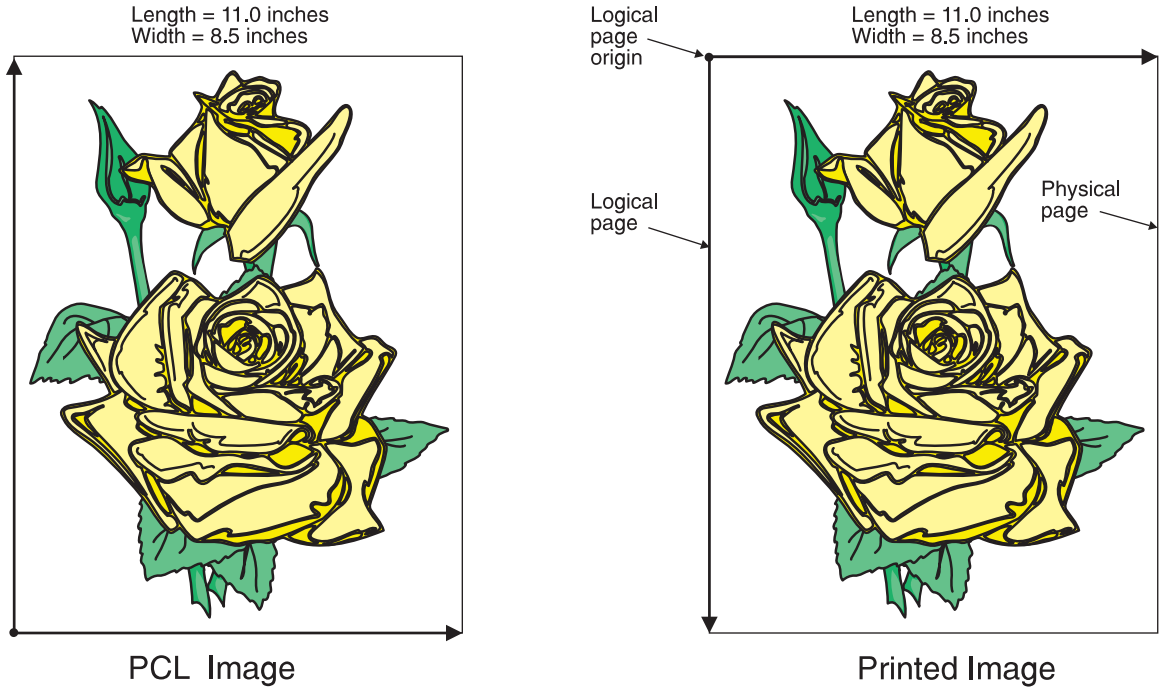


Figure 3. A PCL image

All this gets more complicated if you don't specify the entire image. For example, if you want to crop the image so that you only use the lower left corner, you would specify a width of 7i and a length of 7i with the **PCL to AFP** transform. The upper left corner of the resulting image is then placed at the logical page origin (Figure 4 on page 73).

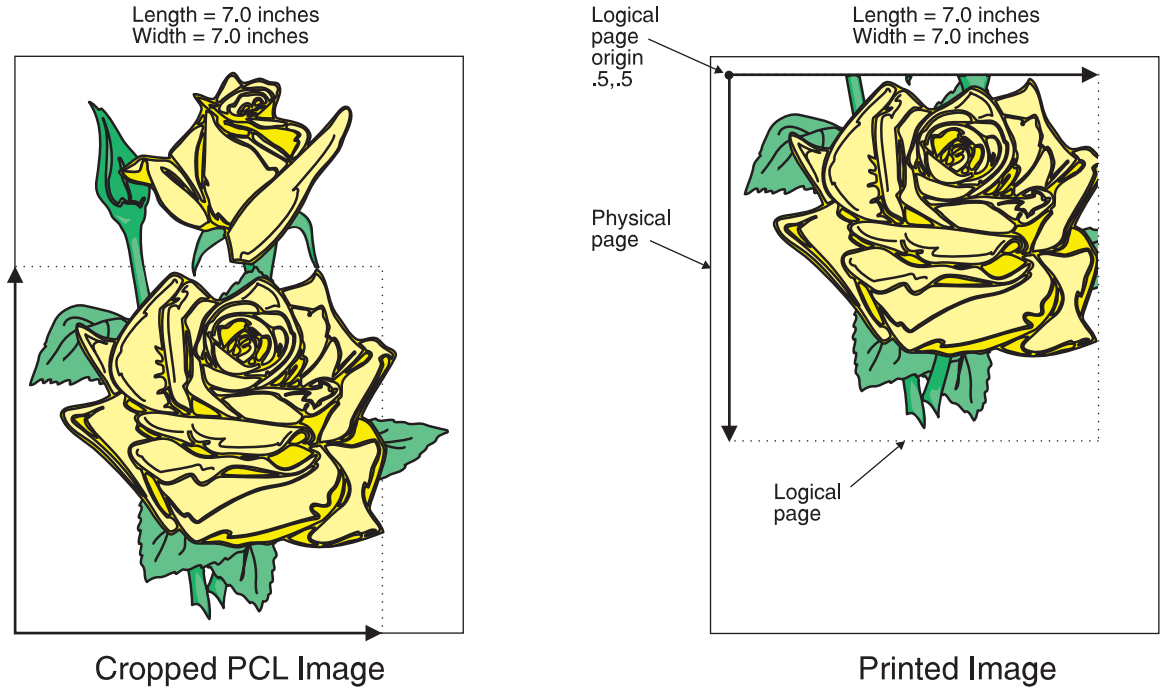


Figure 4. A cropped PCL image

In this example, specify a PCL image that is 8.5 inches wide and 11 inches high. Again, the upper-left corner of the transformed image is placed at the logical page origin. Unless you specify a form definition with the print job that has a zero logical page origin (for example, **F100S**, **F100D**, or **F100T**), the page will not print because part of the image is outside the valid printable area (Figure 5 on page 74).

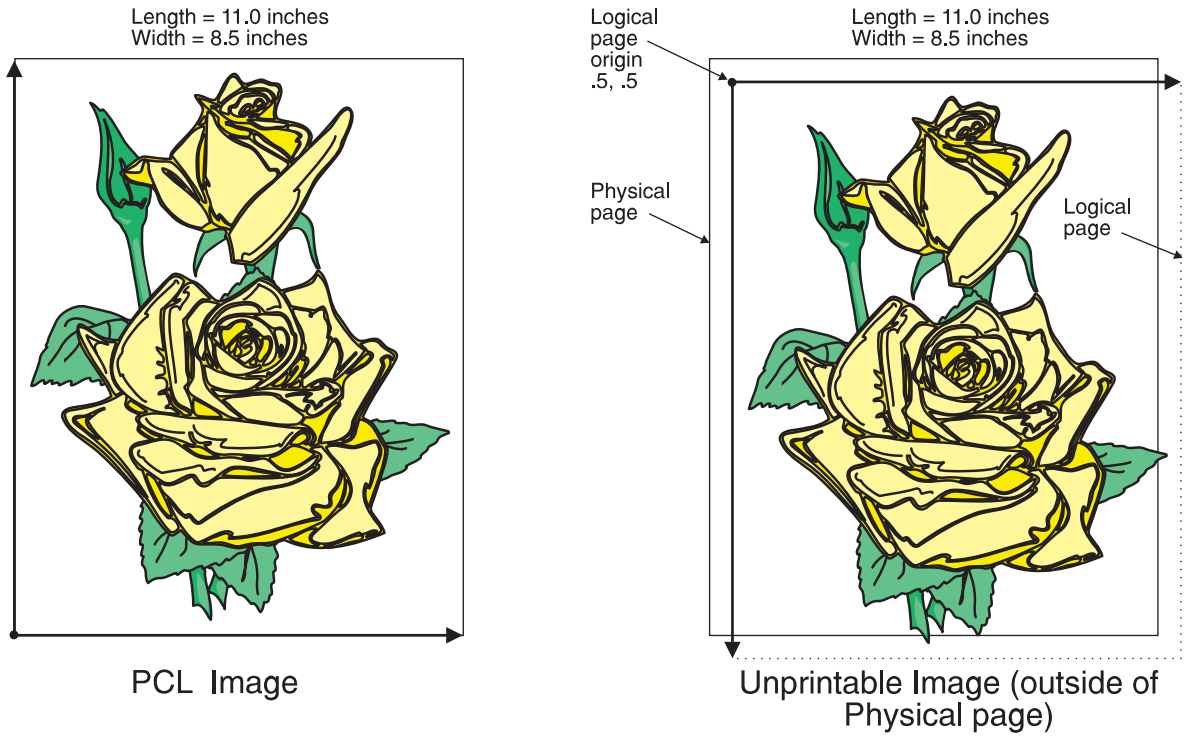


Figure 5. A PCL image offset from the top-left corner

As you can see from Figure 5, specifying the correct form definition is extremely important, particularly when you are printing a full-page image.

The default length and width values work with the default form definitions that are available for each type of printer.

However, if you want to specify exact placement of your PCL output on the page using a zero vertical and horizontal offset from the top-left corner of the page, specify one of these form definitions:

- **F100S**
- **F100D**
- **F100T**

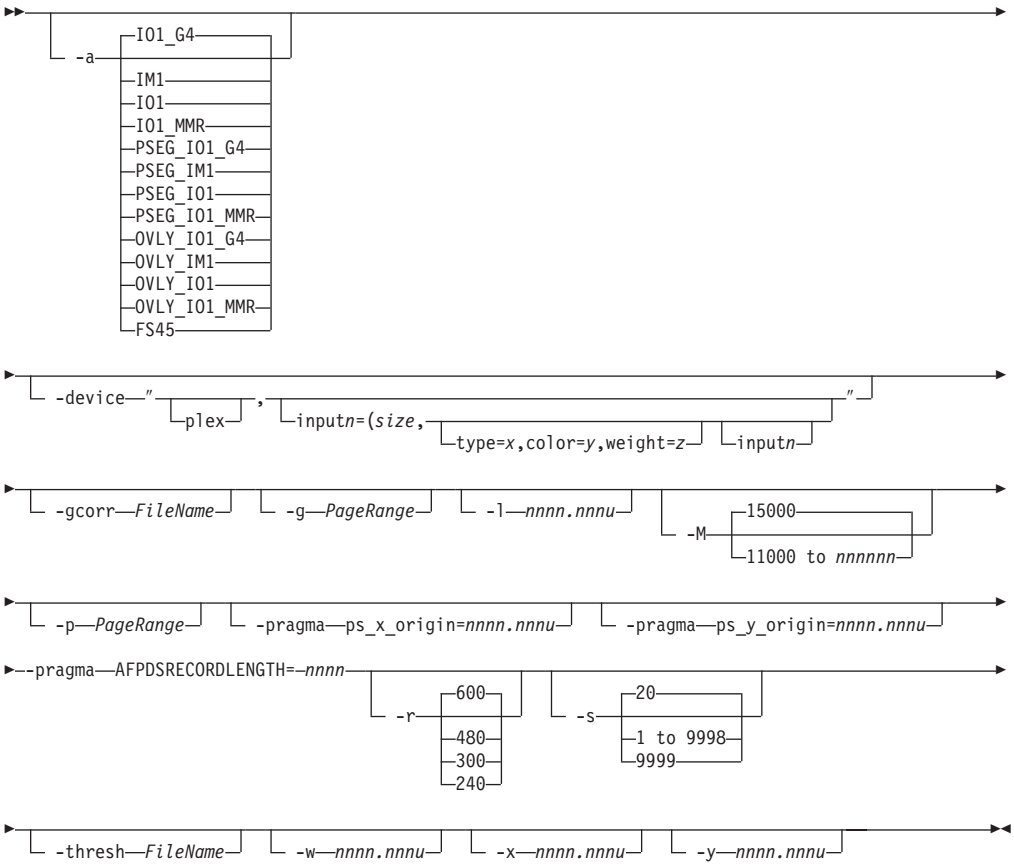
If you specify a 0 horizontal and vertical offset in the form definition, the image produced by the **PCL to AFP** transform might be printed in the unprintable area of the printer. To avoid printing in the unprintable area, you can specify the **-x** (X offset) and **-y** (Y offset) flags on the **PCL to AFP** transform. These flags add white space to the top and left side of the image produced by the transform, ensuring that no data will print in the unprintable area. For more information about the unprintable area of your printer, refer to *Advanced Function Presentation: Printer Information*.

Transform PDF or PostScript data to AFP

This section describes the **PDF to AFP** transform and the **PostScript to AFP** transform. It includes syntax and options and values.

These transforms are described in one section because they share the same program.

Syntax



Description

Use the **PostScript to AFP** transform and the **PDF to AFP** transform, to transform a PostScript or Portable Document Format (PDF) data stream file into an AFP data stream file.

If you specify multiple values of the same flag, **PostScript to AFP** uses the last value specified, with the exception of the **-g** and **-p**, flags. Multiple values of the **-g** and **-p** flags are accumulated and the pages identified for printing are printed in normal numerical sequence, regardless of the order you specify.

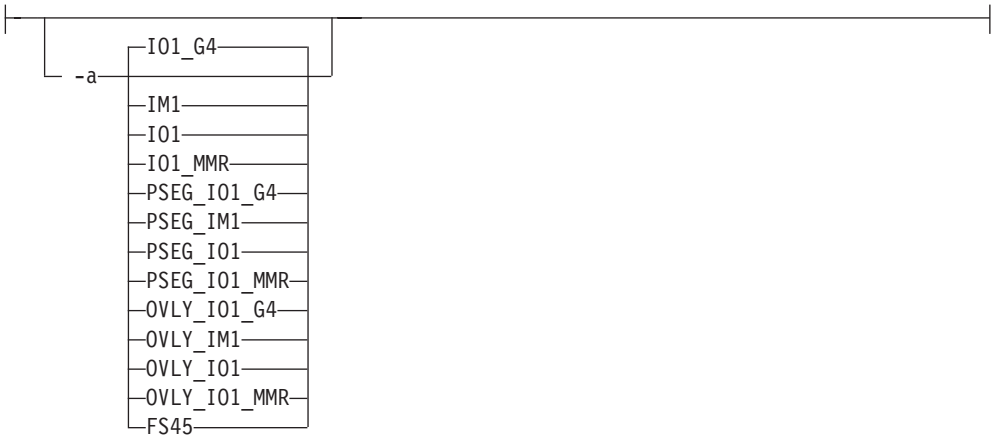
Note: If the transforms fail because of missing fonts, you can use the **Set Transform Server properties** page to turn on font substitution.

Limitations

- PostScript data can contain device commands (for example, to begin or end duplexing or to change the input bin). Because the AFP architecture defines those device functions in a form definition resource instead of the print data, the **PostScript to AFP** transform ignores the device commands in the print data. To access those device functions (such as duplexing and bin selection), you must specify them in the form definition or attributes file, or on a print command, when you print the job.
- Resolution conversion algorithms may yield degraded appearance when used to reduce the resolution of a datastream. For this reason, **PostScript to AFP** might

degrade the appearance of higher-resolution datastreams when used with 240-pel printers. You should verify that print fidelity is satisfactory.

Flags and values



- Determines the type of AFP data stream image to generate for each page in the PostScript or PDF file.

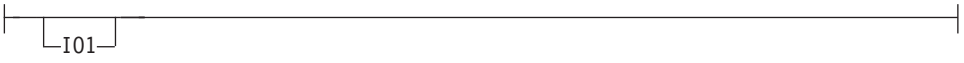
  Values are:

  – Compressed Image Object Content Architecture (IOCA) image in Modified TSS (formerly CCITT) T.6 G4 Facsimile Coding Scheme (G4 MMR) format. This is the recommended output type because it takes up less space on the fixed disk, and it prints faster.

    Note: The IBM 3812 and 3816 printers do not support printing with an image type of **IO1_G4**. For these printers, specify an image type of **IO1_MMR** because it is the compressed image type supported by these printers. This will result in faster printing than uncompressed image types.

    PPDS, PCL, and TCP/IP-attached IPDS printers can print IOCA images; however, only channel-attached printers that have the Advanced Function Image and Graphics (AFIG) feature installed can print IOCA images. Therefore, if you are printing images on channel-attached printers without the AFIG feature, select the **IM1** value.

    IM1 image. This type of image is not compressed.

    IOCA image. This type of image is not compressed.

Compressed IOCA image in Modified Modified Read (MMR) format.

– Page segment of the specified image type.

Note: When generating page segments from multiple-page documents, you might want to use the **-p** flag to select which page is to be made into a page segment; otherwise, multiple page segments will be created, one for each page of PostScript or PDF.

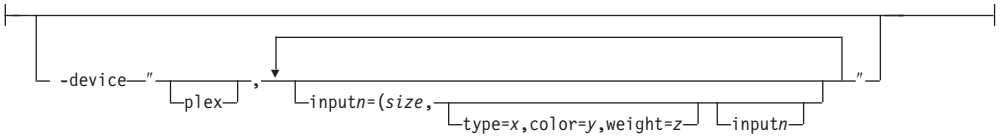
– Overlay of the specified image type.

Note: When generating overlays from multiple-page documents, you might want to use the **-p** flag to select which page is to be made into an overlay; otherwise, multiple overlays will be created, one for each page of PostScript or PDF.

FS45 IOCA color format.

FS45.ovly
IOCA color format for overlays.

FS45.pseg
IOCA color format for page segments.



- The **plex** value specifies whether the transform recognizes or honors the plex commands in the data stream, and optionally, specifies how to associate the AFP input tray (**input*n***) with the contents of the output bin. When you specify **input*n***, you must specify ***size***, where ***size*** is a text string like letter, legal, a3, a4, b4, b5, ledger, or a dimension like 8.5ix11i. Dimensions can be specified as inches (i), millimeters (m), or points (p). The other three input descriptors (**type**, **color**, and **weight**) are optional, but when you specify them, you must separate them with a comma and no spaces.
- When you do not specify **input*n*=...)** with **plex**, plex commands with no additional information for the tray contents are recognized.
- You can specify [**input*n*=...** as many times as you need to.

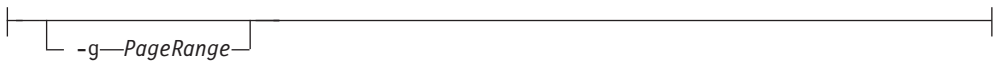
- The number (*n*) you specify with **input** is the AFP input bin to be selected when the print description language tray selection characteristics are met.
- If you don't specify **plex**, the plex commands in the data stream are ignored.
- If only **input1** is specified, the width (**-w**) and length (**-l**) values must match the size of the media specified for **input1**. For example:

  ```
  ps2afp test.ps -o test.afp -w 210m -l 297m -device 'plex, input1=(a4)'
  ```

  If more than one input is specified, the **-w** and **-l** values must match one of the **input*n*** size specifications. For example:

  ```
  ps2afp test.ps -o test.afp -w 8.5i -l 11i -device 'plex, input1=(letter), input2=(a4)'
  ```

- Specifies a *FileName* with a gray scale mapping table for halftoning of the gray scale and color images to bi-level for output. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- The mapping table must be provided to compensate for the printing characteristics of the particular output device and paper type, such as dot gain. This file must contain either:
  - 256 real numbers, one for each level of gray in the 8-bit gray scale image
  - The PostScript **settransfer** operator
- The algorithm converts every image to 8-bit gray scale before applying the halftoning algorithm. The default might not produce the halftone image quality that your printer is capable of. Mapping tables for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model. See also options **-alg** and **-thresh**. PostScript code submitted using the **-thresh** option can have the same effect as **-gcorr**.



- Specifies that the output should only contain selected pages. When you specify multiple **-g** flags, the **PostScript to AFP** transforms only the specified pages in the PostScript or PDF input data stream, then prints the transformed pages in normal numerical order, regardless of the order you specify. Examples of values include:

  -g even
  Output even pages.

  -g odd
  Output odd pages.

  -g 1-10
  Output pages 1 through 10.

  -g 10- Output pages from page 10 until the end of the job.
- You should only specify the **-g** flag when the input data conforms to Adobe Document Structuring Conventions (DSC). If you have any doubt about the input data, use the **-p** flag.
- You cannot specify both the **-g** flag and the **-p** flag.

- You can use **-g** when the **PostScript to AFP** transform is processing one file at a time. This flag is ignored if you specify multiple files within the same job.

- Specifies the length of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PostScript to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

  Note: If a text margin is already built into the file, try **-l11i** to set the length to 11 inches.

  For 240-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 12720
  The length can be from 16 pels to 12720 pels, 0.065i to 53i, or 1.641m to 1346.2m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 4000
  ```

  For 300-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 15900
  The length can be from 16 pels to 15900 pels, 0.052i to 53i, or 1.313m to 1346.2m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 5000
  ```

  For 480-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 25440
  The length can be from 16 pels to 25440 pels, 0.065i to 53i, or 1.641m to 1346.2m. For example, the following are all valid:

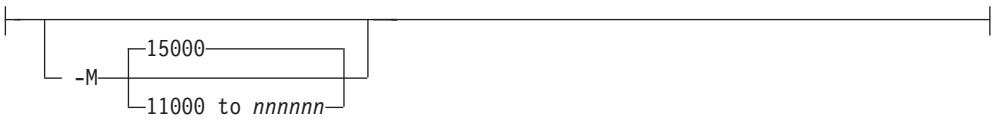
  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 8000
  ```

  For 600-pel resolution printers, values are:

  11i 11 inches, the default

  16 to 31800
  The length can be from 16 pels to 31800 pels, 0.052i to 53i, or 1.313m to 1346.2m. For example, the following are all valid:

  ```
  -l 40m
  -l 200.5m
  -l 13i
  -l 10000
  ```



- Determines the maximum amount of memory, in KB, that the transform can use. This flag can be useful if you are processing large PostScript or PDF jobs that require a lot of memory.

  Values are:

  15000 15000KB (15MB)

  11000 to *nnnnnn*
  The maximum memory ranges from 11000 to *nnnnnn* (where *nnnnnn* is the maximum upper limit the operating system allows) up to 999MB. 15000 is the default.

- Specifies that the output should only contain selected pages. When you specify multiple **-p** flags, the **PostScript to AFP** transforms all the pages in the input, then extracts the specified MO:DCA-P pages and prints them in normal numerical order, regardless of the order you specify.

  Examples of values include:

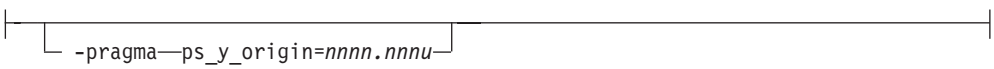
  -p even
  Output even pages.

  -p odd
  Output odd pages.

  -p 1-10
  Output pages 1 through 10.

  -p 10- Output pages from page 10 until the end of the job.
- You cannot specify both the **-g** flag and the **-p** flag.
- You can use **-p** when the **PostScript to AFP** transform is processing one file at a time. This flag is ignored if you specify multiple files within the same job.

Specifies an X presentation page origin of the generated image; *nnnn.nnnu* is a number that can optionally contain a decimal point, and *u* is the units in inches (i) or millimeters (m). If you do not specify a unit (i or m), then **PostScript to AFP** uses pels as the unit type. You cannot specify fractional values, that is, you cannot use a decimal point, for pels. If this value is unspecified, zero is presumed.



Specifies an Y presentation page origin of the generated image; *nnnn.nnnu* is a number that can optionally contain a decimal point, and *u* is the units in inches (i) or millimeters (m). If you do not specify a unit (i or m), then **PostScript to**

AFP uses pels as the unit type. You cannot specify fractional values, that is, you cannot use a decimal point, for pels. If this value is unspecified, zero is presumed.

Use *nnnnn* to specify the maximum number of bytes in a record. For example, `-pragma AFPDSRECORDLENGTH=8000` limits the record length to 8K.

The default is 32000, and the value range is 8000 to 32000.

- Specifies the resolution of the output image. Select the resolution based on the printer on which you will be printing the image.

  Values are:

  240 240 pels-per-inch (for example, IBM 3812, 3825, 3827, 3835, and 3900 printers)

  300 300 pels-per-inch (for example, IBM 4019, 4028, 4029, and 4039 printers and Hewlett-Packard printers)

  480 480 pels-per-inch

  600 600 pels-per-inch (for example, IBM 4100 printers), the default

- Specifies the maximum amount of time, in minutes, that the PostScript interpreter remains idle between jobs before it goes down. When the PostScript interpreter is running, it uses some of the workstation memory.

  Values are:

  20 The default time is 20 minutes.

  1 to 9998
  The time is the number of minutes specified in one-minute increments.

  9999 There is no time limit.

- Specifies a *FileName* that contains a PostScript Type 1 or Type 3 halftone dictionary. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Halftone dictionaries for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in

/opt/IBM/itm/hn/resources/common/color on the Linux workstation. To tune your image quality, select the file that matches your printer model.

- Alternatively, the PostScript code can specify the **setscreen** operator instead of a Type 1 dictionary. The halftone cell in the dictionary is used to overwrite the default ordered dither clustered dot halftone cell. If the PostScript code contains a transfer function, either in the halftone dictionary or specified by the **settransfer** operator, the current grayscale correction curve is overwritten as if **-gcorr** were used.

- Specifies the width of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PostScript to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

  Note: If a text margin is already built into the file, try **-w8.5i** to set the width to 8.5 inches.

  For 240-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 10200
  The width can be from 16 pels to 10200 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 5000
  ```

  For 300-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 10200
  The width can be from 16 pels to 10200 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

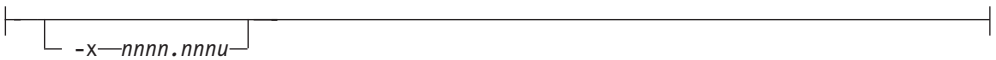
  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 5000
  ```

  For 600-pel resolution printers, values are:

  8.5i 8.5 inches, the default

  16 to 20400
  The width can be from 16 pels to 20400 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

  ```
  -w 40m
  -w 200.5m
  -w 13i
  -w 5000
  ```



- Specifies an X offset (horizontal offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PostScript to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

  An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. An X-offset value specifies the left and right margins of the generated image.

  Values are:

  0 No border is specified. This is the default.

  0 to 17i
  The X offset must be less than half of the width (**-w**) of the generated image. For example, if you specified -w=12i, this value can be no greater than 6i.

- Specifies a Y offset (vertical offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **PostScript to AFP** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

  An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. A Y-offset value specifies the top and bottom margins of the generated image.

  Values are:

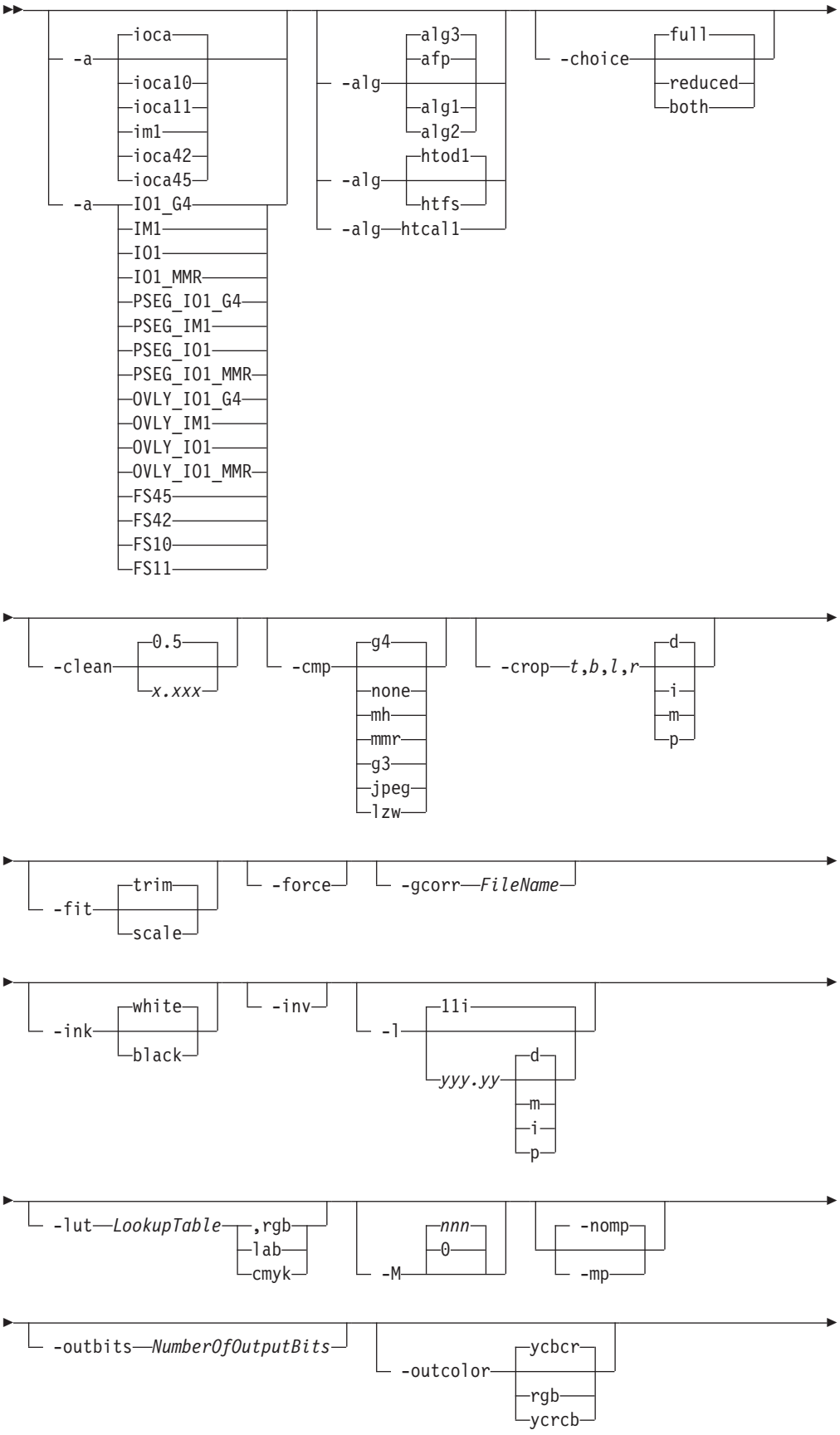
  0 No border is specified. This is the default.

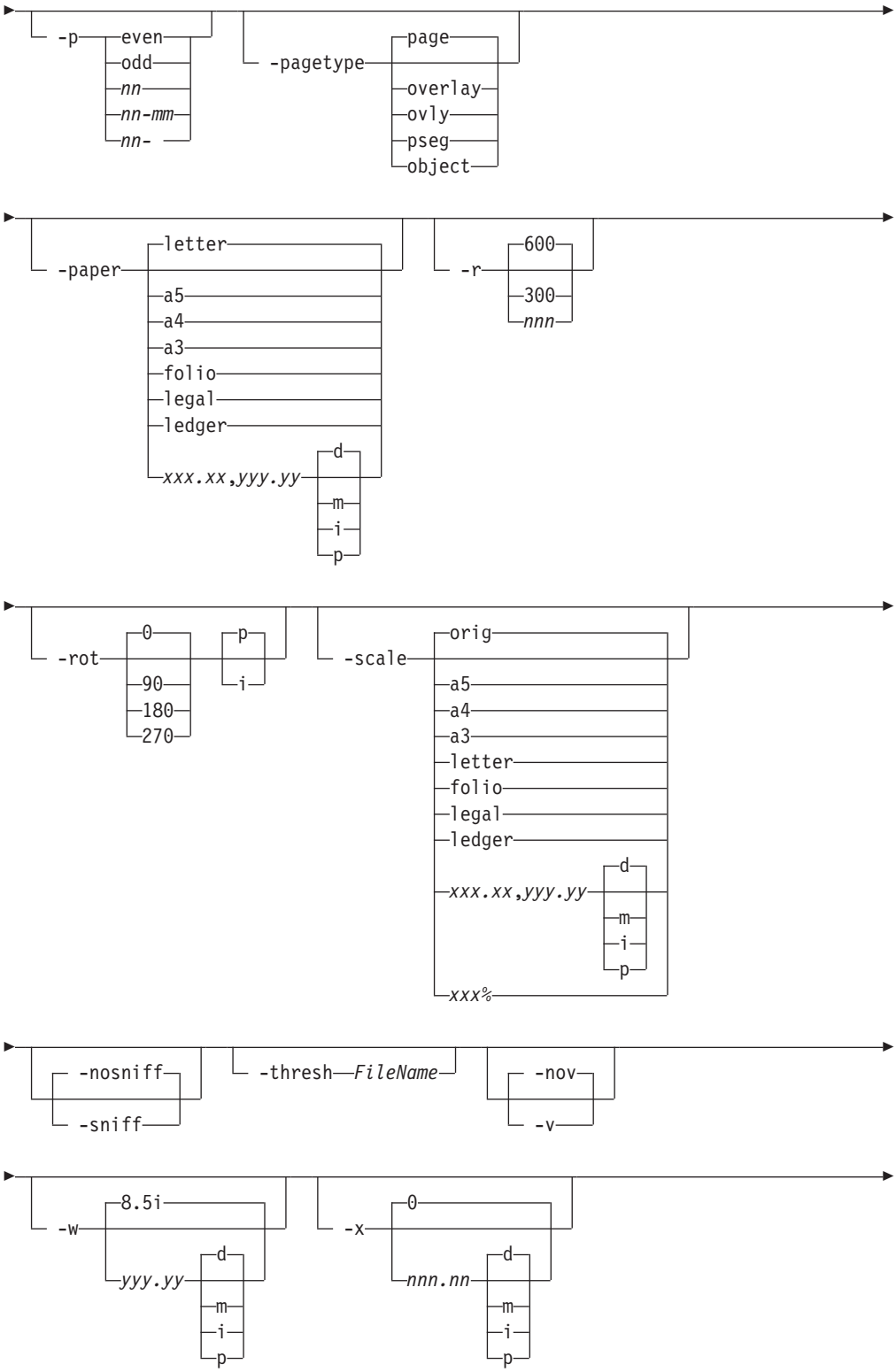
  0 to 17i
  The Y offset must be less than half of the length (**-l**) of the generated image. For example, if you specified -l=16i, this value can be no greater than 8i.

Transform TIFF data to AFP

This section describes the **TIFF to AFP** transform and includes its syntax and options and values.

Syntax


-a
ioca
ioca10
ioca11
im1
ioca42
ioca45
-a
IO1_G4
IM1
IO1
IO1_MMR
PSEG_IO1_G4
PSEG_IM1
PSEG_IO1
PSEG_IO1_MMR
OVLY_IO1_G4
OVLY_IM1
OVLY_IO1
OVLY_IO1_MMR
FS45
FS42
FS10
FS11
-alg
alg3
afp
alg1
alg2
-alg
htod1
htfs
-alg
htcal1
-choice
full
reduced
both
-clean
0.5
x.xxx
-cmp
g4
none
mh
mmr
g3
jpeg
lzw
-crop
t,b,l,r
d
i
m
p
-fit
trim
scale
-force
-gcorr
FileName
-ink
white
black
-inv
-l
11i
yyy.yy
d
m
i
p
-lut
LookupTable
,rgb
lab
cmyk
-M
nnn
0
-nomp
-mp
-outbits
NumberOfOutputBits
-outcolor
ycbcr
rgb
ycrcb


-p
even
odd
nn
nn-mm
nn-
-pagetype
page
overlay
ovly
pseg
object
-paper
letter
a5
a4
a3
folio
legal
ledger
xxx.xx,yyy.yy
d
m
i
p
-r
600
300
nnn
-rot
0
90
180
270
p
i
-scale
orig
a5
a4
a3
letter
folio
legal
ledger
xxx.xx,yyy.yy
d
m
i
p
xxx%
-nosniff
-sniff
-thresh
FileName
-nov
-v
-w
8.5i
yyy.yy
d
m
i
p
-x
0
nnn.nn
d
m
i
p

Description

Use the **TIFF to AFP** transform to transform a TIFF (Tag Image Format File) data stream into an AFP (MO:DCA-P).

The transform can process extended TIFF Revision 6.0 images, including bi-level, gray scale and color images. The output can be bi-level (IM1 or IOCA FS10), 4-bit or 8-bit gray scale, or 24-bit YCbCr color (IOCA FS11), bi-level or 4-bit banded CMYK image at 1-bit per band (IOCA FS42), or a superset of FS42 that also contains 32–bit banded CMYK images, compressed with either JPEG or LZW algorithms (IOCA FS45). The transform automatically uses halftoning to convert the gray scale and color images to bi-level.

Data transformations

If the input image is gray scale or color, and the output image type is bi-level (for example, IOCA FS10, or IM1), the transform internally scales the image to the desired size, then uses a halftoning algorithm (ordered dither, the default, or Floyd-Steinberg) to convert it to bi-level. In converting the image to bi-level, the characteristics of the output device, such as dot shape and dot gain, must be taken into consideration. The halftone screen and the calibration are extremely printer dependent. While the transform does contain an internal default (85 LPI screen at 45 degrees), an appropriate screen should be used and the halftone should be calibrated properly for best quality.

Some printers, such as the Infoprint 4000, have two engines, one for each side of the sheet. Each engine commonly has a different calibration. Options **-thresh** and **-gcorr** provide the mechanism to specify halftone screen, grayscale correction curves, and rules for switching calibration based on the engine used to print a particular page. For very light or very dark images, the halftoning algorithms can be automatically recalibrated to preserve detail that would be lost using the default calibration. See option **-alg**.

To maintain the image quality, scaling must be done prior to halftoning. The halftoning algorithm is very compute-intensive. Unless the images are small, **TIFF to AFP** might not be able to process the color images fast enough to feed even a slow printer.

To achieve good image quality for the CMYK output, the input image colors must be converted to CMYK, bearing in mind the characteristics of the particular halftones used to generate the output image. The color conversion is done using a multidimensional lookup table, which is specified with the **-lut** option. If the transform can not determine the appropriate lookup table or the lookup table is missing, a simple conversion of RBG to CMY is performed using the 255- algorithm. This conversion does not use black and generally leads to poor color quality.

The size and the position of the output image on the page depends on several factors. In addition to the size specified to the transform, the result depends on the form map specified at print time and also on the form and options loaded in the printer. If the image is too large to fit on the page, it is trimmed to size by default. Use the **-fit** option to instruct the printer to scale the image to paper size. If the paper size has not been specified explicitly with the **–paper** option, the paper defaults to US letter (8.5 by 11 inches). If the image is larger than this, the paper dimensions are increased as necessary. If the paper size has been specified explicitly, it is not increased if the image will not fit on paper. Options **-l** and **-w** have the same effect as **-paper**.

The size of the actual image, as opposed to the paper size, is controlled by the **-scale** option. The **-scale** option can either specify ″**orig**″, or give an actual size. If **orig** has been specified, the output image has the same size as the input image. If **-scale** with an actual size has been specified, the output image is scaled to the desired size. A percentage enlargement/reduction can also be specified.

Even if **-scale orig** has been specified, the image may still need to be scaled if the input resolution is different from the output resolution. By default, the transform leaves scaling to the printer. The exceptions are images that are being halftoned, which are always scaled in the transform, and images that have different resolutions on the X and Y directions. The **-alg** option can be used to instruct the transform to perform internal image scaling. Options **-alg**, **-clean**, and **-ink** choose and configure various scaling algorithms used by the transform.

If possible when the input image data matches the output image segments, **TIFF to AFP** just rewraps the TIFF raster data in MODCA-P headers.

The TIFF images are often divided into many segments for efficient memory handling. Some printers will terminate the printing in error if the page is too complex. For that reason, **TIFF to AFP** decompresses, repartitions, and compresses the data if it determines there are too many segments in the picture.

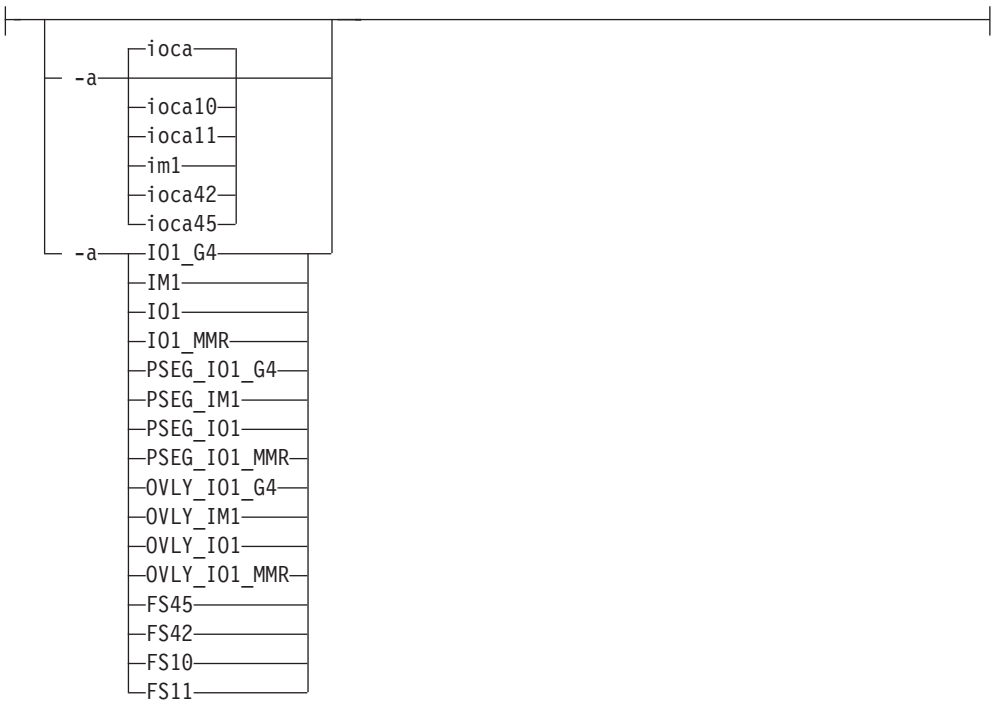
Limitations

- Only Huffman coding with baseline DCT JPEG algorithm is supported.
- Old style JPEG specification (Photometric Interpretation 6) is not supported. Photometric Interpretation 6 is obsolete and will be removed from the TIFF specification. Use the Photometric Interpretation 7 to incorporate the JPEG compressed images in TIFF files.
- Additional color information, such as alpha data, is disregarded.
- Transparency maps are ignored.
- At most 8-bit gray scale and 24-bit color are supported.

Acknowledgments

This software is based in part on the work of the Independent JPEG Group.

Options and values



- Choice of the output image type. The first syntax chooses between the IOCA FS 10 (**ioca**, **ioca10**), IOCA FS11 (**ioca11**), IM1, IOCA FS42 (**ioca42**), and IOCA FS45 (**ioca45**) output. IOCA FS10 and IM1 yield bi-level images, while IOCA FS11 results in 4-bit or 8-bit gray or 24-bit color output (see option **-outbits**). Currently, the only product that supports IOCA FS11 is AFP Workbench. IOCA FS42 can contain either bi-level or 4-bit banded CMYK image at 1-bit per band. IOCA FS45 is a superset of FS42 that also contains 32-bit banded CMYK images, compressed with either JPEG or LZW algorithms. The output compression algorithm is set with the **-cmp** option. To set the page type (page, overlay, page segment, or object), use the **-pagetype** option. FS45 produces IOCA FS45 output.
- The second syntax is to maintain compatibility with the **PostScript to AFP** transform, and sets the image type (**IO1** for IOCA FS10 or **IM1** for IM1 output), compression (**G4** for Group 4 or **MMR** for Group 3), and page type (**PSEG** for page segment or **OVLY** for overlay). If **PSEG** or **OVLY** is not specified, the output is a printable page. If no compression algorithm is specified, the output is not compressed. The second syntax cannot be used for IOCA FS11 output.
- Some older printers do not support IOCA images. In such cases, the IM1 output type should be chosen. IM1 images are uncompressed, and thus, use more space. The processing might also take longer since the IM1 image cannot be scaled by the printer, so internal scaling algorithms must be used. See option **-alg**.
- The default is **ioca** for IOCA FS10 output compressed using Group 4 algorithm.

- Choice of the scaling and halftoning algorithms. You can specify multiple choices, separated by commas, for one **-alg** option. The effect is the same as specifying multiple **-alg** options. For example, `-alg htfs,htcal` is equivalent to `-alg htfs -alg htcal`.
- The scaling algorithms are:
  - If **afp** is chosen, the scaling is done using the default algorithm in the printer. This makes the transform much faster. If the image must be reduced, however, this algorithm might drop some information from the image, such as thin lines.
  - **alg1** activates the internal scaling algorithm to scale the image explicitly to the specified size. This algorithm is guaranteed not to discard any ink. “White space” in the image, however, might be lost (that is, features close to one another might merge). This algorithm makes the transform run longer, and might occasionally make for a “dirty” image, since the occasional “noise pixels” in the scanned images tend to be amplified.
  - **alg2** activates the more flexible version of **alg1**. If this algorithm is selected, option **-clean** can be used to specify the amount of ink “cleanup” to be performed. Option **-clean 0.0** makes the algorithm **alg2** perform like **alg1** (albeit more slowly). Increasing the value specified in **-clean** discards more and more ink, until **-clean 1.0** results in a blank page.
  - **alg3** activates a scaling algorithm that works by deleting or duplicating rows and columns in the image. This is a fast general-purpose algorithm.
- For bi-level images, the default is **afp** if the output image type is IOCA and **alg3** if the output image type is IM1. For color images with bi-level output, the scaling is always done prior to the halftoning algorithm. If a grayscale or color output is chosen (**-a ioca11**), this option is ignored and the algorithm is set to **afp**.
- The halftoning algorithms are:
  - **htod1** uses an ordered dither with a screen derived from the value of the **-thresh** option. The default is an 85 line per inch screen.
  - **htfs** uses the Floyd-Steinberg algorithm.
  - **htcal1** recalibrates the halftoning algorithm for each image. **htcal1** forces the transform to read the whole image into memory and requires an additional pass through the image. It should be used only for very light or very dark images.
- The default is **htod1**. Each halftoning algorithm uses a different internal default calibration curve. If the automatic calibration is turned on, a different set of calibration curves is used.
- See options **-clean**, **-gcorr**, **-ink**, **-paper**, **-scale**, **-thresh**, **-l**, **-w**, **-x**, and **-y**.

- TIFF image files can contain both full and reduced resolution versions of each image. The transform can output both versions, or full resolution only, or reduced resolution only, depending on the value for this option. The default is to output the full resolution images only.
- See the **-mp** and **-nomp** options.

- The internal scaling algorithm **alg2** allows for variable thresholding. The scaled pixel is declared painted if the fraction of its area greater than the threshold is painted in the original image. The value *x.xxx* is a real number between zero and 1 inclusive and gives this threshold.
- If the option **-clean 0.0** is issued, **alg2** behaves like **alg1** and turns on a pixel as long as any part of the pixel has been painted in the original image. **-clean 1.0** results in a blank image because the output pixels are never painted.
- The setting **-clean 0.95** and **0.9999999** turns on the pixels that had essentially all the area painted in the original picture. Depending on the data, most of the image will probably be preserved. Increasing **-clean** by a small amount to **1.0** erases the image. If the scaling algorithm is not **alg2**, this option is ignored. The default is **-clean 0.5**.

- Choice of the output image compression algorithm:

  none Uncompressed output

  mh ITU-T T.4 G3 Modified Huffman

  mmr IBM Modified Modified Read

  g3 ITU-T T.4 G3 Modified Read

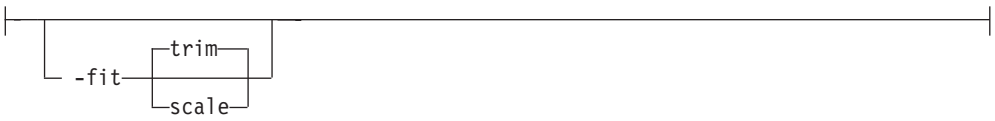
  g4 ITU-T T.6 G4

  jpeg JPEG non-differential Huffman coding with baseline DCT. The output image data should be compressed to reduce the file sizes and increase the printing speed.

  lzw If **lzw** is specified, linework of 600 dpi is produced; otherwise, lossy JPEG at 300 dpi is produced. **lzw** only applies to FS45.

The default compression is ITU-T T.6 Group 4 for bi-level images and no compression for gray scale or color images. Some printers might not support Group 4 compression algorithm and require using the **-cmp** option to choose a different one. The JPEG algorithm can compress only 8-bit gray scale and 24-bit color images. 4-bit grayscale images cannot be compressed.

- Image cropping. *t,b,l,r* specify how much should be cropped from the image top, bottom, left edge, and right edge. The numbers are floating point and can be either positive or negative. Negative numbers indicate that a blank space should be inserted. The units are inches, millimeters, points, and dots (pels). The default is dots. The cropping is specified in the context of the output page, so that "top" means the top of the output page and so on, regardless of the **-rot** option. To crop, the transform enlarges the image by the amount to be cropped, then crops the specified amount by manipulating the actual bitmap. The resulting image has the size as specified by the explicit (or implicit) **-scale** option. See also option **-j**.
- If **-fit trim** is specified, the right and the bottom edge of the image are not cropped. Instead, the image grows as necessary. Because **-fit trim** causes the output data stream to contain the "position and trim" specification, the printer discards any extra image.



Determines whether the printer behavior will be position-and-trim or scale-to-fit if the image is too large to fit on the paper. The default is **trim**.

If present, this option forces **TIFF to AFP** to decompress and recompress the image, regardless of other factors.

- Specifies a *FileName* with a gray scale mapping table for halftoning of the gray scale and color images to bi-level for output. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- The mapping table must be provided to compensate for the printing characteristics of the particular output device and paper type, such as dot gain. This file must contain either:
  - 256 real numbers, one for each level of gray in the 8-bit gray scale image
  - The PostScript **settransfer** operator

- The algorithm converts every image to 8-bit gray scale before applying the halftoning algorithm. The default might not produce the halftone image quality that your printer is capable of. Mapping tables for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model. See also options **-alg** and **-thresh**. PostScript code submitted using the **-thresh** option can have the same effect as **-gcorr**.

- This option is used only with scaling algorithm **alg1** or **alg2**. The TIFF images can be either black on white or white on black. The internal scaling algorithm must know which, because “ink” is preserved at the expense of “non-ink”. The default value, “black”, indicates that the image is black on white.
- If the option **-inv** is used to print the reversed image, the inversion is done as the data is read by the transform, before any processing is done. The black or white must thus be specified in the terms of the printed image, not in the terms of the input TIFF image.

Reverses the image. Areas that are black in the original image become white and vice versa. The reversed image might be either black on white or white on black, depending on the original image.

Specifies the paper length. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints. The default unit is dots. If the unit is dots, decimals (if any) are ignored. The default paper length is 11 inches. See options **-w** to set the paper width or **-paper** to set both dimensions at the same time.

- Specifies the *FileName* for the color conversion lookup table file. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Fast and accurate conversion between color spaces can be implemented as a multidimensional lookup with an interpolation algorithm for missing nodes. The

file specified with the **-lut** option must contain a valid lookup table for the conversion between the input and output color spaces. The lookup tables currently come in either ASCII (.lut) or binary formats (.lutbin).

If the optional colorspace tag is not provided, the table is assumed to match the input image. If there is a serious mismatch between the table and the image (for example, the table is RGB to CMYK and the input image is CMYK), the **-lut** is ignored for the image. Otherwise, it is used to convert the colors and any mismatch (for example, using a **lab** table for **rgb** data) results in corrupted output.

If the colorspace tag is provided, then the transform uses the lookup table only for the relevant colorspace image. Multiple **lut** tables can be specified if the user is unsure of the input colorspace. If the **lut** files are binary, parsing extra files does not impose much of a performance penalty.

Example:

```
-lut 3170-005.rgb.cmyk.perceptual.lutbin,rgb
```

Where `3170-005` is the model-type; `rgb.cmyk` is for RGB images; and `perceptual` is the **color-rendering-intent** value.

Limits the amount of memory available to **TIFF to AFP**. *nnn* is the maximum amount of memory in kilobytes. A value of **0** means there is no memory limit. *nnn* can be set from **0** to the maximum value that the operating system allows. The default is **0**.

Each TIFF image is supposed to have a marker bit set if there are multiple TIFF images in the file. This marker is sometimes missing, even if there are multiple images present in the file. The **-mp** option instructs the transform to behave as if the multipage marker bit were set. The transform then processes all the images in the file, subject to the **-p** and **-choice** options. The default is to leave the marker bit unset (**-nomp**).

-nomp
See **-mp**

-nosniff
See **-sniff**.

-nov See **-v**.

Sets the number of bits per pel in output. This value must be **1**, **4**, **8**, or **24**. If the output image type is IOCA FS10 or IM1, the number of output bits is set to **1** and this option is ignored. For IOCA FS11 output, the default is **24**. This number represents the maximum number of bits used per pel. Thus, even if the number of bits is set to **24**, a 4-bit gray scale image is still displayed in 4-bit format.

Sets the output color model to RGB, YCbCr, or YCrCb if the image type is IOCA FS11 and the number of output bits is 24. Otherwise, this option is ignored. The default is **ycbcr**.

- Specifies that the output should only contain the specified pages. If no **-p** option is given, all the pages are output (but see the **-choice** option for printing full or reduced resolution images of each page). Multiple **-p** options can be specified. Their effect is cumulative. Regardless of the order in which the pages are specified, they are always printed in ascending order.
- The recognized values are:

  even Print all even pages

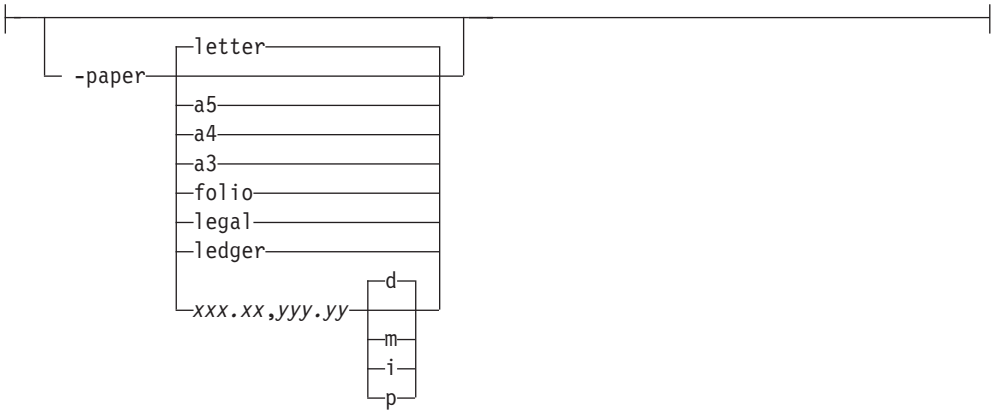
  odd Print all odd pages

  nn Print page *nn*

  nn-mm
  Print pages *nn* to *mm*, inclusive

  nn- Print all pages starting with page *nn*
- Pages are numbered starting with 1.

Sets the output page type to be page, overlay, page segment or object. The same page type is set for every page in the output. Thus, unless option **-p** is used to select a single page, multiple page segments or overlays are stored in the output file. The default is **page**. See option **-a**.



- Specifies the output paper size. The supported values are:

  a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

  a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

  a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

  letter 8.5 by 11 inches (216 by 279 mm)

  folio 8.5 by 13.0 inches (216 by 330 mm)

  legal 8.5 by 14.0 inches (216 by 356 mm)

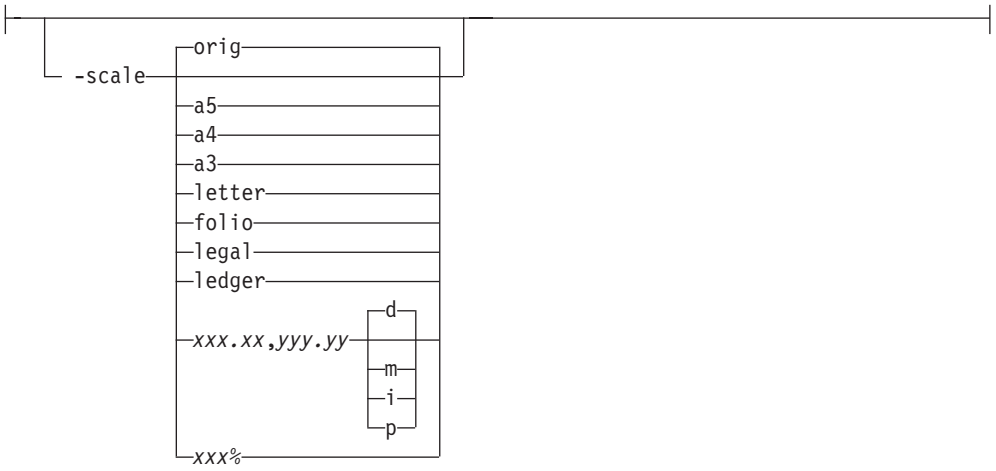
  ledger 11.0 by 17.0 inches (279 by 432 mm)

  xxx.xx,yyy.yy
  Horizontal and vertical image dimensions. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.
- The default paper size is letter. If **-paper** is not used, the paper size is increased, if necessary, to contain the output image.
- See options **-l**, **-w**, and **-scale**.

The output device resolution, specified in dots per inch. The default is **600**.

- The image is rotated in the clockwise direction by the amount specified. The default is zero, that is, no rotation.
- If **p** is specified, the transform sets the output datastream in such a way that the printer performs the actual image rotation. If **i** is specified, the transform rotates the output bitmap. When **i** is chosen, the transform takes much longer to run and uses much more memory. If no letter is specified, the default or any previous value remains in force.

- The default is **p**.



- Specifies the output image size. The image is scaled to this size and centered in the area defined by the paper size and margin options. The supported values are:

  orig Preserve the input image size, regardless of the printable paper area.

  a3 A3 format (297 by 420 mm or 11.69 by 16.54 inches)

  a4 A4 format (210 by 297 mm or 8.27 by 11.69 inches)

  a5 A5 format (148 by 210 mm or 5.83 by 8.27 inches)

  letter 8.5 by 11 inches (216 by 279 mm)

  folio 8.5 by 13.0 inches (216 by 330 mm)

  legal 8.5 by 14.0 inches (216 by 356 mm)

  ledger 11.0 by 17.0 inches (279 by 432 mm)

  xxx.xx,yyy.yy
  Horizontal and vertical image dimensions. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints.

  xxx% Magnification relative to the original image size. Numbers below 100% mean reduction, while Numbers above 100% mean enlargement. For example, **-scale 200%** causes the output image to be twice as long and twice as wide as the input image.
- The default image size is **orig**.

- Turns automatic conversion to black on white for bi-level images on (**-sniff**) or off (**-nosniff**). The automatic conversion algorithm counts the number of 0 and 1 bits in the image. If there are fewer zeros, it assumes the printed features are represented by zeros (white on black), and inverts the image to be black on white. The detection and conversion are done after the conversion specified by the Photometric Interpretation tag is applied (if any).
- This option is ignored if the image is not bi-level.

- The default is **-nosniff**.

- Specifies a *FileName* that contains a PostScript Type 1 or Type 3 halftone dictionary. The *FileName* you specify can be a fully qualified filename. If a path is not specified, Transform Manager looks in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation.
- Halftone dictionaries for several different IBM engine types and line screens are supplied with Infoprint Transform Manager and are installed in **/opt/IBM/itm/hn/resources/common/color** on the Linux workstation. To tune your image quality, select the file that matches your printer model.
- Alternatively, the PostScript code can specify the **setscreen** operator instead of a Type 1 dictionary. The halftone cell in the dictionary is used to overwrite the default ordered dither clustered dot halftone cell. If the PostScript code contains a transfer function, either in the halftone dictionary or specified by the **settransfer** operator, the current grayscale correction curve is overwritten as if **-gcorr** were used.

- Turns verbose mode on (**-v**) or off (**-nov**).
  - When verbose mode is on, the transform prints a message as it opens each resource file, then echoes the command line, then prints a message for each file name as it is processed.
  - When verbose mode is off, the transform prints only error messages.

  The default is **-nov**.

Specifies the paper width. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints. The default unit is dots. The default page width is 8.5 inches. See options **-l** to set the paper length or **-paper** to set both dimensions at the same time.

Specifies the left margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints. The default unit is dots. The default is zero (no margin).

Specifies the top margin. The optional units are **d**ots (pels), **m**illimeters, **i**nches, or **p**oints. The default unit is dots. The default is zero (no margin).

Reading Syntax Diagrams

The syntax for PPFA commands is shown using graphic notation. To read the diagrams, move from left to right and top to bottom, following the main path line.

Style Rules:

Syntax diagrams use the following style rules to show how to enter commands and parameters:

- A word in uppercase ***must*** be spelled exactly as shown, but can be coded in any case. For example in coding, FORMDEF or FormDef or formdef are equivalent.
- A word in all italic, lowercase letters shows a parameter that you can replace. For example:

  file_name

  shows that you replace *file_name* with a file name that is retained in the library.

- A parameter above the line shows the default parameter. For example, **ioca** is the default parameter in the syntax diagram for the **gif2afp -a**.

Symbols:

Syntax diagrams use symbols to help you follow the flow of information they communicate:

- Statements begin with:

  ►►─

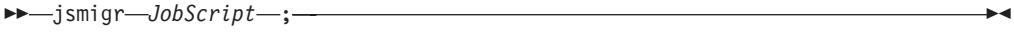
- and end with:

  ─►◄

- Statements longer than one line continue to a second line with:
  →
- Where they resume with:
  ►–

Required Parameters:

A parameter that you must include is displayed on the main path line. For example, the syntax diagram for the **jsmigr** command:



shows that you must follow **jsmigr** with its required parameter.

If there are two or more required parameters from which to choose, the parameters are shown with the first choice on the main path line and the other choices on branch lines under it. For example, the partial syntax diagram for the **gif2adfp** Command with the optional parameter **-cmp**:

shows that you must type the command in any of the following ways:

- **gif2afp -cmp none**
- **gif2afp -cmp mh**
- **gif2afp -cmp mmr**
- **gif2afp -cmp g3**
- **gif2afp -cmp g4**
- **gif2afp -cmp jpeg**

Optional Parameters:

Parameters that you can include with a command are displayed on the branch line below the main path line.

Branch lines can include branch lines of their own.

Repeating Parameters:

An arrow on a line above a parameter means that you can either repeat the parameter or enter more than one of the listed parameters.

The arrow above *FileName* means you can include one or more file name parameters with the transform.

Fragment Elements

A syntax diagram can contain a section that either has too many items or groups to fit in the diagram or is used more than once. This section can be presented as a “fragment”, and given a label that corresponds to the section within the main diagram.

Usage notes for Transform Manager

When you are using two interoperating Infoprint Transform Manager servers with Infoprint Manager, set the **maxium-concurrent-jobs** actual destination attribute to 8 to benefit from load balancing. This number needs to be increased as the number of interoperating servers increases.

When you are using Infoprint ProcessDirector and Infoprint Server for z/OS and you if also need to set an 8K record length, use a pragma with the PCL to AFP, PDF to AFP, and PostScript to AFP transforms. For example, specify **-pragma afpdsrecordlength=8000** on the command line for structured fields to have a maximum length of 8K.

Transform Manager messages

This section lists the Transform Manager messages.

Transform Manager transform IDs

This section lists the Transform Manager transform IDs. In most cases, administrators and job submitters do not need to know the transform IDs. However, Infoprint Server for z/OS lets job submitters request a particular transform by specifying the ID of the transform during job submission. For more information, see the Infoprint Server for z/OS documentation.

Datastream	Transform ID
AFP (See **Note** about AFP data.)	8040
JPEG, GIF, and TIFF	8000
PostScript	8011
PDF	8012
PCL	8033

Note: When the Infoprint Transform Manager: afp2pdf Transform i-listed PRPQ, Program Number 5799-TWL, is purchased, Transform Manager supports the transform of AFP data to PDF data. For information about the **afp2pdf** transform, see *Infoprint Transform Manager: afp2pdf Transform Installation and User’s Guide*, G550-0538.

Glossary

This glossary defines technical terms and abbreviations used in Infoprint Transform Manager documentation. If you do not find the term you are looking for, view *IBM Terminology* at:

`http://www.ibm.com/ibm/terminology`

Definitions reprinted from the *American National Dictionary for Information Processing Systems* are identified by the symbol (A) following the definition.

Definitions reprinted from a published section of the International Organization for Standardization (ISO) *Vocabulary—Information Processing* or from a published section of *Vocabulary—Office Machines* developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Committee (ISO/IEC JTC1/SC1) are identified by the symbol (I) following the definition. Because many ISO definitions are also reproduced in the *American National Dictionary for Information Processing Systems,* ISO definitions can also be identified by the symbol (A).

These cross-references are used in this glossary:

- **See.** Refers to multiple-word terms in which this term appears.
- **See also.** Refers to related terms that have similar, but not synonymous, meanings.

A

access control. In computer security, the methods and facilities used to ensure that a computer system and the data, system software, and application programs stored in it can be accessed only by authorized users in authorized ways.

Advanced Function Presentation (AFP). A set of licensed programs, together with user applications, that use the all-points-addressable concept to print data on a wide variety of printers or display data on a variety of display devices. AFP also includes creating, formatting, archiving, retrieving, viewing, and distributing information.

AFP. See *Advanced Function Presentation*.

AIX. Advanced Interactive Executive operating system, which is IBM's implementation of the UNIX® operating system.

C

client. In a distributed file system environment, a system that is dependent on a server to provide it with programs or access to programs.

client/server. In communications, the model of interaction in distributed data processing in which a program at one site sends a request to a program at another site and awaits a response. The requesting program is called a client; the answering program is called a server.

command. A request from a terminal or a specification in a batch-processing print file for the performance of an operation or the running of a particular program.

F

file. (1) A collection of related data that is stored and retrieved by an assigned name. (2) Linear data that can be opened, written, read, and closed. A file can also contain information about the file, such as authorization information. The name used to obtain a file includes the directories in the path to the file.

G

GIF. Graphics interchange format for images.

H

host name. (1) The network name for a print server or transform server. The host name is the fully-qualified domain name or a specific subname of a fully-qualified domain name. For example, if printserver1.boulder.ibm.com is the fully-qualified domain name, either printserver1.boulder.ibm.com or printserver1 can be the host name. (2) See also *IP address*.

I

Infoprint. A solution of software and hardware products that can supplement or replace the offset presses and copiers in print shops with high-quality, non-impact, black and white or process color printers. Infoprint takes documents from creation to the final product.

Infoprint Manager for AIX or Windows. A software component of IBM Infoprint. IBM Infoprint Manager for AIX or Windows is a print server that handles the scheduling, archiving, retrieving, and assembly of a print job and its related resource files. It also tracks the finishing and packaging of the printed product.

© Copyright IBM Corp. 2004, 2006

IP address. (1) In the Internet suite of protocols, the 32-bit address of a print server or transform server, expressed in dotted decimal notation. For example: 9.99.9.143. (2) See also *host name*.

J

JPEG. Joint Photographic Experts Group image format.

L

Linux. An open source implementation of the UNIX system.

M

mount. To make a file system accessible.

N

network. A collection of data processing products that are connected by communication lines for information exchange between locations.

P

PDF. See *Portable Document Format*.

persistent. Pertaining to data that is maintained across session boundaries, usually in nonvolatile storage such as a database system or a directory.

port. (1) A part of the system unit or remote controller to which cables for external devices (display stations, terminals, or printers) are attached. The port is an access point for data entry or exit. (2) A specific communications endpoint within a host. A port is identified by a port number.

Portable Document Format (PDF). A universal file format that preserves the fonts, images, graphics, and layout of any source document so it can be viewed and printed on a variety of platforms.

PostScript (PS). A page description language with graphics capabilities that was developed by Adobe Systems, Incorporated.

print server. A computer to which one or more printers are connected or the process that manages those printers.

processor. In a computer, a functional unit that interprets and executes instructions. (I) (A)

PS. See *PostScript*.

R

root. The user name for the system user with the most authority.

S

server. (1) On a network, the computer that contains the data or provides the facilities to be accessed by other computers on the network. (2) A program that handles protocol, queuing, routing, and other tasks necessary for data transfer between devices in a computer system.

spool. The system function of putting files or jobs into disk storage for later processing or printing.

T

trace. A record of the execution of a computer program. It exhibits the sequences in which the instructions were executed. (A)

transform server. The process that manages data and image transforms.

TIFF. Tagged image file format.

U

user interface. Any of the actions or items that let a user interact with and perform operations on a computer, including graphical displays, components such as buttons or dials, or operating system commands.

W

Web browser. A client program that initiates requests to a Web server and displays the information that the server returns.

Web server. The program that is capable of servicing Hypertext Transfer Protocol (HTTP) requests for display in a Web browser.

Windows. Pertaining to Windows 95, Windows 98, Windows NT®, Windows 2000, and later Microsoft® operating systems.

write access. The authority to record data in a storage device or on a data medium.

X

X Window System. A network-based graphics windowing system that provides the foundation on which a graphical user interface (GUI) can be built.

Index

Numerics

240-pel
  output for PDF 81
  output for PostScript 81
300-pel
  output for PDF 81
  output for PostScript 81
480-pel
  output for PDF 81
  output for PostScript 81
600-pel
  output for PDF 81
  output for PostScript 81

A

about information for Transform Manager 5
accessibility 9
Adobe PDF and PS transforms 2
AFP, transforms to 2

B

blade server requirements 9

C

changing passwords 17
component and print server interaction 2
components, Transform Manager 2
configuring print servers 18

D

data manager component 2
data transforms to AFP 2
description 86
  of transforms
    GIF to AFP 39
    JPEG to AFP 52
    PCL to AFP 64
    PDF to AFP 75
    PostScript to AFP 75
    TIFF to AFP 86
directories, file 26
disability 9

F

features, Transform Manager 1
file directories 26
flags
  of transforms
    PCL to AFP 65
    PDF to AFP 76
    PostScript to AFP 76

G

GIF data to AFP data 37
GIF to AFP
  description 39
  limitations 41
  options 41
  syntax 37
GIF transform 2

H

hardware requirements 9
height
  PostScript image 79
help for problems 25
help, online user interface 5
highlights, Transform Manager 1
how the Transform Manager works 2

I

IBM eServer BladeCenter
  installing Transform Manager 15, 16
image transforms to AFP 2
images
  resolution 81
Infoprint Manager
  authorizing Transform Manager user ID 18
  defining to Transform Manager 19
  messages 35
  troubleshooting 35
Infoprint ProcessDirector
  usage notes 35
Infoprint Server for z/OS
  usage notes 35
Infoprint Transform Manager for Linux
  components 2
  configuring print servers 18
  file directories 26
  help for problems 25
  highlights 1
  how it works 2
  installing 13, 14, 30
  interaction between components and print servers 2
  logging in to 16
  overview 1
  print servers supported 2
  system requirements 9
  transforms 2
  usage notes 2
information about Transform Manager 5
installing Transform Manager 13, 14, 30
installing Transform Manager on an IBM eServer
 BladeCenter 15, 16

© Copyright IBM Corp. 2004, 2006

J

JPEG to AFP
  description 52
  limitations 54
  options 54
  syntax 50
JPEG to AFP transform 50
JPEG transform 2

K

keyboard 9
keywords
  PDF to AFP transform
    height of image 79
    length of image 79
    maximum memory 80
    resolution 81
    selected pages 80
    server time out 81
    width of image 82
    X offset 83
    Y offset 83
  PostScript to AFP transform
    height of image 79
    length of image 79
    maximum memory 80
    resolution 81
    selected pages 80
    server time out 81
    width of image 82
    X offset 83
    Y offset 83

L

length
  PostScript image 79
length keyword
  PDF to AFP transform 79
  PostScript to AFP transform 79
limitations 87
  of transforms
    GIF to AFP 41
    JPEG to AFP 54
    PCL to AFP 65
    PDF to AFP 75
    PostScript to AFP 75
    TIFF to AFP 87
logging in to Transform Manager 16

M

margins of PDF images
  X offset 83
  Y offset 83
margins of PostScript images
  X offset 83
  Y offset 83
maximum memory keyword
  PDF to AFP transform 80
  PostScript to AFP transform 80
messages 100
  Infoprint Manager 35

O

online help, user interface 5
options
  of transforms
    GIF to AFP 41
    JPEG to AFP 54
  TIFF to AFP 87
overview, Transform Manager 1

P

passwords
  changing 17
PCL to AFP 63
  description 64
  flags 65
  limitations 65
  syntax 63
    of transforms 63
    PCL to AFP 63
PCL to AFP transform 63
PDF
  margins
    X offset 83
    Y offset 83
  resolution of output 81
  width of image 82
PDF AFP 74
PDF to AFP
  syntax 75
PDF to AFP transform
  keywords
    height of image 79
    length of image 79
    maximum memory 80
    resolution 81
    selected pages 80
    server time out 81
    width of image 82
    Y offset 83
PDF transform 2
pdf2fp transform
  keywords
    X offset 83
pel output
  for PostScript 81
  output for PDF 81
PostScript
  height of image 79
  length of image 79
  margins
    X offset 83
    Y offset 83
  resolution of output 81

PostScript *(continued)*
width of image 82
PostScript to AFP 74
PostScript to AFP transform
keywords
height of image 79
length of image 79
maximum memory 80
resolution 81
selected pages 80
server time out 81
width of image 82
X offset 83
Y offset 83
syntax 75
print server and component interaction 2
print servers
configuring 18
support for Transform Manager 2
problems, help for 25
PS transform 2

R

receiving transform requests 2
requirements, blade server 9
requirements, system 9
resolution keyword
PDF to AFP transform 81
PostScript to AFP transform 81

S

selected pages keyword
PDF to AFP transform 80
PostScript to AFP transform 80
server
time out keyword 81
shortcut keys 9
software requirements 9
syntax 83
of transforms
GIF to AFP data 37
JPEG to AFP 50
PDF to AFP 75
PostScript to AFP 75
TIFF to AFP 83
system requirements 9

T

TIFF data to AFP data 83
TIFF to AFP 83, 86, 87
options 87
TIFF transform 2
time outs
server 81
transform GIF data to AFP 37
transform IDs 100
transform JPEG data to AFP 50
Transform Manager
components 2
configuring print servers 18
file directories 26
help for problems 25
highlights 1
how it works 2
installing 13, 14, 30
installing on an IBM eServer BladeCenter 15, 16
interaction between components and print servers 2
logging in to 16
overview 1
print servers supported 2
system requirements 9
transforms 2
usage notes 2
transform PCL data to AFP 63
transform PDF data to AFP 74
transform PostScript data to AFP 74
transform requests
receiving 2
transform server component 2
transform TIFF data to AFP 83
transforms
GIF data to AFP 37
transforms to AFP 2
troubleshooting
Infoprint Manager 35

U

usage notes
Infoprint ProcessDirector 35
Infoprint Server for z/OS 35
Transform Manager 2
user interface
component 2
logging in to 16
online help 5

V

version information, Transform Manager 5

W

width
PDF image 82
PostScript image 82
width keyword
PDF to AFP transform 82
PostScript to AFP transform 82

X

X offset keyword on PostScript to AFP or PDF to AFP transform 83

Y

Y offset keyword on PostScript to AFP or PDF to AFP transform 83

Readers' Comments — We'd Like to Hear from You

Printing Systems Division
Infoprint Transform Manager for Linux
Version 1 Release 2

Publication No. S550-0391-04

We appreciate your comments about this publication. Please comment on specific errors or omissions, accuracy, organization, subject matter, or completeness of this book. The comments you send should pertain to only the information in this manual or product and the way in which the information is presented.

For technical questions and information about products and prices, please contact your IBM branch office, your IBM business partner, or your authorized remarketer.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you. IBM or any other organizations will only use the personal information that you supply to contact you about the issues that you state on this form.

Comments:

Thank you for your support.

Submit your comments using one of these channels:

- Send your comments to the address on the reverse side of this form.
- Send a fax to the following number: 1-800-524-1519
- Send your comments via e-mail to: printpub@us.ibm.com

If you would like a response from IBM, please fill in the following information:

Name	Address
Company or Organization	
Phone No.	E-mail address

Readers' Comments — We'd Like to Hear from You
S550-0391-04

IBM

Cut or Fold
Along Line

Fold and Tape | **Please do not staple** | Fold and Tape

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

IBM Corporation
Information Development
IBM Printing Systems Division
Department H7FE Building 004N
Boulder, CO 80301-9817

Fold and Tape | **Please do not staple** | Fold and Tape

S550-0391-04

Cut or Fold
Along Line

Program Number: 5639-P51

Printed in USA

S550-0391-04